MINUTES OF THE 119TH MEETING OF STATE LEVEL EXPERT APPRAISAL COMMITTEE (SEAC), JHARKHAND HELD ON 17TH, 18TH, 19TH, 20TH , 21ST AND 22ND DECEMBER, 2024.

The 119th meeting of State Level Expert Appraisal Committee (SEAC), Jharkhand was held on 17th, 18th, 19th, 20th, 21st and 22nd December, 2024 under the Chairmanship of Shri Ashok Kumar Singh, IFS (Retd.) in the Conference Room at SEAC, Ranchi.

The following members were present:

1.	Shri Ashok Kumar Singh, IFS (Retd.)	- Chairman
2.	Shri Niranjan Lal Agarwalla	- Member
3.	Dr. Raju Kumar	- Member
4.	Shri Ashok Kumar Dubey, IFS (Retd.)	- Member
5.	Dr. Ajay Govind Bhatt	- Member
6.	Shri Srikant Verma, IFS	- Member Secretary

SEIAA forwarded various projects to the SEAC for the technical appraisal after the last SEAC meeting held on 22nd, 23rd, 24th, 25th and 26th October, 2024. These projects have been put up for discussions. Besides, these Projects, wherein PP's were asked to provide requisite information / clarifications in the earlier meeting of SEAC, were also considered for appraisal. The Project Proponents have been asked to make technical presentation for the appraisal of their projects before the committee.

The following observations /recommendations were made during the presentation (Project - wise), as under :-

Day 1 : December 17th, 2024 [Tuesday]

A. **Matter referred by SEIAA**

i. **Clarification on the Member Secretary, JSPCB Ref. no. : B-2344, dated 19.11.2024 regarding the EC issued to the Stone Mines operating of the State of Jharkhand.**

The Member Secretary, JSPCB vide Ref. no. : B-2344, dated 19.11.2024 has requested Member Secretary, SEIAA to clarify the applicability of point C part 1 of standard condition of EC to small stone mines.

It is hereby clarified that these are standard conditions of EC prescribed by MoEF&CC, Govt. of India.

MoEF&CC, Govt. of India vide OM F. No. 22-34/2018-IA.III, dated 08.01.2019 does not provide any Authority to SEIAA / SEAC to modify any of the standard conditions.

Hence, any clarification in this regard should be directly obtained from MoEF&CC, Govt. of India.

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ii. **Clarification on letter no. Lall/SEIAA/Crusher/01, dated 02.12.2024 of M/s Lall Steels Pvt. Ltd. regarding requirement of Environmental Clearance for installation of "Slag Crusher" in the existing plant.**

The project authorities are advised to apply for amendment in EC for further consideration of the proposal.

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B. **Corrigendum EC for Stone Mine of M/s Vineet Enterprises (Shri Vineet Kejriwal) at Mouza : Bansjor, Thana : Bansjor, Distt. : Simdega, Jharkhand (2.217 Ha). (Proposal no. : SIA / JH/MIN/501201/2024)**

The PA's vide online application no. **SIA/JH /MIN /501201/2024** has requested for necessary correction in Environmental Clearance issued vide letter no. EC/SEIAA/2023-24/2986 /2023/331, dated 02.11.2023 with regard to **D.G. Set data, Fuel requirement** and **Explosive requirement**, the revised details is being given below :.

Corrigendum Application for: Proposed Capacity: 36120 Cum. / annum or 97524 TPA

Name of the consultant: Sathi Planners Private Limited, Ranchi, Jharkhand.

This project was taken up for corrigendum on 17.12.2024.

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Vineet Enterprises Stone Mine Project Type - Stone Mine	
2	Lessee:	:	Shri Vineet Kejriwal	
3	Lease Address	:	Mouza- Bansjor, Thana- Bansjor, District- Simdega, Jharkhand	
4	Lease Area	:	2.217 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Rs. 90 Lakhs	
7	EMP Budget	:	Capital Cost: Rs. 6.096 Lakhs	Recurring Cost: Rs. 1.64 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 5,27,620.5 cum	Tonnes: 14,24,575.36 tons
10	Mine Life	:	11.49 years say 12 Years.	
11	Man power	:	16 Person	
12	Water	:	16.6 KLD (Drinking: 0.24 KLD, Dust Suppression: 6.2 KLD,	

	Requirement		Plantation: 10.16 KLD)
13	Water Source	:	Water will be source from abandoned Mine through Water Tanker for Dust Suppression and permission from gram panchayat will be taken to fulfil water requirement for mining operation after the grant of Environment clearance.
14	DG Set / power	:	250 KVA D.G. Set
15	Crusher	:	Yes
16	Nearest Water Body	:	Koel River at 20.08 km South direction.
17	Nearest Habitation	:	Bansjor Village
18	Nearest Rail Station	:	Birmitrapur Railway Station - 4.15 km in South-West direction.
19	Nearest Air Port	:	Rourkela Airport 23 km South direction.
20	Nearest Forest	:	DFO Ranchi Division letter no.- 992 Dated- 12.11.2021 certified that the distance of reserve / protected forest is more than 250 m from proposed project site.
21	Road & Highways	:	Rourkela-Gumia-Ranchi Road – 2.5 Km in South-West direction.

CO-ORDINATES

Point Name	Longitude	Latitude
1	84° 44' 26.40" E	24° 26' 11.79" N
To		
2	84°44' 25.75" E	24° 26' 11.63" N

LAND DETAILS :

Khata No.	Plot No.
161	3480 & 3483
56	3482
15	3485
21	3487
164	3488, 3492 & 3493
69	3534

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by DMO, Simdega vide letter no. 310/Khanan, dated 01.11.2021.

2	CO	:	The CO, Bansjor vide letter no. 356 (ii), dated 18.10.2021 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Simdega vide memo no. 321/Khanan, dated 02.11.2021 certified that 01 other mining lease area (3.55 Acre) exists within 500 m radius from proposed project site and total area is 9.03 Acre.
4	DFO Wild Life	:	DFO, Wildlife Ranchi vide letter no. 992, dated 12.11.2021 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.
5	DFO Forest Distance	:	Division Forest Officer, Simdega Forest Division vide letter no. 2387, dated 03.10.2020 ertified that the distance of reserved / protected forest is more than 250 meter from proposed project site.
6	DSR	:	This project is mentioned in approved District Survey Report (DSR) of Simdega district (Sl. no. 05).
7	Gram Sabha	:	BDO, Bansjor vide letter no. 1853 (ii), dated 21.10.2021 informed that Gram Sabha conducted on 23.12.2020.
8	Mine Plan Approval	:	Approved by DMO, Simdega vide Letter No. 511/Mining, dated 05.10.2023.
9	Qualified Person	:	Mine plan has been prepared by Dr. Amarjeet Kumar Singh.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	Plan period: 1.29 Ha	Conceptual stage
3	Waste Generation	:	0 Cum	0 Cum
4	Stripping Ratio	:	10:07	
5	Working Days	:	300	
6	Benches: size	:	5 m x 5 m No. of benches - 3	
7	Topography of Mine	:	Area represents gently sloping land.	
8	Explosive Requirement	:	Explosive requirement 20 Kg/day.	
9	Diesel/Fuel requirement	:	1250 L/day (375 Kl/Year).	

Production Details

Year	Production of Stone / Year		Per Day Production		Removal of O.B.		Bench RL in meters
	Cum	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.	
1st	36120	97524	120.4	325.08	0	0	6
2nd	36120	97524	120.4	325.08	0	0	6
3rd	36120	97524	120.4	325.08	0	0	6
4th	36120	97524	120.4	325.08	0	0	6
5th	36120	97524	120.4	325.08	0	0	6
Total	**180600**	**487620**	**120.4 (max)**	**325.08 (max)**	**0**	**0**	**30**

Land Use pattern

SL	Pattern of Utilization	Existing Land Use (Acre)	Current Plan Period (Acre)	After Life of the Mine (Acre)	Area to be converted in the conceptual period.
1	Barren land	Nil	Nil	Nil	-
2	Quarry	Nil	3.20	3.20	Water body
3	Road	Nil	0.10	0.10	-
4	Mining Road converted into pond	Nil	Nil	Nil	-
5	Overburden dump	Nil	Nil	Nil	-
6	Crusher	Nil	0.20	0.20	-
7	Infrastructure	Nil	0.04	0.04	-
8	Approach road	Nil	Nil	Nil	-
9	Garland drain	Nil	0.10	0.10	-
10	Green belt	Nil	1.80	1.80	Plantation
11	Settling Tank	Nil	0.04	0.04	Water Body
12	Area which will remain untouched	Nil	Nil	Nil	-
	TOTAL	**5.48**	**5.48**	**5.48**	

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone/ Dumping/ Offices/ Store etc.		0.38 Ha	1825
2	Along Approach Road		0.31 Km	207 Trees both side approach road

The SEAC considered the same and recommends for issuance of corrigendum EC with corrected details as stated above. Other terms & conditions mentioned in the previous EC letter no. EC/SEIAA/2023-24/2986 /2023/331, dated 02.11.2023 shall remain the same.

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C. **District Magistrate –cum- Deputy Commissioner, Dhanbad or through authorized representative.**

i. **Final District Survey Report (DSR) for Minor Minerals other than Sand Mining or River Bed Mining (Stone), Distt. Dhanbad.**

This DSR was listed for consideration on 17.12.2024. On the request of DMO, Dhanbad vide e-mail dated 16.12.2024, this was taken up for consideration on 19.12.2024.

The Final DSR was submitted by Deputy Commissioner, Dhanbad. He was represented by Md. Ziyaul Ansari, ADM, Dhanbad and Shri Ritesh Raj Tigga, District Mining Officer, Dhanbad at the SEAC meeting on 19.12.2024.

During the meeting the ADM and DMO, Dhanbad presented the DSR before the Committee. The DSR was appraised in light of S.O. no. 3611 (E), dated 25.07.2018 of MoEF&CC, Govt. of India.

The final DSR had been placed in the public domain for 21 days from the 04.07.2024. As per the Sub Divisional Committee no comments / observations were obtained.

The DSR has been prepared as per the format provided in the above notification. The DSR submitted has been approved by the Sub-Divisional Committee. All the aspects of the notification dated 25.07.2018 are incorporated in the DSR and found to be satisfactory.

Hence, the final DSR for Minor Minerals other than Sand Mining or River Bed Mining (Stone) of District Dhanbad is recommended to SEIAA for approval.

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D. **Consideration of proposals :**

1. **Brick Clay Mining of M/s Subh Bricks (Prop. : Shri Lal Pancham Nath Sahdev), Village : Kundgara, Thana : Kuru, Thana no. : 10, Distt. : Lohardaga, Jharkhand (0.878 Ha).**

(Proposal no.: SIA/JH/MIN/ 506894 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 1500 Cum. / annum or 2550TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	M/s Subh Bricks	
2	Lessee / Applicant & Lessee Address	:	Proprietor- Shri Lal Pancham Nath Sahdev S/O Late Raghuvar Nath Sahdev , Village – Kundgara Po- Chanpi ,Jario P.s- Kuru, Dist.- Lohardaga, Jharkhand	
3	Lease Address	:	Village - Kundgara, Thana- Kuru, Thana No.-10, District- Lohardaga, Jharkhand	
4	Lease Area	:	0.878 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 17.3 Lakhs	Recurring Cost: Rs. NA
7	EMP Budget	:	Capital Cost: Rs - 8 Lakhs	Recurring Cost: Rs 1.95 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 14859	Tonnes : NA
10	Mine Life	:	9.5 years.	
11	Man power	:	15 Person	
12	Water Requirement	:	2.198 KLD (Drinking: 0.0.300 KLD, Dust Suppression: 1.338 KLD, Plantation: 0.560 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Auranga River – 12 km North West Direction	
17	Nearest Habitation	:	Kundgara Village – 0.750 Km in West direction	

18	Nearest Rail Station	:	Barkichanp Railway Station is at areal distance of 3 km East direction
19	Nearest Air Port	:	Birsa Munda International Airport is at areal distance of 70 km East direction.
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer . letter no.- 1755 Dated- 18/10/2024
21	Road & Highways	:	A well motorable road is connected to the mine site at a distance of 140 m West direction, this road connects to a village road, after 2 km it is connected to(Lohardaga-Chandwa), from the mine site.

CO-ORDINATES

Si.no	Latitude	Longitude
1	23°34'24.3"N	84°43'41 .0"E
4	23°34'24.6"N	84°43'39.16"E
13	23°34'30.4"N	84°43'38.7"E
14	23°34'30.8"N	84°43'39.4"E
15	23°34'30.6"N	84°43'40.3"E
19	23°34'28.5"N	84°43'40.4"E
25	23°34'25.0"N	84°43'41.2"E

LAND DETAILS

Khata no.	Plot no.
12	280

STATUTORY CLEARANCES

1	LOI / Lease docs	:	Land agreement made.
2	CO	:	The CO, Kuru vide letter no. 1061, dated 23.09.2023 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Lohardaga vide memo no. 777/M, dated 18.10.2024 certified that no other mining lease area exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Ranchi vide letter no. 823, dated 07.10.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Lohardaga Forest Division vide letter no. 1755, dated 18.10.2024 certified that the distance of reserved / protected forest is more than 250 meter from proposed project

			site.
6	DSR	:	This project is mentioned in approved District Survey Report (DSR) of Lohardaga District (Sl. no. 29, Page no. 28).
7	Gram Sabha	:	BDO, Kuru (Lohardaga) vide letter no. 1249/Sa., Dated 09.10.2023 informed that Gram Sabha conducted on 20.09.2023.
8	Mine Plan Approval	:	Approved by DMO, Lohardaga vide Memo No. 734/M, dated 05.10.2024
9	Qualified Person	:	Shri Surendra Sai was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	0.878 Ha	Life of Mine – 9.5year
3	Waste Generation	:	NA	
4	Stripping Ratio	:	NA	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	
7	Elevation of Mine	:	685 m	
8	Ground Level Elevation	:	683 m	
9	Ultimate Working Depth	:	2 m	
10	Water Table	:	NA	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	NA	
13	Diesel/Fuel requirement	:	NA	

Production Details

Year	Production of Sub Soil in cum	Production of Sub Soil in Ton	Production of Bricks Block in no.
1st	1500	2550	600000
2nd	1500	2550	600000
3rd	1500	2550	600000
4th	1500	2550	600000

5th	1500	2550	600000
Total	**7500**	**12,750**	**3000000**

Land Use

Existing Land Use pattern

SL	Pattern	Existing Land Use (Ha)
1	Quarring	0.000
2	Safety Barrier / Berm Area	0.000
3	Road	0.03
4	unutilized	0.8.75
	TOTAL	**0.878**

Land Use Pattern for Proposed Plan Period:

SL	Pattern	Proposed Land Use at End of Life of Mine (Ha)
1	Quarring	0.416
2	Safety Barrier / Berm Area	0.053
3	Road	0.00
4	unutilized	0.409
	TOTAL	**0.878**

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone		0.053 Ha	84
2	Along Approach Road		0.140 km	196
TOTAL				**280 Trees**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation.

Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

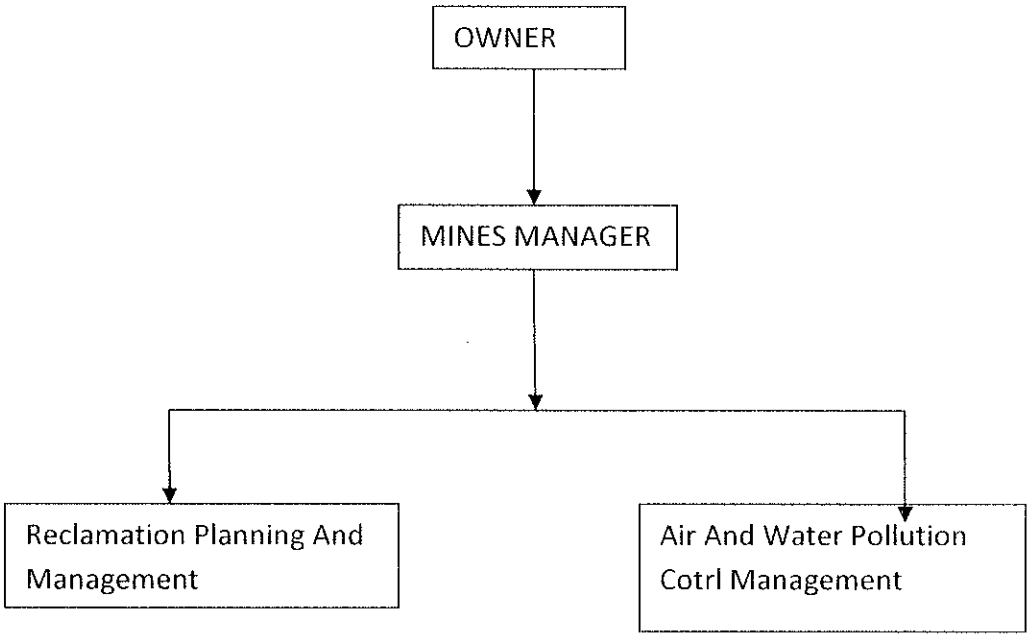
- **Budget for Environmental Management**

Sl. No.	ITEM DESCRIPTION	Capital Investment (INR in Lakhs)	Recurring Cost/Yr. (INR in Lakhs)
1	Water Sprinkling & Dust Suppression	5.80	1.30
2	Green Belt & Plantation	1.50	0.30
3	Pit leveling	0.70	0.10
TOTAL		**8**	**1.7**
4. Environmental Monitoring			
4. a	**Air Quality Monitoring** –twice a year	0.40	
4. b	**Water Quality Monitoring** twice a year	0.25	
4.c	**Noise level Monitoring** twice a year	0.25	
TOTAL			**0.90**
GRAND TOTAL		**8**	**1.95**

Environment Monitoring Programme :

SL. No.	Description	No. of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 stations	6 Monthly

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed

- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.

- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the

weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.

- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area,

utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.

j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Brick Clay Mining of M/s Subh Bricks (Prop. : Shri Lal Pancham Nath Sahdev), Village : Kundgara, Thana : Kuru, Thana no. : 10, Distt. : Lohardaga, Jharkhand (0.878 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I **along with following specific conditions :**

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

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2. **Dobo Brick Soil Mining of M/s P.K.S. Bricks (Prop. : Shri Prem Kumar Singh), Village : Dobo, P.S. : Chandil, Distt. : Saraikela-Kharsawan, Jharkhand (0.87 Ha).**

(Proposal no.: SIA/JH/MIN/ 506773 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity- 2,000 cum soil/Season or 50,00,000 Bricks/Season.

Project and Location Details:

Sl	Parameter		Details
1.	Project Name	:	DOBO BRICK SOIL MINING
2.	Lessee:	:	M/S P.K.S. BRICKS,

			Project Proponent: Shri Prem Kumar Singh	
3.	Lessee Address	:	House No.- 29, Hume Pipe Area, Sakchi, Dist.- East Singhbhum, Jharkhand	
4.	Lease Area	:	0.87 ha	Acres-2.16Acres
5.	Type of Land	:	Non-Forest – Raiyati Land	
6.	Project Cost	:	Rs. 16.25 Lakhs	
7.	EMP Budget	:	Capital: Rs.7.20 Lakh	Recurring: Rs. 1.53Lakh / year
8.	New or Expansion	:	New	
9.	Mineable Reserves	:	Cum: 13,934 cum	Tonnes: NA
10.	Mine Life	:	5 year	
11.	Man power	:	15	
12.	Water Requirement	:	2.67 KLD Drinking:0.28 KLD, Dust Suppression: 1.74 KLD, Plantation: 0.65 KLD	
13.	Water Source	:	From Nearby villages by tankers	
14.	DG Set /power	:	-	
15.	Crusher	:	No crusher	
16.	Nearest Water Body	:	Subarnarekha River: 2.07kmin the S direction	
17.	Nearest Habitation	:	Dobo village, Approx. 380m towards SW direction.	
18.	Nearest Rail Station	:	Jamshedpur Railway Station: 6.42 kmSE	
19.	Nearest Airport	:	Sonari Airport, at a distance of 4.48 km in S direction from mine site.	
20.	Nearest Forest	:	Not within 250 m (as per DFO certificate)	
21.	Road & Highways	:	KanderberaRoad – 0.62 kmNE	

CO-ORDINATES

1	**Latitude**		24°07'11.36"N	23°07'12.19"N
2	**Longitude**		84°54'41.63"E	84°54'41.10"E

LAND DETAILS

Khata no.	Plot no.
222	565 & 601

STATUTORY CLEARANCES

1	LOI / Lease docs	:	Land agreement made.
2	CO	:	The CO, Chandil vide letter no. 626, dated 14.08.2021 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Saraikela-Kharsawan vide letter no. 1190/M, dated 07.12.2024 certified that no other mining lease area exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	DFO, Dalma Elephant Project vide letter no. 685, dated 23.07.2020 certified that the proposed project site is outside Eco Sensitive Zone of Dalma Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Saraikela Forest Division, Saraikela vide letter no. 1726, dated 04.10.2020 certified that the distance of reserved / protected forest is more than 250 meter from proposed project site.
6	DSR	:	This project is mentioned in approved District Survey Report (DSR) of Saraikela-Kharsawan District (Sl. no. 04).
7	Gram Sabha	:	Gram Sabha conducted on 20.07.2014.
8	Mine Plan Approval	:	Approved by DMO, Saraikela-Kharsawan vide Letter No. 1030/Khanan, dated 08.10.2024.
9	Qualified Person	:	Shri A.K. Sinha vide letter dated 17.12.2024 affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Manual Mining method	
2	Quarry Area	:	0.87Ha	Life of Mine – 5 Years
3	Waste Generation	:	1185 cum	
4	Stripping Ratio	:	0: 0	
5	Working Days	:	200	
6	Benches: size & No	:	--	
7	Elevation of Mine	:	150 AMSL to 151 AMSL	
8	Ground Level Elevation	:	152 AMSL	
9	Ultimate Working Depth	:	2 mtr.	
10	Water Table	:	5-10 m below existing ground level	

11	Topography of Mine	:	Area represents flat topography
12	Explosive Requirement	:	--
13	Diesel/Fuel requirement	:	--

Production Details

Year	Production of Sub Soil in cum	Production of Bricks Block in no.
1st	2,000	10,00,000
2nd	2,000	10,00,000
3rd	2,000	10,00,000
4th	2,000	10,00,000
5th	2,000	10,00,000
Total	**10,000**	**50,00,000**

Land Use

SL	Pattern	Existing Land Use (Ha)	Proposed Land Use at End of Life of Mine (Ha)
1	Mining Activity	0.000	0.590
2	Safety Barrier / Berm Area	0.000	0.080
3	Rest House/top soil Storage	0.00	0.040
4	unutilized	0.87	0.161
	TOTAL	**0.87**	**0.87**

ENVIRONMENT MANAGEMENT

Green Belt Development

S.No.	LOCATION	Area/Length	No of Trees
1	Safety Zone	0.3ha	250

2	Haul /Approach Road	0.38 km	250
3	No. of Plants distributed in Anganwadi, Panchayat Bhawan or in schools	--	500

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Solid Waste Management

There is no generation of waste.

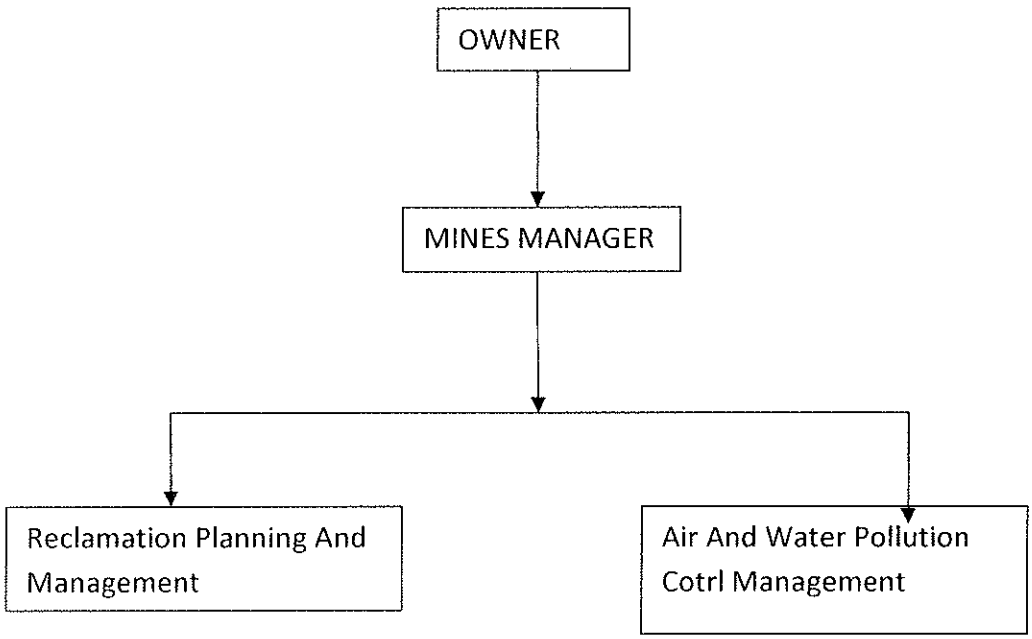
Environment Management Plan

Sl. No.	ITEM DESCRIPTION	Capital Investment (INR in Lakhs)	Recurring Cost/Yr. (INR in Lakhs)
1	Water Sprinkling & Dust Suppression	5.50	1.20
2	Green Belt & Plantation	1.20	0.25
3	Pit levelling	0.50	0.08
TOTAL		**7.2**	**1.53**
4. Environmental Monitoring			
4. a	**Air Quality Monitoring:**twice a year	0.40	
4. b	**Water Quality Monitoring:** twice a year	0.25	
4.c	**Noise level Monitoring:** twice a year	0.25	
TOTAL		**0.90**	
GRAND TOTAL		**6.70**	**2.23**

Environment Monitoring Programme :

Sl. No.	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.

- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people

become aware of the blasting activities being undertaken in the area and take appropriate precautions.

- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure

- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.

c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Dobo Brick Soil Mining of M/s P.K.S. Bricks (Prop. : Shri Prem Kumar Singh), Village : Dobo, P.S. : Chandil, Distt. : Saraikela-Kharsawan, Jharkhand (0.87 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I **along with following specific conditions :**

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

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3. **Barmasia Stone Mine of Md. Abdussalam Ansari, Village : Barmasia, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.50 Ha).**

(Proposal no.: SIA/JH/MIN/ 502283 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 82367 Cum. / annum or 22391 TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Baramasia Stone Mine	
2	Lessee:	:	Proprietor- Md Abdussalam Ansari	
3	Lessee Address	:	Vill – Kalakata, P.O. – Patjor, Thana – Raneswar, Dist – Dumka, Jharkhand.	
4	Lease Area	:	1.50 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 101.59 Lakhs	Recurring Cost: Rs. 9.47 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 6.66Lakhs	Recurring Cost: Rs. 5.69 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 261144 cum	Tonnes: 705088 tons
10	Mine Life	:	5 years.	
11	Man power	:	28 Person	
12	Water Requirement	:	4.136KLD (Drinking: 0.420 KLD, Dust Suppression: 0.440 KLD, Plantation: 3.276 KLD	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani River – 7.95 Km in North direction	
17	Nearest Habitation	:	HathbariVillage –0.430 Km in NE Direction	
18	Nearest Rail Station	:	Pinargaria Railway Station at aerial distance of 2.48 km in NE direction.	

19	Nearest Air Port	:	Deoghar Airport is at aerial distance of 98 km NW direction.
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer . letter no.- 1792 Dated- 05/08/23
21	Road & Highways	:	The distance of Approach Road is 0.10 km, after that this road connects to SH 114A (Dumka-Shikaripara) at a distance of 2km North Direction.

CO-ORDINATES

Point ID	Latitude	Longitude
1	24° 11' 23.70917163" N	087° 37' 47.18181449" E
2	24° 11' 24.47844461" N	087° 37' 47.07784303" E
3	24° 11' 24.36252685" N	087° 37' 47.60155111" E
4	24° 11' 24.57328640" N	087° 37' 47.63620826" E
5	24° 11' 25.40227303" N	087° 37' 47.52068442" E
6	24° 11' 25.63410800" N	087° 37' 48.03669091" E
7	24° 11' 25.55682969" N	087° 37' 48.46797992" E
8	24° 11' 25.38119711" N	087° 37' 49.42682780" E
9	24° 11' 25.16692528" N	087° 37' 49.94668508" E
10	24° 11' 24.96783681" N	087° 37' 50.34161980" E
11	24° 11' 24.88998757" N	087° 37' 50.22948744" E
12	24° 11' 24.18745584" N	087° 37' 49.89061751" E
13	24° 11' 24.03233669" N	087° 37' 50.19313594" E
14	24° 11' 23.62486766" N	087° 37' 50.87857739" E
15	24° 11' 23.64243099" N	087° 37' 51.07111713" E
16	24° 11' 23.51597501" N	087° 37' 51.32526958" E
17	24° 11' 23.83211489" N	087° 37' 51.55631726" E
18	24° 11' 24.48195727" N	087° 37' 51.85282845" E
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23	24° 11' 23.83914021" N	087° 37' 54.42130851" E
24	24° 11' 23.74078561" N	087° 37' 54.34429262" E
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27	24° 11' 23.28062630" N	087° 37' 55.42636593" E
28	24° 11' 23.25955029" N	087° 37' 55.68821996" E
29	24° 11' 22.94692269" N	087° 37' 56.32745188" E
30	24° 11' 22.62726954" N	087° 37' 57.37486804" E

31	24° 11' 23.01366344" N	087° 37' 57.59436334" E
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33	24° 11' 23.87777952" N	087° 37' 58.02180155" E
34	24° 11' 23.64594365" N	087° 37' 58.57246519" E
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45	24° 11' 22.46568654" N	087° 37' 53.23141295" E
46	24° 11' 22.60062870" N	087° 37' 52.57491543" E
47	24° 11' 22.59916815" N	087° 37' 51.63718395" E
48	24° 11' 23.21739827" N	087° 37' 50.06220892" E
49	24° 11' 23.56515234" N	087° 37' 48.86076098" E
50	24° 11' 23.80401357" N	087° 37' 47.74788131" E

LAND DETAILS

Khata no.	Plot no.
31 & 36	1886, 1891, 1892, 1893, 1894, 1944 & 1945

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 963/M, dated 16.08.2024.
2	CO	:	The CO, Shikaripara vide letter no. 1169/Ra., dated 22.09.2023 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 1021/खा./M, dated 05.07.2023 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 1872, dated

			27.03.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 1792, dated 05.08.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Page no. 180).
7	Gram Sabha	:	Gram Sabha conducted on 23.05.2023.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1182/M, dated 16.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	1.50 Ha	Life of Mine – 5 year
3	Waste Generation	:	8580 cum	
4	Stripping Ratio	:	02:05	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	
7	Elevation of Mine	:	87m–65m AMSL	
8	Ground Level Elevation	:	82 AMSL	
9	Ultimate Working Depth	:	55 m AMSL	
10	Water Table	:	Post Monsoon – 53.6m AMSL Pre Monsoon – 42.9m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	5.34 kg Slurry explosives/day	
13	Diesel/Fuel requirement	:	HSD –260liters / day (78 KL/year)	

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.
1st	20064	2.7	54173	67	181	8580	29
2nd	19468	2.7	52565	65	175	0	0
3rd	19468	2.7	52565	65	175	0	0
4th	11479	2.7	30993	38	103	0	0
5th	11887	2.7	32096	40	107	0	0
Total	**82367**	2.7	**222391**	**67 (Max.)**	**181 (Max.)**	**8580**	**29**

Land UsePattern

SL	Pattern of Utilization	Existing Land Use (Ha)	Proposed Land Use (Ha)	Conceptual Land Use (Ha)
1	Mining Activities	000	0.768	0.768
2	Offices/ Store etc.	000	0.000	0.000
3	Dumping	000	0.000	0.000
4	Garland drain	000	0.036	0.036
5	Settling Tank	000	0.012	0.012
6	Safety Zone	000	0.647	0.647
7	Stone Stock yards	000	0.000	0.000
8	Unutilized	1.50	0.036	0.036
	TOTAL	**1.50**	**1.50**	**1.50**

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone/Unutilised		0.683 Ha	1092
2	Along Approach Road		0.110 m	144
TOTAL				**1236**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1000 per Tanker)	--	3,00,000
2	Plantation 114 X 800 = Rs 91,600 (Gabion Plantation along approach road) 1236 X 400 = 4,94,400 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	5,86,000	66600
3	Fencing around the Lease boundary	80000	
4	Environmental Monitoring (One Day Monitoring) Ambient Air 24 hrs (3 point) -Rs.27,270 Ground Water (2 point) -Rs.12,420 Noise 24 hrs (3 point) -Rs.21,000 Soil (3 point) -Rs.40,920 Total -Rs. 1,01,610 (Per Season) At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220 Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022	--	2,03,220
Total		6,66,000	5,69,820

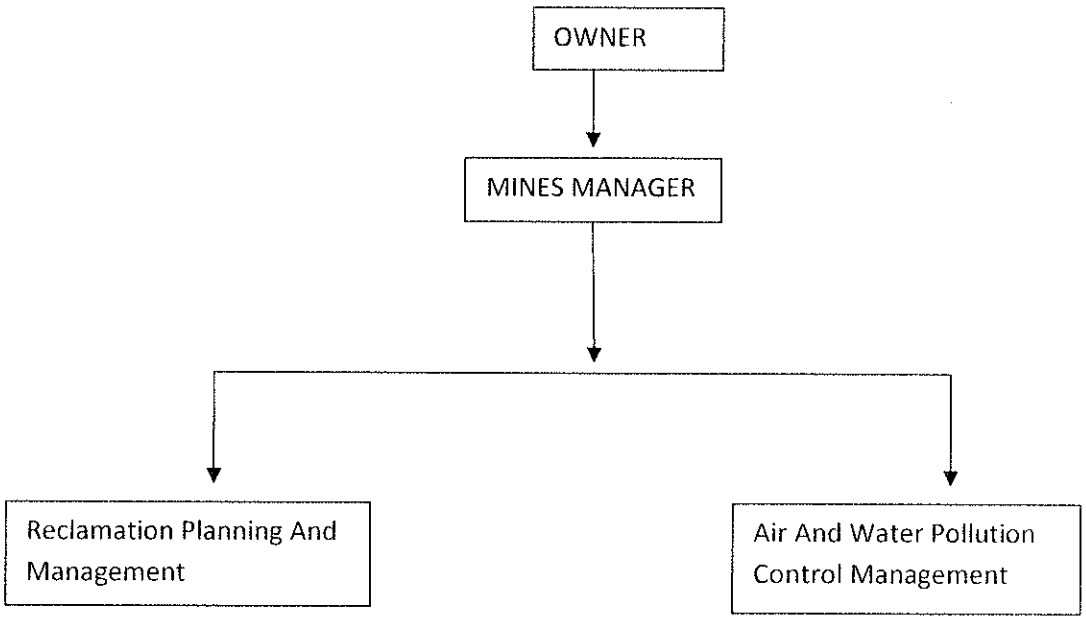
Environment Monitoring Programme

SL. No.	Description	No. of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 stations	6 Monthly

Solid Waste Management

During first year 8580 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.

- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident,	Remote	Minor	16

		Exposure to Dust			

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench

- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.

- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.

c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

During the consideration of the project on 25.10.2024 the following document / clarification were sought from Project Authority :

i. Project Authorities are required to submit revised cluster certificate from DMO, Dumka including all the plots of the project.

The project authority have submitted above required certificate.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Barmasia Stone Mine of Md. Abdussalam Ansari, Village : Barmasia, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.50 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I **along with following specific conditions :**

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a

time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC

****

4. **Chhatarchua Stone Mine of Shri Bijay Prasad Bhagat, Village : Chhatarchua, Thana : Gopikandar, Distt. : Dumka, Jharkhand (2.69 Ha).**

(Proposal no.: SIA/JH/MIN/ 506252 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 61,944 Cum. / annum or 1,67,248 TPA.

Project and Location Details:

Sl	Parameter		Details
1	Project Name	:	Chhatarchua Stone Mine
2	Lessee	:	Proponent- Shri Bijay Prasad Bhagat

	& Lessee Address		S/O Late Sudama Prasad Bhagat R/o Vill. Kharouni Bazar, PO- Karudih, Thana – Gopikandar, Dist – Dumka, State- Jharkhand.	
3	Lease Address	:	Village : Chhatarchua, Thana : Gopikandar, Distt. : Dumka, Jharkhand.	
4	Lease Area	:	2.69 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 131.29 Lakhs	Recurring Cost: Rs. 14.66 Lakhs
7	EMP Budget	:	Capital Cost: Rs 11.38Lakhs	Recurring Cost: Rs. 5.49 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	Cum : 3,03,162	Tones : 8,18,538
10	Mine Life	:	5 years.	
11	Man power	:	30 Person	
12	Water Requirement	:	7.605 KLD (Drinking: 0.450 KLD, Dust Suppression: 2.07 KLD, Plantation: 5.085 KLD	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Bansloi River – 8.4 km – N direction	
17	Nearest Habitation	:	Chhatarchua Village –0.550 Km	
18	Nearest Rail Station	:	Shikaripara Railway Station at area distance of 23.5 km in SE direction.	
19	Nearest Air Port	:	Deoghar Airport is at area distance of 80.5 km West direction.	
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer . letter no.- 2314 Dated- 04/11/2020	
21	Road & Highways	:	The distance of Approach Road is 357m, after that this road connects to SH (Dumka-Sahibganj).	

CO-ORDINATES

Point Name	Longitude	Latitude
1	087° 29' 59.11792973" E	24° 26' 31.53830786" N
2	087° 29' 59.23489354" E	24° 26' 31.56878649" N
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28	087° 30' 05.80322268" E	24° 26' 35.87862800" N
29	087° 30' 06.48472398" E	24° 26' 35.53380820" N
30	087° 30' 06.81373451" E	24° 26' 35.43947101" N

31	087° 30' 07.28556598" E	24° 26' 35.33436582" N
32	087° 30' 07.58392745" E	24° 26' 35.68516845" N
33	087° 30' 07.79288047" E	24° 26' 36.00538641" N
34	087° 30' 08.37284166" E	24° 26' 35.73008040" N
35	087° 30' 08.87087240" E	24° 26' 35.44554550" N
36	087° 30' 08.67565760" E	24° 26' 35.21251283" N
37	087° 30' 08.62924569" E	24° 26' 34.97519801" N
38	087° 30' 08.41312470" E	24° 26' 34.68168476" N
39	087° 30' 08.04750426" E	24° 26' 34.21647950" N
40	087° 30' 07.54293301" E	24° 26' 33.81169344" N
41	087° 30' 07.01445263" E	24° 26' 33.29014566" N
42	087° 30' 06.48352218" E	24° 26' 33.33992008" N
43	087° 30' 05.88330623" E	24° 26' 33.39489184" N
44	087° 30' 05.77672563" E	24° 26' 33.44050738" N
45	087° 30' 05.69882913" E	24° 26' 33.52417265" N
46	087° 30' 05.66126663" E	24° 26' 33.95570940" N
47	087° 30' 05.65556976" E	24° 26' 34.60103717" N
48	087° 30' 04.64420802" E	24° 26' 34.44253125" N
49	087° 30' 03.53484644" E	24° 26' 34.32510702" N
50	087° 30' 03.18581161" E	24° 26' 33.34706618" N
51	087° 30' 02.98043929" E	24° 26' 32.37328010" N
52	087° 30' 02.93360081" E	24° 26' 32.02716938" N
53	087° 30' 02.72014985" E	24° 26' 31.88501815" N
54	087° 30' 02.41505369" E	24° 26' 31.74732219" N
55	087° 30' 02.09429306" E	24° 26' 31.46608189" N
56	087° 30' 02.38184402" E	24° 26' 31.26834528" N
57	087° 30' 02.20873981" E	24° 26' 30.87534522" N

58	087° 30' 01.96562699" E	24° 26' 30.54975298" N
59	087° 30' 01.58370816" E	24° 26' 30.14136249" N
60	087° 30' 01.56703627" E	24° 26' 30.34448091" N
61	087° 30' 01.00427556" E	24° 26' 30.74877226" N
62	087° 30' 00.86044421" E	24° 26' 30.96400959" N
63	087° 30' 00.07649917" E	24° 26' 31.33746732" N
64	087° 29' 59.21792443" E	24° 26' 31.39322397" N

LAND DETAILS

Khata no.	Plot no.
03	905
05	799 & 800
06	802 & 803
12	906, 907 & 909
15	900, 901 & 902

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 849/M, dated 20.07.2024.
2	CO	:	The CO, Gopikandar vide letter no. 10/Ra., dated 09.01.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 102/M, dated 31.01.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 571, dated 23.03.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 2314, dated 04.11.2020 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.

6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 29, Page no. 185).
7	Gram Sabha	:	Gram Sabha conducted on 08.09.2020.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1252/M, dated 01.11.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	2.69 Ha	Life of Mine – 5 year
3	Waste Generation	:	44397 cum	
4	Stripping Ratio	:	07:10	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	
7	Elevation of Mine	:	170 m- 169 m AMSL	
8	Ground Level Elevation	:	40 m AMSL	
9	Ultimate Working Depth	:	132 m AMSL	
10	Water Table	:	Post Monsoon – 97 m AMSL Pre Monsoon –91m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	53.6 kg Slurry explosives/day	
13	Diesel/Fuel requirement	:	HSD –288 liters / day (86.4 KL/year)	

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.
1st	60413	2.7	163116	201	544	44397	148
2nd	60148	2.7	162400	200	541	0	0
3rd	61944	2.7	167248	206	557	0	0
4th	58971	2.7	159222	197	531	0	0
5th	61646	2.7	166443	205	555	0	0
Total	**303122**	2.7	**818430**	**206 (Max.)**	**557 (Max.)**	**44397**	**148**

Land UsePattern

SL	Pattern	Existing Land Use (Ha)	Proposed Land Use (Ha)	Conceptual Land Use (Ha)	Area to be converted in the conceptual period.
1	Mining Activities	0.00	1.413	1.413	Water body
2	Offices/ Store etc.	0.00	0.004	0.004	Greenbelt
3	Mining Road	0.00	0.081	0.081	Water body
4	Garland drain	0.00	0.049	0.049	--
5	Settling Tank	0.00	0.016	0.016	--
6	Dumping	0.00	0.085	0.085	Greenbelt
7	Crusher	0.00	0.373	0.373	
8	Safety Zone	0.00	0.612	0.612	Greenbelt
9	Unutilized	2.69	0.061	0.061	Greenbelt
	TOTAL	**2.69**	**2.69**	**2.69**	

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone		0.612+ 0.15 Ha	1219
2	Along Approach Road		0.357 m	476
TOTAL				**1695**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 800 per Tanker)	--	2,40,000
2	Plantation	10,58,800	105880

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
	476 X 800 = Rs 3,80,800 (Gabion Plantation along approach road) 1695 X 400 = 6,78,000 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)		
3	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270 • Ground Water (2 point) - Rs.12,420 • Noise 24 hrs (3 point) - Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610 (Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220** **Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022**	--	2,03,220
Total		**11,38,800**	**5,49,100**

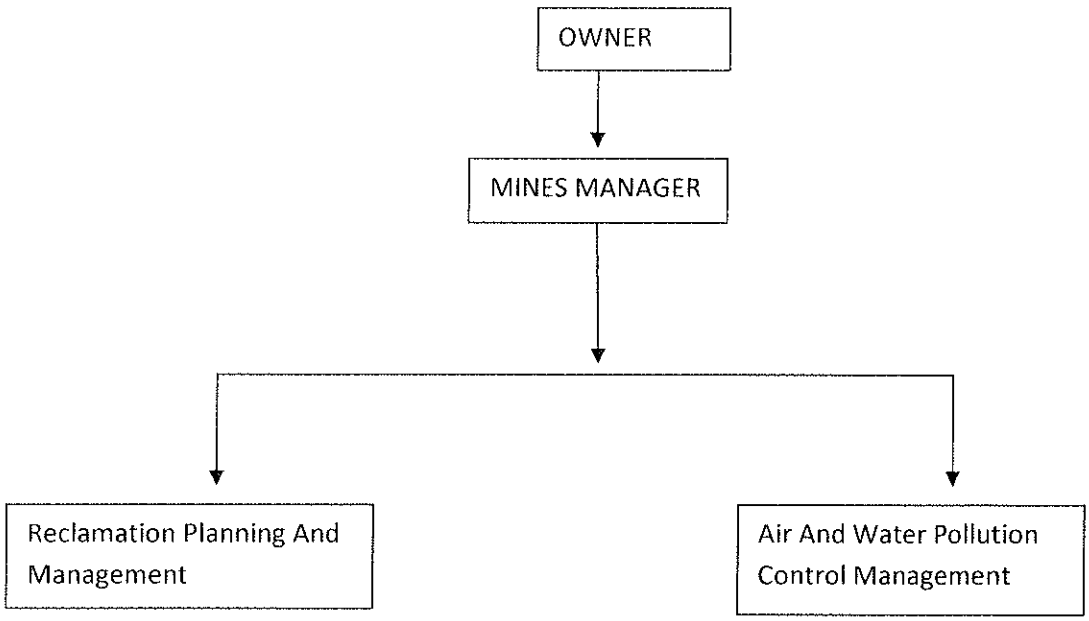
Environment Monitoring Programme

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 stations	6 Monthly

Solid Waste Management

During first year 44397 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed

- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.

- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the

weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.

- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area,

utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Chhatarchua Stone Mine of Shri Bijay Prasad Bhagat, Village : Chhatarchua, Thana : Gopikandar, Distt. : Dumka, Jharkhand (2.69 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I **along with following specific conditions :**

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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5. **Rambani Stone Mine of Shri Depesh Kumar, Village : Rambani, Thana : Gopikandar, Distt. : Dumka, Jharkhand (2.43 Ha).**

(Proposal no.: SIA/JH/MIN/ 505307 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 94582 Cum. / annum or 255371 TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Rambani Stone Mine	
2	Lessee:	:	Shri Depesh Kumar	
3	Lessee Address	:	S/O Late Dhananjay Kumar Das, R/O: Vill- Khutabandh Near Durga Mandir, P.O –Dumka, Thana - Dumka, Dist – Dumka, Jharkhand.	
4	Lease Area	:	2.43 Ha	
5	Type of Land	:	Non-Forest Raiyat Land	
6	Project Cost		Capital Cost: Rs. 131.29 Lakhs	Recurring Cost: Rs. 20 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 8.30 Lakhs	Recurring Cost: Rs 6.09 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 446278	Tonnes: 1204949.7
10	Mine Life	:	5 years.	
11	Man power	:	36 Person	
12	Water Requirement	:	6.255 KLD (Drinking: 0.540 KLD, Dust Suppression: 1.4 KLD, Plantation: 4.779 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani River flowing East to West at 8 km North Direction from the Mine site.	
17	Nearest Habitation	:	Rambani Village – 0.500 Km in West direction	
18	Nearest Rail Station	:	Pakdaha Harinsing Railway Station is 23 km (aerial distance) in South- East direction.	

19	Nearest Air Port	:	Deoghar Airport at 83.2 km West direction.
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer NOC. letter no.- 2313 Dated- 04 -11-20
21	Road & Highways	:	A well motorable road is connected to the Mine Site at a distance of 350 m SW direction. Road is at aerial distance of 3.60 Km West Direction

CO-ORDINATES

Point Name	Latitude	Longitude
1	24° 26' 19.69598816" N	087° 31' 39.10308014" E
2	24° 26' 19.80744076" N	087° 31' 38.80793009" E
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23	24° 26' 24.23078887" N	087° 31' 35.39419401" E
24	24° 26' 24.91829074" N	087° 31' 35.31097009" E
25	24° 26' 24.78079036" N	087° 31' 36.03465628" E
26	24° 26' 25.34526558" N	087° 31' 36.52676288" E
27	24° 26' 26.00743844" N	087° 31' 37.12018555" E
28	24° 26' 25.69987181" N	087° 31' 37.52544981" E
29	24° 26' 25.03091440" N	087° 31' 37.19232801" E
30	24° 26' 24.52772635" N	087° 31' 36.83613872" E
31	24° 26' 23.95103893" N	087° 31' 36.46298803" E
32	24° 26' 23.89158268" N	087° 31' 36.52606814" E
33	24° 26' 23.83526253" N	087° 31' 37.16633936" E
34	24° 26' 23.78572186" N	087° 31' 37.85834545" E
35	24° 26' 24.02091987" N	087° 31' 38.56393948" E
36	24° 26' 24.31401278" N	087° 31' 38.99453276" E
37	24° 26' 24.68309273" N	087° 31' 39.41427074" E
38	24° 26' 25.44908543" N	087° 31' 39.93781621" E
39	24° 26' 25.03498513" N	087° 31' 40.74291334" E
40	24° 26' 24.88182636" N	087° 31' 41.15859640" E
41	24° 26' 23.98496172" N	087° 31' 40.79026390" E
42	24° 26' 23.19873039" N	087° 31' 40.64891894" E
43	24° 26' 21.90142397" N	087° 31' 40.30146477" E
44	24° 26' 21.02938212" N	087° 31' 39.80935817" E
45	24° 26' 20.55174924" N	087° 31' 39.54159428" E

LAND DETAILS

Khata no.	Plot no.
12	369 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 787/M, dated 09.07.2024.
2	CO	:	The CO, Gopikandar vide letter no. 411/Ra., dated 24.11.2020 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 167/M, dated 10.02.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 797, dated 09.05.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 2313, dated 04.11.2020 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 22, Page no. 155).
7	Gram Sabha	:	Gram Sabha conducted on 27.09.2020.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1120/M, dated 01.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	2.43 Ha	Life of Mine – 5year
3	Waste Generation	:	51876 cum	
4	Stripping Ratio	:	54:13	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	

7	Elevation of Mine	:	185m AMSL
8	Ground Level Elevation	:	132m AMSL
9	Ultimate Working Depth	:	51 m
10	Water Table	:	Post Monsoon – 32 m AMSL Pre Monsoon – 37 m AMSL
11	Topography of Mine	:	Area represents gently sloping land.
12	Explosive Requirement	:	96 kg Nitro mix explosives
13	Diesel/Fuel requirement	:	HSD –329 liters / day (98.7 KL/year)

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.
1st	73052	2.7	197241	244	657	39824	133
2nd	90973	2.7	245627	303	819	12052	40
3rd	93338	2.7	252011	311	840	0	0
4th	94582	2.7	255371	315	851	0	0
5th	94333	2.7	254699	314	849	0	0
Total	**446278**	2.7	**1204950**	**315 (Max.)**	**851 (Max.)**	**51876**	**173**

Land Use

Existing Land Use pattern

SL	Pattern	Existing Land Use (Ha)
1	Mining Area	0.00
2	Office	0.00
3	Dumping	0.00
4	Road	0.00
5	Garland drain	0.00
6	Settling Pond	0.00
7	Green belt	0.00

8	Safety Zone	0.00
9	Stone Stock yards	2.42
10	Crusher	0.00
11	Unutilized	2.73
	TOTAL	**2.42**

Land Use Pattern for Proposed Plan Period:

SL	Pattern	Proposed Land Use (Ha)
1	Mining Area	1.57
2	Office	0.004
3	Dumping	0.12
4	Road	0.00
5	Garland drain	0.04
6	Settling Pond	0.008
7	Green Belt	0.06
8	Safety Zone	0.611
9	Stone Stock Yards	0.00
10	Crusher	0.00
11	Unutilized	0.00
	TOTAL	**2.413**

Land Use Pattern after Life of the Mine:

SL	Pattern	Conceptual Stage Land Use (Acres)	Area to be converted in the conceptual period.
1	Mining Area	3.90	Water body
2	Office	0.01	Plantation
3	Dumping	0.31	Plantation -
4	Road	0.00	Water body
5	Garland drain	0.10	-
6	Settling Pond	0.02	-
7	Green Belt	0.00	Green Belt

7	Safety Zone	1.51	Plantation
8	Stone Stock Yards	0.00	
9	Crusher	0.15	
8	Unutilized	0.00	
	TOTAL	**6.00**	-

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone/ green belt		0.801 Ha	1281
2	Along Approach Road		0.234 km	312
TOTAL				**1593 Trees**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl. No.	**Particulars**	**Capital Cost in Rs.**	**Recurring Cost in Rs. per year**
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1100 per Tanker)	--	3,30,000
2	Plantation: 312 X 800 = Rs 249600 (Gabion Plantation along approach road) 1281 X 400 = 390800 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	7,62,000	76200
3	Fencing	68080	

4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270 • Ground Water (2 point) - Rs.12,420 • Noise 24 hrs (3 point) - Rs.21,000 • Soil (3 point) - Rs.40,920 **Total - Rs. 1,01,610 (Per Season)** • **At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220** **Source: Central Pollution Control Board** **Notification, New Delhi, the 23rd February, 2022**	--	2,03,220
Total		**8,30,080**	**6,09,420**

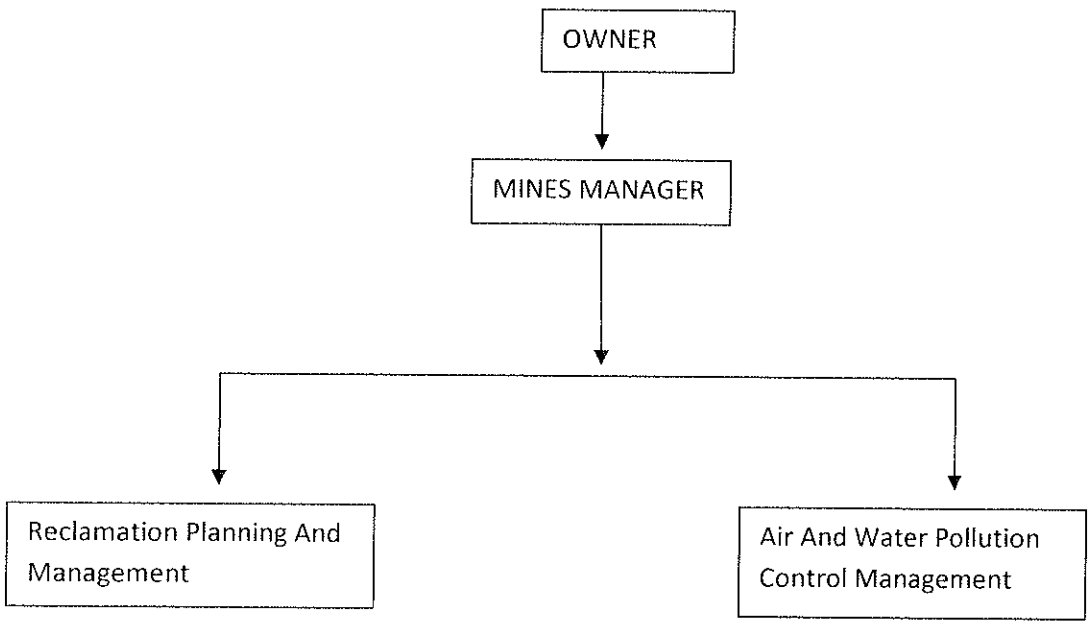
Environment Monitoring Programme:

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 stations	6 Monthly

Solid Waste Management

During first year 39824 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5

3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)

- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Rambani Stone Mine of Shri Depesh Kumar, Village : Rambani, Thana : Gopikandar, Distt. : Dumka, Jharkhand (2.43 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I **along with following specific conditions :**

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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6. **Chandangaria Stone Deposit of M/s Maa Shitla Stone Works Project, Village : Chandangaria, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.828 Ha).**

(Proposal no.: SIA/JH/MIN/ 502237 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 65067 Cum. / annum or 175682 TPA

Project and Location Details:

Sl	Parameter		Details
1	Project Name	:	Chandangaria Stone Mine

2	Lessee:	:	M/s Maa Shitla Stone Works Partners: 1. Shri Sanjay Kumar Yadav, 2. Islam Miyan, 3. Raju Ansari	
3	Lessee Address	:	M/s Maa Shitla Stone Works Partners: (1) Shri Sanjay Kumar Yadav, S/o Shri Dwarika Prasad Yadav, Vill – Rampur Karara, P.O. – Sakrigalighat, Thana – Muffasil Sahibganj, Dist – Sahibganj, Pin – 816115, (2) Islam Miyan, S/o Sohrab Miya, R/o Vill – Saharpur, P.O. – Benagariya, Thana – Shikaripara, Dist – Dumka 816118, (3) Raju Ansari, S/o Late Najrul Hussain, Vill+P.O – Sarasdangal, Thana – Shikaripara, Dist – Dumka, Pin - 816118	
4	Lease Area	:	2.828 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 137.89 Lakhs	Recurring Cost: Rs. 30.25 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 19.032 Lakhs	Recurring Cost: Rs. 6.835 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 288775 cum	Tonnes: 779693 tons
10	Mine Life	:	5 years.	
11	Man power	:	35 Person	
12	Water Requirement	:	10.89 KLD (Drinking: 0.52 KLD, Dust Suppression: 3.16 KLD, Plantation: 7.21 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani river at 8 km North direction.	
17	Nearest Habitation	:	Chandangaria Village – 1.95 Km in SE Direction	
18	Nearest Rail Station	:	Pinargaria Railway Station at aerial distance of 7.30 km in NE direction.	
19	Nearest Air Port	:	Deoghar Airport is at aerial distance of 93 km NW direction.	
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer Dumka. letter no.- 409 Dated- 11/02/2023	
21	Road & Highways	:	The distance of Approach Road is 0.79 km, after that this road connects to SH 114A (Dumka-Shikaripara).	

CO-ORDINATES

Point ID	Latitude	Longitude
P1	24° 10' 45.42864547" N	087° 34' 40.28223229" E
P2	24° 10' 45.84206331" N	087° 34' 39.33890686" E
P3	24° 10' 46.34548183" N	087° 34' 39.62251905" E
P4	24° 10' 46.78417575" N	087° 34' 39.90305113" E
P5	24° 10' 47.05979869" N	087° 34' 40.06643831" E
P6	24° 10' 47.21166111" N	087° 34' 39.67492866" E
P7	24° 10' 47.31009621" N	087° 34' 39.34507166" E
P8	24° 10' 47.43856566" N	087° 34' 38.69128027" E
P9	24° 10' 47.47635683" N	087° 34' 38.35390204" E
P10	24° 10' 47.92630475" N	087° 34' 38.29865817" E
P11	24° 10' 48.46986855" N	087° 34' 38.21579312" E
P12	24° 10' 48.96664942" N	087° 34' 38.14871273" E
P13	24° 10' 48.94683159" N	087° 34' 37.49171405" E
P14	24° 10' 48.94684606" N	087° 34' 36.92941892" E
P15	24° 10' 48.97563146" N	087° 34' 36.30793615" E
P16	24° 10' 49.00442534" N	087° 34' 35.88177465" E
P17	24° 10' 49.04761952" N	087° 34' 35.42207099" E
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P22	24° 10' 49.83117452" N	087° 34' 34.31480370" E
P23	24° 10' 49.82973668" N	087° 34' 34.53179219" E
P24	24° 10' 50.10436887" N	087° 34' 35.05231589" E
P25	24° 10' 50.46335520" N	087° 34' 35.48358074" E
P26	24° 10' 50.73403390" N	087° 34' 36.06052716" E
P27	24° 10' 51.09522296" N	087° 34' 36.81173203" E
P28	24° 10' 51.40715134" N	087° 34' 37.28812967" E
P29	24° 10' 51.63863771" N	087° 34' 38.01387925" E
P30	24° 10' 51.72744962" N	087° 34' 38.62813971" E
P31	24° 10' 51.67422045" N	087° 34' 39.25564050" E
P32	24° 10' 51.58772270" N	087° 34' 40.13346289" E
P33	24° 10' 51.48765762" N	087° 34' 40.81599362" E
P34	24° 10' 51.41320586" N	087° 34' 41.38894368" E
P35	24° 10' 51.32322309" N	087° 34' 41.99316215" E
P36	24° 10' 51.31760086" N	087° 34' 42.41241917" E
P37	24° 10' 51.41039719" N	087° 34' 43.07212865" E
P38	24° 10' 51.53412552" N	087° 34' 43.65168908" E
P39	24° 10' 51.23043968" N	087° 34' 43.84056956" E
P40	24° 10' 50.68692604" N	087° 34' 43.96998634" E
P41	24° 10' 49.60558488" N	087° 34' 43.97291251" E
P42	24° 10' 49.11708331" N	087° 34' 44.06008109" E
P43	24° 10' 49.35720015" N	087° 34' 43.59804823" E
P44	24° 10' 49.79096743" N	087° 34' 43.35142684" E
P45	24° 10' 49.99076854" N	087° 34' 43.07718555" E

P46	24° 10' 50.17253668" N	087° 34' 42.81675275" E
P47	24° 10' 49.97275965" N	087° 34' 42.39059518" E
P48	24° 10' 49.72076139" N	087° 34' 41.93089350" E
P49	24° 10' 49.54977605" N	087° 34' 41.70597223" E
P50	24° 10' 49.12321139" N	087° 34' 41.82829798" E
P51	24° 10' 48.61566168" N	087° 34' 42.02559549" E
P52	24° 10' 48.24310356" N	087° 34' 42.17356589" E
P53	24° 10' 47.57392629" N	087° 34' 42.70470522" E
P54	24° 10' 47.00705182" N	087° 34' 43.29235678" E
P55	24° 10' 46.56762532" N	087° 34' 43.29100597" E
P56	24° 10' 46.41016342" N	087° 34' 43.27251081" E
P57	24° 10' 46.35953720" N	087° 34' 43.23859794" E
P58	24° 10' 46.50856933" N	087° 34' 42.89949669" E
P59	24° 10' 46.47003660" N	087° 34' 42.80608785" E
P60	24° 10' 46.05018334" N	087° 34' 42.50490078" E
P61	24° 10' 45.42808956" N	087° 34' 42.14397179" E
P62	24° 10' 44.98353040" N	087° 34' 41.87565029" E
P63	24° 10' 44.78552636" N	087° 34' 41.72767558" E
P64	24° 10' 45.07170494" N	087° 34' 41.24232660" E
P65	24° 10' 45.34169875" N	087° 34' 40.78065055" E

LAND DETAILS

Khata No.	Plot No.
15	940, 941 (P)
21	939
13	938
57	942
33	933

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 786/M, dated 09.07.2024.
2	CO	:	The CO, Shikaripara vide letter no.105/Ra., dated 02.02.2023 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 210/M, dated 10.02.2023 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 237, dated 03.02.2023 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.

5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 409, dated 11.02.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 21, Page no. 153).
7	Gram Sabha	:	Gram Sabha conducted on 02.01.2022.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1108/M, dated 01.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	2.828 Ha	Life of Mine – 5 year
3	Waste Generation	:	60625 cum	
4	Stripping Ratio	:	03:02	
5	Working Days	:	300	
6	Benches: size	:	3 m x 3 m,	
7	Elevation of Mine	:	259m – 243m AMSL	
8	Ground Level Elevation	:	243 AMSL	
9	Ultimate Working Depth	:	40 m AMSL	
10	Water Table	:	Post Monsoon – 57 m AMSL Pre Monsoon – 52 m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	64 kg Slurry explosives/day	
13	Diesel/Fuel requirement	:	HSD – 485 liters / day (145.5 KL/year)	

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.
1st	37639	2.7	101625	125	339	52375	175

2nd	57067	2.7	154082	190	514	8250	28
3rd	65067	2.7	175682	217	586	0	0
4th	64338	2.7	173712	214	579	0	0
5th	64551	2.7	174287	215	581	0	0
Total	**288662**	**2.7**	**779388**	**217 (Max.)**	**586 (Max.)**	**60625**	**175**

Land Use pattern

Sl. No.	Pattern of Utilization	Present/Existing land use pattern in (acres)	Proposed Land use for current plan period (acres)	Land to be used in remaining period of the life of the mine. (acres)	Land used at the conceptual stage i.e. end of mine life in (acres)	Area to be converted in the conceptual period.
1	Mining Activities	0.00	4.70	0.00	4.70	Water body
2	Offices/ Store etc.	0.00	0.02	0.00	0.02	Plantation
3	Dumping	0.00	0.35	0.00	0.35	Plantation -
4	Garland drain	0.00	0.10	0.00	0.10	-
5	Settling Tank	0.00	0.02	0.00	0.03	-
6	Safety Zone	0.00	1.72	0.00	1.72	Plantation
7	Stone Stock yards	0.00	0.00	0.00	0.00	
8	Unutilized	6.99	0.07	6.99	0.07	
Total		**6.99**	**6.99**	**6.99**	**6.99**	**-**

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone/Dumping/Office		0.845 Ha	1352
2	Along Approach Road		790m	1052
TOTAL				**2,404**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development,

Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**
-

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1000 per Tanker)	--	3,00,000
2	Plantation 1052 X 800 = Rs 8,41,600 (Gabion Plantation along approach road) 2404 X 400 = 9,61,600 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	18,03,200	1,80,320
3	Fencing	100,000	-
3	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270 • Ground Water (2 point) - Rs.12,420 • Noise 24 hrs (3 point) - Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610 (Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2** **= Rs. 2,03,220** Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022	--	2,03,220
Total		**19,03,200**	**6,83,540**

Environment Monitoring Programme

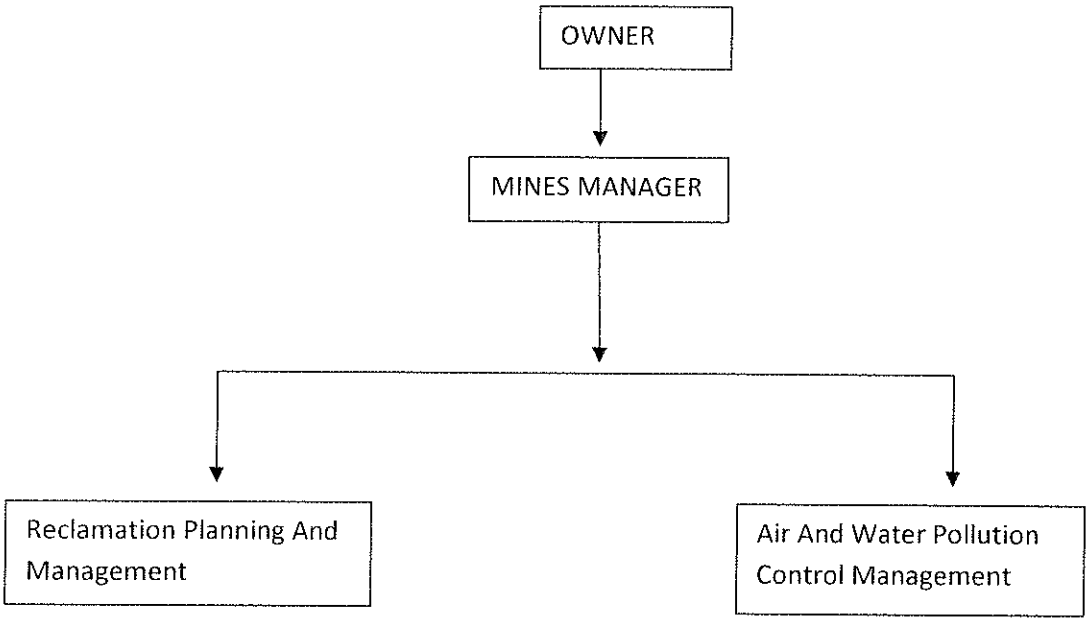
SL. No.	Description	No. of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly

4.	Soil	3 Station	6 Monthly

Solid Waste Management

95045 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.

- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the

drill hole continuously and discharges the same in a dust collector specially provided for the purpose.

- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.

h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Chandangaria Stone Deposit of M/s Maa Shitla Stone Works Project, Village : Chandangaria, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.828 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I **along with following specific conditions :**

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.
III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.
IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.
V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.
VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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7. **Chandangaria Stone Mine of Shri Rana Rakesh Pratap Singh, Village : Chandangaria, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.22 Ha).**

(Proposal no.: SIA/JH/MIN/ 506122 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 32677 Cum. / annum or 88228 TPA.

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Chandangaria Stone Mine	
2	Lessee & Lessee Address	:	Proponent- Shri Rana Rakesh Pratap Singh S/o Shri Rana Ranjay Pratap Singh Vill- Grant State, PO+PS+Dist- Dumka	
3	Lease Address	:	Village- Chandangaria, Thana- Shikaripara, Thana No- 11, District- Dumka, Jharkhand	
4	Lease Area	:	2.22Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 101.58 Lakhs	Recurring Cost: Rs. 7.37 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 9.548Lakhs	Recurring Cost: Rs. 6.187 Lakhs
8	New or Expansion	:	New	
9	Mineable	:	cum.: 156936 cum	Tonnes: 423728 tons

	Reserves			
	Maximum Annual Production		388185 Cum	1048100 Tons
10	Mine Life	:	5 years.	
11	Man power	:	17 Person	
12	Water Requirement	:	7.036 KLD (Drinking: 0.255 KLD, Dust Suppression: 1.504 KLD, Plantation: 5.307 KLD	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani River – 8 Km in North direction	
17	Nearest Habitation	:	Chandangaria Village –1 Km in SE Direction	
18	Nearest Rail Station	:	Pinargaria Railway Station at aerial distance of 6.68 km in N direction.	
19	Nearest Air Port	:	Deoghar Airport is at aerial distance of 93.38 km NW direction.	
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer . letter no.- 1897 Dated- 031/05/23	
21	Road & Highways	:	The distance of Approach Road is 276 m, after that this road connects to village road. The village road continues for 5 km and after this the road connects to NH 114A (Dumka – Rampurhat Road)	

CO-ORDINATES

Point Name	Longitude	Latitude
1	087° 34' 44.07197686" E	24° 10' 45.41355024" N
2	087° 34' 44.30475379" E	24° 10' 45.57323270" N
3	087° 34' 44.52508719" E	24° 10' 45.35285575" N
4	087° 34' 44.89379551" E	24° 10' 45.15877267" N
5	087° 34' 45.50198708" E	24° 10' 44.97022300" N
6	087° 34' 45.66922809" E	24° 10' 44.98475336" N
7	087° 34' 45.87097916" E	24° 10' 45.17606977" N
8	087° 34' 46.05287462" E	24° 10' 45.23890575" N
9	087° 34' 46.26455349" E	24° 10' 44.81880057" N
10	087° 34' 46.47623235" E	24° 10' 44.39869500" N

11	087° 34' 46.69523844" E	24° 10' 44.00274192" N
12	087° 34' 46.91424453" E	24° 10' 43.60678850" N
13	087° 34' 47.20409577" E	24° 10' 43.24254435" N
14	087° 34' 47.49394701" E	24° 10' 42.87829991" N
15	087° 34' 47.76687506" E	24° 10' 42.45426847" N
16	087° 34' 48.03980310" E	24° 10' 42.03023663" N
17	087° 34' 48.61862639" E	24° 10' 41.75327398" N
18	087° 34' 49.19744969" E	24° 10' 41.47631116" N
19	087° 34' 49.81619966" E	24° 10' 41.21152023" N
20	087° 34' 50.43494964" E	24° 10' 40.94672915" N
21	087° 34' 50.29644356" E	24° 10' 40.36777276" N
22	087° 34' 50.67444193" E	24° 10' 40.06135184" N
23	087° 34' 51.01584367" E	24° 10' 39.78459747" N
24	087° 34' 50.89521777" E	24° 10' 39.42036543" N
25	087° 34' 50.86803447" E	24° 10' 39.17082756" N
26	087° 34' 50.87483030" E	24° 10' 38.62990341" N
27	087° 34' 51.23331008" E	24° 10' 38.58030574" N
28	087° 34' 51.21801948" E	24° 10' 38.33541721" N
29	087° 34' 51.17044870" E	24° 10' 38.08122897" N
30	087° 34' 51.35563494" E	24° 10' 37.97118401" N
31	087° 34' 51.62862787" E	24° 10' 37.97768677" N
32	087° 34' 51.71241577" E	24° 10' 37.89523748" N
33	087° 34' 52.10487468" E	24° 10' 37.80689150" N
34	087° 34' 52.45316073" E	24° 10' 37.59765095" N
35	087° 34' 52.77936035" E	24° 10' 37.39925982" N
36	087° 34' 52.90572022" E	24° 10' 37.06079351" N
37	087° 34' 52.74909769" E	24° 10' 36.86947372" N

38	087° 34' 53.03314195" E	24° 10' 36.70479333" N
39	087° 34' 53.26674845" E	24° 10' 36.52073871" N
40	087° 34' 53.23223839" E	24° 10' 36.45292909" N
41	087° 34' 53.86329449" E	24° 10' 36.09576599" N
42	087° 34' 53.72058216" E	24° 10' 35.89427434" N
43	087° 34' 53.52350322" E	24° 10' 35.93457267" N
44	087° 34' 53.28395038" E	24° 10' 35.93457267" N
45	087° 34' 52.91527685" E	24° 10' 36.05546766" N
46	087° 34' 52.79634991" E	24° 10' 35.88652466" N
47	087° 34' 52.30025466" E	24° 10' 36.03686844" N
48	087° 34' 51.91459157" E	24° 10' 36.13296443" N
49	087° 34' 51.81201708" E	24° 10' 36.05818005" N
50	087° 34' 51.65273993" E	24° 10' 35.83779854" N
51	087° 34' 51.43506115" E	24° 10' 35.77725415" N
52	087° 34' 51.12181607" E	24° 10' 36.02427521" N
53	087° 34' 50.69176775" E	24° 10' 36.11630263" N
54	087° 34' 50.44754278" E	24° 10' 36.11145908" N
55	087° 34' 50.35728572" E	24° 10' 36.19379939" N
56	087° 34' 50.05200451" E	24° 10' 36.16958165" N
57	087° 34' 49.61930157" E	24° 10' 36.33184046" N
58	087° 34' 49.02997609" E	24° 10' 36.53284757" N
59	087° 34' 48.92113670" E	24° 10' 36.52558225" N
60	087° 34' 48.79106035" E	24° 10' 36.59339186" N
61	087° 34' 48.17518868" E	24° 10' 36.91790912" N
62	087° 34' 48.46719680" E	24° 10' 37.31992272" N
63	087° 34' 48.67956634" E	24° 10' 37.82849364" N
64	087° 34' 48.68487558" E	24° 10' 38.30800286" N

65	087° 34' 48.63709244" E	24° 10' 38.75118517" N
66	087° 34' 48.58665467" E	24° 10' 39.13624486" N
67	087° 34' 48.48046990" E	24° 10' 39.61333095" N
68	087° 34' 48.40083132" E	24° 10' 39.80464960" N
69	087° 34' 48.16191559" E	24° 10' 39.90878503" N
70	087° 34' 47.88583518" E	24° 10' 39.92573731" N
71	087° 34' 47.32040128" E	24° 10' 39.95964186" N
72	087° 34' 47.02042930" E	24° 10' 40.10494707" N
73	087° 34' 46.67267417" E	24° 10' 40.29868726" N
74	087° 34' 46.19152443" E	24° 10' 40.61169859" N
75	087° 34' 46.57312595" E	24° 10' 40.95225710" N
76	087° 34' 46.46295925" E	24° 10' 41.61369668" N
77	087° 34' 46.04352941" E	24° 10' 41.76868834" N
78	087° 34' 46.09131255" E	24° 10' 41.87524507" N
79	087° 34' 46.12847722" E	24° 10' 42.19975860" N
80	087° 34' 45.82054139" E	24° 10' 42.17796292" N
81	087° 34' 45.53384251" E	24° 10' 42.18038466" N
82	087° 34' 45.58428027" E	24° 10' 42.33779787" N
83	087° 34' 45.59224413" E	24° 10' 42.53638060" N
84	087° 34' 45.83115987" E	24° 10' 42.64778063" N
85	087° 34' 46.00901936" E	24° 10' 42.96260667" N
86	087° 34' 45.82850525" E	24° 10' 43.08611528" N
87	087° 34' 45.69842890" E	24° 10' 43.21446734" N
88	087° 34' 45.58428027" E	24° 10' 43.47601482" N
89	087° 34' 45.03211947" E	24° 10' 43.77388815" N
90	087° 34' 44.65781815" E	24° 10' 43.99184412" N
91	087° 34' 44.57552495" E	24° 10' 44.22190865" N

92	087° 34' 44.30475378" E	24° 10' 44.35026039" N
93	087° 34' 44.19325978" E	24° 10' 44.35026039" N
94	087° 34' 44.36315541" E	24° 10' 44.59727684" N
95	087° 34' 44.26227988" E	24° 10' 44.91936672" N

LAND DETAILS

Khata no.	Plot no.
16	964 (P) & 966 (P)
33	947 (P), 948 (P) & 949 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 977/M, dated 20.08.2024.
2	CO	:	The CO, Shikaripara vide letter no. 659/Ra., dated 16.05.2023 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 922/M, dated 03.06.2023 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 1072, dated 06.06.2023 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 1897, dated 31.05.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 56, Page no. 160).
7	Gram Sabha	:	Gram Sabha conducted on 06.04.2023.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1256/M, dated 04.11.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and

			affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	2.22 Ha	Life of Mine – 5 year
3	Waste Generation	:	25626 cum	
4	Stripping Ratio	:	21:25	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	
7	Elevation of Mine	:	120m AMSL	
8	Ground Level Elevation	:	26 m AMSL	
9	Ultimate Working Depth	:	89 m AMSL	
10	Water Table	:	Post Monsoon – 57 m AMSL Pre Monsoon – 52 m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	29.16 kg Slurry explosives/day	
13	Diesel/Fuel requirement	:	HSD –246liters / day (73.8 KL/year)	

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum recoverable 95%	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.)
1st	32199	2.7	86938	107	290	15397	51
2nd	32676	2.7	88226	109	294	0	0
3rd	31991	2.7	86376	107	288	0	0
4th	27390	2.7	73954	91	247	10229	34
5th	32677	2.7	88228	109	294	0	0
Total	**156934**		**423723**	**109(max)**	**294(max)**	**25626**	**85**

Land UsePattern

Si. No.	Pattern of Utilization	Present/Existing land use pattern in (Ha.)	Proposed Land use for current plan period (Ha.)	Land used at the conceptual stage i.e. end of mine life in (Ha.)	Area to be converted in the conceptual period.
1	Mining Activities	0.000	1.279	1.279	Water body
2	Offices/ Store etc.	0.000	0.000	0.000	Plantation
3	Dumping	0.000	0.110	0.110	Plantation -
4	Mining Road	0.000	0.000	0.000	Water body
5	Garland drain	0.000	0.050	0.050	-
6	Settling Tank	0.000	0.015	0.015	-
7	Green belt	0.000	0.000	0.097	Green Belt
8	Safety Zone	0.000	0.669	0.669	Plantation
9	Stone Stock yards	0.000	0.000	0.000	
10	Unutilized	2.220	0.097	0.000	
11	Crusher	0.000	0.000	0.000	
Total		2.220	2.220	2.220	-

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone+Dumping+Green Belt		0.667+0.11+0.207 Ha	1401
2	Along Approach Road		0.276 m	368
TOTAL				**1769**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1100 per Tanker)	--	3,30,000
2	Plantation: 368 X 800 = Rs 294400 (Gabion Plantation along approach road) 1401 X 400 = Rs 5,60,400(Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	8,54,800	85480
3	Fencing around the Lease boundary	1,00,000	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) -Rs.27,270 • Ground Water (2 point) -Rs.12,420 • Noise 24 hrs (3 point) -Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610 (Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220** **Source: Central Pollution Control Board** **Notification, New Delhi, the 23rd February, 2022**	--	2,03,220
Total		**9,54,800**	**6,18,700**

Environment Monitoring Programme

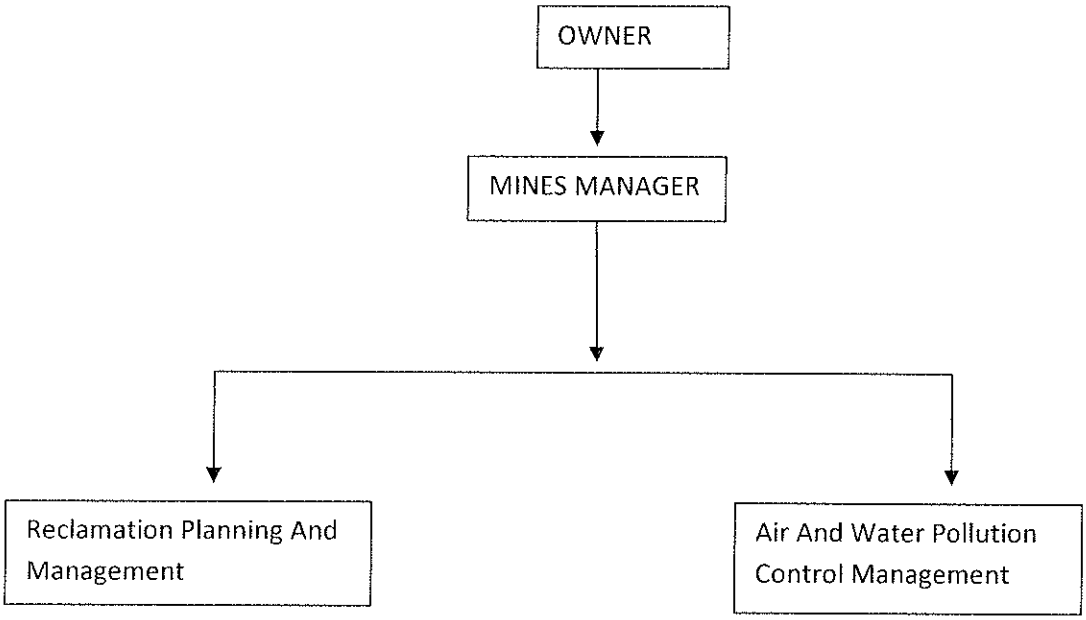
SL. No.	Description	No. Of Monitoring Stations	Duration

1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 stations	6 Monthly

Solid Waste Management

During first year 25626 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers

- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.

g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Chandangaria Stone Mine of Shri Rana Rakesh Pratap Singh, Village : Chandangaria, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.22 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I **along with following specific conditions :**

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.
III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.
IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.
V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.
VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged

photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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8. **Kendpahari Stone Mine of Shri Shiljeet Kumar Singh, Village : Kendpahari, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.21 Ha).**

(Proposal no.: SIA/JH/MIN/ 505361 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 29626 Cum. / annum or 79990 TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Kendpahari Stone Mine	
2	Lessee:	:	Proprietor- Shri Shiljeet Kumar Singh	
3	Lessee Address	:	S/o Late Surendra Singh R/o Vill. Khijuriya, Shastrinagar Bandarjori, PO- Dumka, Thana-Dumka Mufsil, Dist.- Dumka, State- Jharkhnad	
4	Lease Area	:	1.21 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 101.59 Lakhs	Recurring Cost: Rs. 6.75 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 5.128 Lakhs	Recurring Cost: Rs. 5.445 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 1,44,367 cum	Tonnes: 3,89,790.2 tons
10	Mine Life	:	5 years.	
11	Man power	:	25 Person	

12	Water Requirement	:	5.57 KLD (Drinking: 0.37 KLD, Dust Suppression: 2.74 KLD, Plantation: 2.46 KLD)
13	Water Source	:	From Nearby villages by tankers
14	DG Set / power	:	60 KVA D.G. Set proposed
15	Crusher	:	No crusher
16	Nearest Water Body	:	Brahmani river at 4.16 km North direction.
17	Nearest Habitation	:	Kendpahari Village – 0.690 Km in SE Direction.
18	Nearest Rail Station	:	Pinargaria Railway Station is at aerial distance of 2.7 km South East direction.
19	Nearest Air Port	:	Deoghar Airport is at aerial distance of 96 km NW direction.
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer, Dumka. letter no.- 2080 Dated- 24/09/2021
21	Road & Highways	:	The distance of Approach Road is 161m, after that this road connects to village road.

CO-ORDINATES

Point Name	Latitude	Longitude
1	24° 13' 13.39036380" N	087° 37' 08.95329153" E
2	24° 13' 13.67325601" N	087° 37' 08.29714509" E
3	24° 13' 13.84162894" N	087° 37' 07.57455387" E
4	24° 13' 14.08861340" N	087° 37' 07.11409059" E
5	24° 13' 14.13685951" N	087° 37' 07.12242287" E
6	24° 13' 14.59288379" N	087° 37' 06.39974307" E
7	24° 13' 14.29298933" N	087° 37' 06.17151619" E
8	24° 13' 14.58802147" N	087° 37' 05.76797836" E
9	24° 13' 14.73162706" N	087° 37' 05.15717828" E
10	24° 13' 15.48468412" N	087° 37' 05.36734382" E
11	24° 13' 16.21092262" N	087° 37' 05.77986250" E
12	24° 13' 16.82614234" N	087° 37' 06.09465503" E
13	24° 13' 17.62332012" N	087° 37' 06.41437673" E
14	24° 13' 18.32352842" N	087° 37' 06.83487262" E
15	24° 13' 18.46447072" N	087° 37' 06.88009960" E

16	24° 13' 17.91421915" N	087° 37' 07.94250042" E
17	24° 13' 17.27745278" N	087° 37' 08.36058661" E
18	24° 13' 16.78164470" N	087° 37' 08.81984949" E
19	24° 13' 16.47159521" N	087° 37' 09.16184431" E
20	24° 13' 16.52464695" N	087° 37' 09.20854532" E
21	24° 13' 16.21695106" N	087° 37' 09.68477225" E
22	24° 13' 15.87751281" N	087° 37' 10.31646462" E
23	24° 13' 15.08486666" N	087° 37' 09.80506063" E
24	24° 13' 14.20847682" N	087° 37' 09.34019963" E

LAND DETAILS

Khata no.	Plot no.
28	917, 918, 919 & 920
43	921 & 925

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 818/M, dated 13.07.2024.
2	CO	:	The CO, Shikaripara vide letter no. 853/Ra., dated 07.08.2021 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 949/M, dated 12.08.2024 certified that 01 other mining lease area (5.36 Acre) exists within 500 meters radius from proposed project site and total area is 8.37 Acre.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 1982, dated 16.11.2021 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 2080, dated 24.09.2021 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.

6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 37, Page no. 156).
7	Gram Sabha	:	Gram Sabha conducted respectively on 07.03.2021 & 10.04.2021.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1071/M, dated 19.09.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	1.21 Ha	Life of Mine – 5 year
3	Waste Generation	:	24057 cum	
4	Stripping Ratio	:	04:05	
5	Working Days	:	300	
6	Benches: size	:	3 m x 3 m,	
7	Elevation of Mine	:	86m – 82m AMSL	
8	Ground Level Elevation	:	82 AMSL	
9	Ultimate Working Depth	:	39 m AMSL	
10	Water Table	:	Post Monsoon – 25 m AMSL Pre Monsoon – 20 m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	31.6 kg Slurry explosives/day	
13	Diesel/Fuel requirement	:	HSD – 253 liters / day (75.9KL/year)	

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.
1st	28873.4	2.7	77958	96	260	24057	80
2nd	29155.5	2.7	78720	97	262	0	0
3rd	28215	2.7	76181	94	254	0	0
4th	29626	2.7	79990	99	267	0	0
5th	28497	2.7	76942	95	256	0	0
Total	**144367**	**2.7**	**389790**	**99 (Max.)**	**267 (Max.)**	**24057**	**80**

Land Use pattern

SL	Pattern	Existing Land Use (Ha)	Proposed Land Use (Ha)	Conceptual Land Use (Ha)	Area to be converted in the conceptual period.
1	Mining Activities	0.00	0.74	0.74	Water body
2	Offices/ Store etc.	0.00	0.00	0.00	Plantation
3	Dumping	0.00	0.09	0.09	Plantation -
4	Mining Road	0.00	0.05	0.05	Water body
5	Garland drain	0.00	0.02	0.02	-
6	Settling Tank	0.00	0.00	0.00	-
7	Green belt	0.00	0.00	0.00	Green Belt
8	Safety Zone	0.00	0.29	0.29	Plantation
9	Stone Stock yards	0.00	0.00	0.00	
10	Unutilized	1.21	0.02	0.02	
	TOTAL	**1.21**	**1.21**	**1.21**	

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone/Dumping		0.38 Ha	608
2	Along Approach Road		0.161m	212
TOTAL				**820**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1000 per Tanker)	--	3,00,000
2	Plantation 212 X 800 = Rs 1,69,600 (Gabion Plantation	4,12,800	41,280

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
	along approach road) 608 X 400 = 2,43,200 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)		
3	Fencing	100,000	-
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270 • Ground Water (2 point) - Rs.12,420 • Noise 24 hrs (3 point) - Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610 (Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2** **= Rs. 2,03,220** Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022	--	2,03,220
Total		**5,12,800**	**5,44,500**

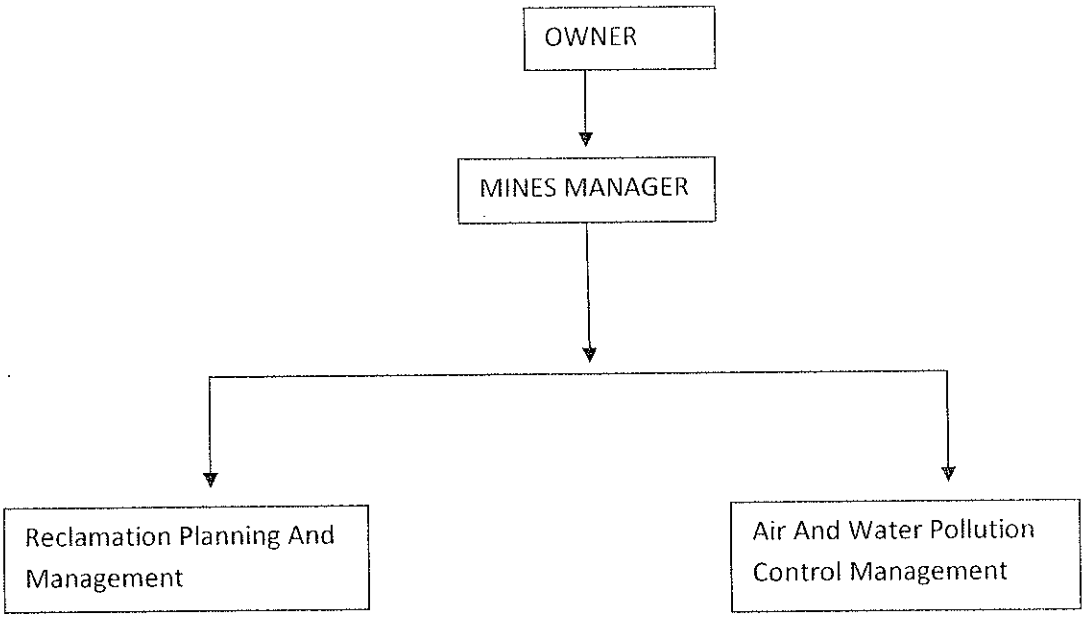
Environment Monitoring Programme

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 Station	6 Monthly

Solid Waste Management

24057 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)

- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge

of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Kendpahari Stone Mine of Shri Shiljeet Kumar Singh, Village : Kendpahari, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.21 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I **along with following specific conditions :**

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

9. **Chitragaria Stone Mine of M/s Bol Bam Stone Product (Prop. : Shri Chandradev Goswami), Village : Chitragaria, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.165 Ha).**

(Proposal no.: SIA/JH/MIN/ 505359 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 28823 Cum. / annum or 77822 TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Chitragaria Stone Mine	
2	Lessee: & Lessee Address	:	M/S Bol Bam Stone Product Proprietor- Shri Chandradev Goswami S/O Bhataran Goswami R/O Vill.: Parbatpur, P.O: Palasi, Thana: Shikaripara, Dist.: Dumka, Jharkhand	
3	Lease Address	:	Village- Chitragaria, Thana– Shikaripara,Thana No- 16 ,District-Dumka, Jharkhand	
4	Lease Area	:	1.165 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 99.385 Lakhs	Recurring Cost: Rs. 6.721 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 8.01 Lakhs	Recurring Cost: Rs 6.092 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 143061	Tonnes : 386264
	Maximum AnnualProduction		28823 Cum	77822 Tons
10	Mine Life	:	5 years.	
11	Man power	:	24 Person	
12	Water Requirement	:	7.057 KLD (Drinking: 0.360 KLD, Dust Suppression: 1.984 KLD, Plantation: 4.713 KLD	
13	Water Source	:	From Near by villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water	:	Brahmani River – 8 km North direction	

	Body		
17	Nearest Habitation	:	Chitragaria Village – 1 Km
18	Nearest Rail Station	:	Pinargaria Junction is at aerial distance of 3.20 km NE direction.
19	Nearest Air Port	:	Deoghar Airport is at aerial distance of 96 km NW direction
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer . letter no.- 1124 Dated- 18-04-2023
21	Road & Highways	:	A well motorable road is connected to the Mine Site at a distance of 496 Km E direction. Road is at aerial distance of 2 Km North - East Direction.

CO-ORDINATES

Point Name	Latitude	Longitude
1	24° 11' 51.84648053" N	087° 36' 50.22578557" E
2	24° 11' 51.95076145" N	087° 36' 50.42686440" E
3	24° 11' 52.01714388" N	087° 36' 50.65453223" E
4	24° 11' 51.94549980" N	087° 36' 51.04841160" E
5	24° 11' 52.06617392" N	087° 36' 51.54034261" E
6	24° 11' 52.31279549" N	087° 36' 51.50069166" E
7	24° 11' 52.51590477" N	087° 36' 51.40642747" E
8	24° 11' 52.76903913" N	087° 36' 51.50802367" E
9	24° 11' 52.72719723" N	087° 36' 52.14176275" E
10	24° 11' 52.24877357" N	087° 36' 52.16758177" E
11	24° 11' 52.00628061" N	087° 36' 52.52943030" E
12	24° 11' 51.82809274" N	087° 36' 52.54777758" E
13	24° 11' 51.94286694" N	087° 36' 52.98063315" E
14	24° 11' 51.81259319" N	087° 36' 53.21182006" E
15	24° 11' 51.87906543" N	087° 36' 53.61516956" E
16	24° 11' 51.84467855" N	087° 36' 53.85156045" E

17	24° 11' 51.92988692" N	087° 36' 54.18657053" E
18	24° 11' 51.99513534" N	087° 36' 54.51467182" E
19	24° 11' 51.90698877" N	087° 36' 54.60808810" E
20	24° 11' 51.90050473" N	087° 36' 54.88558194" E
21	24° 11' 51.96808377" N	087° 36' 55.05630823" E
22	24° 11' 51.98867605" N	087° 36' 55.30295825" E
23	24° 11' 51.93670359" N	087° 36' 55.60121501" E
24	24° 11' 51.40100715" N	087° 36' 55.52338959" E
25	24° 11' 50.70170963" N	087° 36' 55.37521206" E
26	24° 11' 50.22440822" N	087° 36' 55.21605981" E
27	24° 11' 50.12875498" N	087° 36' 55.11429075" E
28	24° 11' 49.77234118" N	087° 36' 55.02896259" E
29	24° 11' 49.39330896" N	087° 36' 54.83568754" E
30	24° 11' 49.35012316" N	087° 36' 54.66009439" E
31	24° 11' 49.32267772" N	087° 36' 54.51169076" E
32	24° 11' 49.44314538" N	087° 36' 54.23466319" E
33	24° 11' 49.45002316" N	087° 36' 53.81290545" E
34	24° 11' 49.39713493" N	087° 36' 53.61640915" E
35	24° 11' 49.40266351" N	087° 36' 53.45294485" E
36	24° 11' 48.99347291" N	087° 36' 53.40148730" E
37	24° 11' 49.09865900" N	087° 36' 52.92338071" E
38	24° 11' 49.11774387" N	087° 36' 51.96709705" E
39	24° 11' 49.10365280" N	087° 36' 51.55087955" E
40	24° 11' 49.22999699" N	087° 36' 51.56698581" E

41	24° 11' 49.23778381" N	087° 36' 51.37089330" E
42	24° 11' 49.10732468" N	087° 36' 51.00650731" E
43	24° 11' 49.36295125" N	087° 36' 50.77135600" E
44	24° 11' 50.03603734" N	087° 36' 50.67348703" E
45	24° 11' 50.22114588" N	087° 36' 50.58973451" E
46	24° 11' 50.40001629" N	087° 36' 50.61049257" E
47	24° 11' 50.57541591" N	087° 36' 50.56409014" E
48	24° 11' 50.98045092" N	087° 36' 50.61901729" E
49	24° 11' 50.98045092" N	087° 36' 50.30977722" E
50	24° 11' 51.32167513" N	087° 36' 50.33717589" E
51	24° 11' 51.59199158" N	087° 36' 50.35650340" E

LAND DETAILS

Khata no.	Plot no.
10, 12, 35 & 45	412, 413 414, 415, 417, 418, 419, 420, 433, 434, 435, 436, 437 & 438

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 846/M, dated 20.07.2024.
2	CO	:	The CO, Shikaripara vide letter no. 619/Ra., dated 08.05.2023 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 164/M, dated 09.02.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 825, dated 26.04.2023 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.

5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 1124, dated 18.04.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 30, Page no. 155).
7	Gram Sabha	:	Gram Sabha conducted on 31.12.2023.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1223/M, dated 04.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	1.165 Ha	Life of Mine – 5 year
3	Waste Generation	:	15466 cum	
4	Stripping Ratio	:	0.5(01:02)	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	
7	Elevation of Mine	:	91m – 89m AMSL	
8	Ground Level Elevation	:	32 m AMSL	
9	Ultimate Working Depth	:	59 m AMSL	
10	Water Table	:	Post Monsoon – 25 m AMSL Pre Monsoon – 20 m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	32.1 kg Slurry explosives/day	
13	Diesel/Fuel requirement	:	HSD –246 liters / day (73.8KL/year)	

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.		Removal of Top Soil	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum	Cum	Production per day cum
1st	28823	2.7	76114	94	254	15466	52	4639.8	15.5

2nd	28682	2.7	77442	96	258	0	0	0	0
3rd	28823	2.7	77822	96	259	0	0	0	0
4th	28542	2.7	77063	95	257	0	0	0	0
5th	28823	2.7	77822	96	259	0	0	0	0
Total	**143061**	2.7	**386263**	**96 (max)**	**259 (max)**	**15466**	**52**	**4639.8**	15.5 Max.

Land Use

Existing Land Use pattern

SL	Pattern	Existing Land Use (Ha)
1	Mining Area	0.00
2	Office	0.00
3	Dumping	0.00
4	Road	0.00
5	Garland drain	0.00
6	Settling Pond	0.00
7	Green belt	0.00
8	Safety Zone	0.00
8	Stone Stock Yards	0.00
8	G – M Land	0.00
9	Unutilized	1.165
	TOTAL	**1.165**

Land Use Pattern for Proposed Plan Period:

SL	Pattern	Proposed Land Use (Acres)
1	Mining Area	0.66 (including haul road)
2	Office	0.408
3	Dumping	0.033
4	Road	0.036
5	Garland drain	0.024
6	Settling Pond	0.408
7	Safety Zone	0.00
8	G-M Land	0.335
9	Unutilized	0.064
	TOTAL	**1.165**

Land Use Pattern after Life of the Mine:

SL	Pattern	Conceptual Stage Land Use (Acres)	Area to be converted in the conceptual period.
1	Mining Area	0.66 (including haul road)	Water body
2	Office	0.408	Green Belt
3	Dumping	0.033	
4	Road	0.036	Water body
5	Garland drain	0.024	-
6	Settling Pond	0.408	
7	Safety Zone	0.064	
8	G-M Land	0.335	Greenbelt
9	Unutilized	0.00	Greenbelt
	TOTAL	**1.165**	

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone		0.335_+0.441 Ha	1241
2	Along Approach Road		0.496 km	330
TOTAL				**1571**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Budget for Environmental Management

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1100 per Tanker)	--	3,30,000

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
2	Plantation: 330 X 800 = Rs 2,64,000 (Gabion Plantation along approach road) 1241 X 400 = 4,96,400 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	7,60,400	76040
3	**Fencing around the Lease boundary**	40,640	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) -Rs.27,270 • Ground Water (2 point) -Rs.12,420 • Noise 24 hrs (3 point) -Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610** **(Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2** **= Rs. 2,03,220** **Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022**	--	2,03,220
Total		**8,01,040**	**6,09,260**

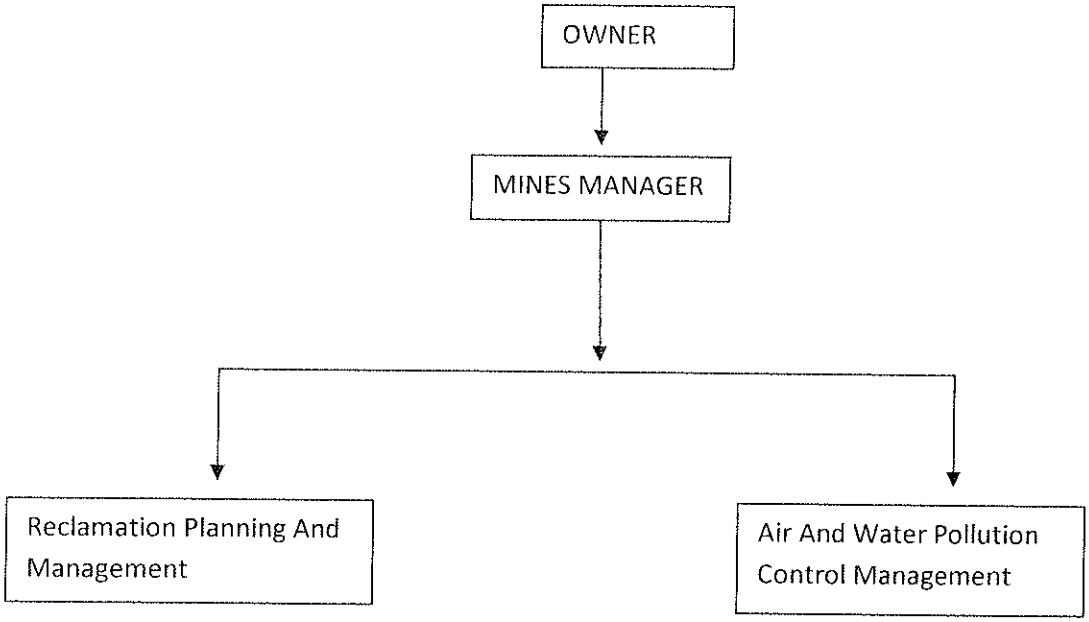
Environment Monitoring Programme :

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	3 stations	6 Monthly
3.	Noise	3 stations	6 Monthly

Solid Waste Management

During first year 15466 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)

- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge

of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Chitragaria Stone Mine of M/s Bol Bam Stone Product (Prop. : Shri Chandradev Goswami), Village : Chitragaria, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.165 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I **along with following specific conditions :**

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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10. Chitragaria Stone Mine of M/s Jay Vishnu Stone Product (Prop. : Shri Birendra Saw), Village : Chitragaria, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.10 Ha).

(Proposal no.: SIA/JH/MIN/ 506248 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 63059 Cum. / annum or 170260 TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Chitragaria Stone Mine	
2	Lessee:	:	M/s Jay Vishnu stone Product Shri Birendra Saw	
3	Lessee Address	:	S/O Late Govind Saw, R/O: Vill- Bhimedih, P.O + P.S – Nawalsahi, Dist - Koderma	
4	Lease Area	:	2.10 Ha	
5	Type of Land	:	Non-Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 130.49 Lakhs	Recurring Cost: Rs. 19.03 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 8.52 Lakhs	Recurring Cost: Rs 6.08 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 756343	Tonnes: 2042126
10	Mine Life	:	5 years.	
11	Man power	:	22 Person	
12	Water Requirement	:	5.97 KLD (Drinking: 0.330 KLD, Dust Suppression: 1.14 KLD, Plantation: 4.500 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani River – 6.03 km flowing East to west Direction north direction from the mine site	
17	Nearest Habitation	:	Chitragaria Village – 0.500 Km in West direction	
18	Nearest Rail Station	:	Pinergaria Railway Station at aerial distance of 2.70 km in North East direction.	
19	Nearest Air Port	:	Deoghar Airport is at areal distance of 96.08 km W direction.	

20	Nearest Forest	:	More than 250 m, as per Division Forest Officer Dumka NOC. letter no.- 269 Dated- 3/2/24
21	Road & Highways	:	The distance of Approach Road is 285m, after that this road continues in village road about 0.55 km & connects to MDR.

CO-ORDINATES

Geo-Coordinates of all corner points of Demarcated Block Boundary

(GPS Co-ordinates)

Point Name	Longitude	Latitude
1	087° 37' 03.34052267" E	24° 12' 10.92127657" N
2	087° 37' 02.87949283" E	24° 12' 11.26407909" N
3	087° 37' 02.69407866" E	24° 12' 11.43319490" N
4	087° 37' 02.09273539" E	24° 12' 11.60688135" N
5	087° 37' 02.00384473" E	24° 12' 11.58188738" N
6	087° 37' 01.83667130" E	24° 12' 10.59443328" N
7	087° 37' 01.78003689" E	24° 12' 10.48541422" N
8	087° 37' 01.64418142" E	24° 12' 10.47558537" N
9	087° 37' 01.05521781" E	24° 12' 10.58194753" N
10	087° 37' 00.55120029" E	24° 12' 10.68704641" N
11	087° 36' 59.72695912" E	24° 12' 10.87718768" N
12	087° 36' 59.30410621" E	24° 12' 10.90957557" N
13	087° 36' 58.68833071" E	24° 12' 10.94467856" N
14	087° 36' 58.59283279" E	24° 12' 11.17859222" N
15	087° 36' 57.75576296" E	24° 12' 11.42723820" N
16	087° 36' 57.22466632" E	24° 12' 11.45025639" N
17	087° 36' 57.22907104" E	24° 12' 11.50047556" N
18	087° 36' 56.48766995" E	24° 12' 11.50334675" N

19	087° 36' 55.87108079" E	24° 12' 11.51830317" N
20	087° 36' 55.82618961" E	24° 12' 11.59731228" N
21	087° 36' 55.86923347" E	24° 12' 12.14695437" N
22	087° 36' 55.99566107" E	24° 12' 12.87613276" N
23	087° 36' 56.20321847" E	24° 12' 12.85696192" N
24	087° 36' 56.52265338" E	24° 12' 12.80275092" N
25	087° 36' 56.68308159" E	24° 12' 12.77743376" N
26	087° 36' 57.23218913" E	24° 12' 12.75586657" N
27	087° 36' 57.44877974" E	24° 12' 12.80754363" N
28	087° 36' 57.72301415" E	24° 12' 12.79426634" N
29	087° 36' 58.00255330" E	24° 12' 12.72814882" N
30	087° 36' 58.48393942" E	24° 12' 12.66016781" N
31	087° 36' 58.74645615" E	24° 12' 12.89669227" N
32	087° 36' 58.78340268" E	24° 12' 13.20372501" N
33	087° 36' 58.84650804" E	24° 12' 13.67884226" N
34	087° 36' 58.89166491" E	24° 12' 14.32473297" N
35	087° 36' 58.91424334" E	24° 12' 14.61304331" N
36	087° 36' 59.00455709" E	24° 12' 15.07546276" N
37	087° 36' 59.13677312" E	24° 12' 15.37729099" N
38	087° 36' 59.63675327" E	24° 12' 15.24395556" N
39	087° 37' 00.01217575" E	24° 12' 14.73787374" N
40	087° 37' 00.24822984" E	24° 12' 14.26308695" N
41	087° 37' 00.82749890" E	24° 12' 14.31753195" N
42	087° 37' 01.32466348" E	24° 12' 14.43072700" N
43	087° 37' 01.79881062" E	24° 12' 14.40264482" N
44	087° 37' 02.11736127" E	24° 12' 14.51571881" N
45	087° 37' 02.26719998" E	24° 12' 14.51384666" N

46	087° 37' 02.42994709" E	24° 12' 14.47243176" N
47	087° 37' 02.64913061" E	24° 12' 14.41457883" N
48	087° 37' 02.70710778" E	24° 12' 14.49288564" N
49	087° 37' 03.02731104" E	24° 12' 14.47603633" N
50	087° 37' 03.10169741" E	24° 12' 14.42105410" N
51	087° 37' 02.98643505" E	24° 12' 14.15188409" N
52	087° 37' 03.06806786" E	24° 12' 14.07521333" N
53	087° 37' 03.54224456" E	24° 12' 13.95328714" N
54	087° 37' 04.00465091" E	24° 12' 13.80375498" N
55	087° 37' 04.31021070" E	24° 12' 13.91009765" N
56	087° 37' 04.39144332" E	24° 12' 13.58755631" N
57	087° 37' 04.50310394" E	24° 12' 13.28681425" N
58	087° 37' 04.67125171" E	24° 12' 12.98008111" N
59	087° 37' 04.89457296" E	24° 12' 12.79556185" N
60	087° 37' 04.63446938" E	24° 12' 11.94964797" N
61	087° 37' 04.56655857" E	24° 12' 11.51999619" N
62	087° 37' 04.24635530" E	24° 12' 11.06880611" N
63	087° 37' 03.75834399" E	24° 12' 10.62348609" N

LAND DETAILS

Khata no.	Plot no.
32	49
40	39 (P)
45	42 & 43
46	37, 38 & 41

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 1002/M, dated 28.08.2024.

2	CO	:	The CO, Shikaripara vide letter no. 154/Ra., dated 04.03.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 1128/M, dated 05.10.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 574, dated 23.03.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 269, dated 03.02.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 59, Page no. 162).
7	Gram Sabha	:	Gram Sabha conducted on 05.11.2023.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1228/M, dated 24.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	2.10 Ha	Life of Mine – 5year
3	Waste Generation	:	34780 cum	
4	Stripping Ratio	:	57:10	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	
7	Elevation of Mine	:	83 m AMSL	
8	Ground Level Elevation	:	26 m AMSL	
9	Ultimate Working Depth	:	43.5 m AMSL	
10	Water Table	:	Post Monsoon – 26 m AMSL Pre Monsoon – 31 m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	60.75 kg Nitro mix explosives	
13	Diesel/Fuel requirement	:	HSD –287 liters / day (86.1 KL/year)	

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum recoverable 95%	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.)
1st	60247	2.7	162667	201	542	34780	116
2nd	63059	2.7	170260	210	568	0	0
3rd	46539	2.7	125654	155	419	0	0
4th	35502	2.7	95854	118	320	0	0
5th	37962	2.7	102497	127	342	0	0
Total	**243308**		**656932**	**210 (max)**	**568 (max)**	**34780**	**116**

Land Use

Existing Land Use pattern

SL. No.	Pattern	Existing Land Use (Ha)
1	Mining Activities	0.000
2	Offices/ Store etc.	0.000
3	Dumping	0.000
4	Mining Road	0.000
5	Garland drain	0.000
6	Settling Tank	0.000
7	Green Belt	0.000
8	Safety Zone	0.000
9	Stone Stock yards	0.000
10	Unutilized	2.100
11	Crusher	0.000
	TOTAL	2.100

Land Use Pattern for Proposed Plan Period:

SL	Pattern	Proposed Land Use (Ha)
1	Mining Area	1.348
2	Office	0.000
3	Dumping	0.110
4	Road	0.000
5	Garland drain	0.037
6	Settling Pond	0.015
7	Green Belt	0.000
8	Safety Zone	0.548
9	Stone Stock Yards	0.000
10	Crusher	0.042
11	Unutilized	0.000
	TOTAL	2.100

Land Use Pattern after Life of the Mine:

Si. No.	Pattern of Utilization	Land used at the conceptual stage i.e. end of mine life in (Ha.)	Area to be converted in the conceptual period.
1	Mining Activities	1.348	Water body
2	Offices/ Store etc.	0.000	Plantation
3	Dumping	0.110	Plantation -
4	Mining Road	0.000	Water body
5	Garland drain	0.037	-
6	Settling Tank	0.015	-
7	Green belt	0.042	Green Belt
8	Safety Zone	0.548	Plantation
9	Stone Stock yards	0.000	
10	Unutilized	0.000	
11	Crusher	0.000	
Total		2.100	-

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1100 per Tanker)	--	3,30,000
2	Plantation: 380 X 800 = Rs 3,04,000 (Gabion Plantation along approach road) 1120 X 400 = 3, 50,400 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	7,52,000	75,200
3	Fencing	1,00,000	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270 • Ground Water (2 point) - Rs.12,420 • Noise 24 hrs (3 point) - Rs.21,000 • Soil (3 point) - Rs.40,920 **Total - Rs. 1,01,610 (Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220** **Source: Central Pollution Control Board** **Notification, New Delhi, the 23rd February, 2022**	--	2,03,220
Total		**8,52,000**	**6,08,420**

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone/ Green belt		0.7 Ha	1120
2	Along Approach Road		0.285 km	380
TOTAL				**1500 Trees**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development,

Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

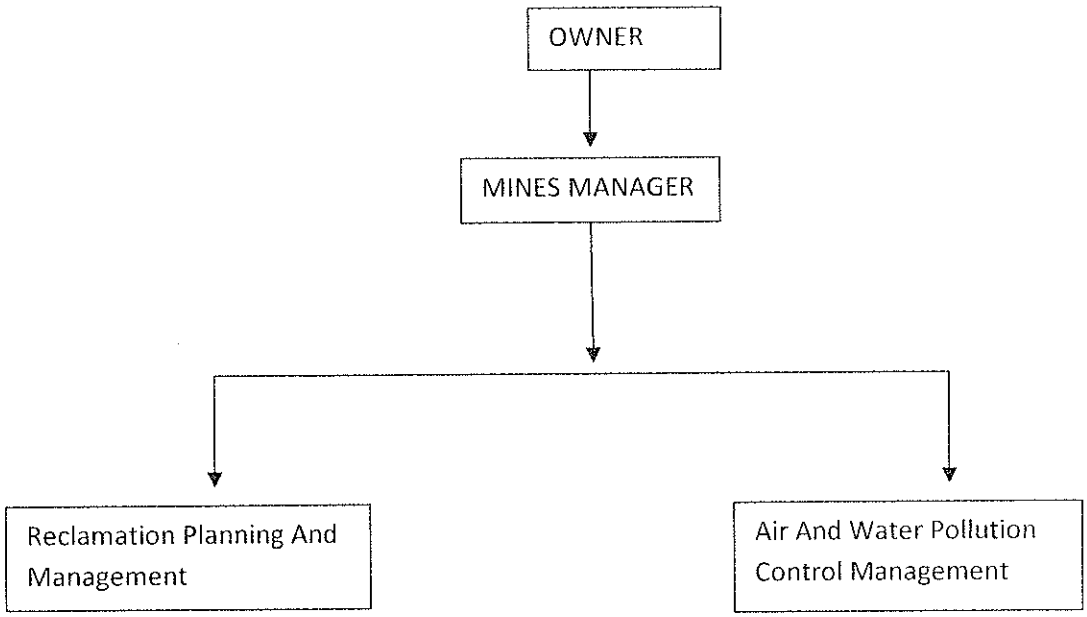
Environment Monitoring Programme:

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 stations	6 Monthly

Solid Waste Management

During first year 34780 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.

- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people

become aware of the blasting activities being undertaken in the area and take appropriate precautions.

- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure

- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.

e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Chitragaria Stone Mine of M/s Jay Vishnu Stone Product (Prop. : Shri Birendra Saw), Village : Chitragaria, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.10 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I **along with following specific conditions :**

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.
III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.
IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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11. Chitragaria Stone Mine of Partners : (i) Shri Rakesh Kumar (ii) Shri Avinash Kumar (iii) Shri Ranjay Kumar (iv) Shri Surojit Kumar Sah, Village : Chitragaria, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.42 Ha).

(Proposal no.: SIA/JH/MIN/ 507750 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 51716 Cum. / annum or 139633 TPA.

Project and Location Details:

Sl	Parameter		Details
1	Project Name	:	Chitragaria stone Mine
2	Lessee:	:	Partners 1. Shri Rakesh Kumar, 2. Shri Avinash Kumar, 3. Ranjay Kumar, 4. Shri Surojit Kumar Sah
3	Lessee Address	:	1.S/O Kapildev Singh, R/O Godhar Kusunda, Dist.- Dhanbad. 2.S/O Shri Sudheshwar Singh, R/O Bhurbhura More, Rikhiya Road, Dist- Deoghar. 3.S/O Baijnath Singh, Vill+po+ps- Shikaripara, Dist- Dumka. 4.S/O Shri Suresh Prasad Sah, R/O Kumharpara, Po+ps+dist- Dumka.
4	Lease Area	:	1.42 Ha

5	Type of Land	:	Non-Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 54.45 Lakhs	Recurring Cost: Rs. 9.37 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 8.58 Lakhs	Recurring Cost: Rs 6.09 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 229169	Tonnes: 618755
10	Mine Life	:	5 years.	
11	Man power	:	21 Person	
12	Water Requirement	:	6.014 KLD (Drinking: 0.315 KLD, Dust Suppression: 1.796 KLD, Plantation: 3.903 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani River flowing East to West at 6.03 km North Direction from the Mine site.	
17	Nearest Habitation	:	Chitragaria Village – 0.500 Km in West Direction	
18	Nearest Rail Station	:	Pinergaria Railway Station at aerial distance of 2.70 km in North East direction.	
19	Nearest Air Port	:	Deoghar Airport is at aerial distance of 96.08 km North West direction.	
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer NOC. letter no.- 2071 Dated- 09/09/2024	
21	Road & Highways	:	The distance of Approach Road is 449m, after that this road connects to MDR from the mine site.	

CO-ORDINATES

Point Name	Longitude	Latitude
1	087° 37' 11.07481865" E	24° 12' 07.05823149" N
2	087° 37' 10.58483237" E	24° 12' 07.12321406" N
3	087° 37' 10.09484595" E	24° 12' 07.18819619" N
4	087° 37' 09.42915839" E	24° 12' 07.26157675" N

5	087° 37' 08.76347060" E	24° 12' 07.33495651" N
6	087° 37' 08.22642706" E	24° 12' 07.31377189" N
7	087° 37' 07.68938355" E	24° 12' 07.29258675" N
8	087° 37' 07.04358563" E	24° 12' 07.16475485" N
9	087° 37' 06.91901146" E	24° 12' 07.10878319" N
10	087° 37' 06.80634374" E	24° 12' 07.58495772" N
11	087° 37' 06.87589031" E	24° 12' 08.18980673" N
12	087° 37' 06.77447690" E	24° 12' 08.56168520" N
13	087° 37' 06.73586944" E	24° 12' 09.22449070" N
14	087° 37' 07.10668175" E	24° 12' 09.72146965" N
15	087° 37' 07.53905227" E	24° 12' 10.25055189" N
16	087° 37' 07.92753700" E	24° 12' 10.61924254" N
17	087° 37' 08.25967811" E	24° 12' 10.99850934" N
18	087° 37' 08.44712721" E	24° 12' 10.91190689" N
19	087° 37' 08.71610710" E	24° 12' 10.88338759" N
20	087° 37' 09.60240806" E	24° 12' 10.71979805" N
21	087° 37' 10.44921550" E	24° 12' 10.63407593" N
22	087° 37' 11.58218831" E	24° 12' 10.46298902" N
23	087° 37' 11.83413295" E	24° 12' 10.39897469" N
24	087° 37' 11.76446575" E	24° 12' 09.84341557" N
25	087° 37' 11.61756928" E	24° 12' 09.47686457" N
26	087° 37' 11.47067304" E	24° 12' 09.11031352" N
27	087° 37' 11.44924455" E	24° 12' 08.63647172" N
28	087° 37' 11.42781612" E	24° 12' 08.16262992" N
29	087° 37' 11.40365094" E	24° 12' 07.78241484" N
30	087° 37' 11.23923466" E	24° 12' 07.42032320" N

LAND DETAILS

KHATA NO.	PLOT NO.
04	172 (P), 170(P)
21	173 (P)
44	171 (P)
11	169 (P)
61	168 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 1127/M, dated 05.10.2024.
2	CO	:	The CO, Shikaripara vide letter no. 786/Ra., dated 02.09.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 1288/M, dated 18.11.2024 certified that 01 other mining lease area (5.20 Acre) exists within 500 meters radius from proposed project site and total area is 8.70 Acre.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 2096, dated 26.09.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 2071, dated 09.09.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 23, Page no. 334).
7	Gram Sabha	:	Gram Sabha conducted on 23.06.2024.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1293/M, dated 22.11.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method

2	Quarry Area	:	1.42 Ha	Life of Mine – 5year
3	Waste Generation	:	14362 cum	
4	Stripping Ratio	:	30:10	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	
7	Elevation of Mine	:	82 m AMSL	
8	Ground Level Elevation	:	44 m AMSL	
9	Ultimate Working Depth	:	38 m AMSL	
10	Water Table	:	Post Monsoon – 19 m AMSL Pre Monsoon – 23 m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	48.6 kg Nitro mix explosives	
13	Diesel/Fuel requirement	:	HSD –273 liters / day (81.9 KL/year)	

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum recoverable 95%	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.)
1st	46487	2.7	125516	155	418	14362	48
2nd	51716	2.7	139633	172	465	0	0
3rd	44363	2.7	119780	148	399	0	0
4th	50082	2.7	135222	167	451	0	0
5th	36520	2.7	98604	122	329	0	0
Total	**229169**		**618755**	**172(m)**	**465(max)**	**14362**	**48**

Land Use

Existing Land Use pattern

SL. No.	Pattern	Existing Land Use (Ha)
1	Mining Activities	0.000
2	Offices/ Store etc.	0.000
3	Dumping	0.000
4	Mining Road	0.000
5	Garland drain	0.000

6	Settling Tank	0.000
7	Green Belt	0.000
8	Safety Zone	0.000
9	Stone Stock yards	0.000
10	Unutilized	1.420
11	Crusher	0.000
	TOTAL	1.420

Land Use Pattern for Proposed Plan Period:

Si. No.	Pattern of Utilization	Proposed Land use for current plan period (Ha.)
1	Mining Activities	0.957
2	Offices/ Store etc.	0.000
3	Dumping	0.030
4	Garland drain	0.022
5	Settling Tank	0.000
6	Safety Zone	0.368
7	Stone Stock yards	0.000
8	Unutilized	0.043
9	Crusher	0.000
Total		**1.420**

Land Use Pattern after Life of the Mine:

Si. No.	Pattern of Utilization	Land used at the conceptual stage i.e. end of mine life in (Ha.)	Area to be converted in the conceptual period.
1	Mining Activities	0.957	Water body
2	Offices/ Store etc.	0.000	Plantation
3	Dumping	0.030	Plantation
4	Mining Road	0.000	Water body
5	Garland drain	0.022	-
6	Settling Tank	0.000	-
7	Green belt	0.043	Green Belt

8	Safety Zone	0.368	Plantation
9	Stone Stock yards	0.000	
10	Unutilized	0.000	
11	Crusher	0.000	
Total		1.420	-

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone		0.441 Ha	705
2	Along Approach Road		0.499 km	596
TOTAL				**1301 Trees**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl. No.	**Particulars**	**Capital Cost in Rs.**	**Recurring Cost in Rs. per year**
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1100 per Tanker)	--	3,30,000
2	Plantation: 596 X 800 = 4,76,800 (Gabion Plantation along approach road) 588 X 400 = 2,35,200 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	7,58,800	75,880
3	Fencing	1,00,000	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270	--	2,03,220

	• Ground Water (2 point) -Rs.12,420 • Noise 24 hrs (3 point) -Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610 (Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220** **Source: Central Pollution Control Board** **Notification, New Delhi, the 23rd February, 2022**		
Total		**8,58,800**	**6,09,100**

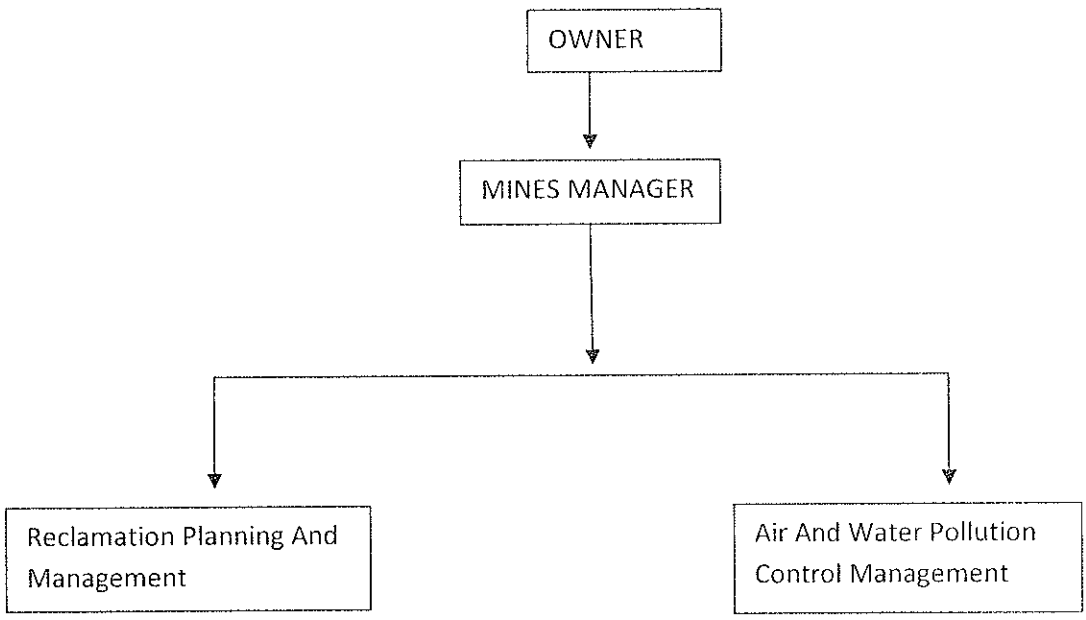
Environment Monitoring Programme:

SL. No.	Description	No. of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 stations	6 Monthly

Solid Waste Management

During first year 14362 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5

3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)

- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Chitragaria Stone Mine of Partners : (i) Shri Rakesh Kumar (ii) Shri Avinash Kumar (iii) Shri Ranjay Kumar (iv) Shri Surojit Kumar Sah, Village : Chitragaria, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.42 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal

(https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

12. **Kurunda Stone Deposit of M/s Johar Stone Products Pvt. Ltd. (Partners : Shri Amit Mandal & Shri Sasti Pad Mandal), Village : Kurunda, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.849 Ha).**

(Proposal no.: SIA/JH/MIN/ 506099 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 29524.59 Cum. / annum or 79125.90 TPA.

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Kurunda Stone Deposit	
2	Lessee:	:	Partners: 1. Sri Amit Mandal, 2. Sri Sasti Pad Mandal	
3	Lessee Address	:	1. Sri Amit Mandal S/O-Sri Arjun Mandal, Village/P. O- Asanbani, Thana- Ranishwar, Dist-Dumka-816118 2. Sri Sasti Pad Mandal, S/O-Sri Subal Chandra Mandal, Village/P. O- Asanbani, P.S.-Ranishwar, Dist-Dumka- 816118	
4	Lease Area	:	1.849 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 75.19 Lakhs	Recurring Cost: Rs. 6.64 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 9.352 Lakhs	Recurring Cost: Rs. 5.867 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 1,47,623.04 cum	Tonnes: 3,95,629.76 tons
10	Mine Life	:	5 years.	
11	Man power	:	18 Person	
12	Water Requirement	:	6.53 KLD (Drinking: 0.27 KLD, Dust Suppression: 1.45 KLD, Plantation: 4.81 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani river at 6.5 km North direction.	
17	Nearest Habitation	:	Pinargaria Village – 3.80 Km in NW Direction.	
18	Nearest Rail Station	:	Paikdaha Railway Station at aerial distance of 8 km in NW direction.	
19	Nearest Air Port	:	Deoghar Airport, Deoghar is at aerial distance of 102.50 km NW direction	
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer Dumka. letter no.- 1062 Dated- 04/05/2024	
21	Road & Highways	:	A cart road is well connected to applied lease area from a PWD road which is passing at a distance of 1.500 km from the applied lease area. This PWD road is connected to Dumka- Rampurhat Road at Sunrichua, which is passing at a distance of about 3.50	

			km from the applied lease area.

CO-ORDINATES

Point Name	Longitude	Latitude
1	87°40' 3.867" E	24º10' 43.972" N
2	87°40' 4.617" E	24º10' 43.485" N
3	87º40' 5.679" E	24º10' 42.937" N
4	87º40' 6.418" E	24º10' 42.472" N
5	87º40' 5.943" E	24º10' 41.655" N
6	87º40' 5.090" E	24º10 40.717" N
7	87º40' 5.640" E	24º10' 40.048" N
8	87º40' 5.439" E	24º10' 39.425" N
9	87º40' 6.194" E	24º10' 38.946" N
10	87º40' 6.075" E	24º10' 38.769" N
11	87º40' 4.819" E	24º10' 39.217" N
12	87º40' 4.412" E	24º10' 38.376" N
13	87º40' 5.474" E	24º10' 37.984" N
14	87º40' 5.833" E	24º10' 38.442" N
15	87º40' 6.240" E	24"10' 38.223" N
16	87º40' 6.007" E	24"10' 37.784" N
17	87º40' 6.041" E	24"10' 37.563" N
18	87º40' 5.882" E	24º10' 37.444" N
19	87º40' 5.295" E	24º10' 37.796" N
20	87º40' 4.850" E	24º10' 37.983" N
21	87º40' 4.388" E	24"10' 37.425" N
22	87º40' 3.665" E	24"10' 37.136" N
23	87º40' 3.833" E	24º10' 36.649" N
24	87º40' 2.892" E	24º10' 36.462" N
25	87º40' 2.065" E	24º10' 36.772" N
26	87º40' 1.783" E	24º10' 37.500" N
27	87º40' 2.122" E	24º10' 38.961" N
28	87º40' 1.802" E	24º10' 39.286" N
29	87º40' 1.719" E	24º10' 39.910" N
30	87º40' 1.464" E	24º10' 40.041" N
31	87º40' 1.292" E	24º10' 40.851" N
32	87º40' 1.425" E	24º10' 40.974" N
33	87º40' 1.554" E	24º10' 41.414" N
34	87º40' 2.716" E	24º10' 41.300" N
35	87º40' 3.700" E	24º10' 43.136" N

LAND DETAILS

Khata no.	Plot no.
03 & 11	227, 228, 229, 230, 231, 232, 234, 235, 236 & 237

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 939/M, dated 10.08.2024.
2	CO	:	The CO, Shikaripara vide letter no. 549/Ra., dated 01.07.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 850/M, dated 20.07.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 1260, dated 29.06.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 1062, dated 04.05.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 42, Page no. 157).
7	Gram Sabha	:	Gram Sabha conducted on 27.01.2024.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1031/M, dated 09.09.2024.
9	Qualified Person	:	Shri Sahadev Singh was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	1.849 Ha	Life of Mine – 5 year
3	Waste Generation	:	35110.68 cum	
4	Stripping Ratio	:	11:50	
5	Working Days	:	300	
6	Benches: size	:	3 m x 3.5 m,	
7	Elevation of Mine	:	70m – 60m AMSL	
8	Ground Level Elevation	:	60 AMSL	
9	Ultimate Working Depth	:	34 m AMSL	

10	Water Table	:	Post Monsoon – 43 m AMSL Pre Monsoon – 48 m AMSL
11	Topography of Mine	:	Area represents gently sloping land.
12	Explosive Requirement	:	60 kg Slurry explosives/day
13	Diesel/Fuel requirement	:	HSD – 218 liters / day (65.4 KL/year)

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.
1st	29524.59	2.68	79125.90	98.41	263.75	16427.79	54.75
2nd	29524.59	2.68	79125.90	98.41	263.75	6882.27	22.94
3rd	29524.59	2.68	79125.90	98.41	263.75	2354.41	7.84
4th	29524.59	2.68	79125.90	98.41	263.75	7892.28	26.30
5th	29524.59	2.68	79125.90	98.41	263.75	1553.93	5.17
Total	**147622.95**	2.68	**395629.50**	**98.41 (max)**	**263.75 (max)**	**35110.68**	**54.75**

Land Use pattern

SL	Pattern of Utilization	Existing Land Use (Ha)	At the end of plan period (Ha)	At Conceptual Period (Ha)
1	Excavation	Nil	1.29	1.29 (0.83Ha converted in to water reservoir & 0.46 Ha shall be left as dead benches)
2	Waste Dump	Nil	(0.15 Ha. Comes under mining)	(0.15 Ha. Comes under mining)
3	Road	Nil	Comes under mining	Comes under mining
4	Crusher	Nil	Nil	Nil
5	Plantation (Green Belt)	Nil	0.55 (Within safety zone)	0.55 (Within safety zone)
	TOTAL	**1.849**	**1.849**	**1.849**

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety		0.70 Ha	1120

	Zone/Waste Dump			
2	Along Approach Road		0.364m	484
TOTAL				**1604**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1000 per Tanker)	--	3,00,000
2	Plantation 484 X 800 = Rs 3,87,200 (Gabion Plantation along approach road) 1120 X 400 = 4,48,000 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	8,35,200	83,520
3	Fencing	100,000	-
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270 • Ground Water (2 point) - Rs.12,420 • Noise 24 hrs (3 point) - Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610 (Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2** **= Rs. 2,03,220** Source: Central Pollution Control Board Notification, New Delhi, the 23rd	--	2,03,220

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
	February, 2022		
Total		9,35,200	5,86,740

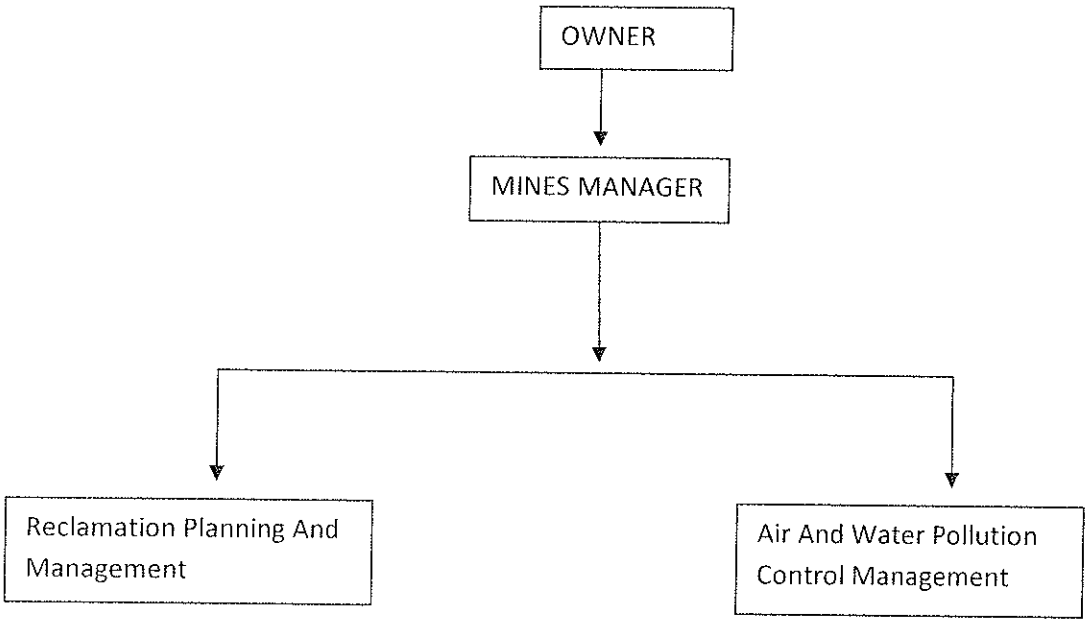
Environment Monitoring Programme

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 Station	6 Monthly

Solid Waste Management

35110.68 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.

- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping	Probable	Moderate	6

		(Bodily Injury)			
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.

- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.

- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an

interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Kurunda Stone Deposit of M/s Johar Stone Products Pvt. Ltd. (Partners : Shri Amit Mandal & Shri Sasti Pad Mandal), Village : Kurunda, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.849 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I **along with following specific conditions :**

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.
III. Suitable plant species of not less than 2 M height to be planted equal to twice the

area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

13. Salbonapahar Stone Mine of M/s Baba Basukinath Traders (Prop. : Shri Santosh Kumar), Village : Salbonapahar, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.53 Ha).

(Proposal no.: SIA/JH/MIN/ 506253 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

Environmental Clearance Application for: Proposed Capacity- 34,314 cum/annum or 92,648 TPA

Project and Location Details:

Sl	Parameter		Details
1	Project Name	:	Salbonapahar Stone Mine
2	Lessee:	:	M/S Baba Basukinath Traders.

			Proponent: Shri Santosh Kumar	
3	Lessee Address	:	Shri Santosh Kumar S/O Shri Anandi Singh R/o Vill + P.O. - Sankurha, Thana – Jamui, Dist - Jamui (Bihar) 811307 Current Address: Ghat Rashikpur, Dudhani Near UCO Bank, P.O + Thana + Dist - Dumka	
4	Lease Area	:	1.53 Ha. (At Village: Salbonapahar, Thana- Shikaripara, Thana No – 07, District- Dumka, State- Jharkhand)	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital: 125.79 Lakhs	Recurring: 16.45 Lakhs per year
7	EMP Budget	:	Capital: 8.69 Lakhs	Recurring: 5.50 Lakhs per year
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 1,42,975cum	Tonnes: 3,86,033 Tonnes
10	Mine Life	:	5 years.	
11	Man power	:	29 Person	
12	Water Requirement	:	6.81 KLD (Drinking: 0.44 KLD, Dust Suppression: 2.08 KLD, Plantation: 4.29 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	20 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Mayurakshi River – 25.0 km – WS direction (arial distance).	
17	Nearest Habitation	:	Salbonapahar Village	
18	Nearest Rail Station	:	Pakdaha Harinsing Railway Station is at areal distance of 6.0 km North direction.	
19	Nearest Air Port	:	Deoghar Airport is at areal distance of 92 km NW direction.	
20	Nearest Forest	:	DFO (Dumka), letter no.- 656 Dated: 1/03/2023 certified that the distance of reserved / protected forest is more than 250 m from proposed project site.	
21	Road & Highways	:	NH-114A (Dumka-Rampurhat road), at 3.9 km North Direction	

CO-ORDINATES

Point ID	Latitude	Longitude
P1	24° 10' 51.51607107" N	087° 33' 52.64101053" E

P2	24° 10' 51.92281597" N	087° 33' 52.74039264" E
P3	24° 10' 52.57206352" N	087° 33' 52.89847609" E
P4	24° 10' 53.18825890" N	087° 33' 53.11394222" E
P5	24° 10' 53.86634689" N	087° 33' 53.24560669" E
P6	24° 10' 54.42168229" N	087° 33' 53.37137220" E
P7	24° 10' 54.81521761" N	087° 33' 53.36774202" E
P8	24° 10' 55.44031118" N	087° 33' 53.25253501" E
P9	24° 10' 55.89312458" N	087° 33' 53.16874128" E
P10	24° 10' 56.63858753" N	087° 33' 53.07079284" E
P11	24° 10' 56.25525936" N	087° 33' 53.72452722" E
P12	24° 10' 55.89296786" N	087° 33' 54.53598724" E
P13	24° 10' 55.48690589" N	087° 33' 54.55071523" E
P14	24° 10' 54.99810629" N	087° 33' 54.57110412" E
P15	24° 10' 54.45585566" N	087° 33' 54.65217021" E
P16	24° 10' 54.23647619" N	087° 33' 55.57422564" E
P17	24° 10' 53.97508269" N	087° 33' 56.62000774" E
P18	24° 10' 53.75213411" N	087° 33' 57.52164795" E
P19	24° 10' 53.63008155" N	087° 33' 57.84394682" E
P20	24° 10' 53.35007219" N	087° 33' 57.83392515" E
P21	24° 10' 52.98169092" N	087° 33' 57.75323711" E
P22	24° 10' 52.88791001" N	087° 33' 58.44752169" E
P23	24° 10' 52.72796118" N	087° 33' 59.13311386" E
P24	24° 10' 52.03018800" N	087° 33' 58.95309859" E
P25	24° 10' 51.47326363" N	087° 33' 58.54642048" E
P26	24° 10' 50.92790113" N	087° 33' 58.18700788" E
P27	24° 10' 50.64468682" N	087° 33' 57.20979561" E
P28	24° 10' 50.75345016" N	087° 33' 57.06014977" E
P29	24° 10' 50.75412666" N	087° 33' 56.87785572" E
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P42	24° 10' 51.85231114" N	087° 33' 53.34976566" E
P43	24° 10' 51.41795677" N	087° 33' 53.38334981" E

LAND DETAILS

Khata no.	Plot no.
27	255 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 739/M, dated 29.06.2024.
2	CO	:	The CO, Shikaripara vide letter no. 404/Ra., dated 05.04.2023 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 304/M, dated 01.03.2023 certified that 01 other mining lease area (3.52 Acre) exists within 500 meters radius from proposed project site and total area is 7.97 Acre.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 2378, dated 28.11.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 2476, dated 25.11.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 14, Page no. 151).
7	Gram Sabha	:	Gram Sabha conducted on 06.09.2022.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1206/M, dated 22.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Mechanized Method	
2	Quarry Area	:	0.891 Ha. (During plan period)	Life of Mine – 5 year
3	Waste Generation	:	44,786 cum. O.B (During plan period)	19,194 cum. Top soil (During plan period)
4	Stripping Ratio	:	1:2.23 or 0.45	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m	
7	Elevation of Mine	:	249 m to 214 m AMSL	
8	Ground Level	:	249 m AMSL	

	Elevation		
9	Ultimate Working Depth	:	42 m
10	Water Table	:	(During pre-monsoon 152 m AMSL) (During post-monsoon 156 m AMSL)
11	Topography of Mine	:	Area represents sloping land.
12	Explosive Requirement	:	31.6 kg Slurry explosives/day
13	Diesel/Fuel requirement	:	HSD – 302 liters / day (90.6 KL/year)

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	Removal of Top Soil
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Cum
1st	33117	2.7	89416	110	298	32830	14070
2nd	34181	2.7	92289	114	308	6958	2982
3rd	34314	2.7	92648	114	309	4998	2142
4th	23209	2.7	62663	77	209	0	0
5th	17889	2.7	48299	60	161	0	0
Total	**142709**	**2.7**	**385314**	**114 (Max.)**	**309 (Max.)**	44786	19,194

LAND USE

Existing, Proposed & Conceptual Land Use

SL	Pattern	Existing Land Use (Ha)	Proposed Land Use (Ha)	Conceptual Land Use (Ha)	Area to be converted in the conceptual period.
1	Mining Activities	0.00	0.891	0.891	Water body
2	Offices/ Store etc.	0.00	0.004	0.004	(6 Trees) Greenbelt
3	Mining Road	0.00	0.024	0.024	Water body
4	Garland drain	0.00	0.032	0.032	--
5	Settling Tank	0.00	0.004	0.004	--
6	Dumping	0.00	0.081	0.081	(129 Trees) Greenbelt
7	Safety Zone	0.00	0.502	0.502	(803 Trees) Greenbelt
8	Unutilized	1.53	0.000	0.000	--
	TOTAL	**1.53**	**1.53**	**1.53**	

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone		0.502 Ha	803
2	Dumping		0.081 Ha	129
3	Offices/ Store etc.		0.004 Ha	06
4	Along Approach Road		0.370 km	492
TOTAL				**1,430**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.
- **EMP BUDGET**

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 900 per Tanker)	--	2,70,000
2	Plantation 492 X 800 = Rs 3,93,600 (Gabion Plantation along approach road) 938 X 400 = 3,75,200 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	7,68,800	76,880
3	Fencing around the Lease boundary	1,00,000	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) -Rs.27,270 • Ground Water (2 point) -Rs.12,420 • Noise 24 hrs (3 point) -Rs.21,000 • Soil (3 point) -Rs.40,920 Total -Rs. 1,01,610 (Per Season) At least two seasons in a Year -Rs. 1,01,610 x 2	--	2,03,220

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
	= Rs. 2,03,220 Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022		
Total		**8,68,800**	**5,50,100**

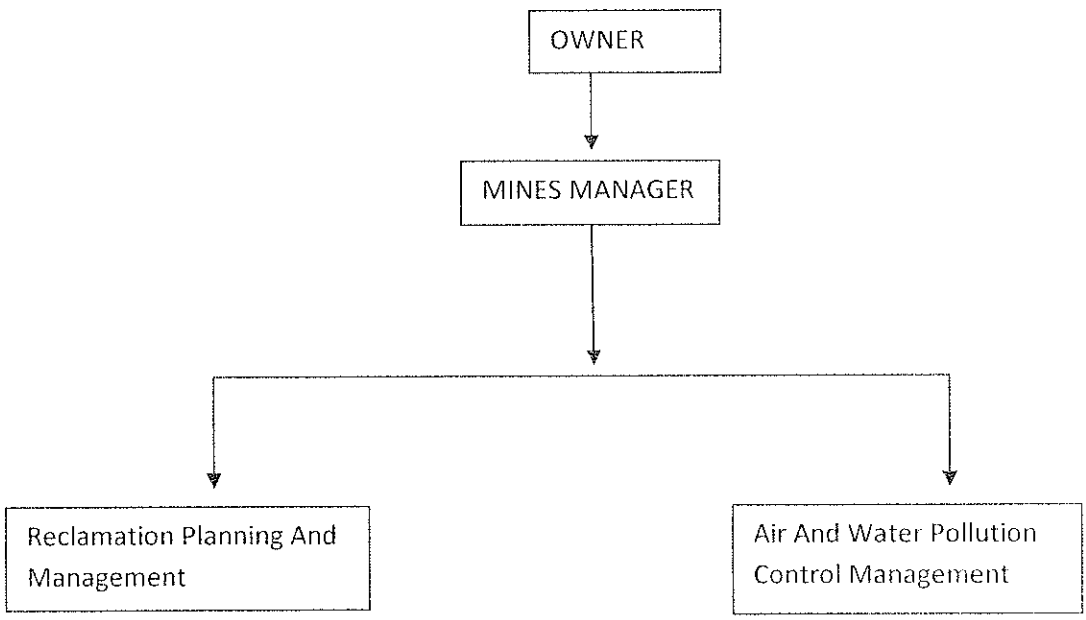
Environment Monitoring Programme

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	One Day Monitoring (within 6 months)
2.	Water	2 stations	One Day Monitoring (within 6 months)
3.	Soil	3 stations	One Day Monitoring (within 6 months)
4.	Noise	3 stations	One Day Monitoring (within 6 months)

Solid Waste Management

19,194 cum of Topsoil & 44,786 cum O.B shall be generated during the plan period, in which top soil shall be used in Plantation & O.B shall be used in maintenance of haul road and approach road. O.B shall be also used in backfilling within the exhausted quarry.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5

3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)

- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Salbonapahar Stone Mine of M/s Baba Basukinath Traders (Prop. : Shri Santosh Kumar), Village : Salbonapahar, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.53 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

14. **Salbonapahar Stone Mine of M/s Jai Baba Bajrangbali Stone Mill (Prop. : Shri Tapas Bhakat), Village : Salbonapahar, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.06 Ha).**

(Proposal no.: SIA/JH/MIN/ 505503 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

Environmental Clearance Application for: Proposed Capacity- 50,616 cum. (max.) / 1,36,663 Tons (max.) per year

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Salbonapahar Stone Mine	
2	Lessee:	:	M/s Jai Baba Bajrangbali Stone Mill Proponent: Shri Tapas Bhakat	
3	Lessee Address	:	Shri Tapas Bhakat S/o Shri Harisankar Bhakat Address: Vill- Nishchintpur, Near Holy Home School, Rampurhat, PO+PS- Rampurhat, Dist- Birbhum, W.B.	
4	Lease Area	:	2.06 Ha. (At Village: Salbonapahar, Thana- Shikaripara, Thana No – 07, District- Dumka, State- Jharkhand)	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 129.09 Lakhs	Recurring Cost: Rs. 14.28 Lakh/year
7	EMP Budget	:	Capital Cost: Rs. 9.19 Lakhs	Recurring Cost: Rs. 5.25 Lakhs/year
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 2,31,895 cum	Tonnes: 6,26,116.5 Tonnes
10	Mine Life	:	5 years.	
11	Man power	:	20 Person	
12	Water Requirement	:	7.94 KLD (Drinking: 0.30 KLD, Dust Suppression: 2.98 KLD, Plantation: 4.66 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	20 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Mayurakshi River – 25.0 km – WS direction (arial distance).	
17	Nearest Habitation	:	Salbonapahar Village	
18	Nearest Rail Station	:	Pakdaha Harinsing Railway Station is at areal distance of 6.0 km North direction.	
19	Nearest Air Port	:	Deoghar Airport is at areal distance of 92 km NW direction.	
20	Nearest Forest	:	DFO (Dumka), letter no.- 2267 Dated: 28/10/2020 certified that the distance of reserved / protected forest is more than 250 m from proposed project site.	
21	Road & Highways	:	NH-114A (Dumka-Rampurhat road), at 3.9 km North Direction	

CO-ORDINATES

Point Name	Latitude	Longitude
1	24° 11' 05.47535674" N	087° 33' 53.69224977" E
2	24° 11' 05.23759860" N	087° 33' 54.94753360" E
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35	24° 11' 02.10530267" N	087° 33' 53.32318539" E
36	24° 11' 02.05524146" N	087° 33' 53.36373136" E
37	24° 11' 02.06751121" N	087° 33' 53.52185045" E
38	24° 11' 02.41403135" N	087° 33' 53.57297428" E
39	24° 11' 02.51276433" N	087° 33' 53.52143147" E
40	24° 11' 02.56090830" N	087° 33' 53.23395957" E
41	24° 11' 03.34160291" N	087° 33' 53.20931255" E
42	24° 11' 04.74901666" N	087° 33' 53.26549432" E

LAND DETAILS

Khata no.	Plot no.
27	261 (P), 264 & 265 (P)
37	260 (P) & 263

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 968/M, dated 17.08.2024.
2	CO	:	The CO, Shikaripara vide letter no. 257/Ra., dated 14.03.2023 has mentioned the plot no. of the project is not recorded as "Jungle

			Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 805/M, dated 11.05.2023 certified that 01 other mining lease area (3.52 Acre) exists within 500 meters radius from proposed project site and total area is 8.62 Acre.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 893, dated 04.05.2023 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 2267, dated 28.10.2020 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 50, Page no. 159.).
7	Gram Sabha	:	Gram Sabha conducted on 24.07.2020.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1122/M, dated 04.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Mechanized Method	
2	Quarry Area	:	1.37 Ha. (During plan period)	Life of Mine – 5 year
3	Waste Generation	:	71,690 cum. O.B (During plan period)	
4	Stripping Ratio	:	1:3.22 or 0.31	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m	
7	Elevation of Mine	:	255 m to 224 m AMSL	
8	Ground Level Elevation	:	255 m AMSL	
9	Ultimate Working Depth	:	47 m	
10	Water Table	:	(During pre-monsoon 171 m AMSL) (During post-monsoon 176 m AMSL)	
11	Topography of Mine	:	Area represents sloping land.	
12	Explosive	:	53.46 kg Nitro mix explosives/day	

	Requirement		
13	Diesel/Fuel requirement	:	HSD – 288 liters / day (86.4 KL/year)

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum recoverable 95%	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.
1st	49808.5	2.7	134483	166	448	52710	176
2nd	47262.5	2.7	127609	158	425	14220	47
3rd	50616	2.7	136663	169	456	4760	16
4th	40537	2.7	109449	135	365	0	0
5th	42826	2.7	115630	143	385	0	0
Total	**231050**	2.7	**623834**	**169 (max)**	**456 (max)**	**71690**	**239**

LAND USE

Existing, Proposed & Conceptual Land Use

SL	Pattern	Existing Land Use (Ha)	Proposed Land Use (Ha)	Conceptual Land Use (Ha)	Area to be converted in the conceptual period.
1	Mining Activities	0.00	1.37	1.37	Water body
2	Garland drain	0.00	0.03	0.03	--
3	Dumping	0.00	0.13	0.13	(208 Trees) Greenbelt
4	Safety Zone	0.00	0.43	0.43	(688 Trees) Greenbelt
5	Unutilized	2.06	0.10	0.10	(160 Trees) Greenbelt
	TOTAL	**2.06**	**2.06**	**2.06**	

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone		0.43 Ha	688
2	Dumping area		0.13 Ha	208
3	Unutilized		0.10 Ha	160
2	Along Approach Road		0.745 km	496
TOTAL				**1,552**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **EMP BUDGET**

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 800 per Tanker)	--	2,40,000
2	Plantation 496 X 800 = Rs 3,96,800 (Gabion Plantation along approach road) 1,056 X 400 = 4,22,400 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	8,19,200	81,920
3	Fencing around the Lease boundary	1,00,000	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) -Rs.27,270 • Ground Water (2 point) -Rs.12,420 • Noise 24 hrs (3 point) -Rs.21,000 • Soil (3 point) -Rs.40,920 Total -Rs. 1,01,610 (Per Season) At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220 Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022	--	2,03,220
Total		**9,19,200**	**5,25,140**

Environment Monitoring Programme

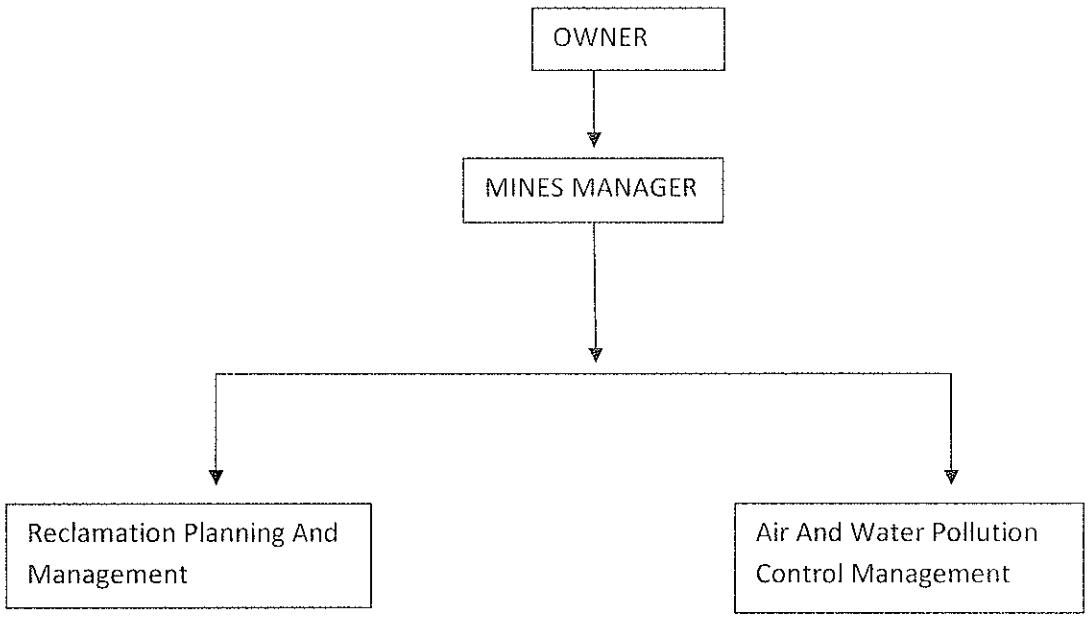
SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	One Day Monitoring (within 6 months)

2.	Water	2 stations	One Day Monitoring (within 6 months)
3.	Soil	3 stations	One Day Monitoring (within 6 months)
4.	Noise	3 stations	One Day Monitoring (within 6 months)

Solid Waste Management

71,690 cum of O.B shall be generated during the plan period. O.B shall be used in maintenance of haul road and approach road. O.B shall be also used in backfilling within the exhausted quarry.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers

- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.

g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Salbonapahar Stone Mine of M/s Jai Baba Bajrangbali Stone Mill (Prop. : Shri Tapas Bhakat), Village : Salbonapahar, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.06 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.
III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.
IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.
V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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15. **Salbonapahar Stone Mine of Shri Hans Raj, Village : Salbonapahar, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.87 Ha).**

(Proposal no.: SIA/JH/MIN/ 507423 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

Environmental Clearance Application for: Proposed Capacity- 53,278 cum. (max.) / 1,43,850 Tons (max.) per year

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Salbonapahar Stone Mine Project Type – Stone Mine	
2	Lessee:	:	Proponent: Shri Hans Raj	
3	Lessee Address	:	Shri Hans Raj S/o Navin Kumar, Khapura, Bhagwanpur Khapura, Nawada, Dumrawan, Bihar, 805124	
4	Lease Area	:	1.87 Ha. (At Village: Salbonapahar, Thana- Shikaripara, Thana No – 07, District- Dumka, State- Jharkhand)	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 99.39 Lakhs	Recurring Cost: Rs. 16.66 Lakh/year
7	EMP Budget	:	Capital Cost: Rs. 7.06 Lakhs	Recurring Cost: Rs. 5.04 Lakhs/year

8	New or Expansion	:	New	
9	Mineable Reserves	:	2,49,012 cum	6,72,333 Tons
10	Mine Life	:	5 years.	
11	Man power	:	20 Person	
12	Water Requirement	:	4.85 KLD (Drinking: 0.30 KLD, Dust Suppression: 1.08 KLD, Plantation: 3.47 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	20 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Mayurakshi River – 25.0 km – WS direction (arial distance).	
17	Nearest Habitation	:	Salbonapahar Village	
18	Nearest Rail Station	:	Pakdaha Harinsing Railway Station is at areal distance of 5.0 km North direction.	
19	Nearest Air Port	:	Deoghar Airport is at areal distance of 92 km NW direction.	
20	Nearest Forest	:	DFO (Dumka), letter no.- 1101 Dated: 09/05/2024 certified that the distance of reserved / protected forest is more than 250 m from proposed project site.	
21	Road & Highways	:	NH-114A (Dumka-Rampurhat road), at 3.9 km North Direction	

CO-ORDINATES

Point Code	Longitude	Latitude
P1	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P2	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P3	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P4	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P5	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P6	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P7	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P8	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P9	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P10	24° 11' 29.94939867" N	087° 33' 46.73089730" E

P11	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P12	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P13	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P14	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P15	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P16	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P17	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P18	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P19	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P20	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P21	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P22	24° 11' 29.94939867" N	087° 33' 46.73089730" E
P23	24° 11' 29.94939867" N	087° 33' 46.73089730" E

LAND DETAILS

Khata no.	Plot no.
34	121 (P)
23	122
32	123 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 984/M, dated 22.08.2024.
2	CO	:	The CO, Shikaripara vide letter no. 406/Ra., dated 05.04.2023 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 508/M, dated 08.04.2023 certified that 01 other mining lease area (3.40 Acre) exists within 500 meters radius from proposed project site and total area is 10.10 Acre.

4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 1790, dated 13.08.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 1101, dated 09.05.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 57, Page no. 160).
7	Gram Sabha	:	Gram Sabha conducted on 25.12.2022.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1242/M, dated 28.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Mechanized Method	
2	Quarry Area	:	1.345 Ha. (During plan period)	Life of Mine – 5 year
3	Waste Generation	:	47,500 cum. O.B (During plan period)	
4	Stripping Ratio	:	1:5.24 or 0.19	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m	
7	Elevation of Mine	:	263 m to 239 m AMSL	
8	Ground Level Elevation	:	263 m AMSL	
9	Ultimate Working Depth	:	39 m	
10	Water Table	:	(During pre-monsoon 171 m AMSL) (During post-monsoon 176 m AMSL)	
11	Topography of Mine	:	Area represents sloping land.	
12	Explosive Requirement	:	48.114 kg Nitro mix explosives/day	
13	Diesel/Fuel requirement	:	HSD – 302 liters / day (90.6 KL/year)	

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.)
1st	38759	2.7	104649	129	349	34641	115
2nd	50795	2.7	137145	169	457	8470	28
3rd	52981	2.7	143047	177	477	4389	15
4th	53200	2.7	143640	177	479	0	0
5th	53278	2.7	143850	178	480	0	0
Total	**249012**	**2.7**	**672333**	**178 (MAX)**	**480 (MAX)**	**47500**	**115**

LAND USE

Existing, Proposed & Conceptual Land Use

SL	Pattern	Existing Land Use (Ha)	Proposed Land Use (Ha)	Conceptual Land Use (Ha)	Area to be converted in the conceptual period.
1	Mining Activities	0.00	1.345	1.345	Water body
2	Settling Tank	0.000	0.007	0.007	--
3	Garland drain	0.00	0.029	0.029	--
4	Dumping	0.00	0.110	0.110	(176 trees) Greenbelt
5	Safety Zone	0.00	0.388	0.388	(620 trees) Greenbelt
6	Unutilized	1.87	0.000	0.000	--
	TOTAL	**1.87**	**1.87**	**1.87**	

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone		0.388 Ha.	620
2	Dumping zone		0.11 Ha.	176
2	Along Approach Road		0.270 km	360
TOTAL				**1,156**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development,

Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- EMP BUDGET

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 800 per Tanker)	--	2,40,000
2	Plantation 360 X 800 = Rs 2,88,000 (Gabion Plantation along approach road) (620 + 176) X 400 = 3,18,400 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	6,06,400	60,640
3	Fencing around the Lease boundary	1,00,000	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) -Rs.27,270 • Ground Water (2 point) -Rs.12,420 • Noise 24 hrs (3 point) -Rs.21,000 • Soil (3 point) -Rs.40,920 Total -Rs. 1,01,610 (Per Season) At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220 Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022	--	2,03,220
Total		**7,06,400**	**5,03,860**

Environment Monitoring Programme

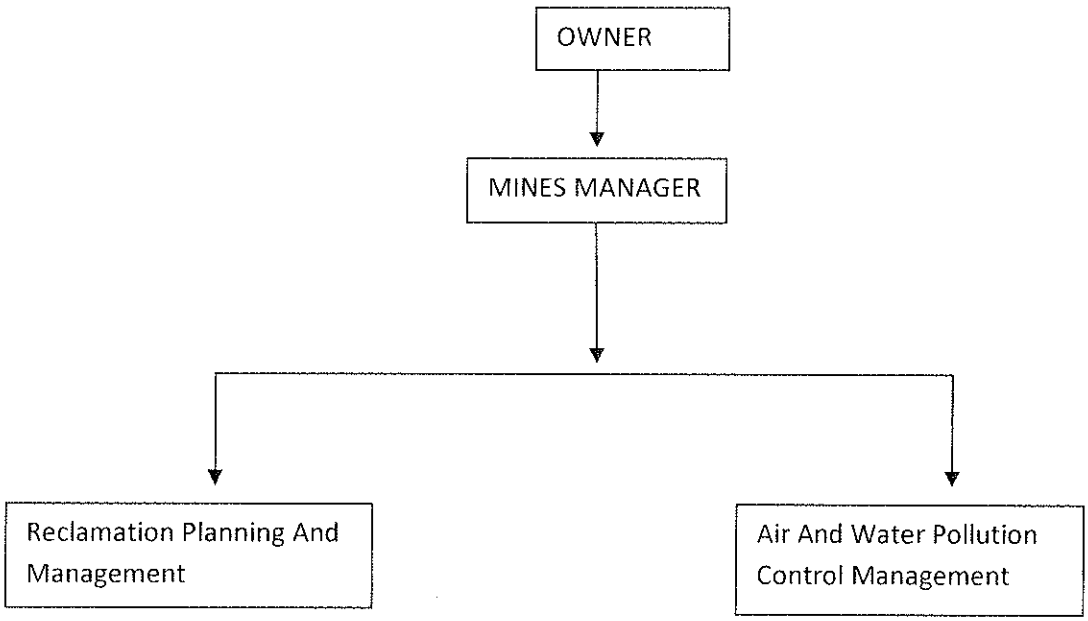
SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	One Day Monitoring (within 6 months)
2.	Water	2 stations	One Day Monitoring (within 6 months)
3.	Soil	3 stations	One Day Monitoring (within 6 months)
4.	Noise	3 stations	One Day Monitoring (within 6

			months)

Solid Waste Management

47,500 cum of O.B shall be generated during the plan period. O.B shall be used in maintenance of haul road and approach road. O.B shall be also used in backfilling within the exhausted quarry.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced

- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in

loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation

- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted

by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.

h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Salbonapahar Stone Mine of Shri Hans Raj, Village : Salbonapahar, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.87 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I **along with following specific conditions :**

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.
III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.
IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.
V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.
VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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16. Salbonapahar Stone Mine of Mr. Islam Miyan, Village : Salbonapahar, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.99 Ha).

Proposal no.: SIA/JH/MIN/ 508617 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 97493 Cum. / annum or 263231 TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Salbonapahar Stone Mine	
2	Lessee:	:	Proprietor Islam Miyan	
3	Lessee Address	:	S/o Sohrab Miyan R/o Vill - Shaharpur, P.O – Benagaria, Thana – Shikaripara, Dist – Dumka, Jharkhand.	
4	Lease Area	:	2.99 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 130.19 Lakhs	Recurring Cost: Rs. 42.85 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 7.24 Lakhs	Recurring Cost: Rs. 5.656 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 470507 cum	Tonnes: 1270370 tons
10	Mine Life	:	5 years.	
11	Man power	:	40 Person	
12	Water	:	5.28 KLD (Drinking: 0.60 KLD, Dust Suppression: 0.52 KLD,	

	Requirement		Plantation: 4.16 KLD)
13	Water Source	:	From Nearby villages by tankers
14	DG Set / power	:	60 KVA D.G. Set proposed
15	Crusher	:	No crusher
16	Nearest Water Body	:	Brahmani river at 6.73 km North direction.
17	Nearest Habitation	:	Saharpur Village – 1.65 Km in SE Direction
18	Nearest Rail Station	:	Pakdaha Harinsing Railway Station at areal distance of 5.35 km in North direction.
19	Nearest Air Port	:	Deoghar Airport is at aerial distance of 93.5 km NW direction.
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer Dumka. letter no.- 3515 Dated- 22/11/2023
21	Road & Highways	:	The distance of Approach Road is 130m, after that this road connects to village road. The village road continues for 3.56 km and after this the road connects to MDR Sarasdangal to Shikaripara.

CO-ORDINATES

Point Name	Longitude	Latitude
1	087° 34' 15.44728662" E	24° 11' 28.97120300" N
2	087° 34' 15.19873638" E	24° 11' 28.59612016" N
3	087° 34' 14.82437193" E	24° 11' 28.21082616" N
4	087° 34' 14.38692500" E	24° 11' 27.78090278" N
5	087° 34' 13.85590961" E	24° 11' 27.25946224" N
6	087° 34' 13.57393823" E	24° 11' 26.70076965" N
7	087° 34' 14.10071364" E	24° 11' 26.26937301" N
8	087° 34' 14.30184705" E	24° 11' 26.01737441" N
9	087° 34' 14.70781011" E	24° 11' 25.79981736" N
10	087° 34' 14.53967435" E	24° 11' 25.53245157" N
11	087° 34' 14.39444362" E	24° 11' 25.18496349" N
12	087° 34' 14.35339754" E	24° 11' 24.43322289" N

13	087° 34' 14.02567424" E	24° 11' 24.06057226" N
14	087° 34' 13.75864842" E	24° 11' 23.78530298" N
15	087° 34' 13.59214310" E	24° 11' 22.95996133" N
16	087° 34' 13.45711673" E	24° 11' 22.75629700" N
17	087° 34' 13.40871434" E	24° 11' 22.60514367" N
18	087° 34' 13.04230149" E	24° 11' 21.99532110" N
19	087° 34' 12.89945279" E	24° 11' 21.71555421" N
20	087° 34' 12.73796643" E	24° 11' 21.49738656" N
21	087° 34' 12.68493160" E	24° 11' 21.61722576" N
22	087° 34' 12.55021124" E	24° 11' 21.69891452" N
23	087° 34' 12.50720452" E	24° 11' 21.97894941" N
24	087° 34' 11.81826693" E	24° 11' 22.60536721" N
25	087° 34' 10.27184467" E	24° 11' 22.61755665" N
26	087° 34' 09.48367834" E	24° 11' 22.66476404" N
27	087° 34' 09.47433555" E	24° 11' 23.88805962" N
28	087° 34' 09.46418552" E	24° 11' 25.21705505" N
29	087° 34' 09.45491459" E	24° 11' 26.43094747" N
30	087° 34' 09.44577093" E	24° 11' 27.62817824" N
31	087° 34' 09.43753327" E	24° 11' 28.70678513" N
32	087° 34' 09.42929562" E	24° 11' 29.78539198" N
33	087° 34' 09.91535487" E	24° 11' 29.78161212" N
34	087° 34' 10.07859893" E	24° 11' 29.95465228" N
35	087° 34' 10.41254641" E	24° 11' 29.94676548" N
36	087° 34' 11.73299371" E	24° 11' 29.81831656" N
37	087° 34' 12.02364749" E	24° 11' 29.71040754" N
38	087° 34' 12.60849896" E	24° 11' 29.57148773" N
39	087° 34' 14.09045428" E	24° 11' 29.19847395" N
40	087° 34' 14.80023639" E	24° 11' 29.06762990" N

LAND DETAILS

Khata no.	Plot no.
11	138 & 147 (P)
22	139

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 902/M, dated 05.08.2024.
2	CO	:	The CO, Shikaripara vide letter no. 1332/Ra., dated 02.12.2023 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 1375/M, dated 24.11.2023 certified that 01 other mining lease area (3.40 Acre) exists within 500 meters radius from proposed project site and total area is 10.79 Acre.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 2950, dated 26.12.2023 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 3515, dated 22.11.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 38, Page no. 156).
7	Gram Sabha	:	Gram Sabha conducted on 26.10.2023.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1266/M, dated 06.11.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	2.99 Ha	Life of Mine – 5 year
3	Waste Generation	:	95045 cum	

4	Stripping Ratio	:	51:50
5	Working Days	:	300
6	Benches: size	:	2 m x 3 m,
7	Elevation of Mine	:	259m – 243m AMSL
8	Ground Level Elevation	:	260 AMSL
9	Ultimate Working Depth	:	40 m AMSL
10	Water Table	:	Post Monsoon – 176 m AMSL Pre Monsoon – 171m AMSL
11	Topography of Mine	:	Area represents gently sloping land.
12	Explosive Requirement	:	94.8 kg Slurry explosives/day
13	Diesel/Fuel requirement	:	HSD – 454 liters / day (136.2 KL/year)

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.
1st	92926	2.7	250901	310	836	95045	317
2nd	94734	2.7	255782	316	853	0	0
3rd	92730	2.7	250370	309	835	0	0
4th	92625	2.7	250088	309	834	0	0
5th	97493	2.7	263231	325	877	0	0
Total	**470507**	**2.7**	**1270370**	**325 (Max.)**	**877 (Max.)**	**95045**	**317**

Land Use pattern

SL	Pattern of Utilization	Existing Land Use (Ha)	Proposed Land Use (Ha)	Conceptual Land Use (Ha)	Area to be converted in the conceptual period.
1	Mining Activities	0.000	2.172	2.172	Water body
2	Offices/ Store etc.	0.000	0.000	0.000	Plantation
3	Dumping	0.000	0.200	0.200	Plantation
4	Mining Road	0.000	0.000	0.000	Water body
5	Garland drain	0.000	0.038	0.038	-
6	Settling Tank	0.000	0.020	0.020	-
7	Green belt	0.000	0.000	0.000	Green Belt
8	Safety Zone	0.000	0.560	0.560	Plantation

9	Stone Stock yards	0.000	0.000	0.000	
10	Unutilized	2.990	0.000	0.000	
11	Crusher	0.000	0.000	0.000	
	TOTAL	**2.990**	**2.990**	**2.990**	

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone/ Green belt/ Dumping		0.760 Ha	1216
2	Along Approach Road		130m	172
TOTAL				**1,388**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl.No.	**Particulars**	**Capital Cost in Rs.**	**Recurring Cost in Rs. per year**
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1000 per Tanker)	--	3,00,000
2	Plantation 172 X 800 = Rs 1,37,600 (Gabion Plantation along approach road) 1216 X 400 = 4,86,400 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	6,24,000	62,400
3	Fencing	100,000	-
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270 • Ground Water (2 point) -	--	2,03,220

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
	Rs.12,420 • Noise 24 hrs (3 point) - Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610 (Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2** **= Rs. 2,03,220** Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022		
Total		**7,24,000**	**5,65,620**

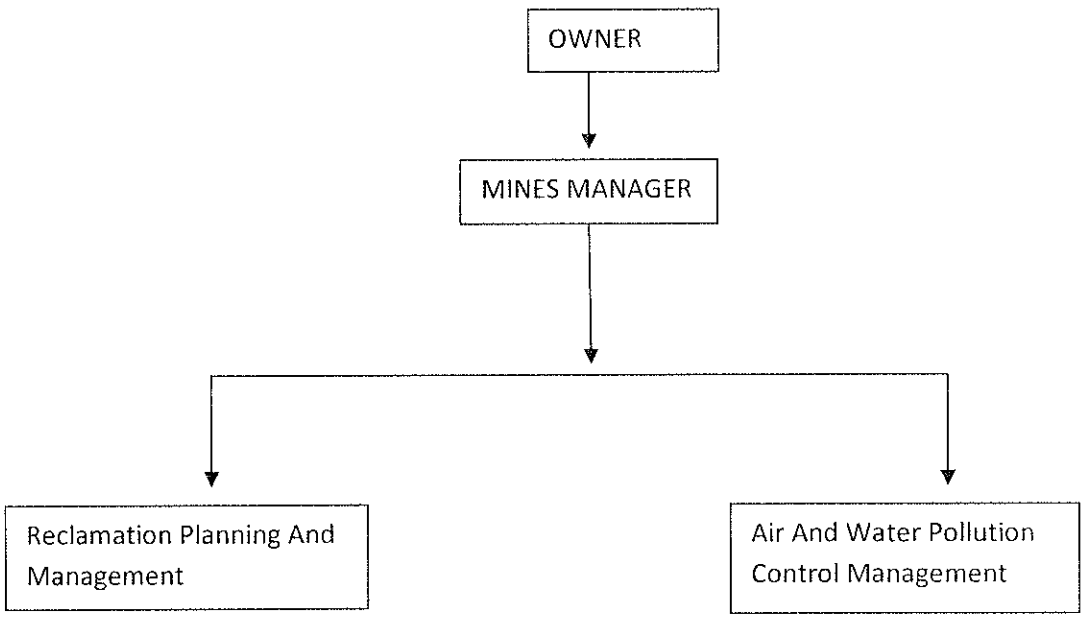
Environment Monitoring Programme

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 Station	6 Monthly

Solid Waste Management

95045 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5

3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)

- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Salbonapahar Stone Mine of Mr. Islam Miyan, Village : Salbonapahar, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.99 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I **along with following specific conditions :**

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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17. Dimadah Stone Mine of Mr. Vikram Sharma, Village : Dimadah, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.979 Ha).

(Proposal no.: SIA/JH/MIN/ 506019 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 56,464.20 Cum. / annum or 1,52,453 TPA (max.)

Project and Location Details:

Sl	Parameter		Details
1	Project Name	:	Dimadah Stone Mine

2	Lessee:	:	Mr. Vikram Sharma	
3	Lessee Address	:	S/o Mr. Gokul Mistri Rasikpur, Ward no.: 01 P.O.+P.S.: Dumka District: Dumka Jharkhand – 814101	
4	Lease Area	:	1.979 Ha	
5	Type of Land	:	Non-Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 130.18 Lakhs	Recurring Cost: Rs. 12.22 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 9.128 Lakhs	Recurring Cost: Rs. 5.245 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	2,44,820 cum	6,61,013 tons
10	Mine Life	:	5 years.	
11	Man power	:	20 Person	
12	Water Requirement	:	6.884 KLD Drinking: 0.30 KLD Dust Suppression: 1.88 KLD Plantation: 4.704 KLD	
13	Water Source	:	From Nearby villages by tankers	
14	D.G. Set / power	:	20 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani River – 0.50 km – N direction	
17	Nearest Habitation	:	Dimadah – 0.20 km in the N direction	
18	Nearest Rail Station	:	Pakdaha Harinsing Railway Station is at areal distance of 1.63 km SW direction.	
19	Nearest Air Port	:	Deoghar Airport is at aerial distance of 91.10 km NW direction.	
20	Nearest Forest	:	More than 250 m, as per Forest Division, Dumka Letter No. 1992 Dated - 31/08/2024	
21	Road & Highways	:	The distance of Approach Road is 350 m, after that this road connects to NH-114A (Dumka-Rampurhat Road) at 3.60 km (aerial distance) SW direction	

CO-ORDINATES

Point Name	Latitude	Longitude
1	24° 15' 11.56504066" N	087° 34' 53.21566496" E

2	24° 15' 11.52589223" N	087° 34' 53.56162754" E
3	24° 15' 11.48674380" N	087° 34' 53.90759012" E
4	24° 15' 11.13265863" N	087° 34' 53.85551877" E
5	24° 15' 10.91743039" N	087° 34' 54.86223150" E
6	24° 15' 11.05975874" N	087° 34' 54.91083142" E
7	24° 15' 11.09100155" N	087° 34' 54.95943135" E
8	24° 15' 10.85312770" N	087° 34' 56.05484165" E
9	24° 15' 10.37004391" N	087° 34' 55.94466465" E
10	24° 15' 09.88272254" N	087° 34' 55.41761599" E
11	24° 15' 08.38177271" N	087° 34' 55.16901853" E
12	24° 15' 08.24074614" N	087° 34' 55.55955363" E
13	24° 15' 08.04547859" N	087° 34' 56.34604795" E
14	24° 15' 07.58985429" N	087° 34' 57.12711817" E
15	24° 15' 07.18304689" N	087° 34' 56.82336864" E
16	24° 15' 06.91726605" N	087° 34' 56.80167225" E
17	24° 15' 06.76539128" N	087° 34' 57.40917131" E
18	24° 15' 06.23925370" N	087° 34' 57.23560015" E
19	24° 15' 06.29891879" N	087° 34' 56.78539995" E
20	24° 15' 05.55581726" N	087° 34' 56.59555650" E
21	24° 15' 05.32800511" N	087° 34' 56.50334682" E
22	24° 15' 05.13816166" N	087° 34' 56.39486484" E
23	24° 15' 04.76932294" N	087° 34' 56.23756598" E
24	24° 15' 04.88322902" N	087° 34' 55.48361625" E
25	24° 15' 04.75305065" N	087° 34' 55.42937527" E
26	24° 15' 04.81271573" N	087° 34' 55.23953181" E
27	24° 15' 04.85068442" N	087° 34' 55.02799196" E
28	24° 15' 04.81813983" N	087° 34' 54.82730030" E

29	24° 15' 05.01340739" N	087° 34' 54.84899670" E
30	24° 15' 05.17613035" N	087° 34' 54.01368549" E
31	24° 15' 05.38767020" N	087° 34' 53.10243690" E
32	24° 15' 05.60463415" N	087° 34' 52.25627750" E
33	24° 15' 05.91380778" N	087° 34' 52.21830880" E
34	24° 15' 05.97889696" N	087° 34' 51.87116648" E
35	24° 15' 06.04941025" N	087° 34' 51.90371108" E
36	24° 15' 06.09822714" N	087° 34' 51.82234960" E
37	24° 15' 06.17958862" N	087° 34' 51.47520728" E
38	24° 15' 06.17416452" N	087° 34' 51.25824333" E
39	24° 15' 06.90099375" N	087° 34' 51.50775187" E
40	24° 15' 07.05829261" N	087° 34' 51.16603365" E
41	24° 15' 07.38916264" N	087° 34' 51.27451562" E
42	24° 15' 08.04785163" N	087° 34' 51.53487236" E
43	24° 15' 07.64951938" N	087° 34' 51.91455927" E
44	24° 15' 07.58985429" N	087° 34' 52.16406782" E
45	24° 15' 07.42170723" N	087° 34' 52.45696915" E
46	24° 15' 07.29695296" N	087° 34' 52.76071868" E
47	24° 15' 07.89360382" N	087° 34' 53.03734772" E
48	24° 15' 08.07259908" N	087° 34' 53.09701280" E
49	24° 15' 08.69637044" N	087° 34' 53.21091888" E
50	24° 15' 08.76688372" N	087° 34' 53.33567315" E
51	24° 15' 08.94045488" N	087° 34' 53.49297201" E
52	24° 15' 09.21708392" N	087° 34' 53.55263710" E
53	24° 15' 09.49913705" N	087° 34' 53.50924431" E
54	24° 15' 09.75406969" N	087° 34' 53.55806120" E
55	24° 15' 10.47005073" N	087° 34' 53.69366366" E

56	24° 15' 10.59480500" N	087° 34' 53.16752609" E
57	24° 15' 10.18257349" N	087° 34' 53.02649952" E
58	24° 15' 10.95279552" N	087° 34' 52.01219305" E
59	24° 15' 12.01049477" N	087° 34' 52.42984866" E
60	24° 15' 12.20033823" N	087° 34' 52.48951374" E
61	24° 15' 11.91828510" N	087° 34' 53.22176707" E
62	24° 15' 11.56504066" N	087° 34' 53.21566496" E

LAND DETAILS

Khata no.	Plot no.
04, 05, 06, 10, 11, 12, 21, 22, 24, 26, 28 & 33	86 (P), 87, 88, 90 (P), 93 (P), 94 (P), 95, 96, 97, 98, 99, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, & 116

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 1051/M, dated 12.09.2024.
2	CO	:	The CO, Shikaripara vide letter no. 774/Ra., dated 29.08.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 1019/M, dated 31.08.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 1876, dated 27.08.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 1992, dated 31.08.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl.

			no. 64, Page no. 162).
7	Gram Sabha	:	Gram Sabha conducted on 08.06.2024.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1158/M, dated 09.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Mechanized Method	
2	Quarry Area	:	1.979 Ha	Life of Mine – 5 year
3	Waste Generation	:	26,370 cum	
4	Stripping Ratio	:	10:07	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	
7	Elevation of Mine	:	79 m – 72 m AMSL	
8	Ground Level Elevation	:	72 AMSL	
9	Ultimate Working Depth	:	41 m AMSL	
10	Water Table	:	Post-Monsoon – 25 m AMSL Pre-Monsoon – 20 m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	53.46 kg nitro mix explosives/day	
13	Diesel/Fuel requirement	:	HSD – 287.49 liters / day (86.247 KL/year)	

SUMMARY OF YEARWISE OF PRODUCTION

Years	Production in Cum/Year	Production in Cum/Day	O.B. in Cum/Year	Production in Tons/Year	Prod. in Tons. /Day
1st	56464.20	188	20826	152453	508
2nd	48461.40	162	0	130846	436
3rd	54503.40	182	5544	147159	491
4th	44599	149	0	120416	401
5th	40792	136	0	110139	367
Total	**244820**	**188 (max.)**	**26370**	**661013**	508 (max.)

Land Use

Land Use Pattern for Existing, Proposed Plan Period and after Life of the Mine:

Sl. No.	Pattern of Utilization	Present/Existing land use pattern in (Ha.)	Proposed Land use for current plan period (Ha.)	Land used at the conceptual stage i.e. end of mine life in (Ha.)	Area to be converted in the conceptual period.
1	Mining Activities	0.00	1.26	1.26	Water body
2	Offices/ Store etc.	0.00	0.00	0.00	Plantation
3	Dumping	0.00	0.05	0.05	Plantation -
4	Mining Road	0.00	0.00	0.00	Water body
5	Garland drain	0.00	0.04	0.04	-
6	Settling Tank	0.00	0.01	0.01	-
7	Green belt	0.00	0.00	0.01	Green Belt
8	Safety Zone	0.00	0.63	0.63	Plantation
9	Stone Stock yards	0.00	0.00	0.00	
10	Unutilized	1.979	0.01	0.00	
11	Crusher	0.00	0.00	0.00	
Total		**1.979**	**1.979**	**1.979**	**-**

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone		0.69 Ha	1104

	dumping area, unutilized area, greenbelt area and the office area			
2	Along Approach Road		350 m	464
TOTAL				**1568**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 800 per Tanker)	--	2,40,000
2	Plantation 464 X 800 = Rs 3,71,200 (Gabion Plantation along approach road) 1104 X 400 = 4,41,600 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	8,12,800	81,280
3	Fencing	1,00,000	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270 • Ground Water (2 point) - Rs.12,420 • Noise 24 hrs (3 point) - Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610** **(Per**	--	2,03,220

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
	Season) At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220 Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022		
Total		9,12,800	5,24,500

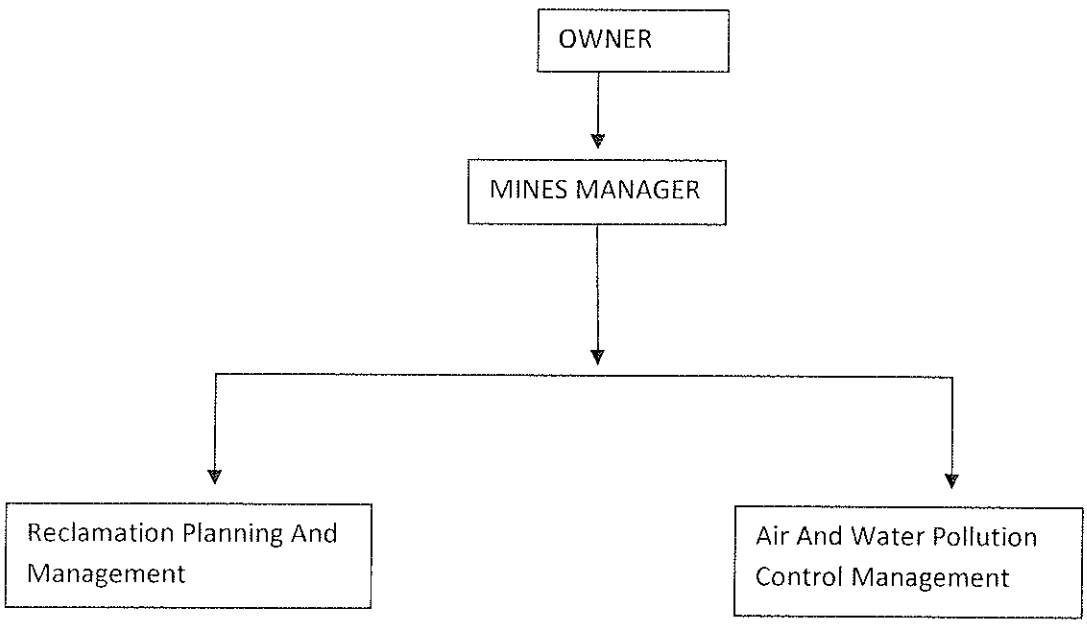
Environment Monitoring Programme

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 Station	6 Monthly

Solid Waste Management

During first year 26,370 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5

3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)

- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Dimadah Stone Mine of Mr. Vikram Sharma, Village : Dimadah, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.979 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I **along with following specific conditions :**

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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18. Saharpur Stone Mine of Shri Santosh Yadav, Village : Saharpur, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.46 Ha).

(Proposal no.: SIA/JH/MIN/ 506124 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 92150 Cum. / annum or 248805 TPA.

Project and Location Details:

Sl	Parameter		Details
1	Project Name	:	Saharpur Stone Mine

2	Lessee:	:	Proprietor: Shri Santosh Yadav	
3	Lessee Address	:	Shri Santosh Yadav S/o Shri Prayag Yadav R/o Gram- Charmil, PO- Devchand, PS- Barhi Dist- Hazaribagh, Jharkhand 825405.	
4	Lease Area	:	2.46 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 129.09 Lakhs	Recurring Cost: Rs. 20.02 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 9.384 Lakhs	Recurring Cost: Rs. 5.87 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 4,75,559 cum	Tonnes: 12,84,008.2 tons
10	Mine Life	:	5 years.	
11	Man power	:	25 Person	
12	Water Requirement	:	6.65 KLD (Drinking: 0.37 KLD, Dust Suppression: 1.10 KLD, Plantation: 5.18 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani river at 9 km North direction.	
17	Nearest Habitation	:	Chandangaria Village – 1.40 Km in SE Direction	
18	Nearest Rail Station	:	Pakdaha Harinsing Railway Station at aerial distance of 6.68 km in North direction.	
19	Nearest Air Port	:	Deoghar Airport is at aerial distance of 93.38 km North West direction.	
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer Dumka. letter no.- 3312 Dated- 31/10/2023	
21	Road & Highways	:	The distance of Approach Road is 276m, after that this road continues in village road about 5 km & connects to NH 114A (Dumka – Rampurhat Road)	

CO-ORDINATES

Point Code	Latitude	Longitude
P1	24° 10' 47.68430434" N	087° 34' 48.17529164" E
P2	24° 10' 47.30858302" N	087° 34' 49.23947652" E
P3	24° 10' 47.00138664" N	087° 34' 49.95690152" E
P4	24° 10' 46.58413956" N	087° 34' 50.82686522" E

P5	24° 10' 46.60732630" N	087° 34' 51.16549633" E
P6	24° 10' 46.56700827" N	087° 34' 51.39507653" E
P7	24° 10' 46.41411799" N	087° 34' 51.61267246" E
P8	24° 10' 46.08170366" N	087° 34' 52.12453016" E
P9	24° 10' 45.80475872" N	087° 34' 52.74279130" E
P10	24° 10' 45.58889494" N	087° 34' 53.25169519" E
P11	24° 10' 45.10104883" N	087° 34' 53.07720398" E
P12	24° 10' 44.65166921" N	087° 34' 52.86286265" E
P13	24° 10' 44.54548968" N	087° 34' 53.07642707" E
P14	24° 10' 43.88969317" N	087° 34' 52.90835393" E
P15	24° 10' 43.16178382" N	087° 34' 52.67853360" E
P16	24° 10' 43.03416873" N	087° 34' 52.94254503" E
P17	24° 10' 42.72873586" N	087° 34' 53.07689691" E
P18	24° 10' 42.70725918" N	087° 34' 53.26648140" E
P19	24° 10' 42.60512530" N	087° 34' 53.35019298" E
P20	24° 10' 41.75464309" N	087° 34' 52.85789569" E
P21	24° 10' 41.04436110" N	087° 34' 52.48709610" E
P22	24° 10' 41.11988045" N	087° 34' 51.85712763" E
P23	24° 10' 41.29416159" N	087° 34' 51.37086616" E
P24	24° 10' 41.84114036" N	087° 34' 50.00106789" E
P25	24° 10' 42.32127631" N	087° 34' 48.78391129" E
P26	24° 10' 42.81008019" N	087° 34' 48.36126768" E
P27	24° 10' 43.87679631" N	087° 34' 47.65658248" E
P28	24° 10' 45.15396035" N	087° 34' 46.95709332" E
P29	24° 10' 45.99181192" N	087° 34' 46.53891078" E
P30	24° 10' 46.95087052" N	087° 34' 46.22510929" E
P31	24° 10' 46.72054661" N	087° 34' 47.90076664" E

LAND DETAILS

Khata no.	Plot no.
26	187(P), 188(P), 190, 191
19	189(P),
07	192(P),
17	193(P), 218(P)
45	219,
30	194, 196, 195, 197(P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 961/M, dated 16.08.2024.
2	CO	:	The CO, Shikaripara vide letter no. 40/Ra., dated 24.01.2024 has mentioned the plot no. of the project is not recorded as "Jungle-

			Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 163/M, dated 09.02.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 800, dated 09.05.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 3312, dated 31.10.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 49, Page no. 159).
7	Gram Sabha	:	Gram Sabha conducted on 30.08.2023.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1184/M, dated 17.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	2.46 Ha	Life of Mine – 5 year
3	Waste Generation	:	33250 cum	
4	Stripping Ratio	:	01:50	
5	Working Days	:	300	
6	Benches: size	:	2 m x 3 m,	
7	Elevation of Mine	:	130m – 114m AMSL	
8	Ground Level Elevation	:	130 AMSL	
9	Ultimate Working Depth	:	38 m AMSL	
10	Water Table	:	Post Monsoon – 57 m AMSL Pre Monsoon – 53 m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	87.48 kg Slurry explosives/day	
13	Diesel/Fuel requirement	:	HSD – 329 liters / day (98.7 KL/year)	

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.
1st	91912.5	2.7	248164	306	827	33250	111
2nd	82768.75	2.7	223476	276	745	0	0
3rd	73506.25	2.7	198467	245	662	0	0
4th	92150	2.7	248805	307	829	0	0
5th	72675	2.7	196223	242	654	0	0
Total	**413013**	2.7	**1115134**	**307 (max)**	**829 (max)**	**33250**	111

Land Use pattern

SL	Pattern of Utilization	Existing Land Use (Ha)	Proposed Land Use (Ha)	Conceptual Land Use (Ha)	Area to be converted in the conceptual period.
1	Mining Activities	000	1.566	1.566	Water body
2	Offices/ Store etc.	000	0.000	0.000	Plantation
3	Dumping	000	0.072	0.072	Plantation -
4	Mining Road	000	0.000	0.000	Water body
5	Garland drain	000	0.027	0.027	-
6	Settling Tank	000	0.017	0.017	-
7	Green belt	000	0.000	0.000	Green Belt
8	Safety Zone	000	0.486	0.486	Plantation
9	Stone Stock yards	000	0.000	0.000	-
10	Unutilized	000	0.292 (Excavated Area)	0.292 (Excavated Area)	-
11	Crusher	000	0.000	0.000	-
	TOTAL	**2.460**	**2.460**	**2.460**	

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location	Area/Length	No of Trees
1	Safety Zone/Dumping	0.850 Ha	1360
2	Along Approach Road	0.276m	368
TOTAL			**1,728**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation.

Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1000 per Tanker)	--	3,00,000
2	Plantation 368 X 800 = Rs 2,94,400 (Gabion Plantation along approach road) 1360 X 400 = 5,44,000 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	8,38,400	83,840
3	Fencing	100,000	-
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270 • Ground Water (2 point) - Rs.12,420 • Noise 24 hrs (3 point) - Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610 (Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220** Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022	--	2,03,220
Total		**9,38,400**	**5,87,060**

Environment Monitoring Programme

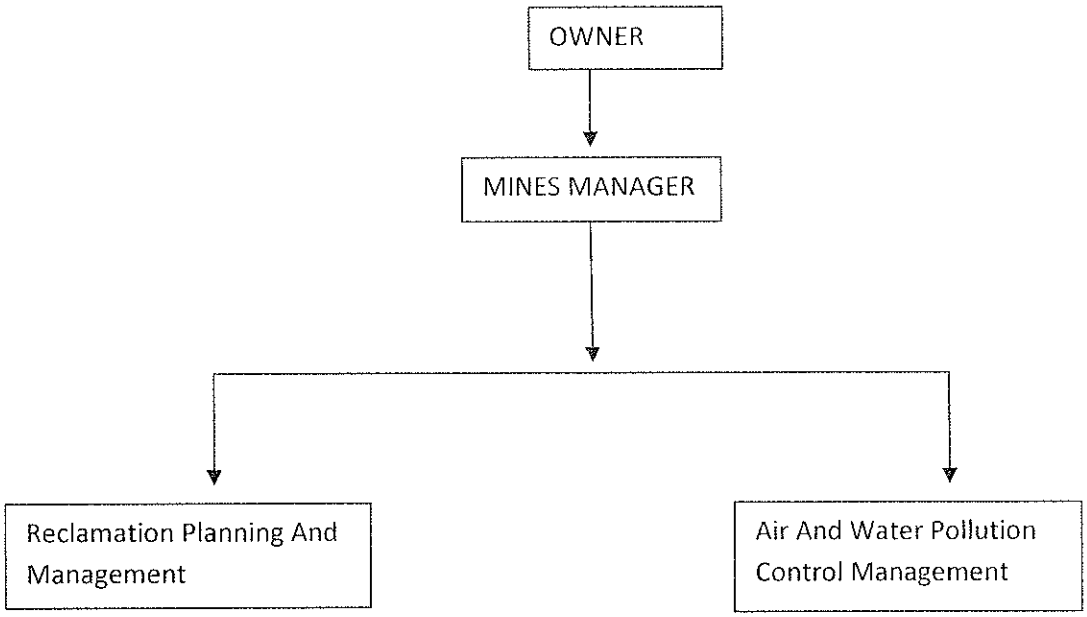
SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly

2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 Station	6 Monthly

Solid Waste Management

33250 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers

- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.

g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Saharpur Stone Mine of Shri Santosh Yadav, Village : Saharpur, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.46 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I **along with following specific conditions :**

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.
III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.
IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.
V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.
VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be

maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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19. **Manjhladih Stone Mine of M/s Maa Ambey Stone Product (Prop. : Shri Ajay Kumar Bhagat), Village : Manjhladih, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.65 Ha).**

(Proposal no.: SIA/JH/MIN/ 507095 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 56563 Cum. / annum or 152720 TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Manjhladih Stone Mine	
2	Lessee: & Lessee Address	:	Maa Ambey Stone Product Proprietor- Shri Ajay Kumar Bhagat, S/o Shri Bhaijnath Bhagat, R/o Vill + P.O. - Ganpura,Thana – Pakuriya, Dist - Pakur, (816103) Jharkhand	
3	Lease Address	:	Village: Manjhladih, Thana- Shikaripara, Thana No -06, District-Dumka, State- Jharkhand. (2.65 Ha.)	
4	Lease Area	:	2.65 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 127.99 Lakhs	Recurring Cost:Rs.25.14 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 7.048Lakhs	Recurring Cost: Rs 5.977 Lakhs
8	New or Expansion	:	New	
9	Mineable	:	cum.: - 275686	Tonnes : 744353

	Reserves		
10	Mine Life	:	5 years.
11	Man power	:	33 Person
12	Water Requirement	:	5.539 KLD (Drinking: 0.495 KLD, Dust Suppression: 1.0 KLD, Plantation:4.044KLD
13	Water Source	:	From Nearby villages by tankers
14	DG Set / power	:	60 KVA D.G. Set proposed
15	Crusher	:	No crusher
16	Nearest Water Body	:	Brahmani River – 4.32 km North Direction
17	Nearest Habitation	:	Manjhladih Village – 0.500 Km in NW direction
18	Nearest Rail Station	:	Pakdaha Harinsing Railway Station at areal distance of 5 km in North direction.
19	Nearest Air Port	:	Deoghar Airport is at areal distance of 92 km NW direction.
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer . letter no.- 1955 Dated- 01/06/2023
21	Road & Highways	:	The distance of Approach Road is 100m, after that this road connects to village road. The village road continues for 3.3 km and after this the road connects to MDR Sarasdangal to Shikaripara.

CO-ORDINATES

Point ID	Latitude	Longitude
1	24° 11' 38.32882532" N	087° 34' 33.06564608" E
2	24° 11' 39.13183305" N	087° 34' 31.67066127" E
3	24° 11' 39.81214764" N	087° 34' 30.52902912" E
4	24° 11' 40.76488539" N	087° 34' 31.38955294" E
5	24° 11' 41.36658197" N	087° 34' 31.88390633" E
6	24° 11' 41.45079388" N	087° 34' 32.06475081" E
7	24° 11' 41.96464450" N	087° 34' 32.35891911" E
8	24° 11' 42.24471120" N	087° 34' 31.81960536" E
9	24° 11' 42.75512964" N	087° 34' 31.06805497" E
10	24° 11' 43.10334089" N	087° 34' 30.55570121" E
11	24° 11' 43.25415633" N	087° 34' 30.31072715" E

12	24° 11' 44.08045550" N	087° 34' 31.09984550" E
13	24° 11' 45.06615644" N	087° 34' 32.03921191" E
14	24° 11' 44.77618258" N	087° 34' 32.42957141" E
15	24° 11' 44.48868173" N	087° 34' 32.99145887" E
16	24° 11' 44.40866902" N	087° 34' 33.20525603" E
17	24° 11' 44.04815753" N	087° 34' 34.02061828" E
18	24° 11' 44.43677456" N	087° 34' 34.25983431" E
19	24° 11' 44.13021327" N	087° 34' 34.73711833" E
20	24° 11' 43.76602974" N	087° 34' 35.44819874" E
21	24° 11' 43.19032271" N	087° 34' 36.55039049" E
22	24° 11' 43.43000018" N	087° 34' 36.81284349" E
23	24° 11' 42.92391533" N	087° 34' 37.78315056" E
24	24° 11' 42.47860875" N	087° 34' 38.97373346" E
25	24° 11' 41.77700915" N	087° 34' 40.41635541" E
26	24° 11' 41.52160880" N	087° 34' 40.31358919" E
27	24° 11' 40.93411578" N	087° 34' 39.85696153" E
28	24° 11' 40.02373793" N	087° 34' 39.48212707" E
29	24° 11' 40.35909763" N	087° 34' 38.75092328" E
30	24° 11' 40.39434105" N	087° 34' 38.08199423" E
31	24° 11' 40.84321015" N	087° 34' 37.31543818" E
32	24° 11' 41.17099893" N	087° 34' 36.56500302" E
33	24° 11' 41.34134835" N	087° 34' 36.16795406" E
34	24° 11' 41.33402200" N	087° 34' 35.90438521" E
35	24° 11' 41.54360224" N	087° 34' 35.44213779" E
36	24° 11' 40.67382472" N	087° 34' 34.78541626" E
37	24° 11' 39.44119763" N	087° 34' 33.85053741" E

LAND DETAILS

Khata no.	Plot no.
06, 24, 36 & 45	730, 734, 735, 736, 737, 738, 748 (P) & 749 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 839/M, dated 19.07.2024.
2	CO	:	The CO, Shikaripara vide letter no. 1008/Ra., dated 07.08.2023 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 796/M, dated 10.05.2023 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 1326, dated 05.07.2023 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 1955, dated 01.06.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 33, Page no. 156).
7	Gram Sabha	:	Gram Sabha conducted on 10.02.2023.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1171/M, dated 16.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	2.65 Ha	Life of Mine – 5year
3	Waste Generation	:	38036 cum	
4	Stripping Ratio	:	07:10	

5	Working Days	:	300
6	Benches: size	:	6 m x 6 m,
7	Elevation of Mine	:	161m – 159m AMSL
8	Ground Level Elevation	:	32m
9	Ultimate Working Depth	:	126 m AMSL
10	Water Table	:	Post Monsoon – 88 m AMSL Pre Monsoon – 83 m AMSL
11	Topography of Mine	:	Area represents gently sloping land.
12	Explosive Requirement	:	47.4 kg Slurry explosives/day
13	Diesel/Fuel requirement	:	HSD –357 liters / day (107.1 KL/year)

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.
1st	54913.8	2.7	148267	183	494	38036	127
2nd	56563	2.7	152720	189	509	0	0
3rd	54978.4	2.7	148442	183	495	0	0
4th	55423	2.7	149642	185	499	0	0
5th	53808	2.7	145282	179	484	0	0
Total	**275686**	**2.7**	**744353**	**189 (Max.)**	**509 (Max.)**	**38036**	**127**

Land Use

Existing Land Use pattern

Si. No.	Pattern of Utilization	Present/Existing land use pattern in (Ha.)
1	Mining Activities	0.00
2	Offices/ Store etc.	0.00
3	Dumping	0.00
4	Mining Road	0.00
5	Garland drain	0.00
6	Settling Tank	0.00

7	Safety Zone	0.00
8	Stone Stock yards	0.00
9	Unutilized	2.65
Total		**2.65**

Land Use Pattern for Proposed Plan Period:

Si. No.	Pattern of Utilization	Proposed Land use forcurrent plan period (Ha.)
1	Mining Activities	1.821
2	Offices/ Store etc.	0.004
3	Dumping	0.121
4	Mining Road	0.024
5	Garland drain	0.040
6	Settling Tank	0.008
7	Safety Zone	0.635
8	Stone Stock yards	0.000
9	Unutilized	0.000
Total		**2.65**

Land Use Pattern after Life of the Mine:

Si. No.	Pattern of Utilization	Present/ Existing land use pattern in (Ha.)	Proposed Land use forcurrent plan period (Ha.)	Land to be used in remaining period of the life of the mine. (Ha.)	Land used at the conceptu al stage i.e. end of mine life in (Ha.)	Area to be converted in the conceptual period.
1	Mining Activities	0.00	1.821	0.00	1.821	Water body
2	Offices/ Store etc.	0.00	0.004	0.00	0.004	Plantation
3	Dumping	0.00	0.121	0.00	0.121	Plantation -
4	Mining Road	0.00	0.024	0.00	0.024	Water body
5	Garland drain	0.00	0.040	0.00	0.040	-
6	Settling Tank	0.00	0.008	0.00	0.008	-
7	Safety Zone	0.00	0.635	0.00	0.635	Plantation
8	Stone Stock yards	0.00	0.000	0.00	0.000	
9	Unutilized	2.65	0.000	2.65	0.000	
Total		**2.65**	**2.65**	**2.65**	**2.65**	**2.65**

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone		0.635+ 0.125 Ha	1216
2	Along Approach Road		0.100 km	132
TOTAL				**1348 Trees**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl. No.	**Particulars**	**Capital Cost in Rs.**	**Recurring Cost in Rs. per year**
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1100 per Tanker)	--	3,30,000
2	Plantation: 132 X 800 = Rs 105,600 (Gabion Plantation along approach road) 1348 X 400 = Rs 5,39,200 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	6,44,800	64480
3	Fencing around the Lease boundary	60,000	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) -Rs.27,270 • Ground Water (2 point) -Rs.12,420 • Noise 24 hrs (3 point) -Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610 (Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220** **Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022**	--	2,03,220
Total		**7,04,800**	**5,97,700**

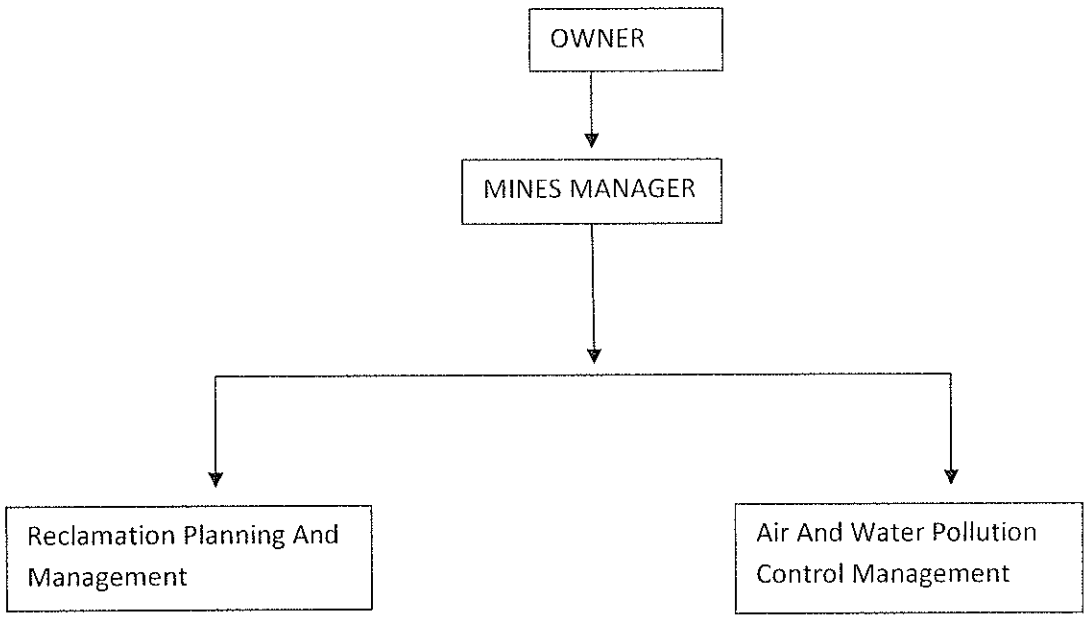
Environment Monitoring Programme :

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 stations	6 Monthly

Solid Waste Management

During first year 38036 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers

- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.

g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Manjhladih Stone Mine of M/s Maa Ambey Stone Product (Prop. : Shri Ajay Kumar Bhagat), Village : Manjhladih, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.65 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I **along with following specific conditions :**

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.
III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.
IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.
V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.
VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged

photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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20. Manjhladih Stone Mine of Partners : Shri Deepak Kumar Singh & Shri Josa Kisku, Village : Manjhladih, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.32 Ha).

(Proposal no.: SIA/JH/MIN/ 506118 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 19124.45 Cum. / annum or 51636 TPA.

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Manjhladih Stone Mine	
2	Lessee:	:	Partners 1.Shri Deepak kumar Singh 2.Shri Josa Kisku	
3	Lessee Address	:	1. Deepak Kr. Singh S/o Rajeshwari Singh, Vill- Shikaripara, PO+PS- Shikaripara, Dist- Dumka. 2. Josa Kisku S/o Hopna Kisku, Vill- Manjhladih, PO- Benagaria, Thana- Shikaripara, Dist- Dumka	
4	Lease Area	:	1.32 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 76.29 Lakhs	Recurring Cost: Rs. 13.82 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 14.92 Lakhs	Recurring Cost: Rs 6.42 Lakhs
8	New or Expansion	:	New	

9	Mineable Reserves	:	cum.: 77203.65	Tonnes : 208450
10	Mine Life	:	5 years.	
11	Man power	:	17 Person	
12	Water Requirement	:	9.41 KLD (Drinking: 0.225 KLD, Dust Suppression: 1.2 KLD, Plantation: 7.992 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani River – 7 km North direction	
17	Nearest Habitation	:	Manjhladih Village – 0.500 Km in West direction	
18	Nearest Rail Station	:	Pakdaha Harinsing Railway Station is at areal distance of 5 km North direction	
19	Nearest Air Port	:	Deoghar Airport is at areal distance of 92 km West direction.	
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer NOC. letter no.-884 Dated- 22/03/2023	
21	Road & Highways	:	A well motorable road is connected to the mine site at a distance of 308m, after that this road connects to Jitpur more NH 114A (Dumka-Rampurhat road)	

CO-ORDINATES

Point Name	Latitude	Longitude
1	24° 11' 28.81993346" N	087° 34' 33.95599139" E
2	24° 11' 29.44431262" N	087° 34' 34.01982280" E
3	24° 11' 29.79139140" N	087° 34' 34.16239006" E
4	24° 11' 29.95272958" N	087° 34' 34.19168790" E
5	24° 11' 30.44037503" N	087° 34' 34.30941607" E
6	24° 11' 30.08394183" N	087° 34' 33.61722900" E
7	24° 11' 30.17764729" N	087° 34' 33.40829442" E
8	24° 11' 30.38747881" N	087° 34' 33.27006912" E
9	24° 11' 31.24406908" N	087° 34' 33.56961981" E
10	24° 11' 32.03034644" N	087° 34' 33.72642015" E
11	24° 11' 32.02175601" N	087° 34' 34.81625371" E

12	24° 11' 32.01513196" N	087° 34' 35.65643453" E
13	24° 11' 32.00876886" N	087° 34' 36.46336161" E
14	24° 11' 32.00205044" N	087° 34' 37.31518626" E
15	24° 11' 31.99365240" N	087° 34' 38.37973245" E
16	24° 11' 31.98717764" N	087° 34' 39.20030251" E
17	24° 11' 31.65512843" N	087° 34' 39.07805279" E
18	24° 11' 31.59021334" N	087° 34' 40.10650128" E
19	24° 11' 31.07273692" N	087° 34' 40.48848608" E
20	24° 11' 30.53925795" N	087° 34' 40.85984748" E
21	24° 11' 30.46780346" N	087° 34' 40.55780594" E
22	24° 11' 30.29261265" N	087° 34' 40.16310493" E
23	24° 11' 30.44136147" N	087° 34' 39.93996674" E
24	24° 11' 30.41303588" N	087° 34' 39.52506980" E
25	24° 11' 30.13006469" N	087° 34' 39.34210149" E
26	24° 11' 30.09642649" N	087° 34' 39.29102979" E
27	24° 11' 30.00035738" N	087° 34' 39.21179095" E
28	24° 11' 30.02525317" N	087° 34' 38.64937445" E
29	24° 11' 29.95178984" N	087° 34' 38.23354638" E
30	24° 11' 30.07034328" N	087° 34' 37.89566036" E
31	24° 11' 30.16150915" N	087° 34' 37.37753663" E
32	24° 11' 30.07671757" N	087° 34' 36.99737303" E
33	24° 11' 29.92960869" N	087° 34' 36.74244273" E
34	24° 11' 29.96140353" N	087° 34' 36.23856333" E
35	24° 11' 30.05830630" N	087° 34' 35.55452180" E
36	24° 11' 29.95894201" N	087° 34' 35.27156296" E
37	24° 11' 29.21712945" N	087° 34' 35.17439590" E
38	24° 11' 28.75008040" N	087° 34' 35.74633389" E

39	24° 11' 28.76165639" N	087° 34' 36.02248387" E
40	24° 11' 28.34412784" N	087° 34' 35.98241691" E
41	24° 11' 28.21396057" N	087° 34' 35.89802808" E
42	24° 11' 28.20636569" N	087° 34' 35.46216060" E
43	24° 11' 28.34822574" N	087° 34' 34.29067192" E
44	24° 11' 28.68866853" N	087° 34' 34.19629006" E

LAND DETAILS

Khata no.	Plot no.
03	718
13	719
20	720 & 721 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 780/M, dated 06.07.2024.
2	CO	:	The CO, Shikaripara vide letter no. 417/Ra., dated 10.04.2023 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 511/M, dated 08.04.2023 certified that 01 other mining lease area (4.04 Acre) exists within 500 meters radius from proposed project site and total area is 8.18 Acre.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 1270, dated 03.07.2023 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 884, dated 22.03.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 19, Page no. 282).

7	Gram Sabha	:	Gram Sabha conducted on 16.10.2022.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1226/M, dated 24.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	1.32 Ha	Life of Mine – 5year
3	Waste Generation	:	7055 cum	
4	Stripping Ratio	:	15:11	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	
7	Elevation of Mine	:	147-156 m AMSL	
8	Ground Level Elevation	:	152 AMSL	
9	Ultimate Working Depth	:	125 m AMSL	
10	Water Table	:	Post Monsoon – 88 m AMSL Pre Monsoon – 83 m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	17.01 kg Slurry explosives/day	
13	Diesel/Fuel requirement	:	HSD –245.5 liters / day (78.6 KL/year)	

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.
1st	19124.45	2.7	51636	64	172	2975	10

271

2nd	13554.6	2.7	36597	45	122	0	0
3rd	16761.8	2.7	45257	56	151	1848	6
4th	16513	2.7	44585	55	149	2232	7
5th	11132	2.7	30057	37	100	0	0
Total	**77085.9**	2.7	**208132**	**64 (max)**	**172 (max)**	**7055**	**24**

Land Use

Existing Land Use pattern

SL	Pattern	Existing Land Use (Ha)
1	Mining Area	0.00
2	Office	0.00
3	Dumping	0.00
4	Road	0.00
5	Garland drain	0.00
6	Settling Pond	0.00
7	Green belt	0.00
8	Safety Zone	0.00
9	Stone Stock yards	0.00
10	Crusher	0.00
11	Unutilized	1.32
	TOTAL	1.32

Land Use Pattern for Proposed Plan Period:

SL	Pattern	Proposed Land Use (Ha)
1	Mining Area	0.728
2	Office	0.004
3	Dumping	0.056
4	Road	0.000
5	Garland drain	0.032
6	Settling Pond	0.004
7	Green Blel	0.000

8	Safety Zone	0.453
9	Stone Stock Yards	0.000
10	Crusher	0.000
11	Unutilized	0.044
	TOTAL	**1.32**

Land Use Pattern after Life of the Mine:

SL	Pattern	Conceptual Stage Land Use (Acres)	Area to be converted in the conceptual period.
1	Mining Area	0.728	Water body
2	Office	0.004	Green Belt
3	Dumping	0.056	Green Belt
4	Road	0.000	Water body
5	Garland drain	0.032	-
6	Settling Pond	0.004	-
7	Green Belt	0.000	Greenbelt
7	Safety Zone	0.453	plantation
8	Stone Stock Yards	0.000	
9	Crusher	0.000	
8	Unutilized	0.044	
	TOTAL	1.32	

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone		1.41 Ha	2256
2	Along Approach Road		0.308 km	408
TOTAL				**2664 Trees**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1100 per Tanker)	--	3,30,000
2	Plantation: 468 X 800 = Rs 3,74,400 (Gabion Plantation along approach road) 880 X 400 = 3,52,,000 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	1392000	139200
3.	Fencing	100000	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270 • Ground Water (2 point) - Rs.12,420 • Noise 24 hrs (3 point) - Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610 (Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220** **Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022**	--	2,03,220
Total		**14,92,000**	**6,42,420**

Environment Monitoring Programme :

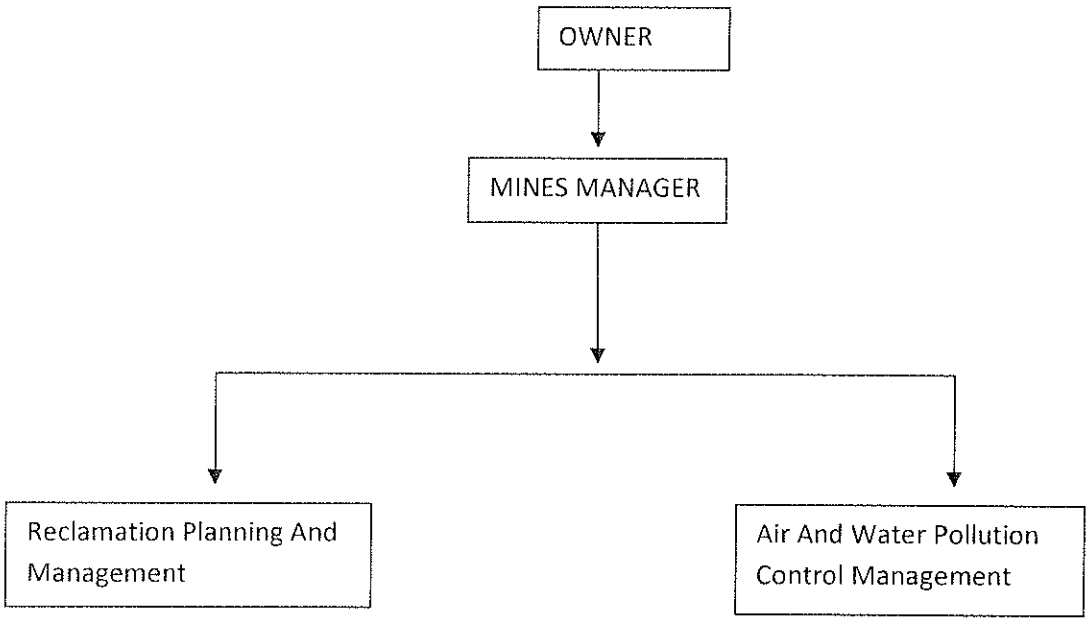
SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly

2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 stations	6 Monthly

Solid Waste Management

During first year 7055 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.

h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Manjhladih Stone Mine of Partners : Shri Deepak Kumar Singh & Shri Josa Kisku, Village : Manjhladih, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.32 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I **along with following specific conditions :**

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.
III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.
IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.
V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.
VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.
VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be

maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

21. Labapara Stone Mine of Shri Pratyush Dhar Jha, Village : Labapara, Thana : Shikaripara (03), Distt. : Dumka, Jharkhand (2.307 Ha).

(Proposal no.: SIA/JH/MIN/ 514116 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

Environmental Clearance Application for: Proposed Capacity- 89,478 cum. (max.) / 2,41,590 Tons (max.) per year

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Labapara Stone Mine Project Type – Stone Mine	
2	Lessee:	:	Proponent: Shri Pratyush Dhar Jha	
3	Lessee Address	:	Shri Pratyush Dhar Jha S/O Shri Vidyadhar Jha R/O Near Central Jail, Near Grant State, Po+Ps+Dist - Dumka.	
4	Lease Area	:	2.307 Ha. (At Village: Labapara, Thana- Shikaripara, Thana No – 03, District- Dumka, State- Jharkhand)	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 129.09 Lakhs	Recurring Cost: Rs. 20.43 Lakh/year
7	EMP Budget	:	Capital Cost: Rs. 8.18 Lakhs	Recurring Cost: Rs. 5.15 Lakhs/year
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 3,58,187 cum	Tonnes: 9,67,105 Tonnes
10	Mine Life	:	5 years.	
11	Man power	:	24 Person	
12	Water Requirement	:	5.74 KLD (Drinking: 0.36 KLD, Dust Suppression: 1.4 KLD, Plantation: 3.98 KLD)	
13	Water Source	:	From Nearby villages by tankers	

14	DG Set / power	:	20 KVA D.G. Set proposed
15	Crusher	:	No crusher
16	Nearest Water Body	:	Mayurakshi River – 24.50 km – WS direction (arial distance).
17	Nearest Habitation	:	Labapara Village
18	Nearest Rail Station	:	Pakdaha Harinsing Railway Station at areal distance of 5.0 km in N direction.
19	Nearest Air Port	:	Deoghar Airport is at areal distance of 91 km NW direction.
20	Nearest Forest	:	DFO (Dumka), letter no.- 2193 Dated: 22/06/2023 certified that the distance of reserved / protected forest is more than 250 m from proposed project site.
21	Road & Highways	:	NH-114A (Dumka-Rampurhat road), at 2.6 km North Direction

CO-ORDINATES

Point Name	Latitude	Longitude
1	24° 11' 41.49522790" N	087° 33' 31.66347593" E
2	24° 11' 42.85593602" N	087° 33' 31.13260290" E
3	24° 11' 43.92563954" N	087° 33' 30.60898831" E
4	24° 11' 44.92037342" N	087° 33' 30.12206863" E
5	24° 11' 45.51506963" N	087° 33' 29.63207673" E
6	24° 11' 45.59993944" N	087° 33' 29.73371310" E
7	24° 11' 45.25838822" N	087° 33' 30.82022669" E
8	24° 11' 46.42976541" N	087° 33' 31.51393612" E
9	24° 11' 47.20281811" N	087° 33' 31.90064762" E
10	24° 11' 46.22330437" N	087° 33' 33.36968979" E
11	24° 11' 44.86528768" N	087° 33' 33.81635465" E
12	24° 11' 44.95042135" N	087° 33' 34.37045742" E
13	24° 11' 44.84628436" N	087° 33' 35.66857852" E
14	24° 11' 44.76969987" N	087° 33' 35.85925223" E
15	24° 11' 43.63762798" N	087° 33' 36.32500557" E
16	24° 11' 42.62594644" N	087° 33' 37.64422888" E
17	24° 11' 42.25156449" N	087° 33' 36.43150829" E
18	24° 11' 42.44837866" N	087° 33' 35.19813443" E
19	24° 11' 41.03125461" N	087° 33' 34.52165849" E
20	24° 11' 39.88561250" N	087° 33' 33.94014797" E
21	24° 11' 39.74572821" N	087° 33' 33.32327219" E
22	24° 11' 40.08276354" N	087° 33' 32.03281015" E

LAND DETAILS

Khata no.	Plot no.

10	93 & 94
11	95 (P)
02	148 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 1000/M, dated 28.08.2024.
2	CO	:	The CO, Shikaripara vide letter no. 663/Ra., dated 16.05.2023 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 791/M, dated 10.05.2023 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 1156, dated 14.06.2023 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 2193, dated 22.06.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 58, Page no. 160).
7	Gram Sabha	:	Gram Sabha conducted on 25.04.2023.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1328/M, dated 06.12.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Mechanized Method	
2	Quarry Area	:	1.449 Ha. (During plan period)	Life of Mine – 5 year
3	Waste Generation	:	27,257 cum. O.B (During plan period)	
4	Stripping Ratio	:	1:13.14 or 0.08	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m	

7	Elevation of Mine	:	267 m to 248 m AMSL
8	Ground Level Elevation	:	267 m AMSL
9	Ultimate Working Depth	:	32 m
10	Water Table	:	(During pre-monsoon 172 m AMSL) (During post-monsoon 177 m AMSL)
11	Topography of Mine	:	Area represents sloping land.
12	Explosive Requirement	:	85.536 kg Nitro mix explosives/day
13	Diesel/Fuel requirement	:	HSD – 315 liters / day (94.5 KL/year)

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum recoverable 95%	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.)
1st	89478	2.7	241590	298	805	27257	91
2nd	69297	2.7	187101	231	624	0	0
3rd	61095	2.7	164958	204	550	0	0
4th	54276	2.7	146546	181	488	0	0
5th	84041	2.7	226910	280	756	0	0
Total	**358187.05**		**967105**	**298 (max)**	**805 (max)**	**27257**	**91**

LAND USE

Existing, Proposed & Conceptual Land Use

Si. No.	Pattern of Utilization	Present/Existing land use pattern in (Ha.)	During plan period land use pattern in (Ha.)	Land used at the conceptual stage i.e. end of mine life in (Ha.)	Area to be converted in the conceptual period.
1	Mining Activities	0.000	1.449	1.449	Water body
2	Dumping	0.000	0.072	0.072	(115 Trees) Plantation
3	Garland drain	0.000	0.032	0.032	-
4	Safety Zone	0.000	0.465	0.465	(744 Trees) Plantation
5	Excavated	0.289	0.289	0.289	-

	Area				
6	Unutilized	2.018	0.000	0.000	-
	Total	**2.3070**	**2.3070**	**2.3070**	-

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone		0.465 Ha	744
2	Dumping		0.072 Ha	115
3	Along Approach Road		0.351 km	468
TOTAL				**1,327**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **EMP BUDGET**

Sl. No.	**Particulars**	**Capital Cost in Rs.**	**Recurring Cost in Rs. per year**
1	Water facility for Dust Suppression, watering plants etc. (Rs. 800 per Tanker)	--	2,40,000
2	Plantation 468 X 800 = Rs 3,74,400 (Gabion Plantation along approach road) 859 X 400 = 3,43,600 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	7,18,000	71,800
3	Fencing around the Lease boundary	1,00,000	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) -Rs.27,270 • Ground Water (2 point) -Rs.12,420 • Noise 24 hrs (3 point) -Rs.21,000 • Soil (3 point) -Rs.40,920	--	2,03,220

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
	Total -Rs. 1,01,610 (Per Season) At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220 Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022		
Total		**8,18,000**	**5,15,020**

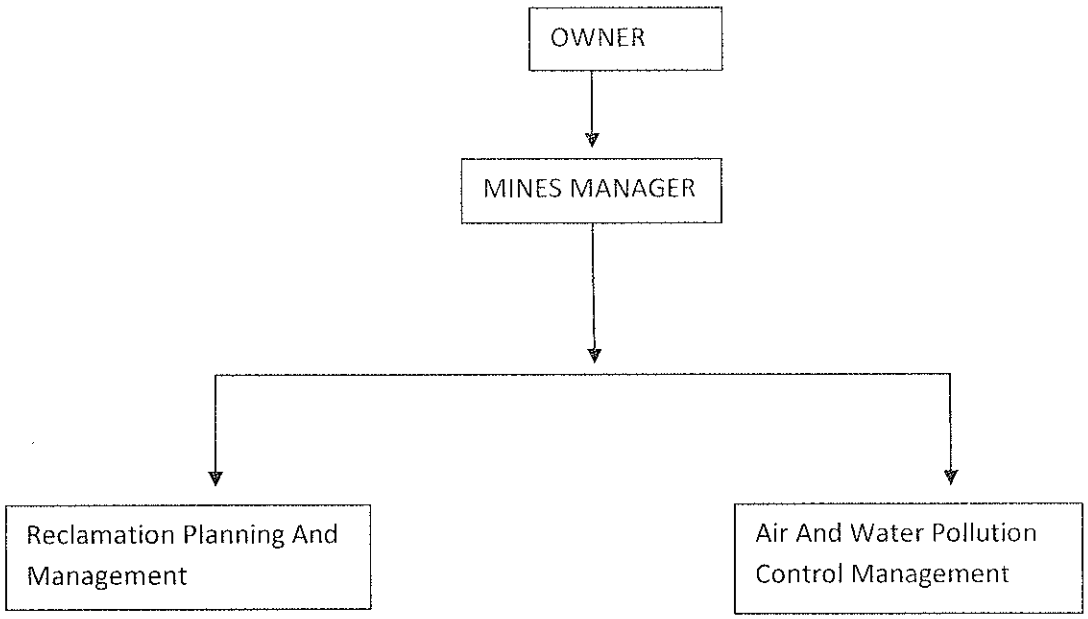
Environment Monitoring Programme

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	One Day Monitoring (within 6 months)
2.	Water	2 stations	One Day Monitoring (within 6 months)
3.	Soil	3 stations	One Day Monitoring (within 6 months)
4.	Noise	3 stations	One Day Monitoring (within 6 months)

Solid Waste Management

27,257 cum of O.B shall be generated during the plan period. O.B shall be used in maintenance of haul road and approach road. O.B shall be also used in backfilling within the exhausted quarry.

Organization Structure



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during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
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- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
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The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
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Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
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To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge

of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Labapara Stone Mine of Shri Pratyush Dhar Jha, Village : Labapara, Thana : Shikaripara (03), Distt. : Dumka, Jharkhand (2.307 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I **along with following specific conditions :**

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

22. **Amchua Stone Deposit of Mr. Rashid Akhtar, Village : Amchua, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.74 Ha).**

(Proposal no.: SIA/JH/ MIN/ 514137 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 17.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B1.

Application for Terms of Reference (ToR) as per EIA Notification, 2006.

ToR Application for: Proposed Capacity: 40869.1 Cum. (Max.) /110346.7 Tons (max.) per year

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Amchua Stone Deposit	
2	Lessee:	:	(1) Shri Rashid Akhtar (2) Shri Hans Raj	
3	Lease Address	:	Village: Amchua, Thana-Shikaripara, Circle- Shikaripara, District-Dumka, Jharkhand	
4	Lease Area	:	1.74 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 125.4 Lakhs	Recurring Cost: Rs. 6.735 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 4.752 Lakhs	Recurring Cost: Rs. 5.8074 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	195418.1 cum	527628.8 tons
10	Mine Life	:	4.78 years say 5 years	
11	Man power	:	20 Person	
12	Water Requirement	:	4.56 KLD (Drinking: 0.30 KLD, Dust Suppression: 1.40 KLD, Plantation: 2.86 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water	:	Brahmani river at 8.7 km NE direction	

	Body		
17	Nearest Habitation	:	Hansapathar Village – 1.8 Km in NW Direction
18	Nearest Rail Station	:	Ambajora Railway Station at aerial distance of 18 km in NW direction.
19	Nearest Air Port	:	Deoghar Airport is at aerial distance of 98 km NW direction.
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer NOC. letter no.- 2050 Dated- 04/09/2024
21	Road & Highways	:	Near about 1.8 km away from nearest village road.

CO-ORDINATES

Point Name	Latitude	Longitude
1	24° 09'54.246" N	87°37'07.217" E
To		
2	24°10' 03.709" E	87°37'07.221" E

LAND DETAILS

Khata no.	Plot no.
40, 04, 22, 21 & 09	1573P, 1575, 1576, 1577, 1578, 1579, 1580P, 1581P, 1611, 1612P, 1613, 1616P, 1633P, 1634P

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 1153/M, dated 09.10.2024.
2	CO	:	The CO, Shikaripara vide letter no. 894/Ra., dated 08.10.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 1316/M, dated 02.12.2024 certified that 02 other mining lease area (6.99 Acre & 6.84 Acre) exists within 500 meters radius from proposed project site and total area is 18.13 Acre.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 2128, dated 01.10.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 2050, dated 04.09.2024 certified that the distance of reserved /

			protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 38).
7	Gram Sabha	:	Gram Sabha conducted on 24.06.2024.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1287/M, dated 18.11.2024.
9	Qualified Person	:	Shri Sandip Ghosh vide letter dated 17.12.2024 affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	1.74 Ha	Life of Mine – 5 year
3	Waste Generation	:	29873.3 cum	
4	Stripping Ratio	:	1:0.05	
5	Working Days	:	300	
6	Benches: size	:	5 m x 5.5 m,	
7	Elevation of Mine	:	77m RL–52mRL	
8	Ground Level Elevation	:	52 m RL	
9	Ultimate Working Depth	:	54m	
10	Water Table	:	Post Monsoon – 48m RL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	<42 kg Slurry explosives/day	
13	Diesel/Fuel requirement	:	HSD – 352 liters / day (106 KL/year)	

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum
1st	40860.7	2.7	110324.0	136.20	367.75	18524.9
2nd	36787.7	2.7	99326.9	122.63	331.10	11348.5
3rd	40869.1	2.7	110346.7	136.23	367.82	0
4th	40718.4	2.7	109939.6	135.73	366.46	0
5th	36607.7	2.7	98840.7	122.03	329.47	0

Total	195843.7	2.7	528777.9	136.23 Max	367.82 Max	29873.3

Land Use

EXISTING, PROPOSED & CONCEPTUAL LAND USE

SL	Pattern	Existing Land Use (Ha)	Proposed Land Use (Ha)	Conceptual Land Use (Ha)	Area to be converted in the conceptual period.
1	Quarry	0.00	1.11	1.11	Water body
2	Haul Road	0.00	0.02	0.02	Water body
3	O.B. Dump	0.00	0.04	0.04	Water body
5	Garland drain with Settling Tank	0.000	0.12	0.12	Plantation
7	Green belt/Safety Zone	0.000	0.45	0.45	Green belt
8	Unutilized	1.74	0.00	0.00	-
	TOTAL	**1.74**	**1.74**	**1.74**	

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone And Plantation		0.57 Ha	912
2	Along Approach Road		350 m	234
TOTAL				**1146**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1100 per Tanker)	--	3,30,000
2	Plantation	5,52,000	55200

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
	234 X 800 = Rs 1,87,200 (Gabion Plantation along approach road) 912 X 400 = 364800(Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)		
3	Fencing	60,000	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270 • Ground Water (2 point) - Rs.12,420 • Noise 24 hrs (3 point) - Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610 (Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2** **= Rs. 2,03,220** **Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022**	--	2,03,220
Total		**612000**	**5,88,420**

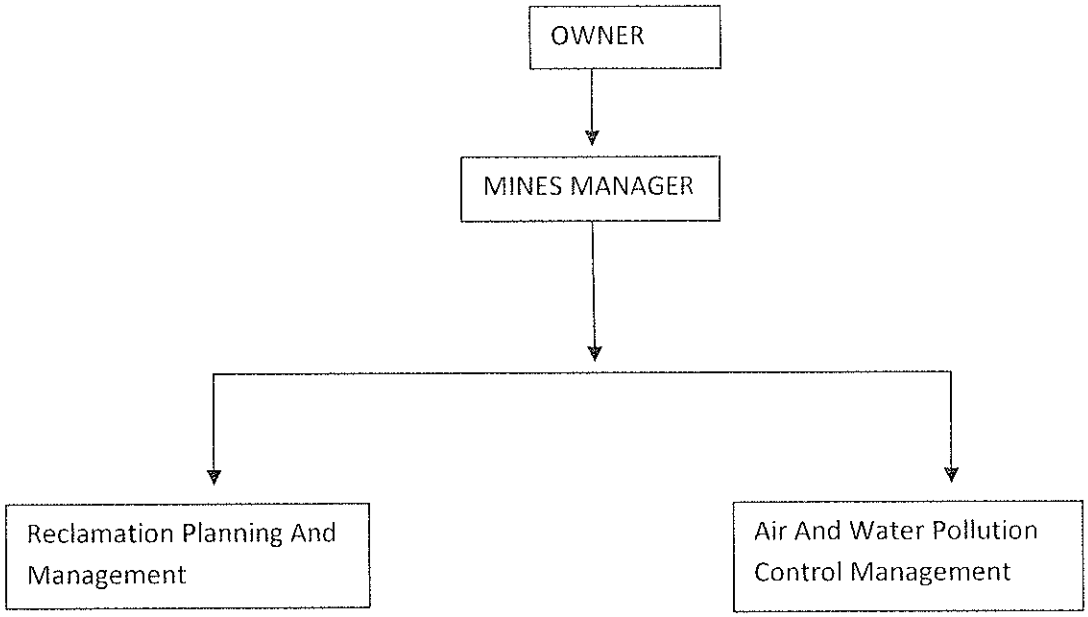
Environment Monitoring Programme

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	3 stations	6 Monthly
3.	Noise	3 stations	6 Monthly

Solid Waste Management

During first& second year 29873.3 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

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during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

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- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

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- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.

- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 17, 18, 19, 20, 21 & 22.12.2024, the Committee recommends in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 for issuing of ToR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure II alongwith following specific condition :-

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

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Day 2 : December 18th, 2024 [Wednesday]

Consideration of Proposals

1. **Piska Stone Deposit of M/s Lalkeshwar Stone Chips (Prop. : Shri Lalkeshwar Mahto), Village : Piska, Tehsil & Thana : Ormanjhi, Distt. : Ranchi, Jharkhand (1.116 Ha).**

   (Proposal no.: SIA/JH/MIN/ 512580 /2024)

   Name of the consultant : Crystal Consultants, Ranchi, Jharkhand.

   This is a new project which has been taken for appraisal on 18.12.2024.

   Project Sector: 1(a) Mining of Minerals, Category: B2.

   Application for Environmental Clearance (EC).

   EC Application for: Proposed Capacity – 60861 Tonne per year or 21736 cum per year

   Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Piska Stone Deposit	
2	Lessee:	:	M/s Lalkeshwar Stone Chips Proprietor – Sri Lalkeshwar Mahto	
3	Lessee Address	:	At Village: Gunja, PO – Hendebili, P.S – Ormanjhi, District – Ranchi, PIN code - 835219	
4	Lease Area	:	1.116 Ha	Acres- 2.76 Acre
5	Type of Land	:	Non-Forest Raiyati Land	
6	Project Cost	:	Capital: 4.91 Lakhs	Recurring: 59.89 lakhs / year
7	EMP Budget	:	Capital: 4.91 Lakhs	Recurring: 4.35 lakhs / year
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 99534 cum	Tonnes: 278696 tonnes
10	Mine Life	:	5 years	
11	Man power	:	29	
12	Water Requirement	:	9.164 KLD (Drinking: 1.16 KLD, Industrial: 4.464 KLD, Plantation: 3.54 KLD)	
13	Water Source	:	By authorised hired water tankers	
14	DG Set / power	:	-	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Doma nadi is situated at a distance of 6.45 km in South-West direction.	
17	Nearest	:	Piska, at 0.7 KM in South-East direction.	

	Habitation		
18	Nearest Rail Station	:	Hehal Railway station, approx. 5.30 km towards North-West direction
19	Nearest Air Port	:	Birsa Munda Airport, approx. 29.72 km South-West direction
20	Nearest Forest	:	Harrentola forest at a distance of 0.6 km in North direction.
21	Road & Highways	:	NH – 20, Approx. at a distance of 1.30 km in East direction.

CO-ORDINATES

S. No.	Latitude	Longitude			
1	N23°32'25.13"	E85°29'12.15"	**17**	N23°32'20.46"	E85°29'16.13"
2	N23°32'25.16"	E85°29'12.50"	**18**	N23°32'20.04"	E85°29'15.82"
3	N23°32'24.88"	E85°29'13.40"	**19**	N23°32'20.22"	E85°29'14.64"
4	N23°32'24.54"	E85°29'13.70"	**20**	N23°32'20.57"	E85°29'14.11"
5	N23°32'24.77"	E85°29'13.85"	**21**	N23°32'20.37"	E85°29'14.13"
6	N23°32'24.59"	E85°29'14.27"	**22**	N23°32'20.67"	E85°29'13.71"
7	N23°32'24.33"	E85°29'14.11"	**23**	N23°32'20.50"	E85°29'13.22"
8	N23°32'23.84"	E85°29'14.26"	**24**	N23°32'20.56"	E85°29'12.99"
9	N23°32'23.93"	E85°29'14.52"	**25**	N23°32'20.46"	E85°29'12.76"
10	N23°32'23.22"	E85°29'14.89"	**26**	N23°32'20.57"	E85°29'12.43"
11	N23°32'23.29"	E85°29'15.08"	**27**	N23°32'20.76"	E85°29'12.38"
12	N23°32'22.91"	E85°29'15.09"	**28**	N23°32'20.68"	E85°29'12.14"
13	N23°32'22.44"	E85°29'15.51"	**29**	N23°32'21.78"	E85°29'12.21"
14	N23°32'21.76"	E85°29'15.59"	**30**	N23°32'22.65"	E85°29'12.36"
15	N23°32'21.54"	E85°29'15.82"	**31**	N23°32'23.44"	E85°29'12.46"
16	N23°32'20.70"	E85°29'15.47"	**32**	N23°32'24.04"	E85°29'12.38"

LAND DETAILS

Khata no.	Plot no.
81	375, 376, 380, 382 & 385
83	381

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Ranchi vide letter no. 1336/M, dated 28.11.2023.
2	CO	:	The CO, Ormanjhi (Ranchi) vide letter no. 1038 (ii)., dated 03.11.2023 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Ranchi vide letter no. 257/M, dated 16.02.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Ranchi vide letter no. 1126, dated 30.10.2023 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Ranchi Forest Division vide letter no. 4047, dated 19.10.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Ranchi District (Sl. no. 03, Page no. 62).
7	Gram Sabha	:	Gram Sabha conducted on 20.10.2023.
8	Mine Plan Approval	:	Approved by Assistant Mining Officer, Ranchi vide Memo No. 223/M, dated 08.02.2024.
9	Qualified Person	:	Shri P.K. Sen was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast other than fully mechanized (OTFM) Method	
2	Quarry Area	:	1.116 Ha / 2.76 Acres	Life of Mine – 5 years
3	Waste Generation	:	4691 cum	
4	Stripping Ratio	:	1:0.02	
5	Working Days	:	300	
6	Benches: size & No	:	6m to 6m	
7	Elevation of Mine	:	630 m AMSL to 660m AMSL	
8	Ground Level Elevation	:	654 m AMSL to 660 m AMSL	
9	Ultimate Working Depth	:	630 m AMSL	

10	Water Table	:	620 m AMSL
11	Topography of Mine	:	Area represents gently sloping land.
12	Explosive Requirement	:	63 kg/day
13	Diesel/Fuel requirement	:	142 litre/day

Production Details

Year	Production of Stone in Cum	Production of Stone in Tonnes	Removal of gritty soil in cum	Intercalated waste in Cum	Total Waste in Cum
1st	**16340**	**45752**	**2240**	**860**	**3100**
2nd	**17984**	**50354**	**750**	**947**	**1697**
3rd	**21736**	**60861**	**960**	**1144**	**2104**
4th	21736	60861	741	1144	1885
5th (last 11 months	21736	60861	000	1144	1144
Total	**99532**	**278689**	4691	**5239**	**9930**

Land Use

Pattern of Utilization	Existing Land Use (Ha)	At the end of Plan period (Ha)	Conceptual stage (in Ha)		
			Public use	Water body	Plantation
Excavation	Nil	0.747 (including backfilling 0.117 Ha)	---	0.747	---
Road	0.010	Nil	---	---	---
Safety Zone	Nil	0.369	---	---	0.369
Total Area in Use	**0.010**	**1.116**	**1.116**		
Unused Area	1.106	Nil	---		
Total Applied Area	**1.116**	**1.116**	**1.116**		

ENVIRONMENT MANAGEMENT

Green Belt Development

Year	Place of Plantation	Spacing b/w plants	Total No. of Plants	Area Cover in Square Meters	Total Area in Ha.	Species
1st	Safety Zone	2.5 x 2.5	590	3690	0.369	Gulmohar, Gular, Sagwan, Sakua
	Haul Road	3 x 3	161	1000	0.1	
2nd	Care & Protection	---	---	---	---	

3rd	Care & Protection	---	---	---	---	Fruit Bearing Trees Mango, Jackfruit, Guava
4th	Care & Protection	---	---	---	---	
5th	Care & Protection	---	---	---	---	
Total			**2986**	**4690**	**0.469**	

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Environment Management Budget

751 Tree Plantation @Rs.500 per Tree for planting & @Rs.50 per tree for maintenance	375500	37550
Water Tanker @Rs. 500 per Tanker for Dust Suppression (4.464 KLD) & Horticulture (4.506 KLD) 4.464 KLD + 4.506 KLD = 8.97 KLD 8.97 KLD X 300 Days = 2691 KLD 2691 KLD / 4 KLD = 673 Tankers	0	336500
Garland Drain & Desiltation Pond	116000	11600
Environment Monitoring & Compliance	0	50000
Total	**491500**	**435650**

Environment Monitoring Plan (post operation)

Monitoring Parameters and Frequency of Monitoring

S. no	Monitoring Parameters	No. of Locations	Frequency of Monitoring
1	Ambient Air: Ambient Air Quality at appropriate location for PM10, PM2.5, SO2, NOx in the vicinity of the mine area. In the surrounding area covering project site only.	2 Stations	Six Monthly
2	Water: Surface water sample in the vicinity of the	2 Surface	Six Monthly

	Project area.	water 2 Ground water	
3	Noise: Day & Night level Noise Monitoring.	4 stations	Six Monthly
4	Soil: Soil Monitoring, Qualitative and quantitative testing/analysis to check the soil fertility, porosity, texture, water holding capacity, etc.	2 station	Six Monthly

Undertaking submitted affirming:

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b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
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h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Solid Waste Management

During first, second, third and fourth year gritty soil & intercalated waste will be removed (8786 m^3) this soil and waste will be temporarily backfill within the exhausted quarry and in fifth year (1144 m^3) removed gritty soil, intercalated waste and existing temporary backfill soil will be backfilled within the lower bench of the exhausted quarry.

Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust For mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis are done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6

4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: - *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the Following measures will be taken:

- Overall slope angles of benches will be maintained at 45°.
- Unmanageable heights are not created.
- Loose sides are properly dressed.
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961).
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them. While others may need to work at or near the edge of a working bench the person most at risk during

the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

  Dust generation during drilling

  The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator.
- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation.
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement.
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling. Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground. Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine.
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers.
- Explosives and detonators shall not be carried in the same container.
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.

- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required).
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Organizational Structure:

Introduction

The Environmental Management Plan (EMP) Cell has been established to ensure environmental sustainability and compliance with regulatory requirements for the Stone Mining Project. This project aims to minimize environmental harm, promote sustainable practices, ensure compliance with regulations, and foster community engagement and transparency. The EMP Cell will provide a framework for identifying, assessing, and mitigating potential environmental impacts associated with the mining activities.

Environmental Policy

Our company is committed to:

- Minimizing environmental harm through responsible mining practices
- Promoting sustainable practices to conserve natural resources
- Ensuring compliance with regulatory requirements and industry standards
- Fostering community engagement and transparency through open communication

EMP Cell Objectives

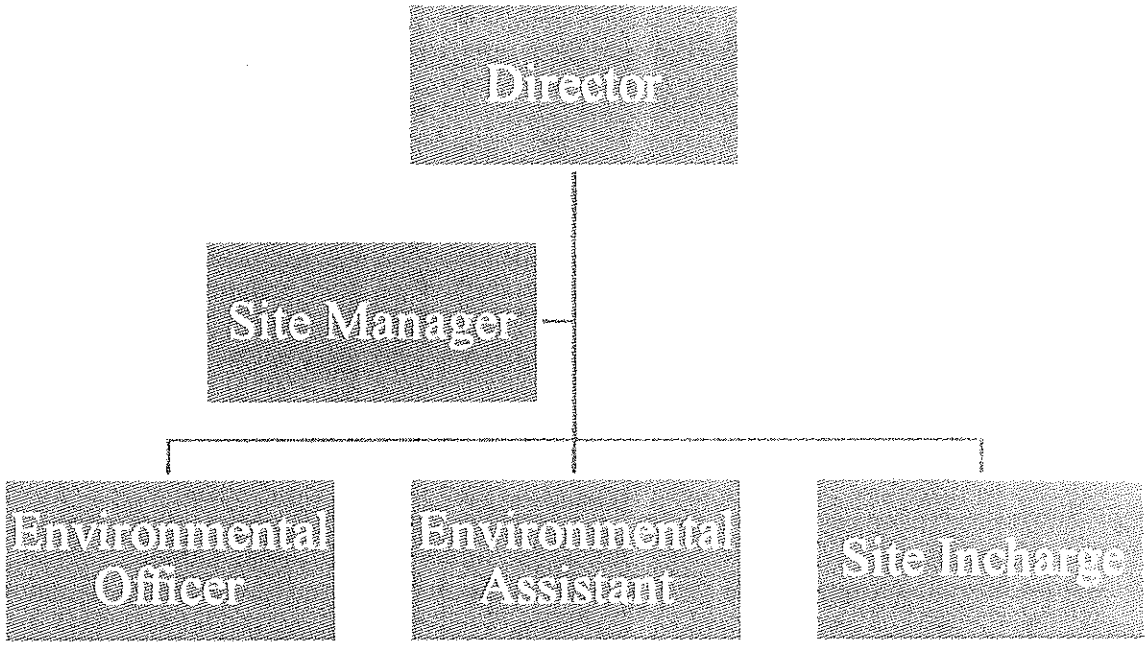
The EMP Cell objectives are:

- Minimize environmental impacts on air, water, soil, and biodiversity
- Ensure compliance with regulatory requirements and industry standards
- Promote sustainable practices through efficient resource utilization
- Enhance community engagement and transparency through regular updates

EMP Cell Structure

The EMP Cell consists of three members:

- Environmental Officer (EO) as Team Lead, responsible for overall strategy
- Environmental Assistant (EA) for Monitoring and Reporting, focusing on data collection
- Administrative Assistant (AA) for Documentation and Coordination, handling administrative tasks



EMP Cell structure

Roles and Responsibilities

Environmental Officer (EO)

- Develop, implement, and review EMP
- Conduct environmental impact assessments
- Monitor and report environmental performance
- Coordinate with regulatory authorities
- Provide environmental training
- Manage environmental data collection
- Develop environmental policies
- Conduct site inspections
- Identify and mitigate environmental hazards
- Prepare quarterly reports

Environmental Assistant (EA)

- Conduct field monitoring
- Collect and record environmental data
- Assist in data analysis and reporting
- Maintain monitoring equipment
- Conduct site inspections
- Assist in preparing quarterly reports
- Update environmental records
- Assist in implementing mitigation measures
- Participate in training programs
- Provide support to EO

Administrative Assistant (AA)

- Maintain environmental records
- Coordinate documentation

- Assist in preparing quarterly reports
- Manage environmental documentation
- Provide administrative support
- Coordinate training logistics
- Maintain communication with regulatory authorities
- Assist in updating policies
- Manage environmental budget
- Provide general administrative support

Director/Top Management Responsibilities

- Provide strategic direction
- Approve environmental policies
- Allocate resources
- Review quarterly reports
- Ensure compliance
- Foster environmental responsibility
- Support employee training
- Review environmental investments
- Ensure integration of environmental considerations

EMP Process Flow

The EMP process flow includes:

1. Environmental Monitoring
2. Data Analysis
3. Report Submission
4. Review and Revision
5. Implementation
6. Compliance Check

Key Decision Points

Key decision points include:

1. Non-compliance: Corrective action and Reporting
2. Environmental incidents: Investigation, Mitigation, and Reporting

Documentation

Documentation includes:

- EMP manual
- Monitoring records
- Reports
- Inspection records
- Training records

Implementation Timeline

The implementation timeline consists of:

1. Pre-Operational Phase (1 month): Establish EMP
2. Operational Phase (Ongoing): Implement EMP
3. Closure and Rehabilitation Phase (6 months): Restore mined land

Reporting

The EMP Cell will submit quarterly reports to:

- Company Director
- Regulatory authorities

Conclusion

The EMP Cell is committed to ensuring environmental sustainability and compliance with regulatory requirements for the Stone Mining Project. With a clear structure, roles, and responsibilities, the EMP Cell is equipped to manage environmental impacts and promote sustainable practices.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Piska Stone Deposit of M/s Lalkeshwar Stone Chips (Prop. : Shri Lalkeshwar Mahto), Village : Piska, Tehsil & Thana : Ormanjhi, Distt. : Ranchi, Jharkhand (1.116 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

2. **Chaprakocha Stone Deposit of Shri Shashi Shankar Kumar, Village : Chaprakocha, Tehsil & Thana : Ormanjhi, Distt. : Ranchi, Jharkhand (0.85 Ha).**

(Proposal no.: SIA/JH/MIN/ 507381 /2024)

Name of the consultant : Crystal Consultants, Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity – 33425 Tonnes/Annum or 11937 Cum/Year

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Chaprakocha Stone Deposit	
2	Lessee:	:	Sri Shashi Shankar Kumar	
3	Lessee Address	:	At Village: Flat No. – 405, Hill Heart, Apartment Tagore Hill, Morabadi Ranchi PO+ PS – Ranchi, Dist.- Ranchi, Jharkhand - 834008	
4	Lease Area	:	0.85 Ha	Acres- 2.10 Acre
5	Type of Land	:	Non-Forest Raiyati Land	
6	Project Cost	:	Capital: 5.01 Lakhs	Recurring: 58.58 lakhs / year
7	EMP Budget	:	Capital: 5.01 Lakhs	Recurring: 4.15 lakhs / year
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 54080 cum	Tonnes: 151423 tonnes
10	Mine Life	:	5 years	
11	Man power	:	26	
12	Water Requirement	:	8.472 KLD (Drinking: 1.04 KLD, Industrial: 3.4 KLD, Plantation: 4.032 KLD)	
13	Water Source	:	By authorised hired water tankers	
14	DG Set / power	:	-	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Doma Nadi is situated at a distance of 2.68 km in South-East direction.	
17	Nearest Habitation	:	Ormanjhi, at 5.5 KM in South-East direction.	
18	Nearest Rail Station	:	Mesra Railway station, approx. 10.94 km towards South direction	
19	Nearest Air Port	:	Birsa Munda Airport, approx. 25.5 km South-West direction	
20	Nearest Forest	:	Gagari Pahar Forest at a distance of 500m in East direction.	

21	Road & Highways	:	NH – 20, Approx. 5.30 km in East direction

CO-ORDINATES

S. No.	Latitude	Longitude	S. No.	Latitude	Longitude
1	23°31'03.63097"N	85°27'03.12890"E	**21**	23°30'59.19127" N	85°27'04.29714" E
2	23°31'03.86818" N	85°27'03.19608" E	**22**	23°30'58.94579" N	85°27'04.19832" E
3	23°31'04.02074" N	85°27'03.31186" E	**23**	23°30'58.54057" N	85°27'03.90924" E
4	23°31'04.14181" N	85°27'03.55108" E	**24**	23°30'58.69192" N	85°27'03.31981" E
5	23°31'04.10729" N	85°27'03.71380" E	**25**	23°30'59.00256" N	85°27'02.62030" E
6	23°31'03.83732" N	85°27'04.06955" E	**26**	23°30'59.83873" N	85°27'02.83756" E
7	23°31'03.62795" N	85°27'04.29588" E	**27**	23°31'00.67904" N	85°27'03.05590" E
8	23°31'03.28271" N	85°27'04.35028" E	**28**	23°31'00.31030" N	85°27'03.61987" E
9	23°31'03.12996" N	85°27'04.55915" E	**29**	23°31'00.41322" N	85°27'04.11120" E
10	23°31'03.57391" N	85°27'04.57074" E	**30**	23°31'00.41045" N	85°27'04.35190" E
11	23°31'03.61538" N	85°27'04.67474" E	**31**	23°31'00.31530" N	85°27'04.75643" E
12	23°31'03.59926" N	85°27'05.11708" E	**32**	23°31'00.72779" N	85°27'04.71802" E
13	23°31'02.61642" N	85°27'04.93020" E	**33**	23°31'00.84011" N	85°27'04.42192" E
14	23°31'01.68607" N	85°27'04.75330" E	**34**	23°31'01.10503" N	85°27'04.07369" E
15	23°31'01.52375" N	85°27'06.05185" E	**35**	23°31'01.03217" N	85°27'03.66786" E
16	23°31'00.35609" N	85°27'05.91728" E	**36**	23°31'01.07677" N	85°27'03.13751" E
17	23°31'00.10632" N	85°27'05.71126" E	**37**	23°31'01.30048" N	85°27'03.02256" E
18	23°31'00.05131" N	85°27'05.19793" E	**38**	23°31'02.19950" N	85°27'02.98242" E
19	23°31'00.07079" N	85°27'04.73411" E	**39**	23°31'02.97574" N	85°27'03.19489" E
20	23°30'59.55707" N	85°27'04.40478" E			

LAND DETAILS

Khata No.	Plot No.
94	95
95	91(P), 92(P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Ranchi vide letter no. 1272/M, dated 28.10.2023.
2	CO	:	The CO, Ormanjhi (Ranchi) vide letter no. 1135 (ii), dated 26.11.2022 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan & Register II.

3	DMO	:	DMO, Ranchi vide memo no. 1363/M, dated 04.12.2023 certified that 03 other mining lease area (4.50 Acre, 1.65 Acre & 3.84 Acre) exists within 500 meters radius from proposed project site and total area is 12.09 Acre.
4	DFO Wild Life	:	DFO, Wildlife Division, Ranchi vide letter no. 1179, dated 11.11.2023 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Ranchi Forest Division vide memo no. 4719, dated 19.11.2022 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Ranchi District (Sl. no. 01, Page no. 61).
7	Gram Sabha	:	BDO, Ormanjhi (Ranchi) vide letter no. 1276 (ii), dated 12.10.2023 informed that Gram Sabha conducted on 09.10.2023.
8	Mine Plan Approval	:	Approved by Assistant Mining Officer, Ranchi vide Memo No. 77/M, dated 13.01.2024.
9	Qualified Person	:	Shri P.K. Sen was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast other than fully mechanized (OTFM) Method	
2	Quarry Area	:	0.85 Ha / 2.10 Acres	Life of Mine – 5 years
3	Waste Generation	:	2845 cum	
4	Stripping Ratio	:	1:0.05	
5	Working Days	:	300	
6	Benches: size & No	:	6m to 6m	
7	Elevation of Mine	:	658 m AMSL to 640 m AMSL	
8	Ground Level Elevation	:	658 m AMSL to 650 m AMSL	
9	Ultimate Working Depth	:	640 m AMSL	
10	Water Table	:	630 m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	31.5 kg/day	
13	Diesel/Fuel requirement	:	400 litre/day	

Production Details

Year	Production of Stone in Cum	Production of Stone in Tonnes	Overburden in cum	Intercalated waste in Cum	Total Waste in Cum
1st	7779	21780	000	409	409
2nd	10488	29366	598	552	1150
3rd	11937	33425	322	628	950
4th	11937	33425	000	628	628
5th	11937	33425	348	628	976
Total	54078	151421	1268	2845	4113

Land Use

Pattern of Utilization	Existing Land Use (Ha)	At the end of Plan period (Ha)	Conceptual stage (in Ha)		
			Public use	Water body	Plantation
Quarry	0.220	0.430	---	0.190	0.240 (Dead bench plantation)
Road	0.064	Nil	---	---	---
Safety Zone	Nil	0.420	---	---	0.420
Total Area in Use	**0.284**	**0.850**	**---**	**0.190**	**0.660**
Unused Area	0.566	Nil	0.00		
Total Applied Area	**0.850**	**0.850**	**0.850**		

ENVIRONMENT MANAGEMENT

Green Belt Development

Year	Place of Plantation	Spacing b/w plants	Total No. of Plants	Area Cover in Square Meters	Total Area in Ha.	Species
1st	Safety Zone	2.5 x 2.5	672	5850	0.420	Gulmohar, Gular, Sagwan, Sakua Fruit Bearing
	Haul Road	3 x 3	160	1000	0.1	
2nd	Care & Protection	---	---	---	---	
3rd	Care & Protection	---	---	---	---	

4th	Care & Protection	---	---	---	---	Trees Mango, Jackfruit, Guava
5th	Care & Protection	---	---	---	---	
Total			**832**	**5200**	**0.52**	

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Environment Management Budget

832 Tree Plantation @Rs.500 per Tree for planting & @Rs.50 per tree for maintenance	416000	41600
Water Tanker @Rs. 500 per Tanker for Dust Suppression (3.4 KLD) & Horticulture (4.992 KLD) 3.4 KLD + 4.992 KLD = 8.392 KLD 8.392 KLD X 300 Days = 2518 KLD 2518 KLD / 4 KLD = 630 Tankers	0	315000
Garland Drain & Desiltation Pond	85000	8500
Environment Monitoring & Compliance	0	50000
Total	**501000**	**415100**

Environment Monitoring Plan (post operation)

Monitoring Parameters and Frequency of Monitoring

S. no	Monitoring Parameters	No. of Locations	Frequency of Monitoring
1	Ambient Air: Ambient Air Quality at appropriate location for PM10, PM2.5, SO2, NOx in the vicinity of the mine area. In the surrounding area covering project site only.	2 Stations	Six Monthly
2	Water: Surface water sample in the vicinity of the Project area.	2 Surface water 2 Ground water	Six Monthly
3	Noise: Day & Night level Noise Monitoring.	4 stations	Six Monthly

4	Soil: Soil Monitoring, Qualitative and quantitative testing/analysis to check the soil fertility, porosity, texture, water holding capacity, etc.	2 station	Six Monthly

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Solid Waste Management

During first, second, third and fourth year gritty soil & intercalated waste will be removed (3137 m^3) this soil and waste will be temporarily backfill within the exhausted quarry and in fifth year (976 m^3) removed gritty soil, intercalated waste and existing temporary backfill soil will be backfilled within the lower bench of the exhausted quarry.

Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.

- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust For mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis are done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6

6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: - *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the Following measures will be taken:

- Overall slope angles of benches will be maintained at 45°.
- Unmanageable heights are not created.
- Loose sides are properly dressed.
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961).
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them. While others may need to work at or near the edge of a working bench the person most at risk during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.

- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator.

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation.
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement.
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling. Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground. Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.

- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine.
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers.
- Explosives and detonators shall not be carried in the same container.
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only

affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required).
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Organizational Structure:

Introduction

The Environmental Management Plan (EMP) Cell has been established to ensure environmental sustainability and compliance with regulatory requirements for the Stone Mining Project. This project aims to minimize environmental harm, promote sustainable practices, ensure compliance with regulations, and foster community engagement and transparency. The EMP Cell will provide a framework for identifying, assessing, and mitigating potential environmental impacts associated with the mining activities.

Environmental Policy

Our company is committed to:

- Minimizing environmental harm through responsible mining practices
- Promoting sustainable practices to conserve natural resources
- Ensuring compliance with regulatory requirements and industry standards
- Fostering community engagement and transparency through open communication

EMP Cell Objectives

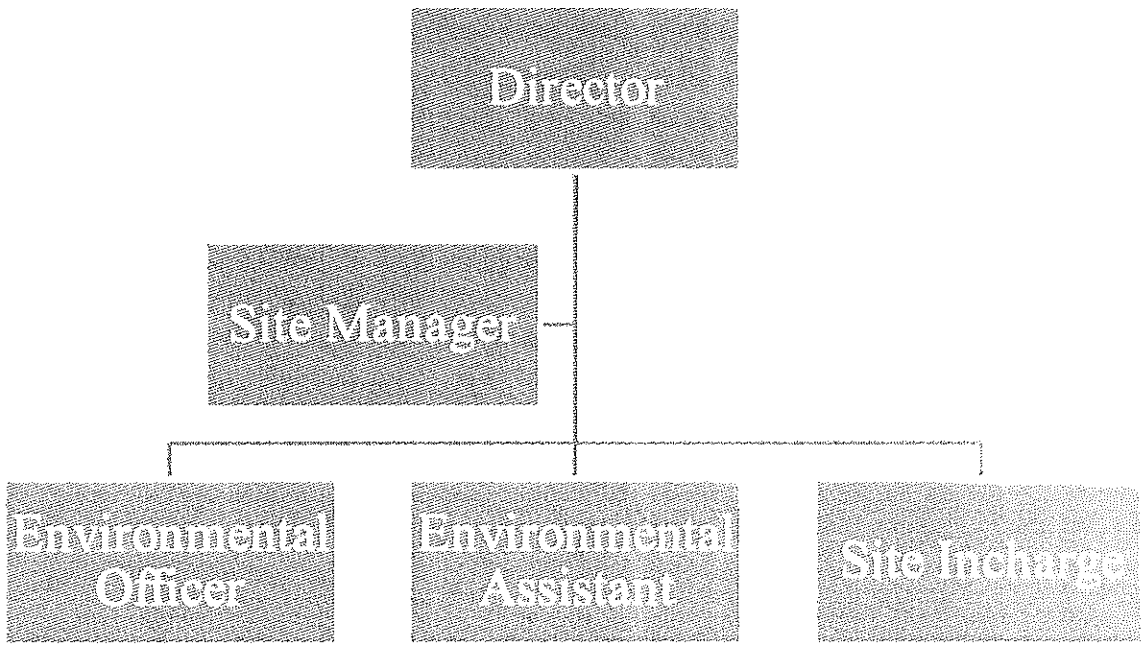
The EMP Cell objectives are:

- Minimize environmental impacts on air, water, soil, and biodiversity
- Ensure compliance with regulatory requirements and industry standards
- Promote sustainable practices through efficient resource utilization
- Enhance community engagement and transparency through regular updates

EMP Cell Structure

The EMP Cell consists of three members:

- Environmental Officer (EO) as Team Lead, responsible for overall strategy
- Environmental Assistant (EA) for Monitoring and Reporting, focusing on data collection
- Administrative Assistant (AA) for Documentation and Coordination, handling administrative tasks



EMP Cell structure

Roles and Responsibilities

Environmental Officer (EO)

- Develop, implement, and review EMP
- Conduct environmental impact assessments
- Monitor and report environmental performance
- Coordinate with regulatory authorities
- Provide environmental training
- Manage environmental data collection
- Develop environmental policies
- Conduct site inspections
- Identify and mitigate environmental hazards
- Prepare quarterly reports

Environmental Assistant (EA)

- Conduct field monitoring
- Collect and record environmental data
- Assist in data analysis and reporting
- Maintain monitoring equipment
- Conduct site inspections
- Assist in preparing quarterly reports
- Update environmental records
- Assist in implementing mitigation measures
- Participate in training programs
- Provide support to EO

Administrative Assistant (AA)

- Maintain environmental records
- Coordinate documentation
- Assist in preparing quarterly reports
- Manage environmental documentation
- Provide administrative support
- Coordinate training logistics
- Maintain communication with regulatory authorities
- Assist in updating policies
- Manage environmental budget
- Provide general administrative support

Director/Top Management Responsibilities

- Provide strategic direction
- Approve environmental policies
- Allocate resources
- Review quarterly reports
- Ensure compliance
- Foster environmental responsibility
- Support employee training
- Review environmental investments
- Ensure integration of environmental considerations

EMP Process Flow

The EMP process flow includes:

1. Environmental Monitoring
2. Data Analysis
3. Report Submission
4. Review and Revision
5. Implementation
6. Compliance Check

Key Decision Points

Key decision points include:

1. Non-compliance: Corrective action and Reporting
2. Environmental incidents: Investigation, Mitigation, and Reporting

Documentation

Documentation includes:

- EMP manual
- Monitoring records
- Reports
- Inspection records
- Training records

Implementation Timeline

The implementation timeline consists of:

1. Pre-Operational Phase (1 month): Establish EMP
2. Operational Phase (Ongoing): Implement EMP
3. Closure and Rehabilitation Phase (6 months): Restore mined land

Reporting

The EMP Cell will submit quarterly reports to:

- Company Director
- Regulatory authorities

Conclusion

The EMP Cell is committed to ensuring environmental sustainability and compliance with regulatory requirements for the Stone Mining Project. With a clear structure, roles, and responsibilities, the EMP Cell is equipped to manage environmental impacts and promote sustainable practices.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Chaprakocha Stone Deposit of Shri Shashi Shankar Kumar, Village : Chaprakocha, Tehsil & Thana : Ormanjhi, Distt. : Ranchi, Jharkhand (0.85 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and

the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

3. **Biramkel Stone Deposit of M/s Vasundhra Realtech Pvt. Ltd., Village : Biramkel, Tehsil & Thana : Lapung, Distt. : Ranchi, Jharkhand (2.994 Ha).**

(Proposal no.: SIA/JH/MIN/ 508901 /2024)

Name of the consultant : Crystal Consultants, Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity – 160579 Tonnes per year or 57350 cum per year.

Project and Location Details:

Sl	Parameter		Details
1	Project Name	:	Biramkel Stone Deposit

2	Lessee:	:	M/s Vasundhara Realtech Pvt. Ltd., Director – Sri Nirpender Singh Sangwan	
3	Lessee Address	:	At Village: House No. – 212, Sector 9C Chandigarh, PO+ PS – Chandigarh - 160009	
4	Lease Area	:	2.994 Ha	Acres- 7.4 Acre
5	Type of Land	:	Non-Forest Raiyati Land	
6	Project Cost	:	Capital: 11.51Lakhs	Recurring: 71.94 Cr / year
7	EMP Budget	:	Capital: 11.51 Lakhs	Recurring: 9.97 lakhs / year
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 269748 cum	Tonnes: 755293 tonnes
10	Mine Life	:	5 years (4 years 11 months)	
11	Man power	:	32	
12	Water Requirement	:	22.51 KLD (Drinking: 1.28 KLD, Industrial: 11.97 KLD, Plantation: 9.26 KLD)	
13	Water Source	:	By authorised hired water tankers	
14	DG Set / power	:	-	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Lohagara nadi is situated at a distance of 4.54 km in North-West direction.	
17	Nearest Habitation	:	Lapung, at 4.5 KM in South direction.	
18	Nearest Rail Station	:	Govindpur Road Railway station, approx. 12.66 km towards South-East direction	
19	Nearest Air Port	:	Birsa Munda Airport, approx. 42.77 km North-East direction	
20	Nearest Forest	:	Cherwatoli forest at a distance of 12 km in North-East direction.	
21	Road & Highways	:	NH – 143AG, Approx. 10.90 km in North-East direction	

CO-ORDINATES

S. No.	Latitude	Longitude	S. No.	Latitude	Longitude
1	23°08'31.66109"N	84°57'23.96318"E	33	23°08'26.14258" N	84°57'20.51024" E
2	23°08'31.66001" N	84°57'24.14549" E	34	23°08'26.69809" N	84°57'19.31144" E
3	23°08'32.68590" N	84°57'24.07284" E	35	23°08'26.84746" N	84°57'18.62471" E
4	23°08'32.88505" N	84°57'24.50448" E	36	23°08'27.36859" N	84°57'18.49032" E

5	23°08'31.07573" N	84°57'24.55362" E	37	23°08'27.33058" N	84°57'18.34394" E
6	23°08'29.54580" N	84°57'24.55805" E	38	23°08'26.45711" N	84°57'18.19850" E
7	23°08'29.36443" N	84°57'24.36736" E	39	23°08'26.44591" N	84°57'18.49626" E
8	23°08'29.29312" N	84°57'24.70324" E	40	23°08'26.59880" N	84°57'18.64598" E
9	23°08'29.64530" N	84°57'24.80206" E	41	23°08'26.39429" N	84°57'19.11485" E
10	23°08'30.02024" N	84°57'25.06424" E	42	23°08'25.41433" N	84°57'18.86778" E
11	23°08'30.24010" N	84°57'26.10248" E	43	23°08'25.83028" N	84°57'17.51857" E
12	23°08'30.43907" N	84°57'26.83847" E	44	23°08'26.19017" N	84°57'16.93109" E
13	23°08'30.37801" N	84°57'27.17233" E	45	23°08'26.30753" N	84°57'15.70169" E
14	23°08'30.29399" N	84°57'27.32612" E	46	23°08'27.55378" N	84°57'16.05928" E
15	23°08'29.72040" N	84°57'27.26320" E	47	23°08'28.57211" N	84°57'16.65763" E
16	23°08'28.83278" N	84°57'26.87526" E	48	23°08'28.05270" N	84°57'17.39092" E
17	23°08'29.04025" N	84°57'26.42573" E	49	23°08'27.62488" N	84°57'18.62035" E
18	23°08'27.43544" N	84°57'25.76556" E	50	23°08'27.81892" N	84°57'18.72900" E
19	23°08'27.16148" N	84°57'25.33075" E	51	23°08'27.82180" N	84°57'19.48039" E
20	23°08'27.09845" N	84°57'24.71422" E	52	23°08'28.16174" N	84°57'20.22667" E
21	23°08'27.67243" N	84°57'23.87966" E	53	23°08'28.83635" N	84°57'20.25364" E
22	23°08'27.41302" N	84°57'23.50415" E	54	23°08'29.87837" N	84°57'20.49077" E
23	23°08'27.81780" N	84°57'21.82403" E	55	23°08'30.07396" N	84°57'20.71847" E
24	23°08'27.25742" N	84°57'21.58700" E	56	23°08'29.98950" N	84°57'21.19770" E
25	23°08'26.73218" N	84°57'21.40898" E	57	23°08'30.54649" N	84°57'21.43847" E
26	23°08'26.87892" N	84°57'20.52140" E	58	23°08'31.30526" N	84°57'21.22801" E
27	23°08'26.53364" N	84°57'20.42248" E	59	23°08'31.91374" N	84°57'20.92864" E
28	23°08'26.43709" N	84°57'20.93731" E	60	23°08'32.15479" N	84°57'20.94728" E
29	23°08'26.65946" N	84°57'21.10504" E	61	23°08'32.59133" N	84°57'21.71444" E
30	23°08'26.60100" N	84°57'21.37378" E	62	23°08'32.70041" N	84°57'22.87231" E
31	23°08'26.22246" N	84°57'21.36463" E	63	23°08'32.79080" N	84°57'23.83182" E
32	23°08'25.94627" N	84°57'21.28698" E			

LAND DETAILS

Khata No.	Plot No.
41	170, 173, 179, 205, 206

21	185(p), 148
38	186, 187, 189, 190
19	188
23	178

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Ranchi vide letter no. 1125/M, dated 23.09.2023.
2	CO	:	The CO, Lapung (Ranchi) vide letter no. 219 (ii), dated 08.05.2023 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Ranchi vide letter no. 1503/M, dated 25.11.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Ranchi vide letter no. 816, dated 01.09.2023 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Ranchi Forest Division vide letter no. 905, dated 04.03.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Ranchi District (Sl. no. 05, Page no. 63).
7	Gram Sabha	:	BDO, Lapung, Ranchi vide letter no. 759 (ii), dated 15.09.2023 informed that Gram Sabha conducted on 13.03.2023.
8	Mine Plan Approval	:	Approved by Assistant Mining Officer, Ranchi vide Memo No. 1431/M, dated 14.12.2023.
9	Qualified Person	:	Shri P.K. Sen was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast other than fully mechanized (OTFM) Method	
2	Quarry Area	:	2.994 Ha / 7.4 Acres	Life of Mine – 5 years
3	Waste Generation	:	14196 cum	
4	Stripping Ratio	:	1:0.05	

5	Working Days	:	300
6	Benches: size & No	:	6m to 6m and 5 in numbers
7	Elevation of Mine	:	616 m AMSL to 580 m AMSL
8	Ground Level Elevation	:	617 m AMSL to 606 m AMSL
9	Ultimate Working Depth	:	580 m AMSL
10	Water Table	:	568 m AMSL
11	Topography of Mine	:	Area represents gently sloping land.
12	Explosive Requirement	:	94.5 kg/day
13	Diesel/Fuel requirement	:	400 litre/day

Production Details

Year	Production of Stone in Cum	Production of Stone in Tonnes	Removal of gritty soil in cum	Intercalated waste in Cum	Total Waste in Cum
1st	46939	131428	4278	2471	6749
2nd	50755	142113	1485	2671	4156
3rd	57350	160579	000	3018	3018
4th	57350	160579	950	3018	3968
5th (last 11 months	57350	160579	832	3018	3850
Total	269744	755278	7545	14196	21741

Land Use

Pattern of Utilization	Existing Land Use (Ha)	At the end of Plan period (Ha)	Conceptual stage (in Ha)		
			Public use	Water body	Plantation
Excavation	0.314	2.029 (including backfilling 0.27 Ha)	---	1.228	0.801 (Dead bench plantation)
Road	0.051	0.00	---	---	---
Safety Zone	0.0	0.965	---	---	0.965
Waste Dump	0.00	0.00	Nil (waste dump to be		

			removed and backfilled)
Total Area in Use	**0.365**	**2.994**	**2.994**
Unused Area	2.629	Nil	0.00
Total Applied Area	**2.994**	**2.994**	**2.994**

ENVIRONMENT MANAGEMENT

Green Belt Development

Year	Place of Plantation	Spacing b/w plants	Total No. of Plants	Area Cover in Square Meters	Total Area in Ha.	Species
1st	Safety Zone	2.5 x 2.5	1544	9650	0.965	Gulmohar, Gular, Sagwan, Sakua Fruit Bearing Trees Mango, Jackfruit, Guava
	Haul Road	3 x 3	1442	2120	0.212	
2nd	Care & Protection	---	---	---	---	
3rd	Care & Protection	---	---	---	---	
4th	Care & Protection	---	---	---	---	
5th	Care & Protection	---	---	---	---	
Total			**2986**	**11770**	**1.177**	

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Environment Management Budget

1704 Tree Plantation @Rs.500 per Tree for planting & @Rs.50 per tree for maintenance	852000	85200
Water Tanker @Rs. 500 per Tanker for Dust Suppression (11.97 KLD) & Horticulture (10.224 KLD) 11.976 + 10.224 = 22.2 KLD 22.2 KLD X 300 Days = 6660 KLD 6660 KLD / 4 KLD = 1665 Tankers	0	832500
Garland Drain & Parapet wall	299400	29940

Environment Monitoring & Compliance	0	50000
Total	**115140(**	**997640**

Environment Monitoring Plan (post operation)

Monitoring Parameters and Frequency of Monitoring

S. no	Monitoring Parameters	No. of Locations	Frequency of Monitoring
1	Ambient Air: Ambient Air Quality at appropriate location for PM10, PM2.5, SO2, NOx in the vicinity of the mine area. In the surrounding area covering project site only.	2 Stations	Six Monthly
2	Water: Surface water sample in the vicinity of the Project area.	2 Surface water 2 Ground water	Six Monthly
3	Noise: Day & Night level Noise Monitoring.	4 stations	Six Monthly
4	Soil: Soil Monitoring, Qualitative and quantitative testing/analysis to check the soil fertility, porosity, texture, water holding capacity, etc.	2 station	Six Monthly

Solid Waste Management

During first, second, third and fourth year gritty soil & intercalated waste will be removed (17909 m^3) this soil and waste will be temporarily backfill within the exhausted quarry and in fifth year (3850 m^3) removed gritty soil, intercalated waste and existing temporary backfill soil will be backfilled within the lower bench of the exhausted quarry.

Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust For mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis are done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: - *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the Following measures will be taken:

- Overall slope angles of benches will be maintained at 45°.
- Unmanageable heights are not created.
- Loose sides are properly dressed.
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961).
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them. While others may need to work at or near the edge of a working bench the person most at risk during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator.

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation.
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement.
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling. Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground. Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine.
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers.
- Explosives and detonators shall not be carried in the same container.
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)

- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required).
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Organizational Structure:

Introduction

The Environmental Management Plan (EMP) Cell has been established to ensure environmental sustainability and compliance with regulatory requirements for the Stone Mining Project. This project aims to minimize environmental harm, promote sustainable practices, ensure compliance with regulations, and foster community engagement and transparency. The EMP Cell will provide a framework for identifying, assessing, and mitigating potential environmental impacts associated with the mining activities.

Environmental Policy

Our company is committed to:

- Minimizing environmental harm through responsible mining practices
- Promoting sustainable practices to conserve natural resources
- Ensuring compliance with regulatory requirements and industry standards
- Fostering community engagement and transparency through open communication

EMP Cell Objectives

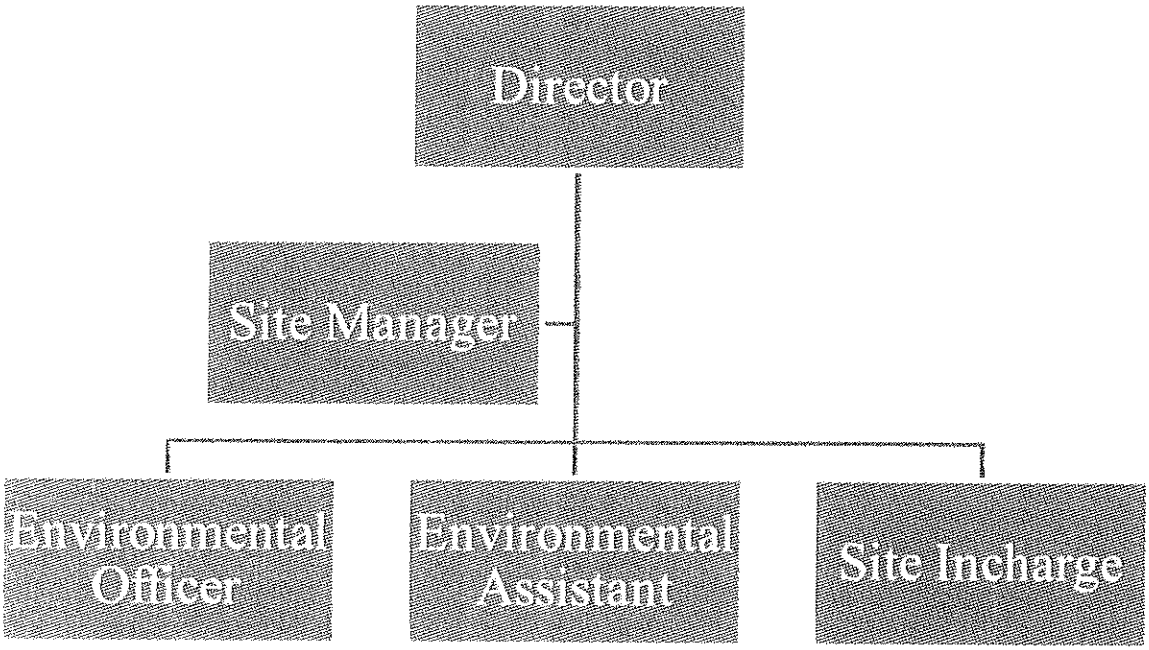
The EMP Cell objectives are:

- Minimize environmental impacts on air, water, soil, and biodiversity
- Ensure compliance with regulatory requirements and industry standards
- Promote sustainable practices through efficient resource utilization
- Enhance community engagement and transparency through regular updates

EMP Cell Structure

The EMP Cell consists of three members:

- Environmental Officer (EO) as Team Lead, responsible for overall strategy
- Environmental Assistant (EA) for Monitoring and Reporting, focusing on data collection
- Administrative Assistant (AA) for Documentation and Coordination, handling administrative tasks



EMP Cell structure

Roles and Responsibilities

Environmental Officer (EO)

- Develop, implement, and review EMP
- Conduct environmental impact assessments
- Monitor and report environmental performance
- Coordinate with regulatory authorities
- Provide environmental training
- Manage environmental data collection
- Develop environmental policies

- Conduct site inspections
- Identify and mitigate environmental hazards
- Prepare quarterly reports

Environmental Assistant (EA)

- Conduct field monitoring
- Collect and record environmental data
- Assist in data analysis and reporting
- Maintain monitoring equipment
- Conduct site inspections
- Assist in preparing quarterly reports
- Update environmental records
- Assist in implementing mitigation measures
- Participate in training programs
- Provide support to EO

Administrative Assistant (AA)

- Maintain environmental records
- Coordinate documentation
- Assist in preparing quarterly reports
- Manage environmental documentation
- Provide administrative support
- Coordinate training logistics
- Maintain communication with regulatory authorities
- Assist in updating policies
- Manage environmental budget
- Provide general administrative support

Director/Top Management Responsibilities

- Provide strategic direction
- Approve environmental policies
- Allocate resources
- Review quarterly reports
- Ensure compliance
- Foster environmental responsibility
- Support employee training
- Review environmental investments
- Ensure integration of environmental considerations

EMP Process Flow

The EMP process flow includes:

1. Environmental Monitoring
2. Data Analysis
3. Report Submission
4. Review and Revision
5. Implementation
6. Compliance Check

Key Decision Points

Key decision points include:

1. Non-compliance: Corrective action and Reporting
2. Environmental incidents: Investigation, Mitigation, and Reporting

Documentation

Documentation includes:

- EMP manual
- Monitoring records
- Reports
- Inspection records
- Training records

Implementation Timeline

The implementation timeline consists of:

1. Pre-Operational Phase (1 month): Establish EMP
2. Operational Phase (Ongoing): Implement EMP
3. Closure and Rehabilitation Phase (6 months): Restore mined land

Reporting

The EMP Cell will submit quarterly reports to:

- Company Director
- Regulatory authorities

Conclusion

The EMP Cell is committed to ensuring environmental sustainability and compliance with regulatory requirements for the Stone Mining Project. With a clear structure, roles, and responsibilities, the EMP Cell is equipped to manage environmental impacts and promote sustainable practices.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.

j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Biramkel Stone Deposit of M/s Vasundhra Realtech Pvt. Ltd., Village : Biramkel, Tehsil & Thana : Lapung, Distt. : Ranchi, Jharkhand (2.994 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.
III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.
IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.
V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.
VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.
VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.
VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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4. Chamguru Stone Mine of M/s Maa Bindyawasini Stone (Prop. : Shri Satyendra Kumar Singh), Village : Chamguru, Tehsil & Thana : Kanke, Distt. : Ranchi, Jharkhand (4.05 Ha).

(Proposal no.: SIA/JH/MIN/ 512023 /2024)

Name of the consultant : Crystal Consultants, Ranchi, Jharkhand.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC) (re-appraisal of Environment Clearance issued by DEIAA, Ranchi).

The project has been granted EC by DEIAA, Ranchi vide letter no. EC/DEIAA/2017-18/70/113 dated 28.08.2017.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Ranchi which has been taken up for consideration on 18.12.2024. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B2.

Existing baseline condition as per monitoring report submitted by PP is as follows PM10 -96 $\mu g/m^3$PM 2.5-567 $\mu g/m^3$ SO2-18.2 NO2- 19.0 $\mu g/m^3$ All the data are within the permissible limit.

Dust suppression is being carried out on regular basis.

Greenbelt Developed.

As per compliance report of JSPCB regarding previous EC, plantation has been done in safety zone.

Production detail as per memo no. 1693/M dated 30.10.2024 by DMO, Ranchi is within the permissible limit of EC.

The compliance report of previous EC has been issued by JSPCB, Regional Office, Dhurwa vide letter no. 1541, dated 09.12.2024.

The SEAC has found that the certification of the compliance of the conditions of previous EC is not appropriate with respect to the following :-

i. There is no clarity on the status of execution of compliance and no details have been provided.
ii. The word "AGREED" has been mentioned as compliance status of many of the conditions. This has been written without the consent of the project authorities.
iii. The date of inspection has not been specified in the CCR.

Hence, the Committee decided to obtain a self certified compliance report along with the supporting details as evidence of execution.

EC Application for: Proposed Capacity – 111267 tonnes/year or 41210 cum/year.

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Chamguru Stone Deposit	
2	Lessee:	:	**Maa Bindyawasini Stone** Proprietor – Sri Satyendra Kumar Singh	
3	Lessee Address	:	At – Sanjay Nagar Colony, PO: Ratu, P.S. – Ratu, Dist.- Ranchi, Jharkhand	
4	Lease Area	:	4.05 Ha	Acres- 10.00 Acre
5	Type of Land	:	Non-Forest Raiyati Land	
6	Project Cost	:	Capital: 0.00 Lakhs	Recurring: 1.46 cr / year
7	EMP Budget	:	Capital: 7.55 Lakhs	Recurring: 7.59 lakhs / year
8	New or Expansion	:	Re-appraisal of DEIAA EC.	
9	Mineable Reserves	:	cum.: 1121507.77 cum	Tonnes: 3028071 tonnes
10	Mine Life	:	Up to lease period i.e. 16.01.2018 to 15.01.2028.	
11	Man power	:	35	
12	Water Requirement	:	15.66 KLD (Drinking: 1.48 KLD, Industrial: 9.68 KLD, Plantation: 4.5 KLD)	
13	Water Source	:	By authorised hired water tankers	
14	DG Set / power	:	-	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Jumar river is situated at a distance of 3.5 km in East direction.	
17	Nearest Habitation	:	Kathitand, at a distance of 5.58 Km in South-west direction.	
18	Nearest Rail Station	:	Ranchi Railway station, approx. 20 km in South direction.	
19	Nearest Air Port	:	Birsa Munda Airport, Ranchi at a distance of 25 km North-East direction	
20	Nearest Forest	:	Uparkonki forest at a distance of 7.0 km in North direction.	
21	Road & Highways	:	NH – 39, at a distance of 5.47 km in South direction.	

CO-ORDINATES

S. No.	Latitude	Longitude
1	23°27'46.20"N	85°15'44.60"E
2	23°27'48.20"N	85°15'55.50"E
3	23°27'43.40"N	85°15'56.10"E
4	23°27'42.10"N	85°15'45.20"E

LAND DETAILS

Khata no.	Plot no.
106	2414 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	Lease deed : 16.01.2018 to 15.01.2028.
2	CO	:	The CO, Kanke (Ranchi) vide letter no. 895 (ii), dated 26.11.2024 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan.
3	DMO	:	DMO, Ranchi vide memo no. 1694/M, dated 30.10.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Ranchi vide letter no. 824, dated 07.10.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Ranchi Forest Division vide letter no. 2210, dated 16.08.2016 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Ranchi District (Sl. no. 06, Page no. 32).
7	Gram Sabha	:	Gram Sabha conducted on 26.07.2016.
8	Mine Plan Approval	:	i. Mining plan approved by Deputy Director, Mines, Ranchi vide Letter No. 230/M, dated 19.04.2017. ii. Mining scheme approved by Assistant Mining Office, Ranchi vide memo no. 61/M, dated 21.01.2022.
9	Previous Environmental Clearance	:	Previous EC granted by DEIAA, Ranchi vide letter no. EC/DEIAA /2017-18/70/113 dated 28.08.2017.
10	Production Report	:	Production report issued by DMO, Ranchi vide memo no. 1693/M dated 30.10.2024.
11	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. JSPCB/HO/RNC/CTE-215947 /2018 /278, dated 22.03.2018.

12	Consent to Operate (CTO)	:	CTO issued by JSPCB/RO/RNC/CTO-11963604/2022 /38, dated 08.02.2022.
13	Compliance report of EC	:	Compliance report of previous EC has been issued by JSPCB, Regional Office, Dhurwa vide letter no. 1541, dated 09.12.2024.
14	Qualified Person	:	Shri P.K. Sen was present in the meeting and affirmed that the mining scheme has been prepared by him.

Working Details

1	Mining Method	:	Opencast other than fully mechanized (OTFM) Method	
2	Quarry Area	:	4.05 Ha / 10.00 Acres	Life of Mine – Up to lease period i.e. 16.01.2018 to 15.01.2028.
3	Waste Generation	:	10312	
4	Stripping Ratio	:	1:0.009	
5	Working Days	:	300	
6	Benches: size & No	:	3m to 3m	
7	Elevation of Mine	:	704 m AMSL to 680 m AMSL	
8	Ground Level Elevation	:	670 m AMSL to 678 m AMSL	
9	Ultimate Working Depth	:	632 m AMSL	
10	Water Table	:	622 m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	63 kg/day	
13	Diesel/Fuel requirement	:	400 litre/day	

Production Details

Year	Production of Stone in Cum	Production of Stone in Tonnes	Overburden in cum
1st	**29991.11**	**107976**	**4750**
2nd	**39716.29**	**107234**	**2674**
3rd	**40057.77**	**108156**	**1101**
4th	40098.14	108265	1315

5th	40112.59	108304	472
Total	**189975.9**	**539935**	**10312**

Land Use

Pattern of Utilization	Existing Land Use (Ha)	At the end of Plan period (Ha)	At the end of Mine (in Ha)	Conceptual stage (in Ha)		
				Public use	Water body	Plantation
Quarry	0.98	2.430	3.46 (including backfill 0.25 Ha)	---	1.228	1.22(Dead bench plantation)
Road	0.01	0.005	Nil	---	---	---
Safety Zone	Nil	0.590	0.59	---	---	0.59
Waste Dump	0.14	0.190	Nil	---	---	---
Parapet Wall	Nil	0.010	Nil	---	---	---
Garland Drain	Nil	0.020	Nil	---	---	---
Total Area in Use	**1.13**	**3.245**	**4.05**	**---**	**2.24**	**1.81**
Unused Area	2.92	0.805	Nil	---	---	---
Total Applied Area	**4.05**	**4.05**	**4.05**	**---**	**---**	**---**

ENVIRONMENT MANAGEMENT

Green Belt Development

Year	Place of Plantation	Spacing b/w plants	Total No. of Plants	Area Cover in Square Meters	Total Area in Ha.	Species
1st	Safety Zone	2.5 x 2.5	944	3500	0.59	Gulmohar, Gular, Sagwan, Sakua Fruit Bearing Trees Mango, Jackfruit, Guava
	Haul Road	3 x 3	768	2300	0.23	
2nd	Care & Protection	---	---	---	---	
3rd	Care & Protection	---	---	---	---	
4th	Care & Protection	---	---	---	---	
5th	Care & Protection	---	---	---	---	
Total			**720**	**8200**	**0.82**	

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable

species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Environment Management Budget

PROPOSED FOR ENVIRONMENT MANAGEMENT COST			
S.NO.	**Mitigative measures to protect Environment**	**Capital Cost (in Lakh)**	**Recurring cost (In Lakh)**
01.	Water Sprinkling/Air pollution control (Dust Suppression along haulage road and mine)	0.00	6.00
02.	Green belt development safety zone 7.5mtr and along the road (for each plant including hedges and fences) @ No. of plants 1712 x 300Rs.	5.13	0.85
03	Garland Drain and Desiltation pond	2.42	0.24
04.	Environment Monitoring (Air, Water, Noise & Soil Monitoring)	00	0.50
TOTAL		**7.55**	**7.59**

Environment Monitoring Plan (post operation)

Monitoring Parameters and Frequency of Monitoring

S. no	Monitoring Parameters	No. of Locations	Frequency of Monitoring
1	Ambient Air: Ambient Air Quality at appropriate location for PM10, PM2.5, SO2, NOx in the vicinity of the mine area. In the surrounding area covering project site only.	2 Stations	Six Monthly
2	Water: Surface water sample in the vicinity of the Project area.	2 Surface water 2 Ground water	Six Monthly
3	Noise: Day & Night level Noise Monitoring.	4 stations	Six Monthly
4	Soil: Soil Monitoring, Qualitative and quantitative testing/analysis to check the soil fertility, porosity,	2 station	Six Monthly

	texture, water holding capacity, etc.		

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Solid Waste Management

During first, second, third and fourth year gritty soil & intercalated waste will be removed (0.00 m^3) this soil and waste will be temporarily backfill within the exhausted quarry and in fifth year (0.00 m^3) removed gritty soil, intercalated waste and existing temporary backfill soil will be backfilled within the lower bench of the exhausted quarry.

Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.

- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust For mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis are done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure	Very Unlikely	Minor	20

		to Dust			
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: - *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the Following measures will be taken:

- Overall slope angles of benches will be maintained at 45°.
- Unmanageable heights are not created.
- Loose sides are properly dressed.
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961).
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them. While others may need to work at or near the edge of a working bench the person most at risk during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.

- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator.

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation.
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement.
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling. Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground. Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.

- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine.
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers.
- Explosives and detonators shall not be carried in the same container.
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only

affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required).
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Organizational Structure:

Introduction

The Environmental Management Plan (EMP) Cell has been established to ensure environmental sustainability and compliance with regulatory requirements for the Stone Mining Project. This project aims to minimize environmental harm, promote sustainable practices, ensure compliance with regulations, and foster community engagement and transparency. The EMP Cell will provide a framework for identifying, assessing, and mitigating potential environmental impacts associated with the mining activities.

Environmental Policy

Our company is committed to:

- Minimizing environmental harm through responsible mining practices
- Promoting sustainable practices to conserve natural resources
- Ensuring compliance with regulatory requirements and industry standards
- Fostering community engagement and transparency through open communication

EMP Cell Objectives

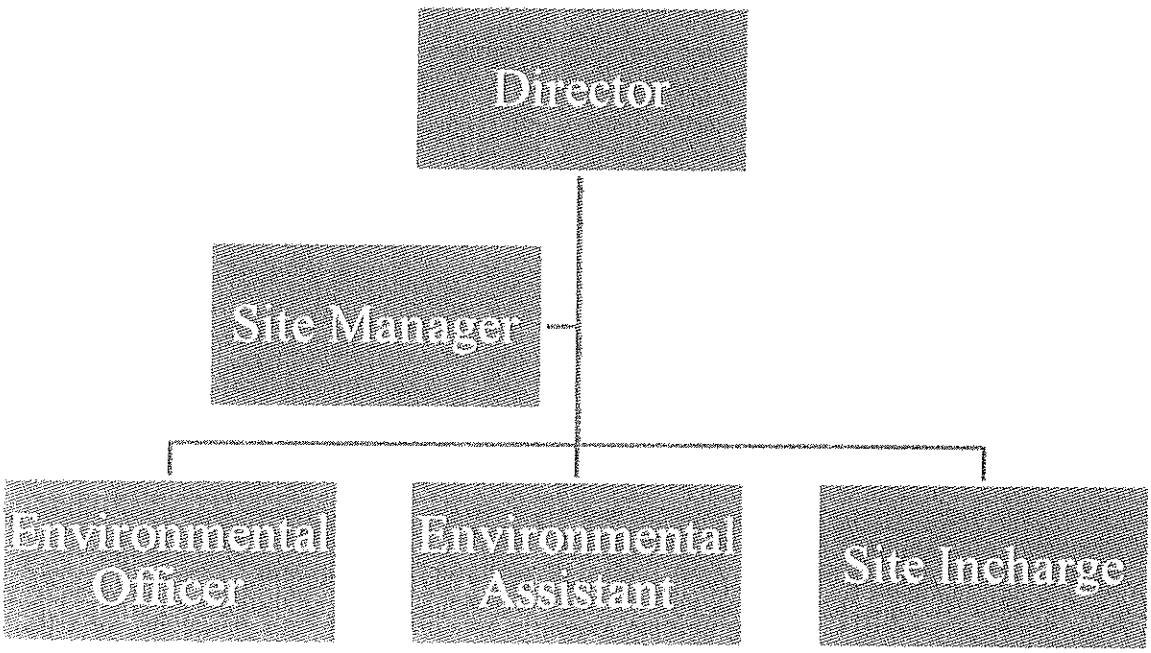
The EMP Cell objectives are:

- Minimize environmental impacts on air, water, soil, and biodiversity
- Ensure compliance with regulatory requirements and industry standards
- Promote sustainable practices through efficient resource utilization
- Enhance community engagement and transparency through regular updates

EMP Cell Structure

The EMP Cell consists of three members:

- Environmental Officer (EO) as Team Lead, responsible for overall strategy
- Environmental Assistant (EA) for Monitoring and Reporting, focusing on data collection
- Administrative Assistant (AA) for Documentation and Coordination, handling administrative tasks



EMP Cell structure

Roles and Responsibilities

Environmental Officer (EO)

- Develop, implement, and review EMP
- Conduct environmental impact assessments
- Monitor and report environmental performance
- Coordinate with regulatory authorities
- Provide environmental training
- Manage environmental data collection
- Develop environmental policies
- Conduct site inspections
- Identify and mitigate environmental hazards
- Prepare quarterly reports

Environmental Assistant (EA)

- Conduct field monitoring
- Collect and record environmental data
- Assist in data analysis and reporting
- Maintain monitoring equipment
- Conduct site inspections
- Assist in preparing quarterly reports
- Update environmental records
- Assist in implementing mitigation measures
- Participate in training programs
- Provide support to EO

Administrative Assistant (AA)

- Maintain environmental records
- Coordinate documentation
- Assist in preparing quarterly reports
- Manage environmental documentation
- Provide administrative support
- Coordinate training logistics
- Maintain communication with regulatory authorities
- Assist in updating policies
- Manage environmental budget
- Provide general administrative support

Director/Top Management Responsibilities

- Provide strategic direction
- Approve environmental policies
- Allocate resources
- Review quarterly reports
- Ensure compliance
- Foster environmental responsibility
- Support employee training
- Review environmental investments
- Ensure integration of environmental considerations

EMP Process Flow

The EMP process flow includes:

1. Environmental Monitoring
2. Data Analysis
3. Report Submission
4. Review and Revision
5. Implementation
6. Compliance Check

Key Decision Points

Key decision points include:

1. Non-compliance: Corrective action and Reporting
2. Environmental incidents: Investigation, Mitigation, and Reporting

Documentation

Documentation includes:

- EMP manual
- Monitoring records
- Reports
- Inspection records
- Training records

Implementation Timeline

The implementation timeline consists of:

1. Pre-Operational Phase (1 month): Establish EMP
2. Operational Phase (Ongoing): Implement EMP
3. Closure and Rehabilitation Phase (6 months): Restore mined land

Reporting

The EMP Cell will submit quarterly reports to:

- Company Director
- Regulatory authorities

Conclusion

The EMP Cell is committed to ensuring environmental sustainability and compliance with regulatory requirements for the Stone Mining Project. With a clear structure, roles, and responsibilities, the EMP Cell is equipped to manage environmental impacts and promote sustainable practices.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Chamguru Stone Mine of M/s Maa Bindyawasini Stone (Prop. : Shri Satyendra Kumar Singh), Village : Chamguru, Tehsil & Thana : Kanke, Distt. : Ranchi, Jharkhand (4.05 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. The production shall be restricted as per approved mining scheme or the approved mine plan at the time of EC, which ever is less.

II. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

III. During appraisal of the project it is seen that the project authority have not fully complied the condition of green belt development as per the previous EC. Hence, the project authorities are required to plant twice the number of trees as was required in the previous EC. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

IV. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

V. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

VI. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VII. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VIII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

IX. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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5. Chauli Stone Mine of Shri Satyanarayan Sahu & Shri Chamru Sahu, Village : Chauli, Thana : Gumla, Distt. : Gumla, Jharkhand (1.21 Ha).

(Proposal no.: SIA/JH/MIN/ 503714 /2024)

Name of the consultant : Crystal Consultants, Ranchi, Jharkhand.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC) (re-appraisal of Environment Clearance issued by DEIAA, Gumla).

The project has been granted EC by DEIAA, Gumla vide letter no. EC/DEIAA /2016-17/007/2016/02/GML dated 06.12.2016.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Gumla which has been taken up for consideration on 18.12.2024. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B2.

Existing baseline condition as per monitoring report submitted by PP is as follows PM10 -96 $\mu g/m^3$PM 2.5-567 $\mu g/m^3$ SO2-18.2 NO2- 19.0 $\mu g/m^3$ · All the data are within the permissible limit.

Dust suppression is being carried out on regular basis.

Greenbelt Developed.

As per compliance report of JSPCB regarding previous EC, plantation has been done in safety zone.

Production detail as per memo no. 574/M dated 22.07.2024 by DMO, Gumla is within the permissible limit of EC.

The compliance report of previous EC has been issued by JSPCB, Regional Office, Dhurwa vide letter no. 870, dated 24.07.2024.

The SEAC has found that the certification of the compliance of the conditions of previous EC is not appropriate with respect to the following :-

i. There is no clarity on the status of execution of compliance and no details have been provided.
ii. The word "AGREED" has been mentioned as compliance status of many of the conditions. This has been written without the consent of the project authorities.
iii. The date of inspection has not been specified in the CCR.

Hence, the Committee decided to obtain a self certified compliance report along with the supporting details as evidence of execution.

The self certified compliance report was presented before the Committee 21.12.2024.

EC Application for: Proposed Capacity – 111267 tonnes/year or 41210 cum/year

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Chauli Stone Mine	
2	Lessee:	:	1. Sri Satyanarayan Sahu 2. Sri Chamru Sahu	
3	Lessee Address	:	Village - Hundra Toli, Silaphari, P.O + P.S – Khora, District – Gumla, Jharkhand	
4	Lease Area	:	1.21 Ha	Acres- 3.00 Acre
5	Type of Land	:	Non-Forest Raiyati Land	
6	Project Cost	:	Capital: 77.01 Lakhs	Recurring: 1.50 lakhs / year
7	EMP Budget	:	Capital: 5.01 Lakhs	Recurring: 1.28 lakhs / year
8	New or Expansion	:	Re-appraisal of DEIAA EC.	
9	Mineable Reserves	:	cum.: 248244 cum	Tonnes: 1708560 tonnes
10	Mine Life	:	Up to the lease period i.e. 23.12.2016 to 22.12.2026.	
11	Man power	:	18	
12	Water Requirement	:	7.3 KLD (Drinking: 0.8 KLD, Industrial: 4.0 KLD, Plantation: 2.5 KLD)	
13	Water Source	:	By authorised hired water tankers	
14	DG Set / power	:	-	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	South Koel river is situated at a distance of 1.0 km in East direction.	
17	Nearest Habitation	:	Silaphari, at a distance of 1.5 Km in North-west direction.	
18	Nearest Rail Station	:	Bakaspur Railway station, approx. 31.64 km towards North direction	
19	Nearest Air Port	:	Birsa Munda Airport, Ranchi at a distance of 80 km North-East direction	
20	Nearest Forest	:	Surhu forest at a distance of 15 km in South-East direction.	
21	Road & Highways	:	NH – 43, Approx. 1.30 km.	

CO-ORDINATES

S. No.	Latitude	Longitude
1	23°05'32.21"N	84°40'10.57"E
2	23°05'35.42"N	84°40'10.51"E
3	23°05'35.79"N	84°40'12.77"E

4	23°05'36.84"N	84°40'12.81"E
5	23°05'36.98"N	84°40'13.50"E
6	23°05'36.02"N	84°40'13.78"E
7	23°05'36.16"N	84°40'15.53"E
8	23°05'34.90"N	84°40'16.00"E
9	23°05'33.78"N	84°40'14.43"E

LAND DETAILS

Khata no.	Plot no.
74	574 (P) & 576 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	Lease deed : 23.12.2016 to 22.12.2026.
2	CO	:	The CO, Gumla (Sadar) vide letter no. 30, dated 09.01.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan.
3	DMO	:	DMO, Gumla vide memo no. 879/M, dated 26.10.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Ranchi vide letter no. 70, dated 25.01.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Gumla Forest Division vide letter no. 1904, dated 29.07.2016 certified that the distance of forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Gumla District (Sl. no. 04, Page no. 40).
7	Gram Sabha	:	Gram Sabha conducted on 30.05.2016.
8	Mine Plan Approval	:	Mining plan approved by Deputy Director, Mines, Ranchi vide Memo No. 423/M, dated 14.09.2016.
9	Previous Environmental Clearance	:	Previous EC granted by DEIAA, Gumla vide letter no. EC/DEIAA /2016-17/007/2016/02/GML dated 06.12.2016.

10	Production Report	:	Production report issued by DMO, Gumla vide memo no. 574/M dated 22.07.2024.
11	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. JSPCB/HO/RNC/CTE-1244826 /2017 /208, dated 08.05.2017.
12	Consent to Operate (CTO)	:	i. CTO issued by JSPCB/RO/RNC/CTO-8087884/2020/102, dated 15.06.2020. ii. CTO issued by JSPCB/RO/RNC/CTO-19183671/2024/996, dated 31.05.2024.
13	Compliance report of previous EC	:	Compliance report of previous EC certified by JSPCB, RO, Dhurwa, Ranchi vide letter no. 870, dated 24.07.2024.
14	Qualified Person	:	Shri Surendra Sai was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast other than fully mechanized (OTFM) Method	
2	Quarry Area	:	1.21 Ha / 3.00 Acres	Life of Mine – Up to the lease period i.e. 23.12.2016 to 22.12.2026.
3	Waste Generation	:	0.00	
4	Stripping Ratio	:	1:0.02	
5	Working Days	:	300	
6	Benches: size & No	:	3m to 3m	
7	Elevation of Mine	:	576 m AMSL to 561 m AMSL	
8	Ground Level Elevation	:	585 m AMSL to 573 m AMSL	
9	Ultimate Working Depth	:	561 m AMSL	
10	Water Table	:	545 m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	2404 kg	
13	Diesel/Fuel requirement	:	400 litre/day	

Production Details

Year	Production of Stone in Cum	Production of Stone in Tonnes	Overburden in cum	Intercalated waste in Cum	Total Waste in Cum
1st	34580	93366	00	00	00

2nd	37375	100912	00	00	00
3rd	37245	100562	00	00	00
4th	41210	111267	00	00	00
5th	36270	97929	00	00	00
Total	186680	504036	00	00	00

Land Use

Pattern of Utilization	Existing Land Use (Ha)	At the end of Plan period (Ha)	Conceptual stage (Ha) (after life of mine)
Excavation	0.51	0.86	0.86 Ha area shall be left as rain water harvesting purpose.
Road	0.02	Comes under mining area	Comes under mining area
Safety Zone	0.00	0.35	0.35
Total Applied Area	**0.53**	**1.21**	**1.21**

ENVIRONMENT MANAGEMENT

Green Belt Development

Year	Place of Plantation	Spacing b/w plants	Total No. of Plants	Area Cover in Square Meters	Total Area in Ha.	Species
1st	Safety Zone	2.5 x 2.5	560	3500	0.35	Gulmohar, Gular, Sagwan, Sakua Fruit Bearing Trees Mango, Jackfruit, Guava
	Haul Road	3 x 3	160	480	0.048	
2nd	Care & Protection	---	---	---	---	
3rd	Care & Protection	---	---	---	---	
4th	Care & Protection	---	---	---	---	
5th	Care & Protection	---	---	---	---	
Total			720	3980	0.398	

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development,

Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Environment Management Budget

PROPOSED FOR ENVIRONMENT MANAGEMENT COST			
S.NO.	**Mitigative measures to protect Environment**	**Capital Cost (in Lakh)**	**Recurring cost (In Lakh)**
01.	Water Sprinkling/Air pollution control (Dust Suppression along haulage road and mine)	0.00	1.50
02.	Green belt development safety zone 7.5mtr and along the road (for each plant including hedges and fences) @ No. of plants 720 x 300Rs.	3.33	0.55
03	Garland Drain and Desiltation pond	2.99	0.29
04.	Environment Monitoring (Air, Water, Noise & Soil Monitoring)	00	0.50
TOTAL		**6.32**	**2.84**

Environment Monitoring Plan (post operation)

Monitoring Parameters and Frequency of Monitoring

S. no	Monitoring Parameters	No. of Locations	Frequency of Monitoring
1	Ambient Air: Ambient Air Quality at appropriate location for PM10, PM2.5, SO2, NOx in the vicinity of the mine area. In the surrounding area covering project site only.	2 Stations	Six Monthly
2	Water: Surface water sample in the vicinity of the Project area.	2 Surface water 2 Ground water	Six Monthly
3	Noise: Day & Night level Noise Monitoring.	4 stations	Six Monthly
4	Soil: Soil Monitoring, Qualitative and quantitative testing/analysis to check the soil fertility, porosity, texture, water holding capacity, etc.	2 station	Six Monthly

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Solid Waste Management

During first, second, third and fourth year gritty soil & intercalated waste will be removed (0.00 m^3) this soil and waste will be temporarily backfill within the exhausted quarry and in fifth year (0.00 m^3) removed gritty soil, intercalated waste and existing temporary backfill soil will be backfilled within the lower bench of the exhausted quarry.

Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.

- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust For mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis are done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: - *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the Following measures will be taken:

- Overall slope angles of benches will be maintained at 45°.
- Unmanageable heights are not created.
- Loose sides are properly dressed.
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961).
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them. While others may need to work at or near the edge of a working bench the person most at risk during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench

- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator.

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation.
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement.
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling. Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground. Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.

- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine.
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers.
- Explosives and detonators shall not be carried in the same container.
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required).
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Organizational Structure:

Introduction

The Environmental Management Plan (EMP) Cell has been established to ensure environmental sustainability and compliance with regulatory requirements for the Stone

Mining Project. This project aims to minimize environmental harm, promote sustainable practices, ensure compliance with regulations, and foster community engagement and transparency. The EMP Cell will provide a framework for identifying, assessing, and mitigating potential environmental impacts associated with the mining activities.

Environmental Policy

Our company is committed to:

- Minimizing environmental harm through responsible mining practices
- Promoting sustainable practices to conserve natural resources
- Ensuring compliance with regulatory requirements and industry standards
- Fostering community engagement and transparency through open communication

EMP Cell Objectives

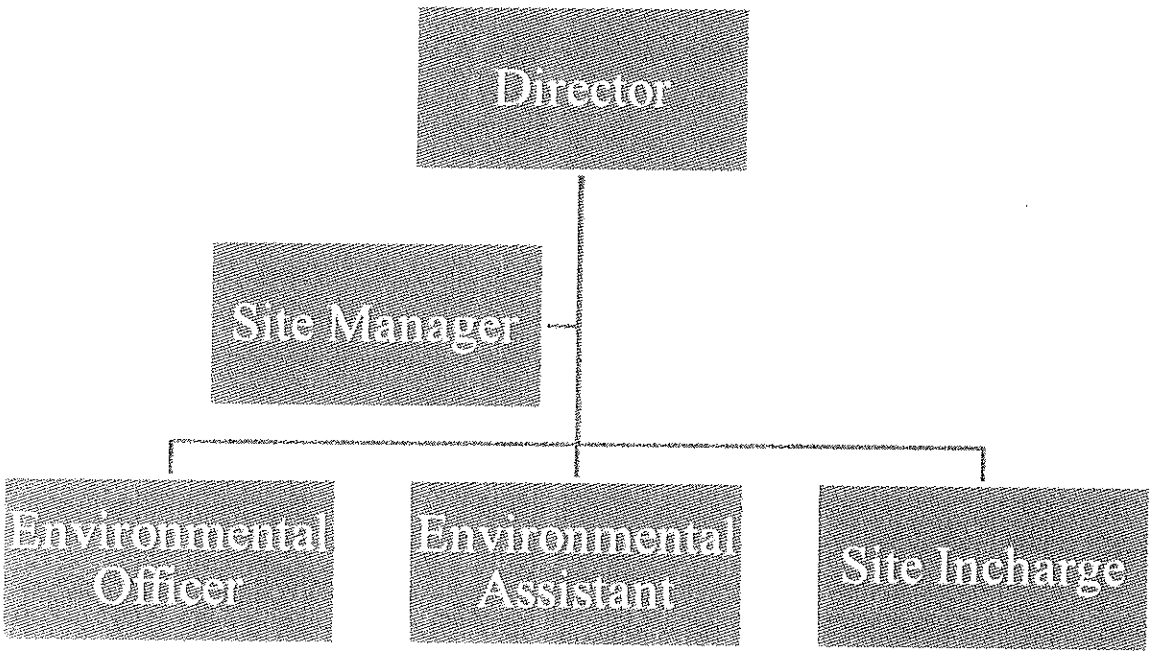
The EMP Cell objectives are:

- Minimize environmental impacts on air, water, soil, and biodiversity
- Ensure compliance with regulatory requirements and industry standards
- Promote sustainable practices through efficient resource utilization
- Enhance community engagement and transparency through regular updates

EMP Cell Structure

The EMP Cell consists of three members:

- Environmental Officer (EO) as Team Lead, responsible for overall strategy
- Environmental Assistant (EA) for Monitoring and Reporting, focusing on data collection
- Administrative Assistant (AA) for Documentation and Coordination, handling administrative tasks



EMP Cell structure

Roles and Responsibilities

Environmental Officer (EO)

- Develop, implement, and review EMP

- Conduct environmental impact assessments
- Monitor and report environmental performance
- Coordinate with regulatory authorities
- Provide environmental training
- Manage environmental data collection
- Develop environmental policies
- Conduct site inspections
- Identify and mitigate environmental hazards
- Prepare quarterly reports

Environmental Assistant (EA)

- Conduct field monitoring
- Collect and record environmental data
- Assist in data analysis and reporting
- Maintain monitoring equipment
- Conduct site inspections
- Assist in preparing quarterly reports
- Update environmental records
- Assist in implementing mitigation measures
- Participate in training programs
- Provide support to EO

Administrative Assistant (AA)

- Maintain environmental records
- Coordinate documentation
- Assist in preparing quarterly reports
- Manage environmental documentation
- Provide administrative support
- Coordinate training logistics
- Maintain communication with regulatory authorities
- Assist in updating policies
- Manage environmental budget
- Provide general administrative support

Director/Top Management Responsibilities

- Provide strategic direction
- Approve environmental policies
- Allocate resources
- Review quarterly reports
- Ensure compliance
- Foster environmental responsibility
- Support employee training
- Review environmental investments
- Ensure integration of environmental considerations

EMP Process Flow

The EMP process flow includes:

1. Environmental Monitoring

2. Data Analysis
3. Report Submission
4. Review and Revision
5. Implementation
6. Compliance Check

Key Decision Points

Key decision points include:

1. Non-compliance: Corrective action and Reporting
2. Environmental incidents: Investigation, Mitigation, and Reporting

Documentation

Documentation includes:

- EMP manual
- Monitoring records
- Reports
- Inspection records
- Training records

Implementation Timeline

The implementation timeline consists of:

1. Pre-Operational Phase (1 month): Establish EMP
2. Operational Phase (Ongoing): Implement EMP
3. Closure and Rehabilitation Phase (6 months): Restore mined land

Reporting

The EMP Cell will submit quarterly reports to:

- Company Director
- Regulatory authorities

Conclusion

The EMP Cell is committed to ensuring environmental sustainability and compliance with regulatory requirements for the Stone Mining Project. With a clear structure, roles, and responsibilities, the EMP Cell is equipped to manage environmental impacts and promote sustainable practices.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Chauli Stone Mine of Shri Satyanarayan Sahu & Shri Chamru Sahu, Village : Chauli, Thana : Gumla, Distt. : Gumla, Jharkhand (1.21 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. The production shall be restricted as per approved mining scheme or the approved mine plan at the time of EC, which ever is less.

II. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal

(https://merilife.nic.in).

III. During appraisal of the project it is seen that the project authority have not fully complied the condition of green belt development as per the previous EC. Hence, the project authorities are required to plant twice the number of trees as was required in the previous EC. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

IV. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

V. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

VI. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VII. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VIII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

IX. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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6. **Matauli Stone Deposit of M/s Maa Bhagwati Traders (Partners : Shri Nikhil Kumar Singh & Shri Anil Kumar), Village : Matauli, Tehsil & Thana : Chianpur, Distt. : Palamau, Jharkhand (1.66 Ha).**

(Proposal no.: SIA/JH/MIN/ 510293 /2024)

Name of the consultant : Crystal Consultants, Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity – 150443.19 Tonnes per year or 53729.71 cum per year

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Matauli Stone Deposit	
2	Lessee:	:	M/s Maa Bhagwati Traders Partners – 1. Sri Nikhil kumar Singh 2. Sri Anil Kumar	
3	Lessee Address	:	At Village: Daunadag, P.O. – Rankaraj, P.S – Ranka, District-Garhwa, Jharkhand.	
4	Lease Area	:	1.66 Ha	Acres- 4.11 Acre
5	Type of Land	:	Non-Forest Raiyati Land	
6	Project Cost	:	Capital: 6.3 Lakhs	Recurring: 1.14 Cr
7	EMP Budget	:	Capital: 6.3 Lakhs	Recurring: 5.71 lakhs / year
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 268564 cum	Tonnes: 752035.20 tonnes
10	Mine Life	:	5 years (4 years 11 months)	
11	Man power	:	36	
12	Water Requirement	:	12.88 KLD (Drinking: 1.44 KLD, Industrial: 6.64 KLD, Plantation: 4.8 KLD)	
13	Water Source	:	By authorised hired water tankers	
14	DG Set / power	:	-	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Hathu river is situated at a distance of 2.66 km in South direction.	
17	Nearest Habitation	:	Daltonganj, at 25.40 KM in North-East direction.	
18	Nearest Rail Station	:	Daltonganj Railway station, approx. 25.40 km towards North-East direction	
19	Nearest Air Port	:	Gaya Airport, approx. 142 km North-East direction	
20	Nearest Forest	:	Siswa protected forest at a distance of 05 km in South-East direction.	
21	Road & Highways	:	NH – 343, Approx. 7.30 km in North-West direction.	

CO-ORDINATES

S. No.	Latitude	Longitude	S. No.	Latitude	Longitude
1	23°57'23.88"N	83°50'20.45"E	16	23°57'17.56"N	83°50'17.64"E
2	23°57'23.86"N	83°50'20.74"E	17	23°57'18.26"N	83°50'17.72"E
3	23°57'23.19"N	83°50'22.26"E	18	23°57'18.30"N	83°50'17.91"E
4	23°57'22.83"N	83°50'23.41"E	19	23°57'18.98"N	83°50'18.20"E
5	23°57'21.60"N	83°50'23.37"E	20	23°57'19.12"N	83°50'18.10"E
6	23°57'21.24"N	83°50'22.76"E	21	23°57'20.34"N	83°50'18.42"E
7	23°57'20.75"N	83°50'22.26"E	22	23°57'20.54"N	83°50'18.61"E
8	23°57'20.54"N	83°50'22.30"E	23	23°57'20.81"N	83°50'18.30"E
9	23°57'20.40"N	83°50'21.59"E	24	23°57'21.94"N	83°50'18.68"E
10	23°57'18.96"N	83°50'20.93"E	25	23°57'21.72"N	83°50'19.54"E
11	23°57'17.52"N	83°50'20.28"E	26	23°57'21.16"N	83°50'19.70"E
12	23°57'17.32"N	83°50'20.62"E	27	23°57'20.95"N	83°50'20.24"E
13	23°57'17.04"N	83°50'19.21"E	28	23°57'22.15"N	83°50'20.15"E
14	23°57'16.96"N	83°50'18.81"E	29	23°57'22.78"N	83°50'20.40"E
15	23°57'16.98"N	83°50'18.10"E	30	23°57'23.04"N	83°50'20.14"E

LAND DETAILS

Khata no.	Plot no.
63	910 & 925 (P)
15	912 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Palamau vide letter no. 1201/M, dated 05.06.2023.
2	CO	:	The CO, Chainpur, Palamau vide letter no. 350, dated 17.04.2023 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Palamau vide memo no. 1954/M, dated 28.08.2023 certified that no other mining lease area exists within 500 meters

			radius from proposed project site.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, North Division, Medininagar vide letter no. 426, dated 01.04.2023 certified that the proposed project site is outside Eco Sensitive Zone of Palamau Tiger Reserve.
5	DFO Territorial	:	Division Forest Officer, Garhwa South Forest Division vide letter no. 842, dated 27.03.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Palamau District (Sl. no. 06, Page no. 103).
7	Gram Sabha	:	BDO, Chainpur, Palamau vide letter no. 358, dated 05.04.2023 informed that Gram Sabha conducted on 04.04.2023.
8	Mine Plan Approval	:	Approved by District Mining Officer, Palamau vide Letter No. 1532/M, dated 07.07.2023.
9	Qualified Person	:	Shri P.K. Sen was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast other than fully mechanized (OTFM) Method	
2	Quarry Area	:	1.66 Ha / 4.11 Acres	Life of Mine – 5 years
3	Waste Generation	:	14136 cum	
4	Stripping Ratio	:	1:0.05	
5	Working Days	:	300	
6	Benches: size & No	:	6m to 6m	
7	Elevation of Mine	:	296 m AMSL to 326 m AMSL	
8	Ground Level Elevation	:	326 m AMSL to 321 m AMSL	
9	Ultimate Working Depth	:	296 m AMSL	
10	Water Table	:	284 m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	94.5 kg/day	
13	Diesel/Fuel requirement	:	400 litre/day	

Production Details

Year	Production of Stone in Cum	Production of Stone in Tonnes	Removal of gritty soil in cum	Intercalated waste in Cum	Total Waste in Cum
1st	**53729.51**	**150442.63**	**3102.00**	**2827.87**	5929.87
2nd	**53728.77**	**150440.56**	**000.00**	**2827.83**	2827.83
3rd	**53729.71**	**150443.19**	**660.00**	**2827.88**	3487.88
4th	53702.89	150368.10	3036.00	2826.47	5862.47
5th (last 11 months	53692.97	150340.33	000.00	2825.95	2825.95
Total	**268583.85**	**752034.81**	**6798.00**	**14136.00**	20934

Land Use

Pattern of Utilization	Existing Land Use (Ha)	At the end of Plan period (Ha)	At the end of mine (in Ha)	Conceptual stage (in Ha)		
				Public use	Water body	Plantation
Quarry	Nil	2.029	1.16 (including backfilling 0.24 ha)	---	1.16	---
Road	0.01	Nil	Nil	---	---	---
Safety Zone	Nil	0.50	0.50	---	---	0.50
Total Area in Use	**0.01**	**1.66**	**1.66**	**---**	**1.16**	**0.50**
Unused Area	1.65	Nil	Nil	---	---	---
Total Applied Area	**1.66**	**1.66**		**1.66**		

ENVIRONMENT MANAGEMENT

Green Belt Development

Year	Place of Plantation	Spacing b/w plants	Total No. of Plants	Area Cover in Square Meters	Total Area in Ha.	Species
1st	Safety Zone	2.5 x 2.5	800	5000	0.50	Gulmohar, Gular, Sagwan, Sakua
	Haul Road	3 x 3	160	1000	0.10	
2nd	Care & Protection	---	---	---	---	

3rd	Care & Protection	---	---	---	---	Fruit Bearing Trees Mango, Jackfruit, Guava
4th	Care & Protection	---	---	---	---	
5th	Care & Protection	---	---	---	---	
Total			**960**	**6000**	**0.60**	

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Environment Management Budget

928 Tree Plantation @Rs.500 per Tree for planting & @Rs.50 per tree for maintenance	464000	46400
Water Tanker @Rs. 500 per Tanker for Dust Suppression (6.64 KLD) & Horticulture (5.568 KLD) 6.64 KLD + 5.568 KLD = 12.208 KLD 12.208 KLD X 300 Days = 3663 KLD 3663 KLD / 4 KLD = 916 Tankers	0	458000
Garland Drain & Desiltation Pond	166000	16600
Environment Monitoring & Compliance	0	50000
Total	**630000**	**571000**

Environment Monitoring Plan (post operation)

Monitoring Parameters and Frequency of Monitoring

S. no	Monitoring Parameters	No. of Locations	Frequency of Monitoring
1	Ambient Air: Ambient Air Quality at appropriate location for PM10, PM2.5, SO2, NOx in the vicinity of the mine area. In the surrounding area covering project site only.	2 Stations	Six Monthly
2	Water: Surface water sample in the vicinity of the Project area.	2 Surface water 2 Ground water	Six Monthly

3	Noise: Day & Night level Noise Monitoring.	4 stations	Six Monthly
4	Soil: Soil Monitoring, Qualitative and quantitative testing/analysis to check the soil fertility, porosity, texture, water holding capacity, etc.	2 station	Six Monthly

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Solid Waste Management

During first, second, third and fourth year gritty soil & intercalated waste will be removed (18108.05 m^3) this soil and waste will be temporarily backfill within the exhausted quarry and in fifth year (2825.95 m^3) removed gritty soil, intercalated waste and existing temporary backfill soil will be backfilled within the lower bench of the exhausted quarry.

Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.

- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust For mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis are done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5

5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: - *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the Following measures will be taken:

- Overall slope angles of benches will be maintained at 45°.
- Unmanageable heights are not created.
- Loose sides are properly dressed.
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961).
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them. While others may need to work at or near the edge of a working bench the person most at risk during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator.

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation.
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement.
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling. Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground. Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine.
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers.
- Explosives and detonators shall not be carried in the same container.
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required).
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.

- Only trained drivers will be hired.

Organizational Structure:

Introduction

The Environmental Management Plan (EMP) Cell has been established to ensure environmental sustainability and compliance with regulatory requirements for the Stone Mining Project. This project aims to minimize environmental harm, promote sustainable practices, ensure compliance with regulations, and foster community engagement and transparency. The EMP Cell will provide a framework for identifying, assessing, and mitigating potential environmental impacts associated with the mining activities.

Environmental Policy

Our company is committed to:

- Minimizing environmental harm through responsible mining practices
- Promoting sustainable practices to conserve natural resources
- Ensuring compliance with regulatory requirements and industry standards
- Fostering community engagement and transparency through open communication

EMP Cell Objectives

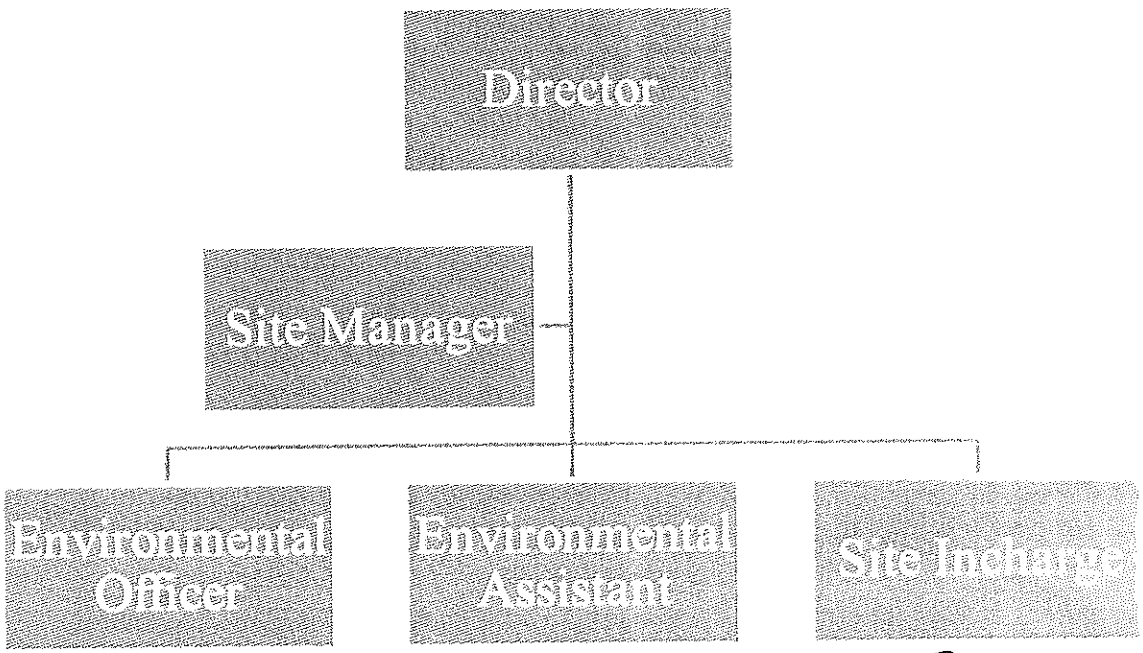
The EMP Cell objectives are:

- Minimize environmental impacts on air, water, soil, and biodiversity
- Ensure compliance with regulatory requirements and industry standards
- Promote sustainable practices through efficient resource utilization
- Enhance community engagement and transparency through regular updates

EMP Cell Structure

The EMP Cell consists of three members:

- Environmental Officer (EO) as Team Lead, responsible for overall strategy
- Environmental Assistant (EA) for Monitoring and Reporting, focusing on data collection
- Administrative Assistant (AA) for Documentation and Coordination, handling administrative tasks



Roles and Responsibilities

Environmental Officer (EO)

- Develop, implement, and review EMP
- Conduct environmental impact assessments
- Monitor and report environmental performance
- Coordinate with regulatory authorities
- Provide environmental training
- Manage environmental data collection
- Develop environmental policies
- Conduct site inspections
- Identify and mitigate environmental hazards
- Prepare quarterly reports

Environmental Assistant (EA)

- Conduct field monitoring
- Collect and record environmental data
- Assist in data analysis and reporting
- Maintain monitoring equipment
- Conduct site inspections
- Assist in preparing quarterly reports
- Update environmental records
- Assist in implementing mitigation measures
- Participate in training programs
- Provide support to EO

Administrative Assistant (AA)

- Maintain environmental records
- Coordinate documentation
- Assist in preparing quarterly reports
- Manage environmental documentation
- Provide administrative support
- Coordinate training logistics
- Maintain communication with regulatory authorities
- Assist in updating policies
- Manage environmental budget
- Provide general administrative support

Director/Top Management Responsibilities

- Provide strategic direction
- Approve environmental policies
- Allocate resources
- Review quarterly reports
- Ensure compliance
- Foster environmental responsibility
- Support employee training

- Review environmental investments
- Ensure integration of environmental considerations

EMP Process Flow

The EMP process flow includes:

1. Environmental Monitoring
2. Data Analysis
3. Report Submission
4. Review and Revision
5. Implementation
6. Compliance Check

Key Decision Points

Key decision points include:

1. Non-compliance: Corrective action and Reporting
2. Environmental incidents: Investigation, Mitigation, and Reporting

Documentation

Documentation includes:

- EMP manual
- Monitoring records
- Reports
- Inspection records
- Training records

Implementation Timeline

The implementation timeline consists of:

1. Pre-Operational Phase (1 month): Establish EMP
2. Operational Phase (Ongoing): Implement EMP
3. Closure and Rehabilitation Phase (6 months): Restore mined land

Reporting

The EMP Cell will submit quarterly reports to:

- Company Director
- Regulatory authorities

Conclusion

The EMP Cell is committed to ensuring environmental sustainability and compliance with regulatory requirements for the Stone Mining Project. With a clear structure, roles, and responsibilities, the EMP Cell is equipped to manage environmental impacts and promote sustainable practices.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Matauli Stone Deposit of M/s Maa Bhagwati Traders (Partners : Shri Nikhil Kumar Singh & Shri Anil Kumar), Village : Matauli, Tehsil & Thana : Chianpur, Distt. : Palamau, Jharkhand (1.66 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

7. **Manjhladih Stone Mine of M/s Spartan Mining (Partners : Shri Sachin Kumar Das & Mr. Mustafa Miya), Village : Manjhladih, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.65 Ha).**

(Proposal no.: SIA/JH/MIN/ 506125 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 38623 Cum. / annum or 104283 TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Manjhladih Stone Mine	
2	Lessee & Lessse Address	:	M/S Spartan Mining Partners : **1.Shri Sachin Kumar Das** S/O Biswanath Das, R/O Vill – Rangamasliya Dalahi, P.O - Kendrachata, Thana - Masaliya, Dist - Dumka **2. Mustafa Miya,** S/O Safur Miya, R/O Vill - Devdaha, P.O - Banspahari, Thana - Shikaripara, Dist - Dumka	
3	Lease Address	:	Village- Manjhladih, Thana- Shikaripara, Thana No- 06, District- Dumka, Jharkhand	
4	Lease Area	:	1.65 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 125.78 Lakhs	Recurring Cost: Rs. 13.60 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 4.592 Lakhs	Recurring Cost: Rs. 5.734 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 187237 cum	Tonnes: 505541tons
10	Mine Life	:	5 years.	
11	Man power	:	29 Person	
12	Water Requirement	:	3.937 KLD (Drinking: 0.435 KLD, Dust Suppression: 0.88 KLD, Plantation:2.622 KLD	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani River – 4.16 Km in North direction	
17	Nearest Habitation	:	Manjhladih Village –1 Km in NW Direction	
18	Nearest Rail Station	:	Pakdaha Harinsing Railway Station at aerial distance of 4.5 km in North direction.	
19	Nearest Air Port	:	Deoghar Airport is at aerial distance of 92 km NW direction.	
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer . letter no.- 1123 Dated- 18/04/23	

21	Road & Highways	:	The distance of Approach Road is 100m, after that this road connects to village road. The village road continues for 3.3 km and after this the road connects to MDR Sarasdangal to Shikaripara.

CO-ORDINATES

Point ID	Latitude	Longitude
1	24° 11' 43.43000018" N	087° 34' 36.81284349" E
2	24° 11' 43.19032271" N	087° 34' 36.55039049" E
3	24° 11' 43.76602974" N	087° 34' 35.44819874" E
4	24° 11' 44.13021327" N	087° 34' 34.73711833" E
5	24° 11' 44.43677456" N	087° 34' 34.25983431" E
6	24° 11' 44.04815753" N	087° 34' 34.02061828" E
7	24° 11' 44.40866902" N	087° 34' 33.20525603" E
8	24° 11' 44.48868173" N	087° 34' 32.99145887" E
9	24° 11' 44.77618258" N	087° 34' 32.42957141" E
10	24° 11' 45.06615644" N	087° 34' 32.03921191" E
11	24° 11' 45.22745618" N	087° 34' 31.82496379" E
12	24° 11' 45.74182976" N	087° 34' 32.29058359" E
13	24° 11' 46.25623542" N	087° 34' 32.75620458" E
14	24° 11' 46.78252499" N	087° 34' 33.26045359" E
15	24° 11' 47.30884657" N	087° 34' 33.76470390" E
16	24° 11' 47.78379948" N	087° 34' 34.00117940" E
17	24° 11' 47.88916984" N	087° 34' 34.74296114" E
18	24° 11' 48.02001021" N	087° 34' 35.34396551" E
19	24° 11' 48.23379282" N	087° 34' 35.97103542" E
20	24° 11' 48.51857694" N	087° 34' 36.68637714" E
21	24° 11' 48.86846802" N	087° 34' 37.01151091" E
22	24° 11' 49.37962937" N	087° 34' 37.38828046" E

23	24° 11' 49.12670900" N	087° 34' 37.68658711" E
24	24° 11' 48.52920666" N	087° 34' 37.33114744" E
25	24° 11' 48.41804003" N	087° 34' 37.35697029" E
26	24° 11' 48.28676277" N	087° 34' 37.59330198" E
27	24° 11' 48.16514198" N	087° 34' 37.82968054" E
28	24° 11' 47.90367125" N	087° 34' 38.00751213" E
29	24° 11' 47.85335360" N	087° 34' 38.38136034" E
30	24° 11' 47.39367490" N	087° 34' 38.77389949" E
31	24° 11' 47.05183480" N	087° 34' 38.50384765" E
32	24° 11' 46.80717861" N	087° 34' 38.07102085" E
33	24° 11' 46.77968444" N	087° 34' 37.68129027" E
34	24° 11' 46.71295303" N	087° 34' 37.44406467" E
35	24° 11' 46.55507827" N	087° 34' 37.05375107" E
36	24° 11' 46.28558561" N	087° 34' 36.79982172" E
37	24° 11' 45.80391439" N	087° 34' 36.46596208" E
38	24° 11' 45.24942375" N	087° 34' 36.23181072" E
39	24° 11' 44.78351860" N	087° 34' 36.83518193" E
40	24° 11' 44.30318406" N	087° 34' 37.42795570" E
41	24° 11' 43.58575504" N	087° 34' 36.86138339" E

LAND DETAILS

Khata no.	Plot no.
46, 06 & 13	742, 743 (P) & 747 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 952/M, dated 12.08.2024.
2	CO	:	The CO, Shikaripara vide letter no. 740/Ra., dated 02.06.2023 has

			mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 958/M, dated 13.06.2023 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 883, dated 03.05.2023 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 1123, dated 18.04.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 45, Page no. 158).
7	Gram Sabha	:	Gram Sabha conducted on 28.12.2022.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1193/M, dated 19.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	1.65 Ha	Life of Mine – 5 year
3	Waste Generation	:	22453 cum	
4	Stripping Ratio	:	03:05	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	
7	Elevation of Mine	:	159m-149m AMSL	
8	Ground Level Elevation	:	38 m AMSL	
9	Ultimate Working Depth	:	120m AMSL	
10	Water Table	:	Post Monsoon – 87m AMSL Pre Monsoon – 82 m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	31.6 kg Slurry explosives/day	

13	Diesel/Fuel requirement	:	HSD –301 liters / day (30.1 KL/year)

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.
1st	34395	2.7	92866	115	310	22453	75
2nd	38623	2.7	104283	129	348	0	0
3rd	38030	2.7	102682	127	342	0	0
4th	37999	2.7	102597	127	342	0	0
5th	38190	2.7	103113	127	344	0	0
Total	**187237**	**2.7**	**505541**	**129 (Max.)**	**348 (Max.)**	**22453**	**75**

Land UsePattern

Si. No.	Pattern of Utilization	Present/Existing land use pattern in (acres)	Proposed Land use for current plan period (acres)	Land used at the conceptual stage ie end of mine life in (acres)	Area to be converted in the conceptual period.
1	Mining Activities	0.00	1.10	1.10	Water body
2	Offices/ Store etc.	0.00	0.00	0.00	Plantation
3	Dumping	0.00	0.06	0.06	Plantation -
4	Mining Road	0.00	0.03	0.03	Water body
5	Garland drain	0.00	0.03	0.03	-
6	Settling Tank	0.00	0.01	0.01	-
7	Safety Zone	0.00	0.42	0.42	Plantation
8	Stone Stock yards	0.00	0.00	0.00	
9	Unutilized	1.65	0.00	0.00	
Total		**1.65**	**1.65**	**1.65**	-

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees

1	Safety Zone+ Dumping		(0.404 +0.06Ha)	742
2	Along Approach Road		0.100 m	132
TOTAL				**874**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1100 per Tanker)	--	3,30,000
2	Plantation: 132 X 800 = Rs 105,600 (Gabion Plantation along approach road) 742 X 400 = Rs 296800(Plantation within lease area)(also includes Fertilizer, Pesticides, Maintenance)	4,02,400	40240
3	Fencing around the Lease boundary	56,800	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) -Rs.27,270 • Ground Water (2 point) -Rs.12,420 • Noise 24 hrs (3 point) -Rs.21,000 • Soil (3 point) -Rs.40,920 Total -Rs. 1,01,610 (Per Season) At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220 **Source: Central Pollution Control Board** **Notification, New Delhi, the 23rd February, 2022**	--	2,03,220
Total		**4,59,200**	**5,73,460**

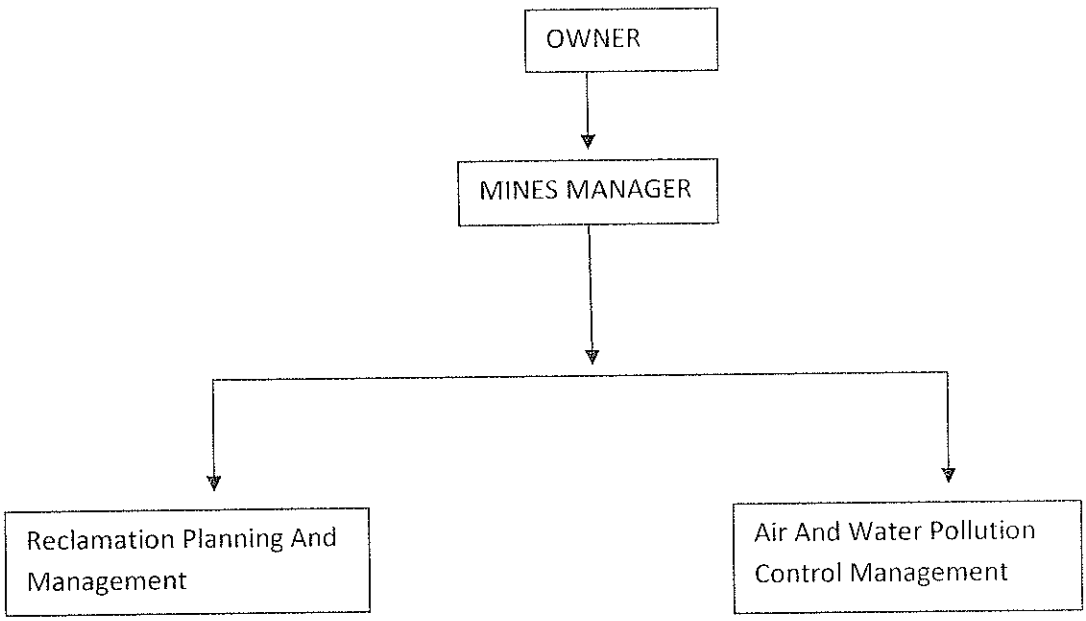
Environment Monitoring Programme

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 stations	6 Monthly

Solid Waste Management

During first year 22453 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.

- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people

become aware of the blasting activities being undertaken in the area and take appropriate precautions.

- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure

- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.

e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Manjhladih Stone Mine of M/s Spartan Mining (Partners : Shri Sachin Kumar Das & Mr. Mustafa Miya), Village : Manjhladih, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.65 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.
III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.
IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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8. **Haripur Stone Mine of M/s Three Star Stone Works (Prop. : Shri Daniyal Tudu), Village : Haripur, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.40 Ha).**

(Proposal no.: SIA/JH/MIN/ 507083 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity:85169Cum. / annum or 229957 TPA.

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Haripur Stone Mine	
2	Lessee:	:	M/S Three Star Stone Works Shri Daniyal Tudu	
3	Lessee Address	:	S/O Late Prabhu Tudu, R/O: Vill- Old Dumka , P.O –Dumka Thana - Kathikund, Dist – Dumka Jharkhand 814101	
4	Lease Area	:	2.40 Ha	
5	Type of Land	:	Non-Forest Raiyat Land	
6	Project Cost		Capital Cost: Rs. 128.58Lakhs	Recurring Cost: Rs. 17.48 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 7.468Lakhs	Recurring Cost: Rs5.935 Lakhs

8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 355638	Tonnes:460223
10	Mine Life	:	5 years.	
11	Man power	:	25 Person	
12	Water Requirement	:	5.46 KLD (Drinking: 0.375 KLD, Dust Suppression: 0.936 KLD, Plantation: 4.15 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani River – 5 km North Direction	
17	Nearest Habitation	:	Haripur Village – 0.500 Km inWest Direction	
18	Nearest Rail Station	:	Pinargaria Railway Station at aerial distance of 2 km in East direction.	
19	Nearest Air Port	:	Deoghar Airport is at aerial distance of 96.71 km North West direction.	
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer NOC. letter no.-30 Dated- 06/01/23	
21	Road & Highways	:	The distance of Approach Road is 234m, after that this road connects to NH 114A (Dumka-Rampurhat road).	

CO-ORDINATES

Point Name	Latitude	Longitude
1	24° 12' 45.69829904" N	087° 37' 35.47904225" E
2	24° 12' 45.54008313" N	087° 37' 35.28205183" E
3	24° 12' 45.15487813" N	087° 37' 34.80249932" E
4	24° 12' 44.69154650" N	087° 37' 34.81992403" E
5	24° 12' 44.30571637" N	087° 37' 34.54767514" E
6	24° 12' 44.06092532" N	087° 37' 34.79107874" E
7	24° 12' 44.12578675" N	087° 37' 35.64589035" E
8	24° 12' 44.10378166" N	087° 37' 36.30016854" E
9	24° 12' 44.24570912" N	087° 37' 36.69433034" E

10	24° 12' 42.97305944" N	087° 37' 36.96727192" E
11	24° 12' 42.53859766" N	087° 37' 36.78781549" E
12	24° 12' 41.32960498" N	087° 37' 36.14553831" E
13	24° 12' 40.39451937" N	087° 37' 35.68272067" E
14	24° 12' 39.90882885" N	087° 37' 35.08878850" E
15	24° 12' 39.60110614" N	087° 37' 35.01211025" E
16	24° 12' 39.14775026" N	087° 37' 34.69096997" E
17	24° 12' 39.46889567" N	087° 37' 33.61421263" E
18	24° 12' 39.66723234" N	087° 37' 32.49022888" E
19	24° 12' 39.78448415" N	087° 37' 31.98998841" E
20	24° 12' 39.89392097" N	087° 37' 31.70627279" E
21	24° 12' 40.32710428" N	087° 37' 31.00967172" E
22	24° 12' 40.81446825" N	087° 37' 31.38716880" E
23	24° 12' 41.75853377" N	087° 37' 30.94662691" E
24	24° 12' 42.93528796" N	087° 37' 30.32726794" E
25	24° 12' 43.18933696" N	087° 37' 30.50539864" E
26	24° 12' 43.27531740" N	087° 37' 30.72397121" E
27	24° 12' 43.55866207" N	087° 37' 31.13955986" E
28	24° 12' 43.90081319" N	087° 37' 31.61328557" E
29	24° 12' 43.66256211" N	087° 37' 31.84795181" E
30	24° 12' 43.42645598" N	087° 37' 32.02741288" E
31	24° 12' 43.53033544" N	087° 37' 32.17853494" E
32	24° 12' 43.76682404" N	087° 37' 32.41261196" E
33	24° 12' 44.04575100" N	087° 37' 32.62108081" E
34	24° 12' 44.47598873" N	087° 37' 32.53110411" E
35	24° 12' 44.48431578" N	087° 37' 32.98138086" E
36	24° 12' 44.39930935" N	087° 37' 33.19862291" E

37	24° 12' 44.58821572" N	087° 37' 33.49142409" E
38	24° 12' 44.72045131" N	087° 37' 33.53864974" E
39	24° 12' 44.93768919" N	087° 37' 33.47253422" E
40	24° 12' 45.19271060" N	087° 37' 33.20806811" E
41	24° 12' 45.35195571" N	087° 37' 32.55332040" E
42	24° 12' 45.54519985" N	087° 37' 32.58176384" E
43	24° 12' 46.69754657" N	087° 37' 33.33738339" E
44	24° 12' 46.22442862" N	087° 37' 34.35143146" E

LAND DETAILS

Khata no.	Plot no.
24	401 (P), 402, 403, 404, 470 (P) & 471
18	405, 406, 407 (P), 408, 413 & 446 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 947/M, dated 12.08.2024.
2	CO	:	The CO, Shikaripara vide letter no. 1125/Ra., dated 09.12.2022 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 1272/M, dated 12.11.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 796, dated 09.05.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 30, dated 06.01.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 43, Page no. 159).

7	Gram Sabha	:	Gram Sabha conducted on 10.07.2022.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1170/M, dated 14.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	2.40 Ha	Life of Mine – 5year
3	Waste Generation	:	42904 cum	
4	Stripping Ratio	:	61:10	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	
7	Elevation of Mine	:	69 m AMSL	
8	Ground Level Elevation	:	36.5 m AMSL	
9	Ultimate Working Depth	:	36.5m AMSL	
10	Water Table	:	Post Monsoon – 26 m AMSL Pre Monsoon – 31 m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	72.9 kg Nitro mix explosives	
13	Diesel/Fuel requirement	:	HSD –315 liters / day (94.5 KL/year)	

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum recoverable 95%	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.
1st	69266	2.7	187019	231	623	42904	143
2nd	85169	2.7	229957	284	767	0	0

3rd	76099	2.7	205467	254	685	0	0
4th	67028	2.7	180976	223	603	0	0
5th	58075	2.7	156804	194	523	0	0
Total	**355638**	2.7	**960223**	**284 (max)**	**767 (max)**	**42904**	**143**

Land Use

Existing Land Use pattern

SL	Pattern	Existing Land Use (Ha)
1	Mining Area	0.000
2	Office	0.000
3	Dumping	0.000
4	Road	0.000
5	Garland drain	0.000
6	Settling Pond	0.000
7	Green belt	0.000
8	Safety Zone	0.000
9	Stone Stock yards	0.000
10	Crusher	0.000
11	Unutilized	2.400
	TOTAL	2.400

Land Use Pattern for Proposed Plan Period:

SL	Pattern	Proposed Land Use (Ha)
1	Mining Area	1.675
2	Office	0.005
3	Dumping	0.060
4	Road	0.000
5	Garland drain	0.038
6	Settling Pond	0.016
7	Green Belt	0.000

8	Safety Zone	0.553
9	Stone Stock Yards	0.000
10	Crusher	0.053
11	Unutilized	0.000
	TOTAL	2.400

Land Use Pattern after Life of the Mine:

Si. No.	Pattern of Utilization	Land used at the conceptual stage i.e. end of mine life in (Ha.)	Area to be converted in the conceptual period.
1	Mining Activities	1.675	Water body
2	Offices/ Store etc.	0.005	Plantation
3	Dumping	0.060	Plantation -
4	Mining Road	0.000	Water body
5	Garland drain	0.038	-
6	Settling Tank	0.016	-
7	Green belt	0.053	Green Belt
8	Safety Zone	0.553	Plantation
9	Stone Stock yards	0.000	
10	Unutilized	0.000	
11	Crusher	0.000	
Total		2.400	-

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees

1	Safety Zone/ plantation		0.671Ha	1073
2	Along Approach Road		0.234 km	312
TOTAL				**1385 Trees**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl. No.	**Particulars**	**Capital Cost in Rs.**	**Recurring Cost in Rs. per year**
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1100 per Tanker)	--	3,30,000
2	Plantation: 312 X 800 = Rs 2,49,600 (Gabion Plantation along approach road) 1073 X 400 = 4,29,200 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	6,78,800	60360
3	Fencing	68,080	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) -Rs.27,270 • Ground Water (2 point) - Rs.12,420 • Noise 24 hrs (3 point) -Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610 (Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220** **Source: Central Pollution Control Board** **Notification, New Delhi, the 23rd February, 2022**	--	2,03,220

Total	7,46,880	5,93,580

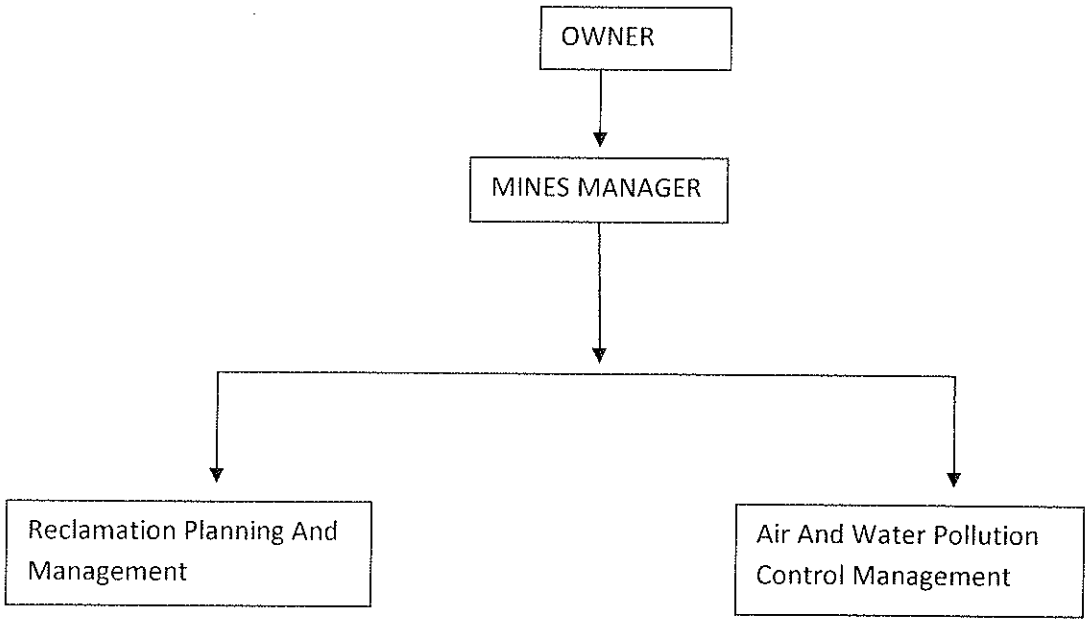
Environment Monitoring Programme:

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 stations	6 Monthly

Solid Waste Management

During first year42904cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.

- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people

become aware of the blasting activities being undertaken in the area and take appropriate precautions.

- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure

- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.

e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Haripur Stone Mine of M/s Three Star Stone Works (Prop. : Shri Daniyal Tudu), Village : Haripur, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.40 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.
III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.
IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.
V. Pre employment Occupational health check up for employees to be done and

thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

9. **Chirapathar Stone Mine of Shri Mirtunjay Kumar, Village : Chirapathar, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.51 Ha).**

(Proposal no.: SIA/JH/MIN/ 506287 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for Proposed Capacity: 39410 Cum. / annum or 106406 TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Chirapathar Stone Mine	
2	Lessee:	:	Proponent- Shri Mirtunjay Kumar	
3	Lessee Address	:	Shri Mirtunjay Kumar, S/o Shri Ramdarsh Sharma R/o Gram- Gorkhadi, PO- Gorkhadi, PS- Bikram, Dist- Patna, Bihar 801104.	
4	Lease Area	:	1.51 Ha	
5	Type of Land	:	Non-Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 128.49 Lakhs	Recurring Cost: Rs. 19.44 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 8.09 Lakhs	Recurring Cost: Rs. 5.74 Lakhs
8	New or Expansion	:	New	

9	Mineable Reserves	:	cum.: 132766cum	Tonnes: 358469tons
10	Mine Life	:	5 years.	
11	Man power	:	20Person	
12	Water Requirement	:	5.62 KLD (Drinking: 0.300 KLD, Dust Suppression: 1.228KLD, Plantation: 4.098 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	20 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani River at 8.5 km North Direction.	
17	Nearest Habitation	:	Chirapathar village 0.5 km SE direction.	
18	Nearest Rail Station	:	Pinergaria Railway Station at aerial distance of 3.48 km in North East direction.	
19	Nearest Air Port	:	Deoghar Airport is at aerial distance of 97.77 km North West direction.	
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer NOC. letter no.- 142 Dated- 17/01/2023	
21	Road & Highways	:	The distance of Approach Road is 307m, after that this road continues in village road about 2.41 km & connects to MDR.	

CO-ORDINATES

Point Name	Longitude	Latitude
1	087° 37' 37.72463690" E	24° 11' 00.71671835" N
2	087° 37' 38.30706314" E	24° 11' 00.90215995" N
3	087° 37' 38.33868573" E	24° 11' 01.00421360" N
4	087° 37' 38.93822497" E	24° 11' 00.50190994" N
5	087° 37' 39.33375707" E	24° 11' 00.25844070" N
6	087° 37' 40.05883730" E	24° 10' 59.88682373" N
7	087° 37' 40.66694029" E	24° 10' 59.67065383" N
8	087° 37' 40.74194413" E	24° 10' 59.43251292" N
9	087° 37' 41.12186250" E	24° 10' 59.20863726" N
10	087° 37' 40.99269185" E	24° 10' 58.94710842" N

11	087° 37' 41.07605238" E	24° 10' 58.87818135" N
12	087° 37' 40.91044958" E	24° 10' 58.63157558" N
13	087° 37' 42.07223238" E	24° 10' 58.06608239" N
14	087° 37' 42.08161749" E	24° 10' 57.86852851" N
15	087° 37' 41.90077742" E	24° 10' 57.54805615" N
16	087° 37' 41.74273746" E	24° 10' 57.17363292" N
17	087° 37' 41.57447975" E	24° 10' 57.06757427" N
18	087° 37' 41.00488369" E	24° 10' 57.42768440" N
19	087° 37' 40.22287548" E	24° 10' 57.73709597" N
20	087° 37' 39.66485536" E	24° 10' 57.85209634" N
21	087° 37' 39.45021332" E	24° 10' 57.84095837" N
22	087° 37' 39.38638745" E	24° 10' 57.51814008" N
23	087° 37' 39.83416875" E	24° 10' 57.38715809" N
24	087° 37' 40.15917101" E	24° 10' 57.37642796" N
25	087° 37' 39.97901111" E	24° 10' 57.17289620" N
26	087° 37' 39.61042257" E	24° 10' 57.10547730" N
27	087° 37' 39.38858189" E	24° 10' 56.96213112" N
28	087° 37' 39.36955812" E	24° 10' 56.81025615" N
29	087° 37' 39.52153966" E	24° 10' 56.80386012" N
30	087° 37' 39.63621756" E	24° 10' 56.67259278" N
31	087° 37' 39.55591230" E	24° 10' 56.32958591" N
32	087° 37' 39.76702306" E	24° 10' 55.96728675" N
33	087° 37' 39.94792573" E	24° 10' 55.77870409" N
34	087° 37' 40.02659540" E	24° 10' 55.78739638" N
35	087° 37' 40.14961532" E	24° 10' 55.48634930" N
36	087° 37' 39.67199984" E	24° 10' 55.29446721" N
37	087° 37' 39.40054869" E	24° 10' 55.05515228" N

38	087° 37' 39.16886620" E	24° 10' 54.90884109" N
39	087° 37' 38.89277407" E	24° 10' 55.06024769" N
40	087° 37' 38.67340351" E	24° 10' 55.42179912" N
41	087° 37' 38.65501833" E	24° 10' 55.68184234" N
42	087° 37' 38.26391821" E	24° 10' 56.42572903" N
43	087° 37' 38.03835929" E	24° 10' 56.40142125" N
44	087° 37' 37.58036057" E	24° 10' 56.45500788" N
45	087° 37' 37.07293804" E	24° 10' 56.41770233" N
46	087° 37' 36.99157358" E	24° 10' 56.76245002" N
47	087° 37' 36.70714392" E	24° 10' 56.74356156" N
48	087° 37' 36.40321701" E	24° 10' 58.75378717" N
49	087° 37' 36.06272058" E	24° 10' 58.85569306" N
50	087° 37' 36.27924314" E	24° 10' 59.46791342" N
51	087° 37' 37.61845187" E	24° 10' 59.26280114" N
52	087° 37' 37.67314164" E	24° 10' 59.78821198" N
53	087° 37' 37.49827054" E	24° 10' 59.98282799" N
54	087° 37' 37.25600838" E	24° 11' 00.01838657" N
55	087° 37' 37.27793069" E	24° 11' 00.21376794" N
56	087° 37' 37.10286515" E	24° 11' 00.43087708" N

LAND DETAILS

Khata no.	Plot no.
5, 8, 9, 17, 20 & 21	416, 417, 418(P), 419, 420, 634, 635, 636, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 688 & 689

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining

			Officer, Dumka vide letter no. 1085/M, dated 21.09.2024.
2	CO	:	The CO, Shikaripara vide letter no. 264/Ra., dated 15.03.2023 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 467/M, dated 31.03.2023 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 699, dated 05.04.2023 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 142, dated 17.01.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 68, Page no. 295).
7	Gram Sabha	:	Gram Sabha conducted on 18.12.2022.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1246/M, dated 29.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast-Mechanized Method	
2	Quarry Area	:	1.51 Ha	Life of Mine – 5years
3	Waste Generation	:	7683cum	
4	Stripping Ratio	:	19:10	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	
7	Elevation of Mine	:	76m-74m AMSL	
8	Ground Level Elevation	:	74m AMSL	
9	Ultimate Working Depth	:	44 m AMSL	
10	Water Table	:	Post Monsoon – 19 m , Pre Monsoon – 24 m	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive	:	32.02kg Slurry explosives/day	

	Requirement		
13	Diesel/Fuel requirement	:	HSD – 260liters/day (78 KL/year)

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum recoverable 95%	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.)
1st	39410	2.7	106406	131	355	7683	26
2nd	34687	2.7	93656	116	312	0	0
3rd	27492	2.7	74229	92	247	0	0
4th	20212	2.7	54573	67	182	0	0
5th	10965	2.7	29605	37	99	0	0
Total	**132766**		**358469**	**131 (max)**	**355 (max)**	**7683**	**26**

Land Use pattern

Sl. No.	Pattern of Utilization	Present/Existing land use pattern in (Ha.)	Proposed Land use for current plan period (Ha.)	Land used at the conceptual stage i.e. end of mine life in (Ha.)	Area to be converted in the conceptual period.
1	Mining Activities	0.000	0.867	0.867	Water body
2	Offices/ Store etc.	0.000	0.001	0.001	Plantation
3	Dumping	0.000	0.060	0.060	Plantation -
4	Mining Road	0.000	0.000	0.000	Water body
5	Garland drain	0.000	0.030	0.030	-
6	Settling Tank	0.000	0.014	0.015	-
7	Green belt	0.000	0.000	0.040	Green Belt
8	Safety Zone	0.000	0.498	0.498	Plantation
9	Stone Stock yards	0.000	0.000	0.000	
10	Unutilized	1.510	0.040	0.000	
11	Crusher	0.000	0.000	0.000	
Total		**1.510**	**1.510**	**1.510**	-

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone and plantation		0.0.599 Ha	958
2	Along Approach Road		307 m	408
TOTAL				**1366**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl.No.	**Particulars**	**Capital Cost in Rs.**	**Recurring Cost in Rs. per year**
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1000 per Tanker)	--	3,00,000
2	Plantation 408 X 800 = Rs 3,26,400 (Gabion Plantation along approach road) 958 X 400 = 3,83,200 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	7,09,600	70960
3.	Fencing	100000	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270 • Ground Water (2 point) - Rs.12,420 • Noise 24 hrs (3 point) - Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610 (Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2** **= Rs. 2,03,220**	--	2,03,220

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
	Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022		
Total		**8,09,600**	**5,74,180**

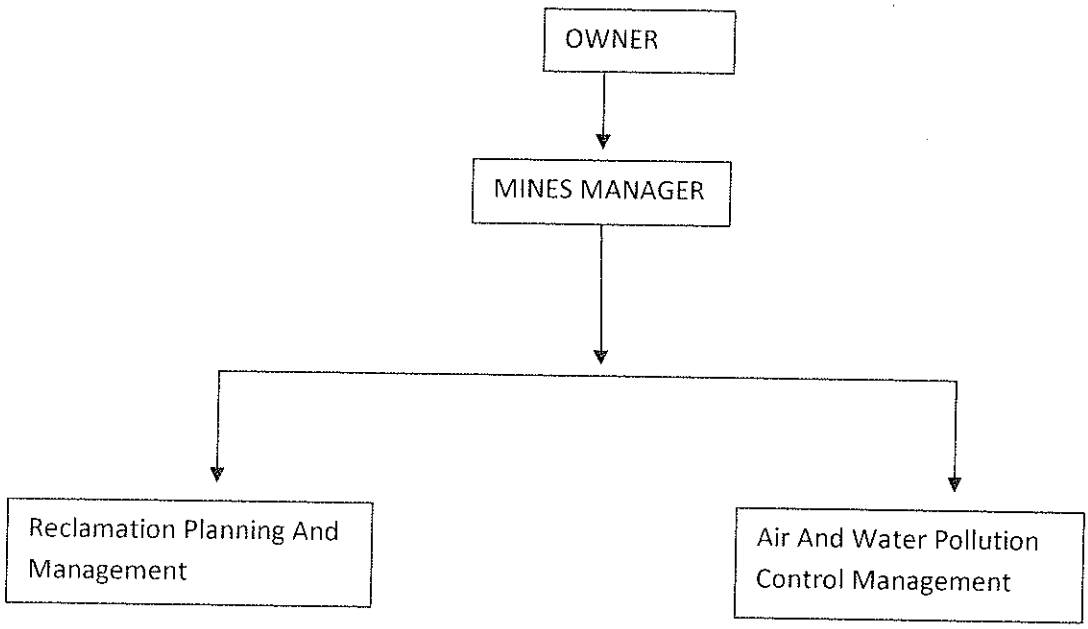
Environment Monitoring Programme

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly

Solid Waste Management

7683 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.

- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by	Very	Minor	20

		hitting by loading material, Exposure to Dust	Unlikely		
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.

- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.

- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an

interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Chirapathar Stone Mine of Shri Mirtunjay Kumar, Village : Chirapathar, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.51 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.
III. Suitable plant species of not less than 2 M height to be planted equal to twice the

area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

10. Amba Stone Mine of Shri Sanjay Kumar Sah, Village : Amba, Thana : Masaliya, Distt. : Dumka, Jharkhand (1.28 Ha).

(Proposal no.: SIA/JH/MIN/ 506251 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 24,867 Cum. / annum or 67,141 TPA

Project and Location Details:

Sl	Parameter		Details
1	Project Name	:	Amba Stone Mine
2	Lessee:	:	Proprietor- Shri Sanjay Kumar Sah
3	Lessee Address	:	S/o Shri Munilal Sah R/o Vill + Post- Palajori, Thana- Palajori, Dist- Deoghar, Jharkhand

4	Lease Area	:	1.28 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 101.59 Lakhs	Recurring Cost: Rs. 9.3 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 8.772Lakhs	Recurring Cost: Rs. 5.809 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 79648cum	Tonnes: 629759tons
10	Mine Life	:	5 years.	
11	Man power	:	17Person	
12	Water Requirement	:	6.17KLD (Drinking: 0.25 KLD, Dust Suppression: 2.02KLD, Plantation: 3.90 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Tepra river at 13.52 km North direction.	
17	Nearest Habitation	:	Amba Village – 0.402 Km in SW Direction.	
18	Nearest Rail Station	:	Jama Railway Station at aerial distance of 22 km at NE direction.	
19	Nearest Air Port	:	Deoghar Airport is at aerial distance of 43 km at North West direction.	
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer Dumka. letter no.- 2187 Dated- 22/08/2022	
21	Road & Highways	:	The distance of Approach Road is 505m, after that this road connects to Village Road continuing about 0.83 km after that this road connects to a MDR.	

CO-ORDINATES

Point Name	Longitude	Latitude
1	087° 01' 08.76112158" E	24° 11' 08.45702444" N
2	087° 01' 09.06234310" E	24° 11' 08.96736762" N
3	087° 01' 09.44780650" E	24° 11' 09.62043639" N
4	087° 01' 09.89714290" E	24° 11' 10.38172039" N
5	087° 01' 10.26146350" E	24° 11' 10.99896623" N
6	087° 01' 10.62578410" E	24° 11' 11.61621125" N

7	087° 01' 10.11369002" E	24° 11' 11.92735479" N
8	087° 01' 10.40212330" E	24° 11' 12.40801769" N
9	087° 01' 10.69055658" E	24° 11' 12.88868009" N
10	087° 01' 11.22624925" E	24° 11' 12.58712964" N
11	087° 01' 11.76194193" E	24° 11' 12.28557900" N
12	087° 01' 12.33847744" E	24° 11' 11.96103699" N
13	087° 01' 12.74762742" E	24° 11' 12.51822043" N
14	087° 01' 13.15677739" E	24° 11' 13.07540320" N
15	087° 01' 13.93936884" E	24° 11' 12.68835404" N
16	087° 01' 14.03850020" E	24° 11' 12.21765988" N
17	087° 01' 14.13763156" E	24° 11' 11.74696523" N
18	087° 01' 14.28119021" E	24° 11' 11.19654084" N
19	087° 01' 14.42474887" E	24° 11' 10.64611579" N
20	087° 01' 14.12518826" E	24° 11' 10.03072633" N
21	087° 01' 13.82562765" E	24° 11' 09.41533605" N
22	087° 01' 13.54488048" E	24° 11' 08.83859363" N
23	087° 01' 13.19161271" E	24° 11' 08.21163998" N
24	087° 01' 12.83834495" E	24° 11' 07.58468546" N
25	087° 01' 12.55998801" E	24° 11' 07.09067675" N
26	087° 01' 12.23149603" E	24° 11' 07.67522369" N
27	087° 01' 12.16334487" E	24° 11' 08.10619593" N
28	087° 01' 12.34586775" E	24° 11' 08.81501652" N
29	087° 01' 12.23149603" E	24° 11' 10.08366101" N
30	087° 01' 11.84728556" E	24° 11' 10.33573304" N
31	087° 01' 11.18125525" E	24° 11' 09.93063912" N
32	087° 01' 10.81906800" E	24° 11' 09.40405931" N
33	087° 01' 10.49964363" E	24° 11' 08.93965146" N
34	087° 01' 10.15883783" E	24° 11' 08.44415683" N
35	087° 01' 09.81803202" E	24° 11' 07.94866166" N

36	087° 01' 09.28957680" E	24° 11' 08.20284312" N

LAND DETAILS

Khata no.	Plot no.
5, 9 & 21	410, 411 & 415

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 971/M, dated 17.08.2024.
2	CO	:	The CO, Masaliya (Dumka) vide letter no. 62/Ra., dated 27.01.2023 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 1001/M, dated 28.08.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 562, dated 23.03.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 2187, dated 22.08.2022 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 53, Page no. 159).
7	Gram Sabha	:	Gram Sabha conducted on 05.07.2022.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1207/M, dated 22.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	1.28 Ha	Life of Mine – 5years

3	Waste Generation	:	12416cum	
4	Stripping Ratio	:	03:05	
5	Working Days	:	300	
6	Benches: size	:	2 m x 3 m,	
7	Elevation of Mine	:	240m–235m AMSL	
8	Ground Level Elevation	:	237 AMSL	
9	Ultimate Working Depth	:	27 m AMSL	
10	Water Table	:	Post Monsoon – 55 m AMSL Pre Monsoon – 50m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	26.7 kg Slurry explosives/day	
13	Diesel/Fuel requirement	:	HSD – 246 liters / day (73.5 KL/year)	

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.
1st	19760	2.7	53352	66	178	12416	41
2nd	24867	2.7	67141	83	224	0	0
3rd	21645	2.7	58441	72	195	0	0
4th	7114	2.7	19207	24	64	0	0
5th	6262	2.7	16908	21	56	0	0
Total	**79648**		**215050**	**83 (max)**	**224 (max)**	**12416**	**41**

Land Use pattern

Si. No.	Pattern of Utilization	Present/Existing land use pattern in (Ha.)	Proposed Land use for current plan period (Ha.)	Land used at the conceptual stage i.e. end of mine life in (Ha.)	Area to be converted in the conceptual period.
1	Mining Activities	0.000	0.693	0.693	Water body
2	Offices/ Store etc.	0.000	0.000	0.000	Plantation
3	Dumping	0.000	0.039	0.039	Plantation -
4	Mining Road	0.000	0.000	0.000	Water body
5	Garland drain	0.000	0.036	0.036	-
6	Settling Tank	0.000	0.014	0.014	-

7	Green belt	0.000	0.000	0.000	Green Belt
8	Safety Zone	0.000	0.373	0.373	Plantation
9	Stone Stock yards	0.000	0.000	0.000	
10	Unutilized	1.28	0.000	0.000	
11	Crusher	0.00	0.125	0.125	
Total		**1.280**	**1.280**	**1.280**	-

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone/ Dumping		0.412 Ha	659
2	Along Approach Road		0.505m	642
TOTAL				**1,301**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1000 per Tanker)	--	3,00,000
2	Plantation 642 X 800 = Rs 5,13,600 (Gabion Plantation along approach road) 659 X 400 = 2,63,600 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	7,77,200	77,720
3	Fencing	100,000	-
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270 • Ground Water (2 point) - Rs.12,420	--	2,03,220

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
	• Noise 24 hrs (3 point) - Rs.21,000 • Soil (3 point) -Rs.40,920 Total -Rs. 1,01,610 (Per Season) At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220 Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022		
Total		8,77,200	5,80,940

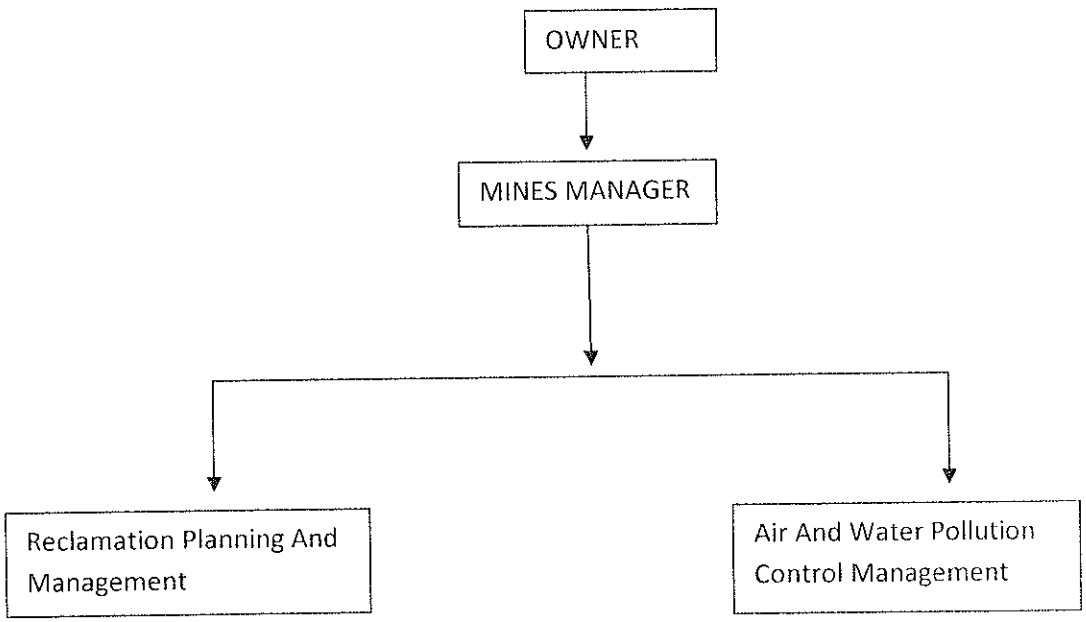
Environment Monitoring Programme

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 Station	6 Monthly

Solid Waste Management

12416 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5

3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

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- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
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The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)

- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal Amba Stone Mine of Shri Sanjay Kumar Sah, Village : Amba, Thana : Masaliya, Distt. : Dumka, Jharkhand (1.28 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal

(https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

11. Pindargaria Stone Mine of Shri Ritesh Kumar, Village : Pindargaria, Thana : Gopikandar, Distt. : Dumka, Jharkhand (2.01 Ha).

(Proposal no.: SIA/JH/MIN/ 502196 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 60743 Cum. / annum or 164006 TPA

Project and Location Details:

Sl	Parameter		Details
1	Project Name	:	Pindargariya Stone Mine

2	Lessee:	:	Proprietor: Ritesh Kumar	
3	Lessee Address	:	S/o Shri Dhananjay Kumar Das R/o Village – Khutabandh Near Durga Mandir, District- Dumka, Jharkhand Residence Address – 4107(B) 11 Block Janapariya, Apartment Aalasansdara South Bangalore, J.K.V.K Bangalore Karnataka – 560065	
4	Lease Area	:	2.01 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 127.99 Lakhs	Recurring Cost: Rs. 27.25 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 7.392Lakhs	Recurring Cost: Rs. 5.671Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 272579cum	Tonnes: 735963tons
10	Mine Life	:	5 years.	
11	Man power	:	31Person	
12	Water Requirement	:	5.79 KLD (Drinking: 0.47 KLD, Dust Suppression: 1.92 KLD, Plantation: 3.80 KLD	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani river at 4.16 km North direction.	
17	Nearest Habitation	:	Pindargaria Village – 0.500 Km in W Direction	
18	Nearest Rail Station	:	Pindargaria Railway Station at areal distance of 23.86 km in SE direction.	
19	Nearest Air Port	:	Deoghar Airport is at areal distance of 88 km West direction.	
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer Dumka. letter no.- 2312 Dated- 04/11/2020	

21	Road & Highways	:	The distance of Approach Road is 0.25 km, after that this road connects to village road. The village road continues for 8.43 km and after this the road connects to MDR Dumka to Gopikandar.

CO-ORDINATES

Point ID	Latitude	Longitude
1	N24° 24' 59.70433046"	E087° 34' 08.08513619"
2	N24° 24' 58.74617093"	E087° 34' 08.09969244"
3	N24° 24' 57.78801137"	E087° 34' 08.11425222"
4	N24° 24' 56.46922503"	E087° 34' 08.13429352"
5	N24° 24' 55.35459623"	E087° 34' 08.14410394"
6	N24° 24' 54.23996739"	E087° 34' 08.15391083"
7	N24° 24' 53.23965941"	E087° 34' 08.16271753"
8	N24° 24' 53.22475393"	E087° 34' 07.31856271"
9	N24° 24' 53.05325902"	E087° 34' 07.11595650"
10	N24° 24' 52.84308857"	E087° 34' 06.86594099"
11	N24° 24' 52.86935798"	E087° 34' 06.66721071"
12	N24° 24' 52.95691869"	E087° 34' 06.45886597"
13	N24° 24' 53.29842733"	E087° 34' 06.37552794"
14	N24° 24' 53.77708469"	E087° 34' 06.27295859"
15	N24° 24' 54.20029887"	E087° 34' 05.92998926"
16	N24° 24' 54.60013366"	E087° 34' 05.70882447"
17	N24° 24' 55.02335297"	E087° 34' 05.55496662"
18	N24° 24' 55.09631763"	E087° 34' 05.48445106"
19	N24° 24' 55.28602777"	E087° 34' 04.97480724"
20	N24° 24' 55.40278268"	E087° 34' 04.33374409"
21	N24° 24' 55.55748638"	E087° 34' 04.34976869"
22	N24° 24' 55.91355673"	E087° 34' 04.42349316"
23	N24° 24' 56.04488628"	E087° 34' 03.72793941"
24	N24° 24' 56.43891488"	E087° 34' 03.70229666"
25	N24° 24' 56.90298524"	E087° 34' 03.59651969"
26	N24° 24' 57.21526801"	E087° 34' 03.59011174"
27	N24° 24' 57.67502817"	E087° 34' 03.61062536"
28	N24° 24' 58.01208170"	E087° 34' 03.65742383"
29	N24° 24' 58.08796957"	E087° 34' 03.53562169"
30	N24° 24' 58.25723452"	E087° 34' 03.38817756"
31	N24° 24' 58.84973121"	E087° 34' 03.40420345"
32	N24° 24' 59.44804346"	E087° 34' 03.49074677"
33	N24° 24' 59.35171991"	E087° 34' 04.12860494"
34	N24° 24' 59.34588184"	E087° 34' 04.55811725"
35	N24° 24' 59.41830763"	E087° 34' 04.60519532"
36	N24° 24' 59.23589859"	E087° 34' 05.45660609"
37	N24° 24' 59.26781673"	E087° 34' 05.89232731"
38	N24° 24' 59.41374498"	E087° 34' 06.22788570"
39	N24° 24' 59.71017888"	E087° 34' 06.43322364"
40	N24° 24' 59.54600238"	E087° 34' 07.77044301"

41	N24° 24' 59.69193796"	E087° 34' 07.83554850"

LAND DETAILS

Khata no.	Plot no.
08	195 & 196

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 793/M, dated 09.07.2024.
2	CO	:	The CO, Gopikandar vide letter no. 412/Ra., dated 24.11.2020 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 1300/M, dated 26.11.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 793, dated 09.05.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 2312, dated 04.11.2020 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 23, Page no. 154).
7	Gram Sabha	:	Gram Sabha conducted on 26.09.2020.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1061/M, dated 13.09.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	2.01Ha	Life of Mine – 5year
3	Waste Generation	:	33250cum	

4	Stripping Ratio	:	02:05
5	Working Days	:	300
6	Benches: size	:	3 m x 3 m,
7	Elevation of Mine	:	142m–130m AMSL
8	Ground Level Elevation	:	142 AMSL
9	Ultimate Working Depth	:	38 m AMSL
10	Water Table	:	Post Monsoon – 77 m AMSL Pre Monsoon – 72 m AMSL
11	Topography of Mine	:	Area represents gently sloping land.
12	Explosive Requirement	:	79 kg Slurry explosives/day
13	Diesel/Fuel requirement	:	HSD – 371 liters / day (111.3KL/year)

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.
1st	60743	2.7	164006	202	547	25875	86
2nd	52877	2.7	142768	176	476	0	0
3rd	52440	2.7	141588	175	472	0	0
4th	52659	2.7	142178	176	474	0	0
5th	53860	2.7	145423	180	485	0	0
Total	**272579**	**2.7**	**735963**	**202 (Max.)**	**547 (Max.)**	**25875**	**86**

Land Use pattern

SL	Pattern	Existing Land Use (Ha)	Proposed Land Use (Ha)	Conceptual Land Use (Ha)	Area to be converted in the conceptual period.
1	Mining Activities	0.00	1.312	1.312	Water body
2	Offices/ Store etc.	0.00	0.004	0.004	Greenbelt
3	Mining Road	0.00	0.032	0.032	Water body
4	Garland drain	0.00	0.028	0.028	--
5	Settling Tank	0.00	0.012	0.012	--
6	Dumping	0.00	0.122	0.122	Greenbelt
7	Safety Zone	0.00	0.458	0.458	Greenbelt
8	Unutilized	2.01	0.049	0.049	Greenbelt

	TOTAL	2.01	2.01	2.01	

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location	Area/Length	No of Trees
1	Safety Zone/ Offices/ Store etc./ Dumping	0.584 Ha	934
2	Along Approach Road	0.250m	332
TOTAL			**1,266**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1000 per Tanker)	--	3,00,000
2	Plantation 332 X 800 = Rs 2,65,600 (Gabion Plantation along approach road) 934 X 400 = 3,73,600 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	6,39,200	63,920
3	Fencing	100,000	-
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270 • Ground Water (2 point) - Rs.12,420 • Noise 24 hrs (3 point) - Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610** **(Per Season)** **At least two seasons in a Year -Rs.**	--	2,03,220

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
	1,01,610 x 2 = Rs. 2,03,220 Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022		
Total		**7,39,200**	**5,67,140**

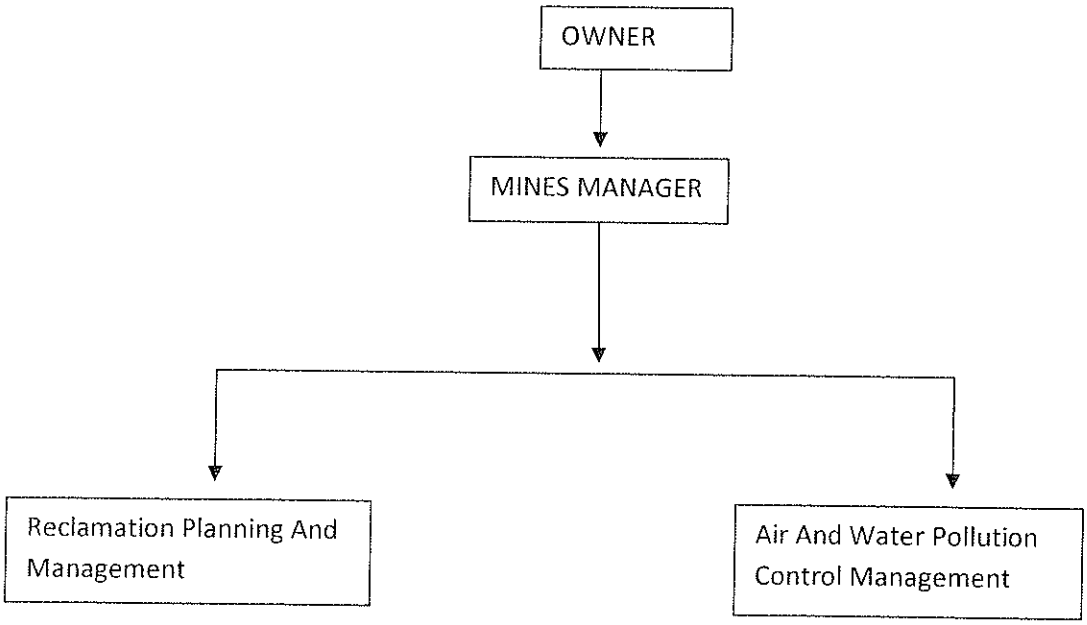
Environment Monitoring Programme

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 Station	6 Monthly

Solid Waste Management

25875cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.

- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by	Very	Minor	20

		hitting by loading material, Exposure to Dust	Unlikely		
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.

- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.

- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an

interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
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k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal Pindargaria Stone Mine of Shri Ritesh Kumar, Village : Pindargaria, Thana : Gopikandar, Distt. : Dumka, Jharkhand (2.01 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.
III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near

mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

12. Chandipur Stone Mine of Shri Ravi Shankar Kumar, Village : Chandipur, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.63 Ha).

(Proposal no.: SIA/JH/MIN/ 507361 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity:86586Cum. / annum or 233782TPA.

Project and Location Details:

Sl	Parameter		Details
1	Project Name	:	Chandipur Stone Mine
2	Lessee:	:	Shri Ravi Shankar Kumar
3	Lessee Address	:	Shri Ravi Shankar Kumar, S/o Upendra Prasad Singh, House no. 298, Ward no. 04, Williams Town, Shree Krishnapuri, Near Singh

			Borewell, Deoghar, Jharkhand 814112.	
4	Lease Area	:	2.63 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 131.28 Lakhs	Recurring Cost: Rs. 17.62 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 9.46Lakhs	Recurring Cost: Rs5.87Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 340815	Tonnes : 920201
10	Mine Life	:	5 years.	
11	Man power	:	24Person	
12	Water Requirement	:	6.58 KLD (Drinking: 0.36 KLD, Dust Suppression: 1.2KLD, Plantation: 5.02KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani River – 6.08 km North direction	
17	Nearest Habitation	:	Chandipur Village – 0.500 Km in West direction	
18	Nearest Rail Station	:	Pinargaria Junction is at aerial distance of 4.84 km NE direction.	
19	Nearest Air Port	:	Deoghar Airport is at areal distance of 104 km West direction.	
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer NOC. letter no.-1993 Dated- 31/08/24	
21	Road & Highways	:	The distance of Approach Road is 330m, after that this road continues to a village road about 3 km in north direction and after that this road connects to NH 114A.	

CO-ORDINATES

Geo-Coordinates of all corner points of Demarcated Block Boundary

(GPS Co-ordinates)

Point Name	Latitude	Longitude
1	24° 10' 25.79734920" N	087° 40' 05.93972400" E
2	24° 10' 26.26593960" N	087° 40' 06.16392120" E
3	24° 10' 26.67840240" N	087° 40' 06.19322520" E
4	24° 10' 26.55353280" N	087° 40' 06.48393240" E

5	24° 10' 26.43462840" N	087° 40' 07.01704920" E
6	24° 10' 26.36094000" N	087° 40' 07.51827360" E
7	24° 10' 26.17651560" N	087° 40' 08.27047560" E
8	24° 10' 25.92773760" N	087° 40' 09.17846040" E
9	24° 10' 25.80795480" N	087° 40' 09.58700280" E
10	24° 10' 25.63555440" N	087° 40' 09.73491240" E
11	24° 10' 25.52263680" N	087° 40' 10.23891960" E
12	24° 10' 25.46006160" N	087° 40' 10.46696880" E
13	24° 10' 24.91568400" N	087° 40' 10.44810840" E
14	24° 10' 24.80711520" N	087° 40' 10.28922600" E
15	24° 10' 25.11642000" N	087° 40' 09.36213960" E
16	24° 10' 24.81134880" N	087° 40' 09.26384880" E
17	24° 10' 24.60960480" N	087° 40' 09.82871400" E
18	24° 10' 24.62487960" N	087° 40' 09.90825240" E
19	24° 10' 24.47211360" N	087° 40' 10.50269520" E
20	24° 10' 24.35372040" N	087° 40' 11.20179360" E
21	24° 10' 24.19713840" N	087° 40' 11.19760680" E
22	24° 10' 24.15004680" N	087° 40' 11.57217960" E
23	24° 10' 23.81665800" N	087° 40' 11.53596360" E
24	24° 10' 23.48544000" N	087° 40' 11.50239000" E
25	24° 10' 23.40455520" N	087° 40' 11.80441560" E
26	24° 10' 23.18204640" N	087° 40' 12.06240960" E
27	24° 10' 22.17950760" N	087° 40' 12.17689680" E
28	24° 10' 21.17696520" N	087° 40' 12.29138040" E
29	24° 10' 20.51915880" N	087° 40' 11.87049000" E
30	24° 10' 20.27591400" N	087° 40' 12.14392080" E
31	24° 10' 19.93260720" N	087° 40' 11.82373320" E

32	24° 10' 19.56596880" N	087° 40' 11.55581760" E
33	24° 10' 19.31428920" N	087° 40' 11.49042360" E
34	24° 10' 19.19439840" N	087° 40' 11.24579640" E
35	24° 10' 19.06789440" N	087° 40' 11.05601520" E
36	24° 10' 19.36400520" N	087° 40' 10.82218800" E
37	24° 10' 18.69187800" N	087° 40' 09.39878040" E
38	24° 10' 18.47380440" N	087° 40' 09.52732920" E
39	24° 10' 18.34083840" N	087° 40' 09.24955320" E
40	24° 10' 19.46906760" N	087° 40' 08.65733160" E
41	24° 10' 20.37114120" N	087° 40' 08.58425880" E
42	24° 10' 21.23976000" N	087° 40' 08.05548000" E
43	24° 10' 21.94563720" N	087° 40' 07.74157440" E
44	24° 10' 21.95567040" N	087° 40' 06.97969920" E
45	24° 10' 22.55418480" N	087° 40' 06.99547080" E
46	24° 10' 22.69931160" N	087° 40' 06.58940880" E
47	24° 10' 23.37946680" N	087° 40' 06.64239720" E
48	24° 10' 23.47112640" N	087° 40' 06.44564640" E
49	24° 10' 23.63432160" N	087° 40' 06.51595440" E
50	24° 10' 23.72544840" N	087° 40' 06.30334560" E
51	24° 10' 24.69145800" N	087° 40' 06.51357120" E
52	24° 10' 24.93455160" N	087° 40' 06.13013520" E

LAND DETAILS

Khata no.	Plot no.
6, 9, 10 & 14	77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97 & 98

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 1015/M, dated 31.08.2024.
2	CO	:	The CO, Shikaripara vide letter no. 739/Ra., dated 22.08.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 1016/M, dated 31.08.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 2003, dated 13.09.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 1872, dated 14.08.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 62, Page no. 293).
7	Gram Sabha	:	Gram Sabha conducted on 28.06.2024.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1273/M, dated 12.11.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	2.63 Ha	Life of Mine – 5year
3	Waste Generation	:	34383cum	
4	Stripping Ratio	:	09:20	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	
7	Elevation of Mine	:	53 m– 57 m AMSL	
8	Ground Level Elevation	:	50AMSL	
9	Ultimate Working Depth	:	12 m AMSL	

10	Water Table	:	Post Monsoon – 17 m AMSL Pre Monsoon – 22m AMSL
11	Topography of Mine	:	Area represents gently sloping land.
12	Explosive Requirement	:	77.76 kg Slurry explosives/day
13	Diesel/Fuel requirement	:	HSD –314.88 liters / day (94.04KL/year)

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum recoverable 95%	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.)
1st	86586	2.7	233782	289	779	34383	115
2nd	81179	2.7	219184	271	731	0	0
3rd	65641	2.7	177231	219	591	0	0
4th	49862	2.7	134627	166	449	0	0
5th	57547	2.7	155377	192	518	0	0
Total	**340815**		**920201**	**289 (max)**	**779 (max)**	**34383**	**115**

Land Use

Existing Land Use pattern

SL. No.	Pattern	Existing Land Use (Ha)
1	Mining Activities	0.00
2	Offices/ Store etc.	0.00
3	Dumping	0.00
4	Mining Road	0.00
5	Garland drain	0.00
6	Settling Tank	0.00
7	Safety Zone	0.00
8	Stone Stock yards	0.00

9	Unutilized	2.63
10	Crusher	0.00
	TOTAL	2.63

Land Use Pattern for Proposed Plan Period:

SL	Pattern	Proposed Land Use (Ha)
1	Mining Area	2.09
2	Office	0.00
3	Dumping	0.00
4	Road	0.00
5	Garland drain	0.04
6	Settling Pond	0.03
7	Green Blet	0.00
8	Safety Zone	0.55
9	Stone Stock Yards	0.000
10	Crusher	0.00
11	Unutilized	0.01
	TOTAL	**2.63**

Land Use Pattern after Life of the Mine:

Si. No.	Pattern of Utilization	Present/Existing land use pattern in (Ha.)	Proposed Land use forcurrent plan period (Ha.)	Land to be used in remaining period of the life of the mine. (Ha.)	Land used at the conceptual stage i.e. end of mine life in (Ha.)	Area to be converted in the conceptual period.
1	Mining Activities	0.00	2.09	0.00	2.09	Water body
2	Offices/ Store etc.	0.00	0.00	0.00	0.00	Plantation

3	Dumping	0.00	0.00	0.00	0.00	Plantation -
4	Mining Road	0.00	0.00	0.00	0.00	Water body
5	Garland drain	0.00	0.04	0.00	0.04	-
6	Settling Tank	0.00	0.03	0.00	0.03	-
7	Green belt	0.00	0.00	0.00	0.00	Green Belt
8	Safety Zone	0.00	0.55	0.00	0.55	Plantation
9	Stone Stock yards	0.00	0.00	0.00	0.00	
10	Unutilized	2.63	0.01	2.63	0.01	
11	Crusher	0.00	0.00	0.00	0.00	
Total		**2.63**	**2.63**	**2.63**	**2.63**	

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone		0.772Ha	1235
2	Along Approach Road		0.330 km	440(2 row)
TOTAL				**1675Trees**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1000 per Tanker)	--	3,00,000
2	Plantation: 440 X 800 = Rs 3,52,000 (Gabion Plantation along approach road) 1235 X 400 = 4,94,000 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	8,46,000	84,600
3	Fencing	100000	-
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270 • Ground Water (2 point) - Rs.12,420 • Noise 24 hrs (3 point) - Rs.21,000 • Soil (3 point) - Rs.40,920 **Total -Rs. 1,01,610 (Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220** **Source: Central Pollution Control Board** **Notification, New Delhi, the 23rd February, 2022**	--	2,03,220
Total		**9,46,000**	**5,87,820**

Environment Monitoring Programme :

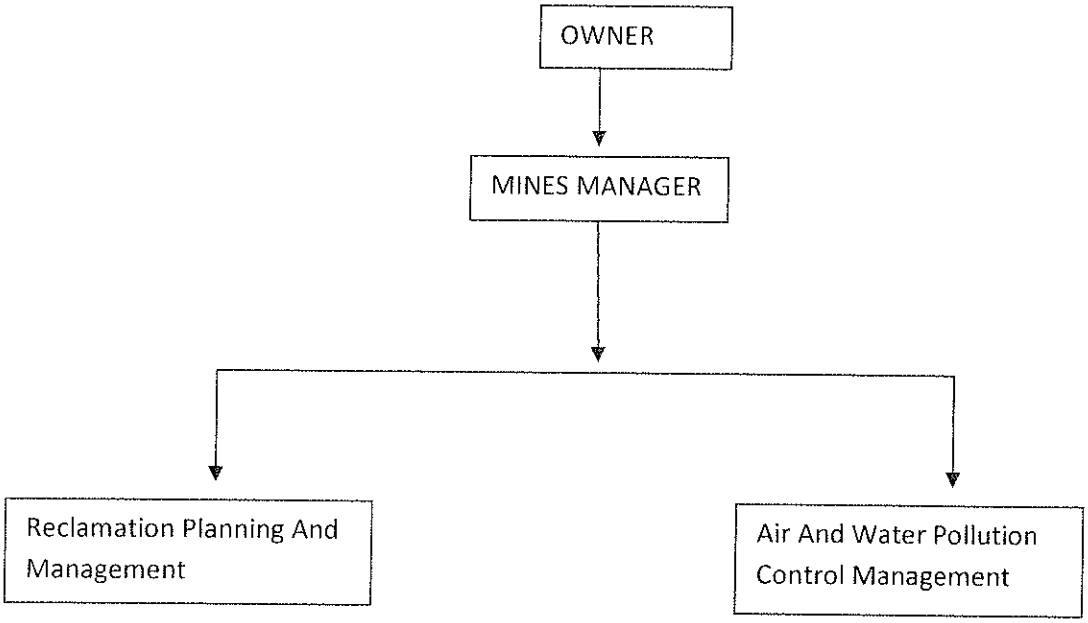
SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly

4.	Soil	3 stations	6 Monthly

Solid Waste Management

During first year34383cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced

- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in

loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation

- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted

by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.

h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal Chandipur Stone Mine of Shri Ravi Shankar Kumar, Village : Chandipur, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.63 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.
III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.
IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.
V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.
VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

13. Saharpur Stone Mine of M/s Universal Black Stone Works (Prop. : Md. Asad Ali), Village : Saharpur, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.978 Ha).

(Proposal no.: SIA/JH/ MIN/ 512699 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 18,740 Cum. / annum or 50,597 TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Saharpur Stone Mine	
2	Lessee:	:	Proponent: M/s Universal Black Stone Works Proprietor: Md. Asad Ali	
3	Lessee Address	:	Proprietor: Md. Asad Ali S/O Md. Maksud Ali Vill+Po- Pinargaria, Ps- Shikaripara Dist.- Dumka, 816103.	
4	Lease Area	:	1.978 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 74.09 Lakhs	Recurring Cost: Rs. 7.22 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 6.928 Lakhs	Recurring Cost: Rs. 5.625Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 67,575cum	Tonnes: 1,82,454tons
10	Mine Life	:	5 years.	

11	Man power	:	15Person
12	Water Requirement	:	4.47 KLD (Drinking: 0.22 KLD, Dust Suppression: 1.05KLD, Plantation: 3.39KLD)
13	Water Source	:	From Nearby villages by tankers
14	DG Set / power	:	60 KVA D.G. Set proposed
15	Crusher	:	No crusher
16	Nearest Water Body	:	Brahmani river at 9 km North direction.
17	Nearest Habitation	:	Chandangaria Village – 1.72 Km in SE Direction
18	Nearest Rail Station	:	PakdahaHarinsing Railway Station at aerial distance of 6.68 km in North direction.
19	Nearest Air Port	:	Deoghar Airport is at aerial distance of 93.38 km North West direction.
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer Dumka. letter no.- 1859 Dated- 12/08/2024
21	Road & Highways	:	The distance of Approach Road is 263m, after that this road continues in village road about 7.75 km & connects to NH 114A (Dumka-Rampurhat Road).

CO-ORDINATES

Point Name	Longitude	Latitude
1	087° 34' 54.65254178" E	24° 10' 50.90516626" N
2	087° 34' 54.23352694" E	24° 10' 50.53902461" N
3	087° 34' 54.00853548" E	24° 10' 49.93998595" N
4	087° 34' 53.78354462" E	24° 10' 49.34094718" N
5	087° 34' 53.07277721" E	24° 10' 48.52674808" N
6	087° 34' 52.67263012" E	24° 10' 48.09325265" N
7	087° 34' 52.27248378" E	24° 10' 47.65975691" N
8	087° 34' 51.61733758" E	24° 10' 47.40323352" N
9	087° 34' 50.78759277" E	24° 10' 47.49273473" N
10	087° 34' 50.23790251" E	24° 10' 47.61369404" N
11	087° 34' 49.65930253" E	24° 10' 47.80218619" N
12	087° 34' 49.08070206" E	24° 10' 47.99067773" N
13	087° 34' 49.22235270" E	24° 10' 48.46144265" N
14	087° 34' 49.36400364" E	24° 10' 48.93220752" N
15	087° 34' 49.66442366" E	24° 10' 49.33342457" N
16	087° 34' 50.07731492" E	24° 10' 49.88484779" N
17	087° 34' 50.43397168" E	24° 10' 50.36116755" N
18	087° 34' 50.79062917" E	24° 10' 50.83748706" N
19	087° 34' 51.21011272" E	24° 10' 51.25094179" N
20	087° 34' 51.68229888" E	24° 10' 51.71634041" N
21	087° 34' 52.15448600" E	24° 10' 52.18173860" N
22	087° 34' 52.05660059" E	24° 10' 52.43388178" N
23	087° 34' 51.94469391" E	24° 10' 52.82788122" N

24	087° 34' 51.83278705" E	24° 10' 53.22188064" N
25	087° 34' 51.74493141" E	24° 10' 53.99539570" N
26	087° 34' 51.88067429" E	24° 10' 54.22267837" N
27	087° 34' 52.28145300" E	24° 10' 54.15548000" N
28	087° 34' 52.68223159" E	24° 10' 54.08828134" N
29	087° 34' 52.99227970" E	24° 10' 54.03924067" N
30	087° 34' 53.38759305" E	24° 10' 54.02261991" N
31	087° 34' 54.02251974" E	24° 10' 54.06397808" N
32	087° 34' 54.20329751" E	24° 10' 54.57209937" N
33	087° 34' 54.61423731" E	24° 10' 54.42017904" N
34	087° 34' 55.025112954" E	24° 10' 54.26825842" N
35	087° 34' 55.04191067" E	24° 10' 53.72259849" N
36	087° 34' 54.89975834" E	24° 10' 53.12294243" N
37	087° 34' 54.75760639" E	24° 10' 52.52328631" N
38	087° 34' 54.45493903" E	24° 10' 52.19551244" N
39	087° 34' 54.36017584" E	24° 10' 51.63896838" N
40	087° 34' 54.26541290" E	24° 10' 51.08242429" N
41	087° 34' 54.39231440" E	24° 10' 50.94514016" N

LAND DETAILS

Khata no.	Plot no.
41	171/P,
30	172/P, 174/P, 175/P
34	181
42	182
40	170/P
39	173/P

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 1086/M, dated 21.09.2024.
2	CO	:	The CO, Shikaripara vide letter no. 784/Ra., dated 31.08.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 923/M, dated 08.08.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 1800, dated 13.08.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.

5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 1859, dated 12.08.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 71, Page no. 296).
7	Gram Sabha	:	Gram Sabha conducted on 21.07.2024.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1247/M, dated 29.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	1.978Ha	Life of Mine – 5year
3	Waste Generation	:	12954cum	
4	Stripping Ratio	:	09:10	
5	Working Days	:	300	
6	Benches: size	:	4 m x 4 m	
7	Elevation of Mine	:	132m–121m AMSL	
8	Ground Level Elevation	:	124 AMSL	
9	Ultimate Working Depth	:	22 m AMSL	
10	Water Table	:	Post Monsoon – 88 m AMSL Pre Monsoon – 83m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	19.44 kg Slurry explosives/day	
13	Diesel/Fuel requirement	:	HSD – 232liters / day (69.6KL/year)	

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.
1st	12665	2.7	34197	42	114	11504	38
2nd	18740	2.7	50597	62	169	1450	5

3rd	16410	2.7	44308	55	148	0	0
4th	12707	2.7	34309	42	114	0	0
5th	6998	2.7	18894	23	63	0	0
Total	**67520**		**182305**	**58 (max)**	**169 (max)**	**12954**	43

Land Use pattern

Sl. No.	Pattern of Utilization	Present/Existing land use pattern in (Ha.)	Land used at the conceptual stage i.e. end of mine life in (Ha.)	Area to be converted in the conceptual period.
1	Mining Activities	0.000	0.967	Water body
2	Offices/ Store etc.	0.000	0.000	Plantation
3	Dumping	0.000	0.000	Plantation
4	Mining Road	0.000	0.000	Water body
5	Garland drain	0.000	0.031	-
6	Settling Tank	0.000	0.000	-
7	Green belt	0.000	0.000	Green Belt
8	Safety Zone	0.000	0.486	Plantation
9	Stone Stock yards	0.000	0.000	
10	Unutilized	1.424	0.000	
11	Excavated Area	0.554	0.554	
12	Crusher	0.000	0.000	
Total		**1.978**	**1.978**	-

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location	Area/Length	No of Trees
1	Safety Zone	0.486 Ha	778
2	Along Approach Road	0.263m	352
TOTAL			**1,130**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1000 per Tanker)	--	3,00,000
2	Plantation 352 X 800 = Rs 2,81,600 (Gabion Plantation along approach road) 778 X 400 = 3,11,200 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	5,92,800	59,280
3	Fencing	100,000	-
3	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) -Rs.27,270 • Ground Water (2 point) -Rs.12,420 • Noise 24 hrs (3 point) -Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610** **(Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2** **= Rs. 2,03,220** Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022	--	2,03,220
Total		**6,92,800**	**5,62,500**

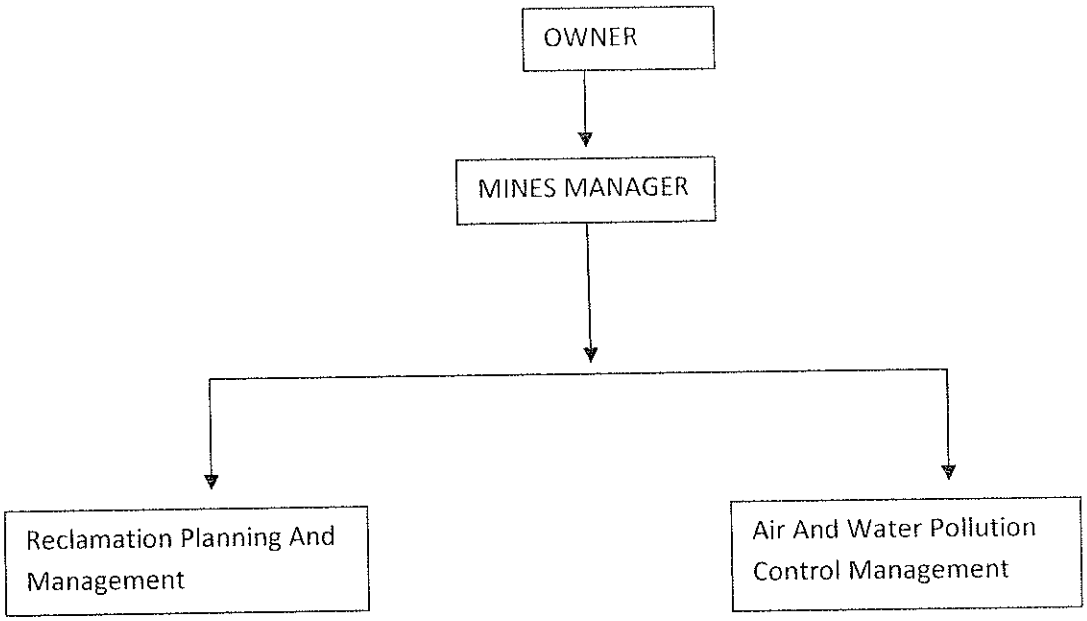
Environment Monitoring Programme

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 Station	6 Monthly

Solid Waste Management

12954cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)

- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge

of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal Saharpur Stone Mine of M/s Universal Black Stone Works (Prop. : Md. Asad Ali), Village : Saharpur, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.978 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

14. **Chitragaria Stone Mine of Shri Mahesh Yadav, Village : Chitragaria, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.719 Ha).**

(Proposal no.: SIA/JH/MIN/ 508644 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity:29389Cum. / annum or 79351TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Chitragaria Stone Mine	
2	Lessee:	:	Shri Mahesh Yadav	
3	Lessee Address	:	Shri Mahesh Yadav, S/o Rameshwar Yadav, Vill+Post- Sarasdangal, Thana- Shikaripara, Sarasdanga, Dumka, Jharkhand, 816103.	
4	Lease Area	:	1.71 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 124.08 Lakhs	Recurring Cost: Rs. 4.56 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 5.03Lakhs	Recurring Cost: Rs5.83Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 170077	Tonnes : 459207
10	Mine Life	:	5 years.	
11	Man power	:	24 Person	
12	Water Requirement	:	5.05 KLD (Drinking: 0.25 KLD, Dust Suppression: 2.04KLD, Plantation: 2.75KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani River – 6.20 km North direction	
17	Nearest Habitation	:	Chitargaria Village – 0.500 Km in West direction	
18	Nearest Rail Station	:	Pinargaria Junction is at aerial distance of 4.84 km NE direction.	

19	Nearest Air Port	:	Deoghar Airport is at areal distance of 104 km West direction.
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer NOC. letter no.- 1993 Dated- 31/08/24
21	Road & Highways	:	The distance of Approach Road is 512m, after that this road connects to MDR.

CO-ORDINATES

Geo-Coordinates of all corner points of Demarcated Block Boundary

(GPS Co-ordinates)

Point Name	Longitude	Latitude
1	087° 37' 30.36802117" E	24° 11' 51.15726876" N
2	087° 37' 30.53245095" E	24° 11' 51.70086354" N
3	087° 37' 30.82999686" E	24° 11' 52.30495263" N
4	087° 37' 31.07043941" E	24° 11' 52.78053739" N
5	087° 37' 31.36293394" E	24° 11' 53.32201441" N
6	087° 37' 31.43213239" E	24° 11' 53.48817553" N
7	087° 37' 31.76769751" E	24° 11' 53.49279140" N
8	087° 37' 31.80824066" E	24° 11' 53.72963288" N
9	087° 37' 32.22790146" E	24° 11' 53.74772042" N
10	087° 37' 32.64756225" E	24° 11' 53.76580796" N
11	087° 37' 32.72324712" E	24° 11' 54.09036367" N
12	087° 37' 32.62641101" E	24° 11' 54.26335701" N
13	087° 37' 32.77689247" E	24° 11' 54.44741688" N
14	087° 37' 32.80349746" E	24° 11' 54.58079418" N
15	087° 37' 32.34043730" E	24° 11' 54.63600613" N
16	087° 37' 32.41327692" E	24° 11' 54.88608696" N
17	087° 37' 32.22348404" E	24° 11' 54.98842719" N
18	087° 37' 32.20542589" E	24° 11' 55.23394260" N
19	087° 37' 32.24047542" E	24° 11' 55.54768311" N

20	087° 37' 32.21873473" E	24° 11' 55.84882172" N
21	087° 37' 32.26428833" E	24° 11' 56.01869013" N
22	087° 37' 32.23860288" E	24° 11' 56.23164957" N
23	087° 37' 32.33900908" E	24° 11' 56.32143027" N
24	087° 37' 32.24530405" E	24° 11' 56.57594283" N
25	087° 37' 32.68690100" E	24° 11' 56.79303092" N
26	087° 37' 32.82322417" E	24° 11' 56.73085711" N
27	087° 37' 33.18490121" E	24° 11' 56.51971356" N
28	087° 37' 33.57523026" E	24° 11' 56.27749659" N
29	087° 37' 33.57508750" E	24° 11' 56.19973080" N
30	087° 37' 33.83104098" E	24° 11' 56.03338892" N
31	087° 37' 33.86176564" E	24° 11' 55.57402821" N
32	087° 37' 33.84188707" E	24° 11' 55.22913992" N
33	087° 37' 34.23942212" E	24° 11' 55.14641542" N
34	087° 37' 35.00211351" E	24° 11' 55.16976962" N
35	087° 37' 35.47496873" E	24° 11' 55.08513866" N
36	087° 37' 36.00571385" E	24° 11' 55.01820020" N
37	087° 37' 36.33964099" E	24° 11' 54.97486949" N
38	087° 37' 36.71483386" E	24° 11' 54.88085462" N
39	087° 37' 36.95549864" E	24° 11' 54.74905966" N
40	087° 37' 37.13246610" E	24° 11' 54.74064454" N
41	087° 37' 37.30816895" E	24° 11' 54.79930538" N
42	087° 37' 37.63709712" E	24° 11' 54.71951775" N
43	087° 37' 37.75980408" E	24° 11' 54.64806686" N
44	087° 37' 38.54673806" E	24° 11' 54.34283837" N
45	087° 37' 38.95881070" E	24° 11' 54.16444859" N
46	087° 37' 39.21066892" E	24° 11' 53.97767793" N

47	087° 37' 38.85018437" E	24° 11' 53.44414115" N
48	087° 37' 38.38742049" E	24° 11' 52.84834153" N
49	087° 37' 37.93064780" E	24° 11' 52.16396793" N
50	087° 37' 37.79932498" E	24° 11' 52.23153852" N
51	087° 37' 37.60245782" E	24° 11' 51.85163882" N
52	087° 37' 37.25245326" E	24° 11' 52.03589170" N
53	087° 37' 36.82697641" E	24° 11' 52.29470792" N
54	087° 37' 36.25812883" E	24° 11' 52.47739863" N
55	087° 37' 35.67250727" E	24° 11' 52.68471474" N
56	087° 37' 35.14580408" E	24° 11' 52.90569108" N
57	087° 37' 34.52486095" E	24° 11' 53.14709272" N
58	087° 37' 34.03999116" E	24° 11' 53.33039144" N
59	087° 37' 33.79436541" E	24° 11' 53.39400796" N
60	087° 37' 33.11928811" E	24° 11' 53.39108967" N
61	087° 37' 32.92560556" E	24° 11' 52.97502219" N
62	087° 37' 32.67903329" E	24° 11' 52.31965105" N
63	087° 37' 32.46946968" E	24° 11' 51.94297305" N
64	087° 37' 32.25990608" E	24° 11' 51.56629475" N
65	087° 37' 32.25642544" E	24° 11' 51.42502481" N
66	087° 37' 31.73765608" E	24° 11' 51.31772851" N
67	087° 37' 31.32043952" E	24° 11' 51.23143622" N
68	087° 37' 30.90322295" E	24° 11' 51.14514390" N

LAND DETAILS

Khata no.	Plot no.
5, 45, 31 & 12	1606, 1607, 1608, 1609, 1611, 1620 (P), 1621, 1622, 1623 & 1624

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 970/M, dated 17.08.2024.
2	CO	:	The CO, Shikaripara vide letter no. 165/Ra., dated 07.03.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 184/M, dated 16.02.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 794, dated 09.05.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 486, dated 09.03.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 52, Page no. 291).
7	Gram Sabha	:	Gram Sabha conducted on 11.12.2023.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1202/M, dated 19.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	1.71 Ha	Life of Mine – 5year
3	Waste Generation	:	34383cum	
4	Stripping Ratio	:	33:50	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	
7	Elevation of Mine	:	84m AMSL	
8	Ground Level Elevation	:	84AMSL	
9	Ultimate Working Depth	:	58 m AMSL	

10	Water Table	:	Post Monsoon – 41.4 m AMSL Pre Monsoon – 36.5m AMSL
11	Topography of Mine	:	Area represents gently sloping land.
12	Explosive Requirement	:	29.16 kg Slurry explosives/day
13	Diesel/Fuel requirement	:	HSD –245.58 liters / day (73.674KL/year)

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum recoverable 95%	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.)
1st	21645	2.7	58441	72	195	8128	27
2nd	15042	2.7	40614	50	135	5858	20
3rd	27955	2.7	75478	93	252	0	0
4th	29389	2.7	79351	98	265	0	0
5th	11163	2.7	30139	37	100	2914	10
Total	**105194**		**284022**	**98 (max)**	**265 (max)**	**16900**	**56**

Land Use

Existing Land Use pattern

SL. No.	Pattern	Existing Land Use (Ha)
1	Mining Activities	0.00
2	Offices/ Store etc.	0.00
3	Dumping	0.00
4	Mining Road	0.00
5	Garland drain	0.00
6.	Green Belt	0.00
7	Settling Tank	0.00

8	Safety Zone	0.00
9	Stone Stock yards	0.00
10	Excavated	0.36
11	Unutilized	1.35
12	Crusher	0.00
	TOTAL	1.71

Land Use Pattern after Life of the Mine:

Si. No.	Pattern of Utilization	Land used at the conceptual stage i.e. end of mine life in (Ha.)	Area to be converted in the conceptual period.
1	Mining Activities	0.930	Water body
2	Offices/ Store etc.	0.000	Plantation
3	Dumping	0.030	Plantation
4	Mining Road	0.000	Water body
5	Garland drain	0.029	-
6	Settling Tank	0.000	-
7	Green belt	0.000	Green Belt
8	Safety Zone	0.362	Plantation
9	Stone Stock yards	0.000	
10	Excavated	0.362	
11	Unutilized	0.000	
12	Crusher	0.000	
Total		1.719	-

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone and Plantation Area		0.992Ha	1587
2	Along Approach Road		0.512 km	340
TOTAL				**1927Trees**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation.

Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1100 per Tanker)	--	3,30,000
2	Plantation: 340 X 800 = Rs 2,72,000 (Gabion Plantation along approach road) 1587 X 400 = 6,34,800 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	906800	90680
3	Fencing	100000	---
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) -Rs.27,270 • Ground Water (2 point) -Rs.12,420 • Noise 24 hrs (3 point) -Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610 (Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220** **Source: Central Pollution Control Board** **Notification, New Delhi, the 23rd February, 2022**	--	2,03,220
Total		**10,06,800**	**5,93,900**

Environment Monitoring Programme :

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 stations	6 Monthly

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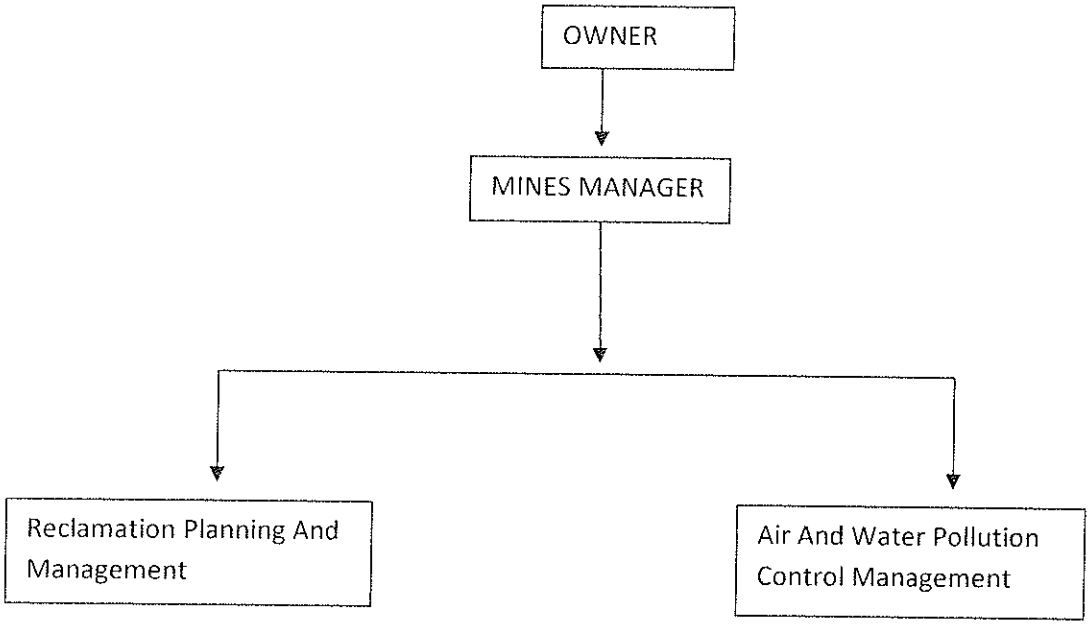
Solid Waste Management

During first year34383cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°

- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the

drill hole continuously and discharges the same in a dust collector specially provided for the purpose.

- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal Chitragaria Stone Mine of Shri Mahesh Yadav, Village : Chitragaria, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.719 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

15. **Siulibana Stone Mine of M/s Ganesh Stone Works (Partners : Shri Manick Chand Maheshwari & Shri Suman Mandal), Village : Siulibana, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.99 Ha).**

(Proposal no.: SIA/JH/MIN/ 508690 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity:85101Cum. / annum or 229773TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Siulibana Stone Mine	
2	Lessee:	:	M/S Ganesh Stone Works Partners- Shri Manik Chand Maheshwari and Shri Suman Mandal.	
3	Lessee Address	:	M/S Ganesh Stone Works Partners 1. Shri Manick Chand Maheshwari, S/o Late Shyam Sundar Maheshwari, R/o Sarai Road, P.O + P.S + Dist. – Dumka. 2. Shri Suman Mandal, S/o Shri Nav Kumar Mandal, R/o Vill – Arvind Palli (S.P. More), P.O + P.S - Siuri, Dist – Birbhum, West Bengal	
4	Lease Area	:	2.99 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 76.29 Lakhs	Recurring Cost: Rs. 13.82 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 149.49Lakhs	Recurring Cost: Rs39.84Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 1055767	Tonnes : 1766686
10	Mine Life	:	5 years.	
11	Man power	:	38Person	
12	Water Requirement	:	5.58 KLD (Drinking: 0.64 KLD, Dust Suppression: 0.8KLD, Plantation: 2.90KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	

16	Nearest Water Body	:	Brahmani River – 6.08 km North direction
17	Nearest Habitation	:	Suilibana Village – 0.500 Km in West direction
18	Nearest Rail Station	:	Pakdaha Harinsing Railway Station is at aerial distance of 10.62 km North direction.
19	Nearest Air Port	:	Deoghar Airport is at aerial distance of 94.7 km North West direction.
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer NOC. letter no.- 1121 Dated- 18/04/24
21	Road & Highways	:	The distance of Approach Road is 200m, after that this road connects to village road. The village road continues for 8.3 km and after this the road connects to MDR Sarasdangal to Shikaripara.

CO-ORDINATES

Geo-Coordinates of all corner points of Demarcated Block Boundary

(GPS Co-ordinates)

Point Name	Latitude	Longitude
1	24° 08' 28.47379002" N	087° 34' 26.40919688" E
2	24° 08' 28.79605987" N	087° 34' 25.76925606" E
3	24° 08' 29.11832949" N	087° 34' 25.12931524" E
4	24° 08' 29.41635583" N	087° 34' 24.61480311" E
5	24° 08' 29.67834841" N	087° 34' 24.16249932" E
6	24° 08' 29.94034084" N	087° 34' 23.71019552" E
7	24° 08' 30.19168121" N	087° 34' 23.34046426" E
8	24° 08' 30.44323937" N	087° 34' 22.87468421" E
9	24° 08' 30.29975681" N	087° 34' 22.79549669" E
10	24° 08' 30.50542774" N	087° 34' 22.27372967" E
11	24° 08' 30.71109859" N	087° 34' 21.75196265" E
12	24° 08' 30.71563857" N	087° 34' 21.60105030" E
13	24° 08' 30.91388456" N	087° 34' 21.20967321" E
14	24° 08' 31.04554406" N	087° 34' 20.79342046" E

15	24° 08' 31.17569019" N	087° 34' 20.71713510" E	
16	24° 08' 31.62991703" N	087° 34' 20.86544439" E	
17	24° 08' 31.82860312" N	087° 34' 20.85199907" E	
18	24° 08' 31.98772063" N	087° 34' 21.40451774" E	
19	24° 08' 31.73083209" N	087° 34' 21.65241586" E	
20	24° 08' 31.73274917" N	087° 34' 22.45913513" E	
21	24° 08' 32.29061888" N	087° 34' 22.82047814" E	
22	24° 08' 32.34429703" N	087° 34' 22.94652803" E	
23	24° 08' 32.24460903" N	087° 34' 23.37929931" E	
24	24° 08' 32.28678472" N	087° 34' 23.67131488" E	
25	24° 08' 32.27528226" N	087° 34' 24.07677535" E	
26	24° 08' 32.74688295" N	087° 34' 24.29316099" E	
27	24° 08' 32.85615621" N	087° 34' 24.00744792" E	
28	24° 08' 32.95200992" N	087° 34' 23.44652592" E	
29	24° 08' 33.49837572" N	087° 34' 23.49274421" E	
30	24° 08' 33.65749265" N	087° 34' 23.47803839" E	
31	24° 08' 33.97956050" N	087° 34' 23.47173589" E	
32	24° 08' 34.32079880" N	087° 34' 23.04946877" E	
33	24° 08' 34.52400801" N	087° 34' 22.81207482" E	
34	24° 08' 34.60069071" N	087° 34' 22.42342100" E	
35	24° 08' 34.81731925" N	087° 34' 21.89191064" E	
36	24° 08' 34.96109921" N	087° 34' 21.64611336" E	
37	24° 08' 35.48637492" N	087° 34' 21.90451563" E	
38	24° 08' 36.01165004" N	087° 34' 22.16291790" E	
39	24° 08' 36.70370867" N	087° 34' 22.49274844" E	
40	24° 08' 36.75355219" N	087° 34' 22.65451246" E	
41	24° 08' 36.60593867" N	087° 34' 22.97593967" E	

	42	24° 08' 36.32221387" N	087° 34' 23.67551655" E	
	43	24° 08' 36.18993671" N	087° 34' 24.31416931" E	
	44	24° 08' 36.00973297" N	087° 34' 24.79946137" E	
	45	24° 08' 36.11708840" N	087° 34' 24.86248632" E	
	46	24° 08' 36.08258130" N	087° 34' 25.07887196" E	
	47	24° 08' 35.77415902" N	087° 34' 26.15495722" E	
	48	24° 08' 35.51908107" N	087° 34' 26.81659603" E	
	49	24° 08' 35.26400298" N	087° 34' 27.47823484" E	
	50	24° 08' 35.09691506" N	087° 34' 28.10089339" E	
	51	24° 08' 34.92982707" N	087° 34' 28.72355193" E	
	52	24° 08' 34.34572069" N	087° 34' 28.61358653" E	
	53	24° 08' 33.76161357" N	087° 34' 28.50362113" E	
	54	24° 08' 33.23142339" N	087° 34' 28.22132191" E	
	55	24° 08' 32.47846078" N	087° 34' 27.88895016" E	
	56	24° 08' 31.89246580" N	087° 34' 27.47290070" E	
	57	24° 08' 31.15858359" N	087° 34' 27.09212500" E	
	58	24° 08' 29.91846977" N	087° 34' 26.84593381" E	
	59	24° 08' 29.48412960" N	087° 34' 26.87219421" E	
	60	24° 08' 28.95872722" N	087° 34' 26.56415980" E	

LAND DETAILS

Khata no.	Plot no.
11, 05, 19 & 06	345, 346, 347, 348 & 349

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 1102/M, dated 26.09.2024.

2	CO	:	The CO, Shikaripara vide letter no. 787/Ra., dated 02.09.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 1133/M, dated 07.10.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 2087, dated 26.09.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 1121, dated 18.04.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 74, Page no. 164).
7	Gram Sabha	:	Gram Sabha conducted on 03.04.2023.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1301/M, dated 27.11.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	2.63 Ha	Life of Mine – 5year
3	Waste Generation	:	36625cum	
4	Stripping Ratio	:	33:50	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	
7	Elevation of Mine	:	113m AMSL	
8	Ground Level Elevation	:	79AMSL	
9	Ultimate Working Depth	:	75 m AMSL	
10	Water Table	:	Post Monsoon – 22 m AMSL Pre Monsoon – 27m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	79 kg Slurry explosives/day	

13	Diesel/Fuel requirement	:	HSD – 425.76 liters / day (79KL/year)

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.)
1st	60539	2.7	163455	202	545	36625	122
2nd	81843	2.7	220975	273	737	0	0
3rd	85101	2.7	229773	284	766	0	0
4th	83006	2.7	224117	277	747	0	0
5th	80536	2.7	217448	268	725	0	0
Total	**391025**	**2.7**	**1055767**	**284 (Max.)**	**766 (Max.)**	**36625**	**122**

Land Use

Existing Land Use pattern

SL. No.	Pattern	Existing Land Use (Ha)
1	Mining Activities	0.00
2	Offices/ Store etc.	0.00
3	Dumping	0.00
4	Mining Road	0.00
5	Garland drain	0.00
6	Settling Tank	0.00
7	Safety Zone	0.00
8	Stone Stock yards	0.00
9	Unutilized	2.99
10	Crusher	0.00
	TOTAL	2.99

Land Use Pattern for Proposed Plan Period:

Si. No.	Pattern of Utilization	Land used at the conceptual stage i.e. end of mine life in (Ha.)	Area to be converted in the conceptual period.
1	Mining Activities	1.954	Water body
2	Offices/ Store etc.	0.000	Plantation
3	Dumping	0.150	Plantation
4	Mining Road	0.000	Water body
5	Garland drain	0.044	-
6	Settling Tank	0.000	-
7	Green belt	0.192	Green Belt
8	Safety Zone	0.650	Plantation
9	Stone Stock yards	0.000	
10	Unutilized	0.000	
11	Crusher	0.000	
Total		2.990	-

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone/ Plantation		0.992 Ha	1587
2	Along Approach Road		0.512 km	340 (2 row)
TOTAL				**1927Trees**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1000 per Tanker)	--	3,00,000
2	Plantation: 340 X 800 = Rs 2,72,000 (Gabion Plantation along approach road) 1587 X 400 = 6,34,800 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	906800	90680
3	Fencing	100000	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) -Rs.27,270 • Ground Water (2 point) -Rs.12,420 • Noise 24 hrs (3 point) -Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610 (Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220** **Source: Central Pollution Control Board** **Notification, New Delhi, the 23rd February, 2022**	--	2,03,220
Total		**10,06,800**	**5,93,900**

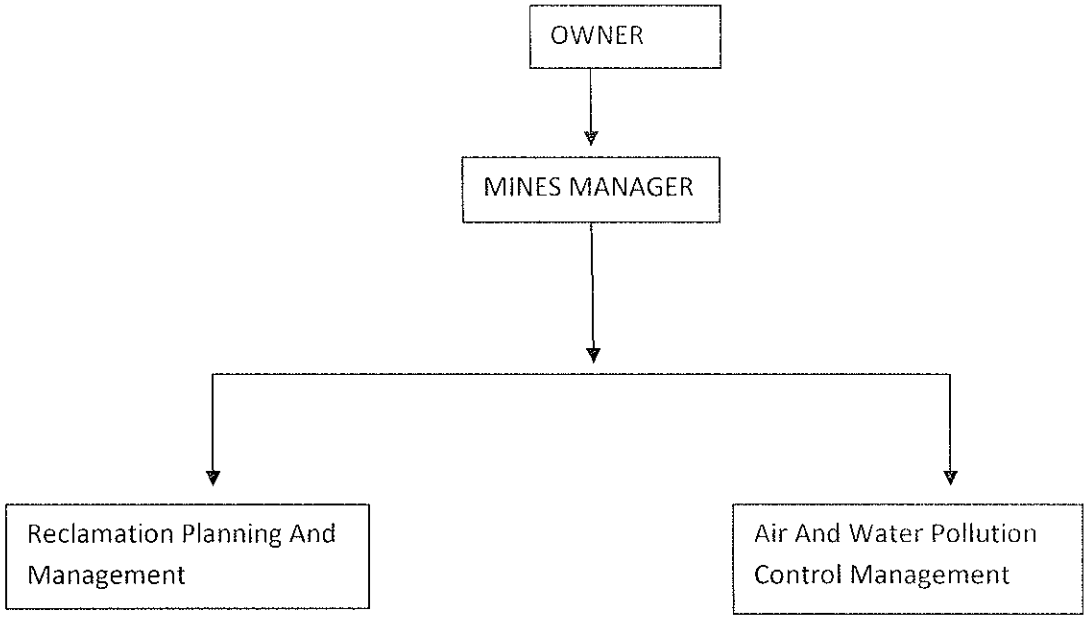
Environment Monitoring Programme :

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 stations	6 Monthly

Solid Waste Management

During first year34383cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)

- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge

of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal Siulibana Stone Mine of M/s Ganesh Stone Works (Partners : Shri Manick Chand Maheshwari & Shri Suman Mandal), Village : Siulibana, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.99 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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16. **Saharpur Stone Block of Shri Binod Kumar Singhania, Village : Saharpur, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.46 Ha).**

(Proposal no.: SIA/JH/MIN/ 514086 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 19849.1 Cum / annum or 55577.5 TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Saharpur Stone Block	
2	Lessee: & Lessee Address	:	Proprietor – Shri Binod Kumar Singhania S/o Shri Hari Prasad Singhania At School Para , P.o- + P.s – Dumka , Dist- Dumka , JHarkhand	
3	Lease Address	:	Village : Saharpur, Thana : Shikaripara, Dist. : Dumka, Jharkhand	
4	Lease Area	:	1.46 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost – 93.39 Lakhs	Recurring Cost – 6.9Lakhs
7	EMP Budget	:	Capital: 6.72 Lakhs	Recurring: 5.94 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	103512.07 Cum	289833.8 Tons
10	Mine Life	:	5 years.	
11	Man power	:	20 Person	
12	Water Requirement	:	6.868 KLD (Drinking: 0.300 KLD, Dust Suppression:2.8 KLD, Plantation: 3.768KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	The nearest water source is Padma River flowing North to East at 66 km North East Direction from the Mine site.	
17	Nearest Habitation	:	Saharpur Village – 1 Km	
18	Nearest Rail Station	:	Pakdaha Harinsing, Makrapahari Railway Station at Aerial distance of 11.6 km in North direction.	

19	Nearest Air Port	:	Deoghar Airport is at Aerial distance of 126 km NW direction.
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer . letter no.- 1603 Dated- 08/07/2024
21	Road & Highways	:	The distance of Approach Road is 200 m, after that this road connects to village road. The village road continues for 6.9 km and after this the road connects to NH-114(A) Sarasdangal to Shikaripara.In North West

CO-ORDINATES

Point NO.	Latitude	Longitude
1	24° 11' 11.195" N	87° 34' 51.379" E
2	24° 11' 11.533" N	87° 34' 51.705" E
3	24° 11' 11.270" N	87° 34' 52.684" E
4	24° 11' 10.905" N	87° 34' 53.573" E
5	24° 11' 10.273" N	87° 34' 54.325" E
6	24° 11' 09.259" N	87° 34' 55.315" E
7	24° 11' 08.808" N	87° 34' 55.523" E
8	24° 11' 07.479" N	87° 34' 56.858" E
9	24° 11' 07.146" N	87° 34' 56.874" E
10	24° 11' 07.332" N	87° 34' 57.457" E
11	24° 11' 07.259" N	87° 34' 57.505" E
12	24° 11' 07.945" N	87° 34' 58.351" E
13	24° 11' 06.483 " N	87° 34' 59.971" E
14	24° 11' 05.033" N	87° 34' 59.267" E
15	24° 11' 05.072" N	87° 34' 58.995" E
16	24° 11' 05.633" N	87° 34' 58.866" E
17	24° 11' 04.696" N	87° 34' 58.427" E
18	24° 11' 04.061" N	87° 34' 58.250" E
19	24° 11' 04.172" N	87° 34' 57.654" E
20	24° 11' 04.327" N	87° 34' 57.673II E
21	24° 11' 04.367" N	87° 34' 57.245" E

22	24° 11' 05.391" N	87° 34' 56.921" E
23	24° 11' 06.377" N	87° 34' 56.931" E
24	24° 11' 06.867" N	87° 34' 55.698" E
25	24° 11' 06.845" N	87° 34' 54.848" E
26	24° 11' 07.541" N	87° 34' 54.654" E
27	24° 11' 07.719" N	87° 34' 54.189" E
28	24° 11' 08.272" N	87° 34' 54.271" E
29	24° 11' 08.863" N	87° 34' 53.759" E
30	24° 11' 09.150" N	87° 34' 54.150" E
31	24° 11' 09.434" N	87° 34' 53.963" E
32	24° 11' 09.155" N	87° 34' 53.506" E
33	24° 11' 09.573" N	87° 34' 53.144" E
34	24° 11' 09.655" N	87° 34' 51.855" E
35	24° 11' 10.721" N	87° 34' 51.953" E

LAND DETAILS

Khata no.	Plot no.
10	115 (P)
18	365
23	119 (P), 120 (P) & 121 (P)
35	117 (P)
39	116

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 948/M, dated 12.08.2024. Further DMO, Dumka has issued corrigendum letter w.r.t. LoI vide memo no. 1062/M, dated 13.09.2024.
2	CO	:	The CO, Shikaripara vide letter no. 532/Ra., dated 25.06.2024 has mentioned the plot no. of the project is not recorded as "Jungle-

			Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 1017/M, dated 31.08.2024 certified that 01 other mining lease area (3.43 Acre) exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 1798, dated 13.08.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 1603, dated 08.07.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 44, Page no. 158).
7	Gram Sabha	:	Gram Sabha conducted on 08.11.2023.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1190/M, dated 18.10.2024.
9	Qualified Person	:	Shri Sandip Ghosh vide letter dated 18.12.2024 affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	1.46 Ha	Life of Mine – 5year
3	Waste Generation	:	52678.6 cum	
4	Stripping Ratio	:	07:10	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	
7	Elevation of Mine	:	143m – 118m AMSL	
8	Ground Level Elevation	:	25 m	
9	Ultimate Working Depth	:	30 m AMSL	
10	Water Table	:	Post Monsoon – 80 m AMSL Pre Monsoon – 82 m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	28 kg Nitro mix explosives	
13	Diesel/Fuel requirement	:	HSD –232 liters / day (69.6 KL/year)	

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.)
1st	16895.1	2.8	47306.3	56.317	157.68	3760	12.53
2nd	18047.9	2.8	50534.0	60.16	168.45	2265.0	7.55
3rd	18665.2	2.8	52262.7	6.23	174.3	5537.4	18.45
4th	19849.1	2.8	55577.5	66.17	185.26	1395.8	4.65
5th	19825.8	2.8	55512.3	66.09	185.05	0	0
Total	**93283.1**	2.8	**261192.7**	**311(Max.)**	**871(Max.)**	**52678.6**	**175.60**

Land Use

Existing Land Use pattern

SL. No.	Pattern	Existing Land Use (Ha)
1	Mining Activities	0.00
2	Offices/ Store etc.	0.00
3	Dumping	0.00
4	Mining Road	0.00
5	Garland drain	0.00
6	Settling Tank	0.00
7	Green belt	0.00
8	Safety Zone	0.00
9	Stone Stock yards	0.00
10	Unutilized	1.46
11	Crusher	0.00
Total		**1.46**

Land Use Pattern for Proposed Plan Period:

SL. No.	Pattern	Existing Land Use (Ha)
1	Mining Activities	0.77
2	Offices/ Store etc.	0.00
3	Dumping	0.06
4	Mining Road	0.02
5	Garland drain	0.13
6	Settling Tank	0.00
7	Green belt	0.48
8	Safety Zone	0.00
9	Stone Stock yards	0.00
10	Unutilized	0.00
11	Crusher	0.00
Total		**1.46**

Land Use Pattern after Life of the Mine:

Si. No.	Pattern of Utilization	Present/Existing land use pattern in (Ha.)	Land use Proposed Period	Land used at the conceptual stage i.e. end of Mine life in (Ha.)	Area to be converted in the conceptual period.
1	Quarry	0.00	0.77	0.84	Water body
2	Offices/ Store etc.	0.00	0.00	0.00	Plantation
3	Dumping	0.00	0.06	0.00	Plantation
4	Mining Road	0.00	0.02	0.000	Water body
5	Garland drain With Settling Tank	0.00	0.13	0.00	-
6	Green belt	0.00	0.00	0.62	Green Belt
7	Safety Zone	0.00	0.48	0.00	Plantation

8	Stone Stock yards	0.00	0.00	0.00	
9	Unutilized	1.46	0.00	0.00	
10	Crusher	0.00	0.00	0.00	
Total		**1.46**	**1.46**	**1.46**	**-**

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone		0.62 Ha	992
2	Along Approach Road		0.200 km	264
TOTAL				**1256 Trees**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl. No.	**Particulars**	**Capital Cost in Rs.**	**Recurring Cost in Rs. per year**
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1100 per Tanker)	--	3,30,000
2	Plantation: 264X 800 = Rs 211200 (Gabion Plantation along approach road) 992 X 400 = 3,96,800 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	6,08,000	60800
3	Fencing around the Lease boundary	64000	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) -Rs.27,270 • Ground Water (2 point) -Rs.12,420 • Noise 24 hrs (3 point) -Rs.21,000 • Soil (3 point) -Rs.40,920 **Total** **-Rs. 1,01,610 (Per**	--	2,03,220

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
	Season) At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220 Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022		
Total		6,72,000	5,94,020

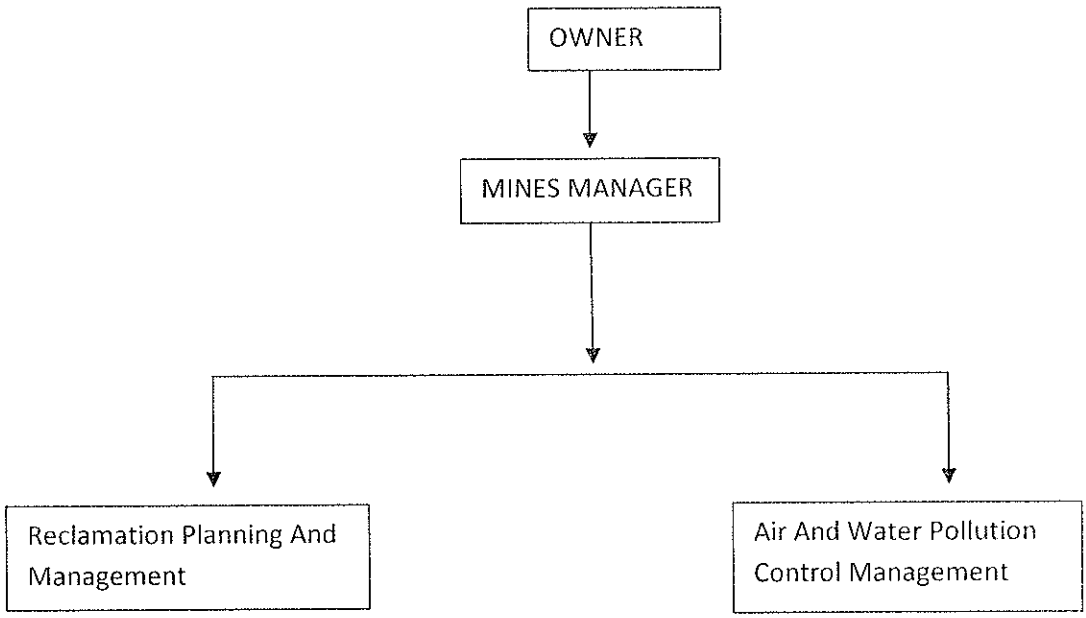
Environment Monitoring Programme :

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 stations	6 Monthly

Solid Waste Management

During first year 52678.6 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.

- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping	Probable	Moderate	6

		(Bodily Injury)			
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.

- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.

- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an

interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal Saharpur Stone Block of Shri Binod Kumar Singhania, Village : Saharpur, Thana : Shikaripara, Distt. : Dumka, Jharkhand (1.46 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.
III. Suitable plant species of not less than 2 M height to be planted equal to twice the

area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

17. **Bhataundha Stone Mine of M/s Dilip Buildcon Ltd. (Prop. : Shri Alok Kumar Singh), Village : Bhataundha, Thana : Poriyahat (50), Distt. : Godda, Jharkhand (2.023 Ha).**

(Proposal no.: SIA/JH/MIN/ 506757 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 138073 Cum. / annum or 372797 TPA

Project and Location Details:

Sl	Parameter		Details
1	Project Name	:	Bhataundha Stone Mine
2	Lessee:	:	Managing Director: M/s Dilip Buildcon Ltd. In Favour of: Alok Kumar Singh

3	Lessee Address	:	R/o Vill.: Khutabandh Near Durga Mandir, P.O. + Thana + Dist.: Godda (Jharkhand)	
4	Lease Area	:	2.023 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 127.99 Lakhs	Recurring Cost: Rs. 34.65 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 7.84Lakhs	Recurring Cost: Rs. 5.716 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 2,67,676cum	Tonnes: 7,22,725tons
10	Mine Life	:	3 years.	
11	Man power	:	33Person	
12	Water Requirement	:	5.63 KLD (Drinking: 0.50 KLD, Dust Suppression: 0.97KLD, Plantation: 4.16KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Khajia river at 8 km North direction.	
17	Nearest Habitation	:	Bhatondha Village – 0.550 Km in SW Direction	
18	Nearest Rail Station	:	Kathoun Railway Station at aerial distance of 3.57 km in NW direction.	
19	Nearest Air Port	:	Deoghar Airport is at aerial distance of 61.41 km SW direction	
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer Godda. letter no.-1006 Dated- 18/05/2024	
21	Road & Highways	:	The distance of Approach Road is 352m, after that this road connects to MDR 191.	

CO-ORDINATES

Point Name	Longitude	Latitude
1	087° 12' 45.99336616" E	24° 44' 50.35277630" N
2	087° 12' 46.22109880" E	24° 44' 50.72690849" N
3	087° 12' 46.78500820" E	24° 44' 51.01428540" N
4	087° 12' 47.60376127" E	24° 44' 50.73233070" N
5	087° 12' 48.25442596" E	24° 44' 50.51002026" N
6	087° 12' 48.19454745" E	24° 44' 50.25163698" N
7	087° 12' 48.84972342" E	24° 44' 50.04508998" N
8	087° 12' 48.74978132" E	24° 44' 49.89184543" N
9	087° 12' 48.74089758" E	24° 44' 49.71861247" N
10	087° 12' 49.27614303" E	24° 44' 49.59424008" N
11	087° 12' 49.45603880" E	24° 44' 49.64976347" N

12	087° 12' 49.60997739" E	24° 44' 49.63227360" N
13	087° 12' 50.00905173" E	24° 44' 49.43447153" N
14	087° 12' 50.41853671" E	24° 44' 49.83701609" N
15	087° 12' 50.55734518" E	24° 44' 49.86130757" N
16	087° 12' 50.63021962" E	24° 44' 49.92724159" N
17	087° 12' 51.24791730" E	24° 44' 49.62186296" N
18	087° 12' 51.60187889" E	24° 44' 49.64615445" N
19	087° 12' 51.69210440" E	24° 44' 49.73637995" N
20	087° 12' 51.75109799" E	24° 44' 49.86477778" N
21	087° 12' 51.90725752" E	24° 44' 49.94459265" N
22	087° 12' 52.03218514" E	24° 44' 49.96541392" N
23	087° 12' 52.24039784" E	24° 44' 50.07299048" N
24	087° 12' 52.36185525" E	24° 44' 50.09381175" N
25	087° 12' 52.69152536" E	24° 44' 49.88212884" N
26	087° 12' 52.85809552" E	24° 44' 49.71208847" N
27	087° 12' 53.45497193" E	24° 44' 50.06257985" N
28	087° 12' 53.78464204" E	24° 44' 50.30202445" N
29	087° 12' 54.16983553" E	24° 44' 50.37142869" N
30	087° 12' 54.24036382" E	24° 44' 50.30624954" N
31	087° 12' 54.09300239" E	24° 44' 49.28607856" N
32	087° 12' 53.94564096" E	24° 44' 48.26590759" N
33	087° 12' 53.80963295" E	24° 44' 47.32433541" N
34	087° 12' 53.67381145" E	24° 44' 46.38405441" N
35	087° 12' 53.53832293" E	24° 44' 45.44607855" N
36	087° 12' 53.40976375" E	24° 44' 44.55607399" N
37	087° 12' 52.95863623" E	24° 44' 44.67753140" N
38	087° 12' 52.45208075" E	24° 44' 44.81909001" N
39	087° 12' 52.25080848" E	24° 44' 44.89543467" N
40	087° 12' 52.27936366" E	24° 44' 44.95831804" N
41	087° 12' 52.45379593" E	24° 44' 45.21307599" N
42	087° 12' 52.07256730" E	24° 44' 45.47653688" N
43	087° 12' 51.68310406" E	24° 44' 45.69116808" N
44	087° 12' 51.01362527" E	24° 44' 45.89300670" N
45	087° 12' 50.70802455" E	24° 44' 46.25830616" N
46	087° 12' 50.57583447" E	24° 44' 46.31231932" N
47	087° 12' 50.02006757" E	24° 44' 46.42603121" N
48	087° 12' 50.01946237" E	24° 44' 46.80058087" N
49	087° 12' 49.55098379" E	24° 44' 46.83181278" N
50	087° 12' 49.14496903" E	24° 44' 46.94979998" N
51	087° 12' 48.81045728" E	24° 44' 47.04576105" N
52	087° 12' 48.28027556" E	24° 44' 47.12535937" N
53	087° 12' 48.15519248" E	24° 44' 47.17510833" N
54	087° 12' 48.47927138" E	24° 44' 47.75077480" N
55	087° 12' 48.83264998" E	24° 44' 48.32400380" N
56	087° 12' 49.05127331" E	24° 44' 48.84453555" N
57	087° 12' 48.68690109" E	24° 44' 49.08745037" N
58	087° 12' 48.03450129" E	24° 44' 49.12562270" N

59	087° 12' 47.23696892" E	24° 44' 49.62702109" N
60	087° 12' 46.96121757" E	24° 44' 49.67392724" N
61	087° 12' 46.53053376" E	24° 44' 49.92835761" N
62	087° 12' 46.21912984" E	24° 44' 50.17439934" N

LAND DETAILS

Khata no.	Plot no.
128	4038 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Godda vide memo no. 925/M, dated 05.09.2024.
2	CO	:	The CO, Poraiyahat vide letter no. 673/Ra., dated 15.06.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Godda vide memo no. 925/M, dated 09.09.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO-cum- Incharge Wildlife Sanctuary, Udhwa (Sahibganj) vide letter no. 2896, dated 14.11.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Godda Forest Division vide letter no. 1006, dated 18.05.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Godda District (Sl. no. 12, Page no. 57.).
7	Gram Sabha	:	Gram Sabha conducted on 10.12.2022.
8	Mine Plan Approval	:	Approved by District Mining Officer, Godda vide Memo No. 1025/M, dated 18.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	2.023Ha	Life of Mine – 3years
3	Waste Generation	:	25047cum	
4	Stripping Ratio	:	09:50	
5	Working Days	:	300	
6	Benches: size	:	2 m x 3 m,	
7	Elevation of Mine	:	142m–137m AMSL	
8	Ground Level Elevation	:	143 AMSL	
9	Ultimate Working Depth	:	38 m AMSL	
10	Water Table	:	Post Monsoon – 29 m AMSL Pre Monsoon – 24 m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	128.4 kg Slurry explosives/day	
13	Diesel/Fuel requirement	:	HSD – 439 liters / day (131.7KL/year)	

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.
1st	138073	2.7	372797	460	1243	25047	83
2nd	76296	2.7	205999	254	687	0	0
3rd	53307	2.7	143929	178	480	0	0
Total	**267676**	2.7	**722725**	**460 (max)**	**1243 (max)**	**25047**	**83**

Land Use pattern

SL	Pattern	Existing Land Use (Ha)	Proposed Land Use (Ha)	Conceptual Land Use (Ha)	Area to be converted in the conceptual period.
1	Mining Activities	0.00	1.308	1.308	Water body
2	Offices/ Store etc.	0.00	0.004	0.004	Greenbelt
3	Settling Tank	0.00	0.012	0.012	--
4	Garland drain	0.00	0.040	0.040	--

5	Dumping	0.00	0.065	0.065	Greenbelt
6	Safety Zone	0.00	0.579	0.579	Greenbelt
7	Unutilized	2.023	0.016	0.016	Greenbelt
	TOTAL	**2.023**	**2.023**	**2.023**	

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location	Area/Length	No of Trees
1	Safety Zone/ Offices/ Store etc./ Dumping	0.664 Ha	1,062
2	Along Approach Road	0.243m	324
TOTAL			**1,386**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1000 per Tanker)	--	3,00,000
2	Plantation 324 X 800 = Rs 2,59,200 (Gabion Plantation along approach road) 1062 X 400 = 4,24,800 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	6,84,000	68,400
3	Fencing	100,000	-
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270 • Ground Water (2 point) - Rs.12,420 • Noise 24 hrs (3 point) - Rs.21,000 • Soil (3 point) -Rs.40,920	--	2,03,220

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
	Total -Rs. 1,01,610 (Per Season) At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220 Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022		
Total		7,84,000	5,71,620

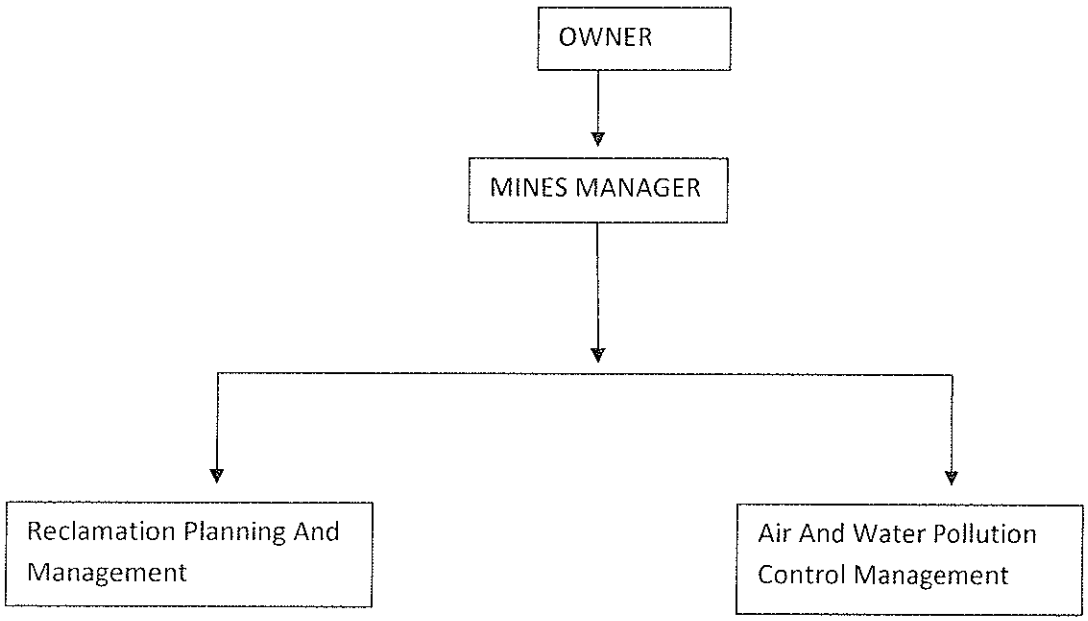
Environment Monitoring Programme

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 Station	6 Monthly

Solid Waste Management

25047cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.

- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5

5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.

- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an

interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal Bhataundha Stone Mine of M/s Dilip Buildcon Ltd. (Prop. : Shri Alok Kumar Singh), Village : Bhataundha, Thana : Poriyahat (50), Distt. : Godda, Jharkhand (2.023 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.
III. Suitable plant species of not less than 2 M height to be planted equal to twice the

area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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18. Pipradih Stone Deposit of M/s Balram Stone Mines (Prop. : Shri Kanhaiya Prasad Singh), Village : Pipradih, Thana : Balumath, Distt. : Latehar, Jharkhand (1.153 Ha).

(Proposal no.: SIA/JH/MIN/ 507211 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC) (re-appraisal of Environment Clearance issued by DEIAA, Latehar).

The project has been granted EC by DEIAA, Latehar vide letter no. 30/EC/DEIAA/ 2017 / Latehar dated 22.04.2017.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Latehar which has been taken up for consideration on 18.12.2024. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B2.

Existing baseline condition as per monitoring report submitted by PP is as follows PM10 -96 $\mu g/m^3$PM 2.5-567 $\mu g/m^3$ SO2-18.2 NO2- 19.0 $\mu g/m^3$. All the data are within the permissible limit.

Dust suppression is being carried out on regular basis.

Greenbelt Developed.

As per compliance report of JSPCB regarding previous EC, plantation has been done in safety zone.

Production detail as per letter no. 749/M dated 22.08.2024 by DMO, Latehar is within the permissible limit of EC.

The compliance report of previous EC has been issued by JSPCB, Regional Office, Dhurwa vide letter no. 1045, dated 30.08.2024.

The SEAC has found that the certification of the compliance of the conditions of previous EC is not appropriate with respect to the following :-

i. There is no clarity on the status of execution of compliance and no details have been provided.
ii. The word "AGREED" has been mentioned as compliance status of many of the conditions. This has been written without the consent of the project authorities.
iii. The date of inspection has not been specified in the CCR.

Hence, the Committee decided to obtain a self certified compliance report along with the supporting details as evidence of execution.

The self certified compliance report was presented before the Committee 21.12.2024.

EC Application for: Proposed Capacity- 25761 TPA.
Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Pipradih Stone Mine (DEIAA to SEIAA Transfer case Vide Intimation Number - 30/EC/DEIAA/2017/335/2017/494693) Project Type – Stone Mine	
2	Lessee:	:	M/s Balram Stone Mines Sri Kanhaiya Prasad Singh	
3	Lessee Address	:	Sri Kanhaiya Prasad Singh Vill+P.O.- Bariatu, P.S.- Balumath, District- Latehar, Jharkhand Pin-829202	
4	Lease Area	:	1.153 Ha. (At Mouza- Pipradih, Thana- Balumath, Thana no.- 62, Dist.- Latehar, Jharkhand)	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs.36.52 Lakhs	Recurring Cost: Rs. 4.21 Lakhs/Year
7	EMP Budget	:	Capital Cost: Rs. 9.89 Lakhs	Recurring Cost: Rs. 5.92 Lakhs/Year
8	New or Expansion	:	Re-appraisal of DEIAA EC	

9	Mineable Reserves	:	2,22,867.72 Tons
10	Mine Life	:	Up to the lease period i.e. 13.10.2017 to 12.10.2027.
11	Man power	:	23 Person
12	Water Requirement	:	7.520 KLD (Drinking: 0.35 KLD, Dust Suppression: 2.90 KLD, Plantation: 4.27 KLD)
13	Water Source	:	From Nearby villages by tankers
14	DG Set / power	:	20 KVA D.G. Set proposed
15	Crusher	:	No crusher
16	Nearest Water Body	:	River Auranga – 30 Km in W-S direction (arial distance).
17	Nearest Habitation	:	Pipradih Village at 0.9 km
18	Nearest Rail Station	:	Tori Railway station is at 24 km (aerial distance).
19	Nearest Air Port	:	Ranchi, Airport at 79 km.
20	Nearest Forest	:	DFO (Latehar) letter no.- 1079 Dated: 19/05/2016 certified that the distance of reserved / protected forest is more than 250 m from proposed project site.
21	Road & Highways	:	NH -22 at 4.8 km

CO-ORDINATES

1	Latitude		From N $23^0$52'41 .40"	To N $23^0$22'46 .49"
2	Longitude		From E $84^0$50'47.34"	To E 84°50' 52.03"

LAND DETAILS

J. B. no.	Plot no.
05	07

STATUTORY CLEARANCES

1	LOI / Lease docs	:	Lease Deed- 13.10.2017 to 12.10.2027.
2	CO	:	The CO, Bariatu vide letter no. 364, dated 17.08.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan.
3	DMO	:	DMO, Latehar vide memo no. 764/M, dated 27.08.2024 certified that 01 other mining lease area (3.62 Acre) exists within 500 m

			radius from proposed project site and total area is 6.47 Acre.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, South Division, Medininagar vide letter no. 638, dated 23.07.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palamau Tiger Reserve.
5	DFO Territorial	:	Division Forest Officer, Latehar Forest Divisioin vide letter no. 1079 dated 19.05.2016 certified that the distance of forest land is 470 meter from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Latehar District (Sl. no. 2, Page no. 54).
7	Gram Sabha	:	Gram Sabha conducted on 14.03.2016.
8	Mine Plan Approval	:	Approved by Assistant Mining Officer, Latehar vide Letter No. 856, dated 10.09.2016.
9	Previous Environmental Clearance (EC)	:	Previous EC granted by DEIAA, Latehar vide letter no. 30/EC/DEIAA /2017/Latehar dated 22.04.2017.
10	Compliance report of EC	:	EC compliance report issued by JSPCB, Regional Office, Dhurwa vide letter no. 1045, dated 30.08.2024.
11	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. JSPCB/HO/RNC/CTE-1872830 /2017 /711, dated 22.11.2017.
12	Consent to Operate (CTO)	:	CTO issued by JSPCB vide Ref. no. JSPCB/RO/RNC/CTO-5904286/2019/212, dated 28.09.2019.
13	Production Report	:	Production report issued by DMO, Latehar vide letter no. 749/M dated 22.08.2024.
9	Qualified Person	:	Shri P.K. Sen was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Mechanized Method	
2	Quarry Area	:	0.763 Ha. (During plan period)	Life of Mine – Up to the lease period i.e. 13.10.2017 to 12.10.2027.
3	Waste Generation	:	2,507.87 Cum Intercalated waste & 3,341 Cum. O.B (During plan period)	

4	Stripping Ratio	:	1:21.99 or 0.045
5	Working Days	:	300
6	Benches: size	:	6 m x 6 m
7	Highest Elevation of Mine	:	586 m AMSL
8	Ground Level Elevation	:	586 m AMSL
9	Ultimate Working Depth	:	26 m
10	Water Table	:	(During pre-monsoon 544 m AMSL) (During post-monsoon 549 m AMSL)
11	Topography of Mine	:	Area represents gently sloping land.
12	Explosive Requirement	:	5.5 g Slurry explosives/day
13	Diesel/Fuel requirement	:	HSD – 232 liters / day (69.6 KL/year)

Production Details

Years	Production of stone in Tonnes/Year	Production of O.B in Cum/Year	Production of intercalated waste in Cum/Year	Total Waste in Cum/year
1st	25,742.34	728.00	501.80	1,229.80
2nd	25,634.61	0.00	499.70	499.70
3rd	25,761	0.00	502.17	502.17
4th	25,759.35	1,608.00	502.13	2,110.13
5th	25,756.45	1,005.00	502.08	1,507.08
Total	**1,28,653.81**	**3,341**	**2,507.87**	**5,848.87**

Land Use

SL	Pattern	Existing Land Use (Ha)	Proposed Land Use (Ha)	Conceptual Land Use (Ha)	Area to be converted in the conceptual period.
1	Mining Activities	0.000	0.520 (including haul road)	0.763	Water body
2	Crusher	0.000	0.030	0.000	--

3	Dumping	0.000	0.040	0.000	--
4	Mining Road	0.023	0.010	--	--
5	Garland drain	0.000	0.010	0.000	--
6	Parapet wall	0.000	0.010	0.000	--
7	Safety Zone	0.390	0.390	0.390	Greenbelt
8	Unutilized	0.740	0.143	0.000	--
	TOTAL	**1.153**	**1.153**	**1.153**	

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone		0.39 Ha	624
2	Along Approach Road		0.600 km	800
TOTAL				**1,424**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

COST PROPOSED FOR EMP

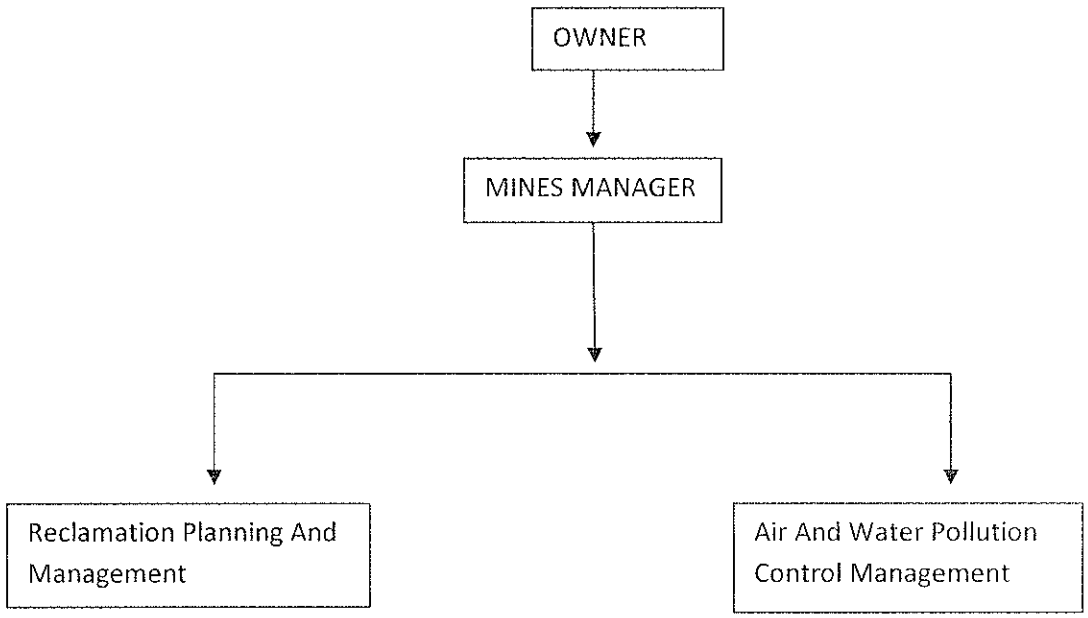
Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1000 per Tanker)	----	3,00,000
2	Plantation 800 X 800 = Rs 6,40,000 (Gabion Plantation along approach road) 624 X 400 = 2,49,600 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	8,89,600	88,960
3	Fencing	100000	------

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) -Rs.27,270 • Ground Water (2 point) -Rs.12,420 • Noise 24 hrs (3 point) -Rs.21,000 • Soil (3 point) -Rs.40,920 Total -Rs. 1,01,610 (Per Season) At least two seasons in a Year -Rs.1,01,610 x2 = Rs. 2,03,220 Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022	----	2,03,220
Total		**9,89,600**	**5,92,180**

Solid Waste Management

2,507.87 Cum Intercalated waste & 3,341 Cum. O.B shall be generated during the scheme period which shall be used in backfilling the mine void.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.

- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by	Very	Minor	20

		hitting by loading material, Exposure to Dust	Unlikely		
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.

- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.

- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an

interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
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j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Pipradih Stone Deposit of M/s Balram Stone Mines (Prop. : Shri Kanhaiya Prasad Singh), Village : Pipradih, Thana : Balumath, Distt. : Latehar, Jharkhand (1.153 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. The production shall be restricted as per approved mining scheme or the approved mine plan at the time of EC, which ever is less.
II. The mining activities shall be commenced only after approval of the mining scheme by the competent authority. A copy of the approved mining scheme shall be submitted to SEIAA / SEAC immediately after approval and before commencing of the mining activities.
III. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"EkPed Ma KeNaam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

IV. During appraisal of the project, it is seen that the project authority have not fully complied the condition of green belt development as per the previous EC. Hence, the project authorities are required to plant twice the number of trees as was required in the previous EC. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

V. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

VI. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

VII. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VIII. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

IX. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

X. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

19. Demu Stone Deposit of Shri Shatrudhan Prasad, Village : Demu, P.O. + P.S. : Latehar, Distt. : Latehar, Jharkhand (1.44 Ha).

(Proposal no.: SIA/JH/MIN/ 507275 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC) (re-appraisal of Environment Clearance issued by DEIAA, Latehar).

The project has been granted EC by DEIAA, Latehar vide letter no. 28/EC/DEIAA/ 2017 / Latehar dated 22.04.2017.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Latehar which has been taken up for consideration on 18.12.2024. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B2.

Existing baseline condition as per monitoring report submitted by PP is as follows PM10 -96 $\mu g/m^3$PM 2.5-567 $\mu g/m^3$ SO2-18.2 NO2- 19.0 $\mu g/m^3$ · All the data are within the permissible limit.

Dust suppression is being carried out on regular basis.

Greenbelt Developed.

As per compliance report of JSPCB regarding previous EC, plantation has been done in safety zone.

Production detail as per letter no. 751/M dated 22.08.2024 by DMO, Latehar is within the permissible limit of EC.

The compliance report of previous EC has been issued by JSPCB, Regional Office, Dhurwa vide letter no. 1044, dated 30.08.2024.

The SEAC has found that the certification of the compliance of the conditions of previous EC is not appropriate with respect to the following :-

i. There is no clarity on the status of execution of compliance and no details have been provided.
ii. The word "AGREED" has been mentioned as compliance status of many of the conditions. This has been written without the consent of the project authorities.
iii. The date of inspection has not been specified in the CCR.

Hence, the Committee decided to obtain a self certified compliance report along with the supporting details as evidence of execution.

The self certified compliance report was presented before the Committee 21.12.2024.

EC Application for: Proposed Capacity- 15434.814 Cum. / 41673.99 Tons.

Project and Location Details:

Sl	Parameter		Details
1	Project Name	:	Demu Stone Mine (DEIAA to SEIAA Transfer case Vide Intimation Number - 28/EC/DEIAA/2017/335/2017/385525) Project Type – Stone Mine
2	Lessee:	:	Shri Shatrudhan Prasad
3	Lessee Address	:	Shri Shatrudhan Prasad

			S/O Shri Triveni Shaw Vill & Po.- Jalim Khurdh, Ps &Dist.- Latehar, Jharkhand Pin-829206	
4	Lease Area	:	1.44 Ha. (At Mouza- Demu, Thana.- Latehar, District- Latehar, Jharkhand)	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs.74.08 Lakhs	Recurring Cost: Rs. 4.39 Lakhs/Year
7	EMP Budget	:	Capital Cost: Rs. 9.37 Lakhs	Recurring Cost: Rs. 5.86 Lakhs/Year
8	New or Expansion	:	Re-appraisal of DEIAA EC	
9	Mineable Reserves	:	3,80,440.584 Tons or 1,40,903.92 Cum	
10	Mine Life	:	Up to the lease period i.e. 13.10.2017 to 12.10.2027.	
11	Man power	:	40 Person	
12	Water Requirement	:	7.98 KLD (Drinking: 0.60 KLD, Dust Suppression: 2.65 KLD, Plantation: 4.73 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	20 KVA D.G. Set proposed	
15	Crusher	:	1 crusher	
16	Nearest Water Body	:	River Auranga – 15.7 Km in W-N direction (arial distance).	
17	Nearest Habitation	:	Demu Village at 0.9 km	
18	Nearest Rail Station	:	Latehar Railway Station is 6.92 km (aerial distance) in South -West direction.	
19	Nearest Air Port	:	Ranchi, Airport at 91.82 km S-E Direction.	
20	Nearest Forest	:	DFO (Latehar) letter no.- 1809 Dated: 16/08/2016 certified that the distance of reserved / protected forest is more than 250 m from proposed project site.	
21	Road & Highways	:	A well motorable road is connected to the mine site at a distance of 663 m North- East direction & NH-39 at 5.26 km (aerial distance) North Direction.	

CO-ORDINATES

Point ID	Latitude	Longitude
1	23° 41' 22.67999880" N	084° 31' 22.86999840" E
2	23° 41' 22.63999920" N	084° 31' 24.04999920" E
3	23° 41' 22.59999960" N	084° 31' 25.34999880" E

4	23° 41' 22.53000120" N	084° 31' 26.42999880" E
5	23° 41' 22.44000120" N	084° 31' 27.89000040" E
6	23° 41' 21.59000160" N	084° 31' 27.68999880" E
7	23° 41' 21.14999880" N	084° 31' 27.63999840" E
8	23° 41' 20.60000160" N	084° 31' 27.30000000" E
9	23° 41' 20.23000080" N	084° 31' 27.15999960" E
10	23° 41' 19.25999880" N	084° 31' 26.78000160" E
11	23° 41' 18.58999920" N	084° 31' 26.49000000" E
12	23° 41' 18.94999920" N	084° 31' 25.83000120" E
13	23° 41' 17.81999880" N	084° 31' 25.20999840" E
14	23° 41' 17.63999880" N	084° 31' 25.71999960" E
15	23° 41' 16.89000000" N	084° 31' 25.55773320" E
16	23° 41' 17.09000160" N	084° 31' 24.08000160" E
17	23° 41' 17.31000120" N	084° 31' 24.07000080" E
18	23° 41' 17.32999920" N	084° 31' 23.81999880" E
19	23° 41' 18.11000040" N	084° 31' 23.95999920" E
20	23° 41' 18.03999840" N	084° 31' 24.30999840" E
21	23° 41' 18.63999960" N	084° 31' 24.67999920" E
22	23° 41' 19.42000080" N	084° 31' 24.88000080" E
23	23° 41' 20.01000120" N	084° 31' 24.65000040" E
24	23° 41' 20.28000120" N	084° 31' 24.62999880" E
25	23° 41' 20.55999840" N	084° 31' 23.54000160" E
26	23° 41' 20.79999960" N	084° 31' 22.81000080" E
27	23° 41' 20.77000080" N	084° 31' 22.37999880" E
28	23° 41' 21.40000080" N	084° 31' 22.70309520" E
29	23° 41' 22.07000040" N	084° 31' 22.88298360" E

LAND DETAILS

J. B. no.	Plot no.
190	1919

STATUTORY CLEARANCES

1	LOI / Lease docs	:	Lease Deed- 13.10.2017 to 12.10.2027.
2	CO	:	The CO, Latehar vide letter no. 692, dated 21.08.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan.
3	DMO	:	DMO, Latehar vide memo no. 763/M, dated 27.08.2024 certified that no other mining lease area exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, South Division, Medininagar vide letter no. 522, dated 02.07.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palamau Tiger Reserve.
5	DFO Territorial	:	Division Forest Officer, Latehar Forest Divisioin vide letter no. 1809 dated 22.08.2016 certified that the distance of notified forest land is 320 meter from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Latehar District (Sl. no. 1, Page no. 54).
7	Gram Sabha	:	Gram Sabha conducted on 26.07.2016.
8	Mine Plan Approval	:	i. Approved by Assistant Mining Officer, Latehar vide Letter No. 911/Mining, dated 24.09.2016. ii. Approved by Assistant Mining Officer – Incharge District Mining Officer, Latehar vide Memo No. 966/Mining, dated 22.10.2024.
9	Previous Environmental Clearance (EC)	:	Previous EC granted by DEIAA, Latehar vide letter no. 28/EC/DEIAA/2017/Latehar dated 22.04.2017.
10	Compliance report of EC	:	EC compliance report issued by JSPCB, Regional Office, Dhurwa vide letter no. 1044, dated 30.08.2024.
11	Consent to	:	CTE issued by JSPCB vide Ref. no. JSPCB/HO/RNC/CTE-1872257

	Establish (CTE)		/2017 /707, dated 22.11.2017.
12	Consent to Operate (CTO)	:	CTO issued by JSPCB vide Ref. no. JSPCB/RO/RNC/CTO-12513727/2022/73, dated 28.02.2022.
13	Production Report	:	Production report issued by DMO, Latehar vide letter no. 751/M dated 22.08.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast-Mechanized Method	
2	Quarry Area	:	0.700 Ha. (During plan period)	Life of Mine – Up to the lease period i.e. 13.10.2017 to 12.10.2027.
3	Waste Generation	:	958.8 Cum Top Soil & 3,196 Cum. O.B (During Scheme plan period)	
4	Stripping Ratio	:	1:18.87 or 0.053	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m	
7	Highest Elevation of Mine	:	424 m AMSL	
8	Ground Level Elevation	:	424 m AMSL	
9	Ultimate Working Depth	:	14 m	
10	Water Table	:	(During pre-monsoon 389 m AMSL) (During post-monsoon 394 m AMSL)	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	23.1 kg Slurry explosives/day	
13	Diesel/Fuel requirement	:	HSD – 232 liters / day (69.6 KL/year)	

Production Details

SUMMARY OF YEARWISE OF PRODUCTION						
Years	Production In Cum/Year	Production In Cum/Day	O.B Production in Cum/Year	Top Soil in Tons/Year	Production In Tons/Year	Prod. In Tons. /Day

1st	15211.851 (Actual Production)	50.7	0	0	41071.9	156.9
2nd	15434.814 (Actual Production)	51.4	0	0	41673.9	158.9
	5161.481 lapsed	17.20	0	0	13935.9	46.45
3rd	14085.00	46.95	3196	958.8	38029.5	126.7
4th	14212.00	47.37	0	0	38372.4	127.9
5th	14280.00	**47.6**	**0**	**0**	38556	**128.5**
Total	**78385.146**	**261.28 Max**	**3196**	**958.8 Max**	**211639.89**	**745.35 MAX**

Land Use

SL	Pattern	Existing Land Use (Ha)	Proposed Current Plan Period (Ha)	Proposed Land Use at End of Life of Mine (Ha)	Land Usage at Conceptual Stage
1	Mining Area	0.630	0.700	0.700	Water Body
2	Office /Store	0.000	0.000	0.000	
3	Dump Yard	0.000	0.037	0.037	59 Trees (Green Belt)
4	Garland Drain	0.000	0.032	0.032	Garland Drain
5	Safety Zone	0.000	0.469	0.469	752 Trees (Green Belt)
6	Settling Tank	0.000	0.001	0.001	Settling Tank
7	Unutilized	0.701	0.092	0.092	147 Trees (Green Belt)
8	Crusher	0.110	0.110	0.110	160 Trees (Green Belt)
	TOTAL	**1.441**	**1.441**	**1.441**	-

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone		0.47 Ha	752
2	Dump Yard		0.037 Ha	59
3	Area for Cruser		0.11 Ha	160
4	Unutilized		0.092 Ha	147
5	Along Approach Road		0.663 km	442
TOTAL				**1,576**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

COST PROPOSED FOR EMP

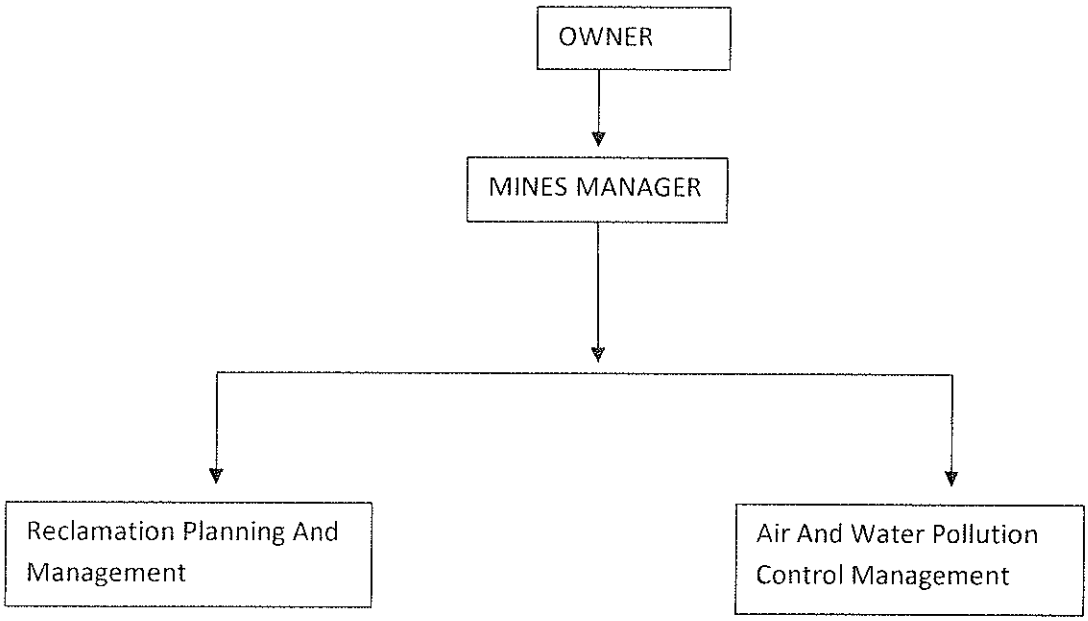
Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1000 per Tanker)	----	3,00,000
2	Plantation 442 X 800 = Rs 353600 (Gabion Plantation along approach road) 1210 X 400 = 484000 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	8,37,600	83760
3	Fencing	100000	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) -Rs.27,270 • Ground Water (2 point) -Rs.12,420 • Noise 24 hrs (3 point) -Rs.21,000 • Soil (3 point) -Rs.40,920 Total -Rs. 1,01,610 (Per Season) At least two seasons in a Year -Rs.1,01,610 x2	----	2,03,220

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
	= Rs. 2,03,220 Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022		
Total		**9,37,600**	**586980**

Solid Waste Management

958.8 Cum Top Soil & 3,196 Cum. O.B shall be generated during the scheme period which shall be used in backfilling the mine void.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers

- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.

g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Demu Stone Deposit of Shri Shatrudhan Prasad, Village : Demu, P.O. + P.S. : Latehar, Distt. : Latehar, Jharkhand (1.44 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. The production shall be restricted as per approved mining scheme or the approved mine plan at the time of EC, which ever is less.
II. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"EkPed Ma KeNaam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
III. During appraisal of the project, it is seen that the project authority have not fully complied the condition of green belt development as per the previous EC. Hence, the project authorities are required to plant twice the number of trees as was required in the previous EC. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.
IV. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.
V. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.
VI. Pre employment Occupational health check up for employees to be done and

thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VII. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VIII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

IX. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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20. **Bohita Stone Mine of M/s Indian Electrical Services Stone Mines (Prop. : Shri Shailendra Kumar Singh), Village : Bohita, Thana : Lesliganj, Distt. : Palamau, Jharkhand (1.83 Ha).**

(Proposal no.: SIA/JH/MIN/ 512661 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC) (re-appraisal of Environment Clearance issued by DEIAA, Palamau).

The project has been granted EC by DEIAA, Palamau vide letter no. EC/DEIAA/2016-17/46, dated 17.08.2017.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Palamau which has been taken up for consideration on 18.12.2024. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B2.

Existing baseline condition as per monitoring report submitted by PP is as follows PM10 -96 $\mu g/m^3$PM 2.5-567 $\mu g/m^3$ SO2-18.2 NO2- 19.0 $\mu g/m^3$ · All the data are within the permissible limit.

Dust suppression is being carried out on regular basis.

Greenbelt Developed.

As per compliance report of JSPCB regarding previous EC, plantation has been done in safety zone.

Production detail as per memo no. 2688/M dated 02.12.2024 by DMO, Palamau is within the permissible limit of EC.

The compliance report of previous EC has been issued by JSPCB, Regional Office, Dhurwa vide letter no. RO/C-06, dated 18.12.2024.

The SEAC has found that the certification of the compliance of the conditions of previous EC is not appropriate with respect to the following :-

i. There is no clarity on the status of execution of compliance and no details have been provided.
ii. The word "AGREED" has been mentioned as compliance status of many of the conditions. This has been written without the consent of the project authorities.
iii. The date of inspection has not been specified in the CCR.

Hence, the Committee decided to obtain a self certified compliance report along with the supporting details as evidence of execution.

The self certified compliance report was presented before the Committee 21.12.2024.

EC Application for: Proposed Capacity- 45000 cum/annum or 135000 TPA.

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Bohita Stone Mine	
2	Lessee:	:	M/s Indian Electrical Services (Sri. Shailendra kumar Singh)	
3	Lessee Address	:	R/O- Bypass Road Abadganj, Daltonganj, District - Palamu, Jharkhand	
4	Lease Area	:	1.83 ha.	4.52 Acres
5	Type of Land	:	Non-Forest (Raiyati Land)	
6	Project Cost	:	Rs. 100.98 Lakhs	
7	EMP Budget	:	Capital: Rs. 8.78 Lakhs	Recurring: 5.91 Lakhs / year
8	New or Expansion	:	DEIAA to SEIAA (re-appraisal of EC)	
9	Mineable Reserves	:	1450721.25 tons	
10	Mine Life	:	Up to the lease period i.e. 24.10.2017 to 23.10.2027.	
11	Man power	:	20	
12	Water Requirement	:	6.75 KLD (Drinking: 0.30 KLD, Dust Suppression: 2.08 KLD, Plantation: 4.37 KLD)	
13	Water Source	:	Water will be taken from nearby village	
14	DG Set / power	:	20 KVA	
15	Crusher	:	No Crusher	
16	Nearest Water Body	:	Brahmani River – 6.03 km Flowing east to west direction in northward direction from the mine site	
17	Nearest Habitation	:	Bohita Village- 0.500km in west direction	
18	Nearest Railway	:	Bohita Railway station is about 21 km away from existing area.	

	Station		
19	Nearest Air Port	:	Ranchi Airport at 130 km
20	Nearest Forest	:	More than 250m, as per DFO Territorial, Palamu, Letter no. 4461 dated-09/11/16
21	Road & Highways	:	The nearest NH-39 is 3.0 km form the existing area

CO-ORDINATES

Geo-Coordinates of all corner points of Demarcated Block Boundary

(GPS Co-ordinates)

Sl no.	Latitude	Longitude
1	23 0 57'58 .38" N	84015'2.28" E
2	23 0 57'57 .92" N	84° 15' 8.12" E
3	23 0 57'53 .61" N	84° 15' 8.37" E
4	23 0 57'52 .98" N	84° 15' 8.38" E

LAND DETAILS

J. B. no.	Plot no.
237	273 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	Lease Deed- 24.10.2017 to 23.10.2027.
2	CO	:	The CO, Satbarwa, Palamau vide letter no. 181, dated 05.07.2016 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan.
3	DMO	:	DMO, Palamau vide memo no. 1096/M, dated 27.05.2024 certified that 01 other mining lease area (3.78 Acre) exists within 500 m radius from proposed project site and total area is 8.30 Acre.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, South Division, Medininagar vide letter no. 248, dated 18.03.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palamau Tiger Reserve.
5	DFO Territorial	:	Division Forest Officer, Medininagar Forest Divisioin vide letter no. 4461 dated 09.11.2016 certified that the distance of notified

			forest land is more than 250 meter from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Palamau District (Sl. no. 16, Page no. 68).
7	Gram Sabha	:	Gram Sabha conducted on 20.10.2016.
8	Mining Plan Approval	:	Mining scheme approved by Additional Director, Geology, Hazaribag vide Memo No. 787/G, dated 06.12.2021.
9	Previous Environmental Clearance (EC)	:	Previous EC granted by DEIAA, Palamau vide letter no. EC/DEIAA/2016-17/46, dated 17.08.2017.
10	Compliance report of EC	:	EC compliance report issued by JSPCB, Regional Office, Dhurwa vide letter no. RO/C-06, dated 18.12.2024.
11	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. JSPCB/HO/RNC/CTE-1956547 /2017 /773, dated 13.12.2017.
12	Consent to Operate (CTO)	:	**CTO issued by JSPCB vide ref. no. :** i. JSPCB/RO/RNC/CTO-2025380/2017/260, dated 21.12.2017. ii. JSPCB/RO/RNC/CTO-11719497/2021/190, dated 27.12.2021. iii. JSPCB/RO/RNC/CTO-17638396/2024/2, dated 05.01.2024.
13	Production Report	:	Production report issued by DMO, Palamau vide memo no. 2688/M dated 02.12.2024.
9	Qualified Person	:	Shri P.K. Sen was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	1.83 Ha	Life of Mine – Up to the lease period i.e. 24.10.2017 to 23.10.2027.
3	Waste Generation	:	0 cum	
4	Stripping Ratio	:	0	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	
7	Elevation of Mine	:	285.01 m AMSL	
8	Ground Level Elevation	:	286.05 m AMSL	
9	Ultimate Working	:	266 m AMSL	

	Depth		
10	Water Table	:	Post Monsoon – 24 m AMSL Pre Monsoon – 29 m AMSL
11	Topography of Mine	:	Area represents gently sloping land.
12	Explosive Requirement	:	171 kg Nitro mix explosives
13	Diesel/Fuel requirement	:	HSD –245 liters / day (73.5 KL/year)

Production Details

Year	Production per year		Removal of O.B.	
	Cum recoverable 95%	Tonnes	Cum	Production per day cum (O.B.)
1st	45000	135000	0	0
2nd	45000	135000	0	0
3rd	45000	135000	0	0
4th	45000	135000	0	0
5th	45000	135000	0	0
Total	**225000**	**675000**	**0**	**0**

Land Use

Existing Land Use pattern

Sl. No.	Pattern	Existing Land Use (Ha)
1	Quarry	0.71
2	Haul Road	0.01
3	Proposed Crusher	---
4	Green Belt in Safety Barrier	0.39
5	Dump With Parapet wall & Garland Drain	0.00
Total Area in Use		**1.11**
6	Balance unused area	0.72
7	Balance used Area	0.00
Total Existing Area		**1.83**

Land Use Pattern for Proposed Plan Period:

Sl. No.	Pattern	First To Fifth Years Area in Hectare
1	Quarry	1.40
2	Haul Road	0.04
3	Proposed Crusher	----
4	Green Belt in Safety Barrier	0.39
5	Dump With Parapet wall & Garland Drain	0.00
Total Area in Use		**1.83**
6	Balance unused area	0.00
7	Balance used Area	0.00
Total Existing Area		**1.83**

Land Use Pattern after Life of the Mine:

Sl. No.	Pattern	After Life of Mine Area in Hectare
1	Quarry	1.40Ha Will be Left as Water reservoir
2	Haul Road	0.00
3	Proposed Crusher	0.00
4	Green Belt in Safety Barrier	0.43
5	Dump With Parapet wall & Garland Drain	Nil (Waste dump to be removed and Backfilled
Total Area in Use		**1.83**
6	Balance unused area	0.00
7	Balance used Area	0.00
Total Existing Area		1.83

Sl. No	Proposed Land Use After Mine Closure	Area (acre)	Area (Ha)
1	Water Body	2.80	1.133
2	Infrastructure	0.04	0.016
3	Green Belt	1.50	0.607
4	Settling Tank	0.08	0.032
5	Garland Drain	0.10	0.040

Total	4.52	1.83

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone		0.607 Ha	876
2	Along Approach Road		0.122 km	488
TOTAL				**1459 Trees**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Budget for Environmental Management

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1000 per Tanker)	--	3,00,000
2	Plantation 488 X 800 =3,90,400 (Gabion Plantation along approach road) 971 X 400 = 3,88,400(Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	7,78,800	87880
3	Fencing	1,00,000	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs. (3 point) - Rs.27,270 • Ground Water (2 point) - Rs.12,420 • Noise 24 hrs (3 point) - Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs.**	--	2,03,220

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
	1,01,610 (Per Season) At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220 Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022		
Total		8,78,800	5,91,100

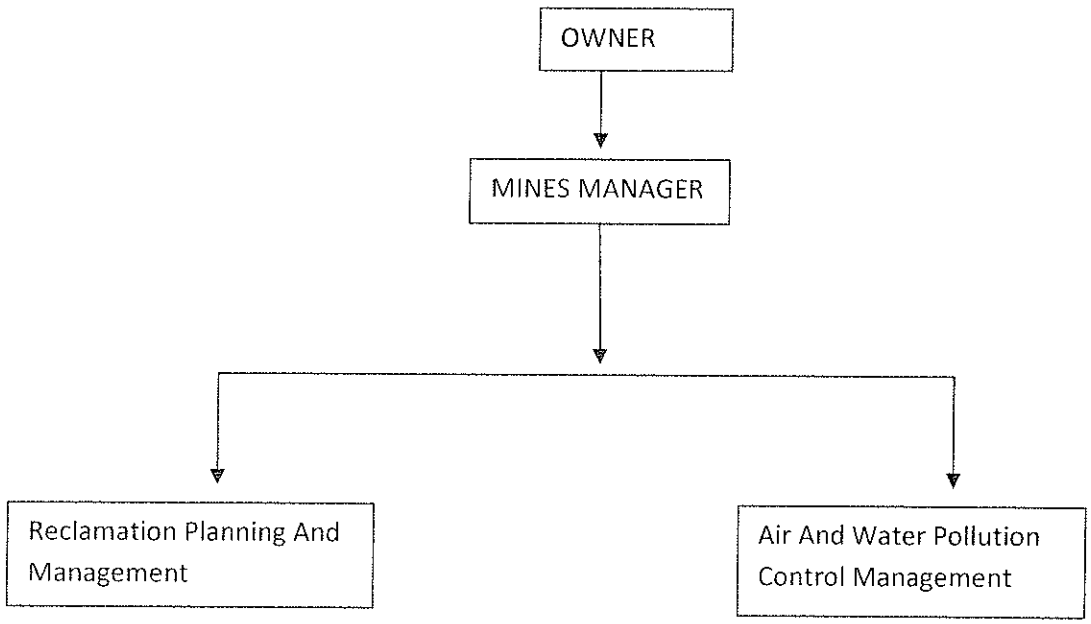
Environment Monitoring Programme:

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 stations	6 Monthly

Solid Waste Management

During first year 34780 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock	Occasional	Major	6

		(Bodily Injury)			
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)

- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Bohita Stone Mine of M/s Indian Electrical Services Stone Mines (Prop. : Shri Shailendra Kumar Singh), Village : Bohita, Thana : Lesliganj, Distt. : Palamau, Jharkhand (1.83 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. The production shall be restricted as per approved mining scheme or the approved mine plan at the time of EC, which ever is less.
II. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"EkPed Ma KeNaam"* and the

details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

III. During appraisal of the project, it is seen that the project authority have not fully complied the condition of green belt development as per the previous EC. Hence, the project authorities are required to plant twice the number of trees as was required in the previous EC. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

IV. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

V. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

VI. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VII. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VIII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

IX. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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21. **Aamchuwan Stone Mine of Partners : Shri Mihir Kumar Mandal & Shri Bablu Mondal, Village : Aamchuwan, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.869 Ha).**

(Proposal no.: SIA/JH/MIN/ 506645 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B1.

Application for Terms of Reference (ToR) as per EIA Notification, 2006.

TOR Application for: Proposed Capacity:19124.45Cum. / annum or 51636TPA.

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Aamchuwan Stone Mine	
2	Lessee:	:	Partners 1.Shri Mihir Kumar Mondal 2.Shri Josa Kisku	
3	Lessee Address	:	1. Shri Mihir Kumar Mondal, S/o Trilochan Mondal, R/o Ward no. 0003, Sideshwari Tala, Nishchintpur, PO+PS- Rampurhat, Dist-Birbhum W.B 731224. 2. Shri Bablu Mondal, S/o Late Jitendra Nath Mondal, R/o Kulupara, Thanapara, PS+PO- Rampurhat, Birbhum W.B 731224.	
4	Lease Area	:	2.869 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 134.58 Lakhs	Recurring Cost: Rs. 14.22 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 11.22Lakhs	Recurring Cost: Rs 6.05Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 69576	Tonnes : 187855
10	Mine Life	:	5 years.	
11	Man power	:	21Person	
12	Water Requirement	:	7.6 KLD (Drinking: 0.375 KLD, Dust Suppression: 1.12KLD, Plantation: 6.165KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani River – 4.16 km North direction	
17	Nearest Habitation	:	Aamchuwan Village – 0.500 Km in West direction	
18	Nearest Rail Station	:	Pinargaria Junction is at aerial distance of 4.30 km NE direction.	
19	Nearest Air Port	:	Deoghar Airport is at areal distance of 98 km West direction.	
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer NOC. letter no.-1993 Dated- 31/08/24	
21	Road & Highways	:	The distance of Approach Road is 0.28 Km, after that this road connects to village road. The village road continues for 1.81 km and after this the road connects to MDR.	

CO-ORDINATES

Point ID	Latitude	Longitude
1	24° 10' 42.42296724" N	087° 37' 23.08087618" E
2	24° 10' 41.96001143" N	087° 37' 24.01622477" E
3	24° 10' 41.75457353" N	087° 37' 24.51253084" E
4	24° 10' 41.37145473" N	087° 37' 25.82520380" E
5	24° 10' 41.15946597" N	087° 37' 25.79249529" E
6	24° 10' 40.96587629" N	087° 37' 25.52231271" E
7	24° 10' 41.17317239" N	087° 37' 25.27941962" E
8	24° 10' 40.89620114" N	087° 37' 24.79027250" E
9	24° 10' 40.49641612" N	087° 37' 24.49374777" E
10	24° 10' 40.35912730" N	087° 37' 24.66413029" E
11	24° 10' 40.25202608" N	087° 37' 24.56858323" E
12	24° 10' 39.91656954" N	087° 37' 24.88053916" E
13	24° 10' 40.13358811" N	087° 37' 25.10648988" E
14	24° 10' 39.87122001" N	087° 37' 25.30793500" E
15	24° 10' 40.37124923" N	087° 37' 25.96921513" E
16	24° 10' 40.28369798" N	087° 37' 26.05431424" E
17	24° 10' 40.36322589" N	087° 37' 26.50765844" E
18	24° 10' 40.19672040" N	087° 37' 26.72223950" E
19	24° 10' 40.06918169" N	087° 37' 26.63926308" E
20	24° 10' 39.83900083" N	087° 37' 26.79335408" E
21	24° 10' 39.83246784" N	087° 37' 26.96753655" E
22	24° 10' 39.94797223" N	087° 37' 27.23417427" E
23	24° 10' 39.81415031" N	087° 37' 27.66937613" E
24	24° 10' 39.78311446" N	087° 37' 27.97533605" E
25	24° 10' 39.35366245" N	087° 37' 27.93675558" E

26	24° 10' 39.14812522" N	087° 37' 28.63109097" E
27	24° 10' 38.10556817" N	087° 37' 28.58091008" E
28	24° 10' 37.93524684" N	087° 37' 29.02036942" E
29	24° 10' 37.90758113" N	087° 37' 29.24162820" E
30	24° 10' 37.36931426" N	087° 37' 29.47832018" E
31	24° 10' 36.83104728" N	087° 37' 29.71501516" E
32	24° 10' 36.89592182" N	087° 37' 30.19679438" E
33	24° 10' 36.51488973" N	087° 37' 30.28362756" E
34	24° 10' 35.87746601" N	087° 37' 30.31120821" E
35	24° 10' 35.46413383" N	087° 37' 30.35373789" E
36	24° 10' 35.53059295" N	087° 37' 30.09195057" E
37	24° 10' 35.33666781" N	087° 37' 29.90412328" E
38	24° 10' 35.31305145" N	087° 37' 29.28000811" E
39	24° 10' 35.11000362" N	087° 37' 29.22365298" E
40	24° 10' 34.91475218" N	087° 37' 29.21662071" E
41	24° 10' 34.77302132" N	087° 37' 29.08207202" E
42	24° 10' 34.86810273" N	087° 37' 28.57168206" E
43	24° 10' 34.40169139" N	087° 37' 28.13387991" E
44	24° 10' 34.48261632" N	087° 37' 27.80904563" E
45	24° 10' 34.26709001" N	087° 37' 27.21884071" E
46	24° 10' 34.42968689" N	087° 37' 27.20457250" E
47	24° 10' 34.25747541" N	087° 37' 26.68426694" E
48	24° 10' 34.63769035" N	087° 37' 26.61425123" E
49	24° 10' 34.54592446" N	087° 37' 26.19577713" E
50	24° 10' 35.46117244" N	087° 37' 25.86058038" E
51	24° 10' 36.37642020" N	087° 37' 25.52538589" E
52	24° 10' 37.32345950" N	087° 37' 25.12038639" E

53	24° 10' 38.27046598" N	087° 37' 24.71538865" E
54	24° 10' 39.14140238" N	087° 37' 24.14804025" E
55	24° 10' 39.67186916" N	087° 37' 23.72704131" E
56	24° 10' 40.45852809" N	087° 37' 23.03230259" E
57	24° 10' 41.30614269" N	087° 37' 22.28370210" E
58	24° 10' 42.15378881" N	087° 37' 21.53509904" E
59	24° 10' 41.94215342" N	087° 37' 21.35207760" E
60	24° 10' 42.05639606" N	087° 37' 21.15599259" E
61	24° 10' 42.17293263" N	087° 37' 20.83602400" E
62	24° 10' 42.98602287" N	087° 37' 20.13310781" E
63	24° 10' 43.78643191" N	087° 37' 20.80051526" E
64	24° 10' 44.88568613" N	087° 37' 21.80033440" E
65	24° 10' 44.35936192" N	087° 37' 22.35375451" E
66	24° 10' 43.83303719" N	087° 37' 22.90716982" E
67	24° 10' 42.98356567" N	087° 37' 22.43108137" E

LAND DETAILS

Khata no.	Plot no.
34, 23, 08, 22, 21, 37, 16, 52, 51, 39, 62 & 33	34, 577/P, 578, 579, 586, 587, 588, 589, 590, 591, 592, 593/P, 594, 595, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606/P, 607/P, 608/P, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 637

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 1145/M, dated 08.10.2024.
2	CO	:	The CO, Shikaripara vide letter no. 719/Ra., dated 12.08.2024 has

			mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 1290/M, dated 19.11.2024 certified that 02 other mining lease area (5.30 Acre & 6.84 Acre) exists within 500 meters radius from proposed project site and total area is 19.23 Acre.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 2259, dated 30.10.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 1993, dated 31.08.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 06).
7	Gram Sabha	:	Gram Sabha conducted on 30.05.2024.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1261/M, dated 05.11.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	2.869 Ha	Life of Mine – 5year
3	Waste Generation	:	31350cum	
4	Stripping Ratio	:	09:20	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	
7	Elevation of Mine	:	81m– 88m AMSL	
8	Ground Level Elevation	:	50AMSL	
9	Ultimate Working Depth	:	32 m AMSL	
10	Water Table	:	Post Monsoon – 17	
11	Topography of Mine	:	Area represents ge	
12	Explosive	:	64.15 kg Slurry exp	

	Requirement		
13	Diesel/Fuel requirement	:	HSD –301.2 liters / day (90.36KL/year)

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.)
1st	69576	2.7	187855	232	626	31350	105
2nd	62130	2.7	167751	207	559	0	0
3rd	61830	2.7	166940	206	556	0	0
4th	6430	2.7	168562	208	562	0	0
5th	62107	2.7	167689	207	559	0	0
Total	**318073**	**2.7**	**858798**	**212**	**573**	**31350**	**105**

Land Use

Existing Land Use pattern

SL	Pattern	Existing Land Use (Ha)
1	Mining Area	0.00
2	Office	0.00
3	Dumping	0.00
4	Road	0.00
5	Garland drain	0.00
6	Settling Pond	0.00
7	Green belt	0.00
8	Safety Zone	0.00
9	Stone Stock yards	0.00
10	Crusher	0.00
	Unutilized	2.869
	TOTAL	2.869

rn for Proposed Plan Period:

n AMSL Pre Monsoon –

tly sloping land.

osives/day

600

SL	Pattern	Proposed Land Use (Ha)
1	Mining Area	1.832
2	Office	0.001
3	Dumping	0.097
4	Road	0.000
5	Garland drain	0.055
6	Settling Pond	0.010
7	Green Blet	0.000
8	Safety Zone	0.755
9	Stone Stock Yards	0.000
10	Crusher	0.000
11	Unutilized	0.119
	TOTAL	**2.869**

Land Use Pattern after Life of the Mine:

Si. No.	Pattern of Utilization	Present/Existing land use pattern in (Ha.)	Land used at the conceptual stage ie end of mine life in (Ha.)	Area to be converted in the conceptual period.
1	Mining Activities	0.000	1.832	Water body
2	Offices/ Store etc.	0.000	0.001	Plantation
3	Dumping	0.000	0.097	Plantation
4	Mining Road	0.000	0.000	Water body
5	Garland drain	0.000	0.055	-
6	Settling Tank	0.000	0.010	-

7	Safety Zone	0.000	0.755	Plantation
8	Stone Stock yards	0.000	0.000	
9	Unutilized	2.869	0.119	Green Belt
Total		2.869	2.869	-

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone/ Plantation IN Unutilised Area		0.972Ha	1555
2	Along Approach Road		0.280 km	372(2 row) 186
TOTAL				**2055 Trees**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1100 per Tanker)	---	3,30,000
2	Plantation: 500 X 800 = Rs 4,00,000 (Gabion Plantation along approach road) 1555 X 400 = 6,22,,000 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	1022000	102200

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
3.	Fencing	100000	
4.	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270 • Ground Water (2 point) - Rs.12,420 • Noise 24 hrs (3 point) - Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610** **(Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2** **= Rs. 2,03,220** **Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022**	--	2,03,220
Total		**1122000**	**605420**

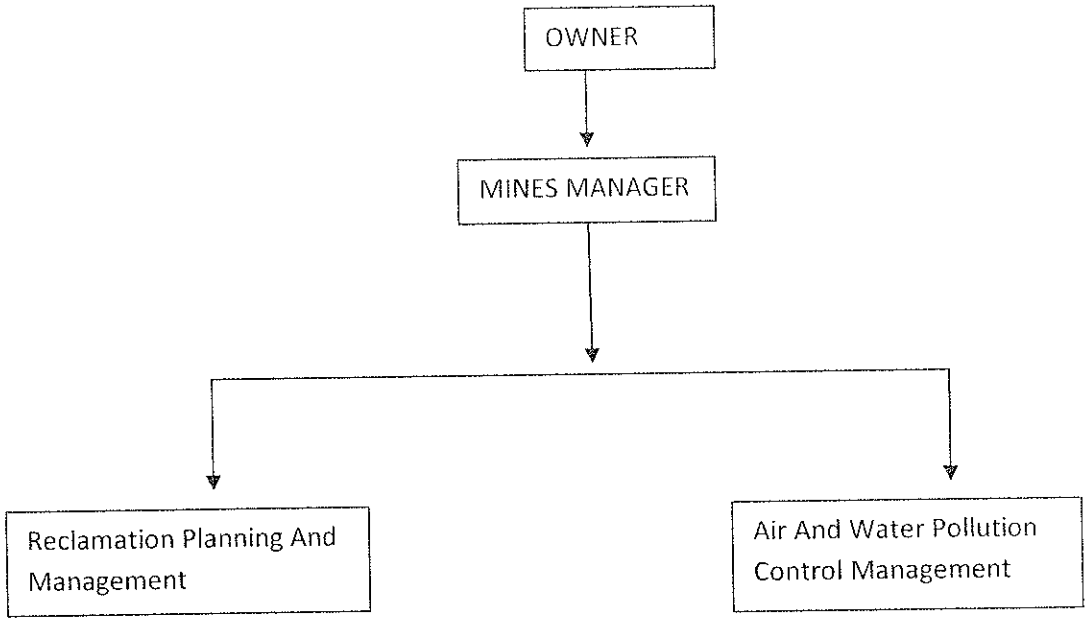
Environment Monitoring Programme :

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 stations	6 Monthly

Solid Waste Management

During first year31350cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)

- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge

of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 17, 18, 19, 20, 21 & 22.12.2024, the Committee recommends in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 for issuing of ToR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure II alongwith following specific condition :-

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

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22. Barmasia Stone Mine of M/s Tudu Stone Works (Prop. : Shri Patras Tudu), Village : Barmasia, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.246 Ha).

(Proposal no.: SIA/JH/MIN/ 506189 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B1.

Application for Terms of Reference (ToR) as per EIA Notification, 2006.

ToR Application for: Proposed Capacity: 58,547 Cum. / annum or 1,58,076 TPA

Project and Location Details:

Sl	Parameter		Details
1	Project Name	:	Barmasia Stone Mine
2	Lessee:	:	Proponent:M/S Tudu Stone Works Proprietor: Shri Patras Tudu
3	Lessee Address	:	S/o Late Kanu Tudu R/o Champanagar Grant State, PO + PS + Dist- Dumka, Jharkhand 814101
4	Lease Area	:	2.246 Ha

5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 103.79 Lakhs	Recurring Cost: Rs. 12.39 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 7.664Lakhs	Recurring Cost: Rs. 5.698Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 2,33,244cum	Tonnes: 6,29,759tons
10	Mine Life	:	5 years.	
11	Man power	:	20Person	
12	Water Requirement	:	5.28KLD (Drinking: 0.30 KLD, Dust Suppression: 0.72KLD, Plantation: 4.26 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani river at 6 km North direction.	
17	Nearest Habitation	:	Baramasia Village – 0.673 Km in East Direction.	
18	Nearest Rail Station	:	Pinargaria Railway Station at aerial distance of 2.7 km in North East direction.	
19	Nearest Air Port	:	Deoghar Airport is at aerial distance of 92 km North West direction.	
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer Dumka. letter no.- 2043 Dated- 03/09/2024	
21	Road & Highways	:	The distance of Approach Road is 182m, after that this road connects to Village Road continuing about 2.76 km after that this road connects to NH 114A Dumka Rampurhat road.	

CO-ORDINATES

Point Name	Longitude	Latitude
1	087° 01' 08.76112158" E	24° 11' 08.45702444" N
2	087° 01' 09.06234310" E	24° 11' 08.96736762" N
3	087° 01' 09.44780650" E	24° 11' 09.62043639" N
4	087° 01' 09.89714290" E	24° 11' 10.38172039" N
5	087° 01' 10.26146350" E	24° 11' 10.99896623" N
6	087° 01' 10.62578410" E	24° 11' 11.61621125" N
7	087° 01' 10.11369002" E	24° 11' 11.92735479" N

8	087° 01' 10.40212330" E	24° 11' 12.40801769" N
9	087° 01' 10.69055658" E	24° 11' 12.88868009" N
10	087° 01' 11.22624925" E	24° 11' 12.58712964" N
11	087° 01' 11.76194193" E	24° 11' 12.28557900" N
12	087° 01' 12.33847744" E	24° 11' 11.96103699" N
13	087° 01' 12.74762742" E	24° 11' 12.51822043" N
14	087° 01' 13.15677739" E	24° 11' 13.07540320" N
15	087° 01' 13.93936884" E	24° 11' 12.68835404" N
16	087° 01' 14.03850020" E	24° 11' 12.21765988" N
17	087° 01' 14.13763156" E	24° 11' 11.74696523" N
18	087° 01' 14.28119021" E	24° 11' 11.19654084" N
19	087° 01' 14.42474887" E	24° 11' 10.64611579" N
20	087° 01' 14.12518826" E	24° 11' 10.03072633" N
21	087° 01' 13.82562765" E	24° 11' 09.41533605" N
22	087° 01' 13.54488048" E	24° 11' 08.83859363" N
23	087° 01' 13.19161271" E	24° 11' 08.21163998" N
24	087° 01' 12.83834495" E	24° 11' 07.58468546" N
25	087° 01' 12.55998801" E	24° 11' 07.09067675" N
26	087° 01' 12.23149603" E	24° 11' 07.67522369" N
27	087° 01' 12.16334487" E	24° 11' 08.10619593" N
28	087° 01' 12.34586775" E	24° 11' 08.81501652" N
29	087° 01' 12.23149603" E	24° 11' 10.08366101" N
30	087° 01' 11.84728556" E	24° 11' 10.33573304" N
31	087° 01' 11.18125525" E	24° 11' 09.93063912" N
32	087° 01' 10.81906800" E	24° 11' 09.40405931" N
33	087° 01' 10.49964363" E	24° 11' 08.93965146" N
34	087° 01' 10.15883783" E	24° 11' 08.44415683" N
35	087° 01' 09.81803202" E	24° 11' 07.94866166" N
36	087° 01' 09.28957680" E	24° 11' 08.20284312" N

LAND DETAILS

Khata no.	Plot no.
58, 25, 49, 57, 15, 52, 30, 06, 59, 48, 33 & 20	1862, 1863, 1864, 1871, 1872, 1874, 1875, 1877, 1878, 1879, 1880, 1881, 1882, 1883, 1884

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 1088/M, dated 21.09.2024.
2	CO	:	The CO, Shikaripara vide letter no. 785/Ra., dated 02.09.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 1154/M, dated 09.10.2024 certified that 03 other mining lease area (4.66 Acre, 6.90 Acre & 3.71 Acre) exists within 500 meters radius from proposed project site and total area is 20.82 Acre.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 2004, dated 13.09.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 2043, dated 03.09.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 70, Page no. 163).
7	Gram Sabha	:	Gram Sabha conducted on 17.06.2024.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1271/M, dated 12.11.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	2.246 Ha	Life of Mine – 5year

3	Waste Generation	:	13392cum	
4	Stripping Ratio	:	01:05	
5	Working Days	:	300	
6	Benches: size	:	2 m x 3 m,	
7	Elevation of Mine	:	94m–83m AMSL	
8	Ground Level Elevation	:	91 AMSL	
9	Ultimate Working Depth	:	37.6 m AMSL	
10	Water Table	:	Post Monsoon – 25 m AMSL Pre Monsoon – 20m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	52.7 kg Slurry explosives/day	
13	Diesel/Fuel requirement	:	HSD – 288 liters / day (86.4 KL/year)	

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.
1st	58547	2.7	158076	195	527	13392	45
2nd	54070	2.7	145990	180	487	0	0
3rd	45000	2.7	121499	150	405	0	0
4th	36400	2.7	98281	121	328	0	0
5th	39110	2.7	105596	130	352	0	0
Total	**233126**		**629441**	**195 (max)**	**527 (max)**	**13392**	45

Land Use pattern

Si. No.	Pattern of Utilization	Present/ Existing land use pattern in (Ha.)	Proposed Land use for current plan period (Ha.)	Land used at the conceptual stage i.e. end of mine life in (Ha.)	Area to be converted in the conceptual period.
1	Mining Activities	0.000	1.463	1.463	Water body
2	Offices/ Store etc.	0.000	0.001	0.001	Plantation
3	Dumping	0.000	0.151	0.151	Plantation -
4	Mining Road	0.000	0.000	0.000	Water body
5	Garland drain	0.000	0.036	0.036	-

6	Settling Tank	0.000	0.012	0.012	-
7	Green belt	0.000	0.000	0.050	Green Belt
8	Safety Zone	0.000	0.534	0.534	Plantation
9	Stone Stock yards	0.000	0.000	0.000	
10	Unutilized	2.246	0.050	0.000	
11	Crusher	0.00	0.000	0.000	
Total		**2.246**	**2.246**	**2.246**	**-**

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone/ Green belt/ Offices/ Store etc.		0.736 Ha	1,178
2	Along Approach Road		0.182m	244
TOTAL				**1,422**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1000 per Tanker)	--	3,00,000
2	Plantation 244 X 800 = Rs 1,95,200 (Gabion Plantation along approach road) 1178 X 400 = 4,71,200 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	6,66,400	66,640
3	Fencing	100,000	-

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270 • Ground Water (2 point) - Rs.12,420 • Noise 24 hrs (3 point) - Rs.21,000 • Soil (3 point) -Rs.40,920 Total -Rs. 1,01,610 (Per Season) At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220 Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022	--	2,03,220
Total		**7,66,400**	**5,69,860**

Environment Monitoring Programme

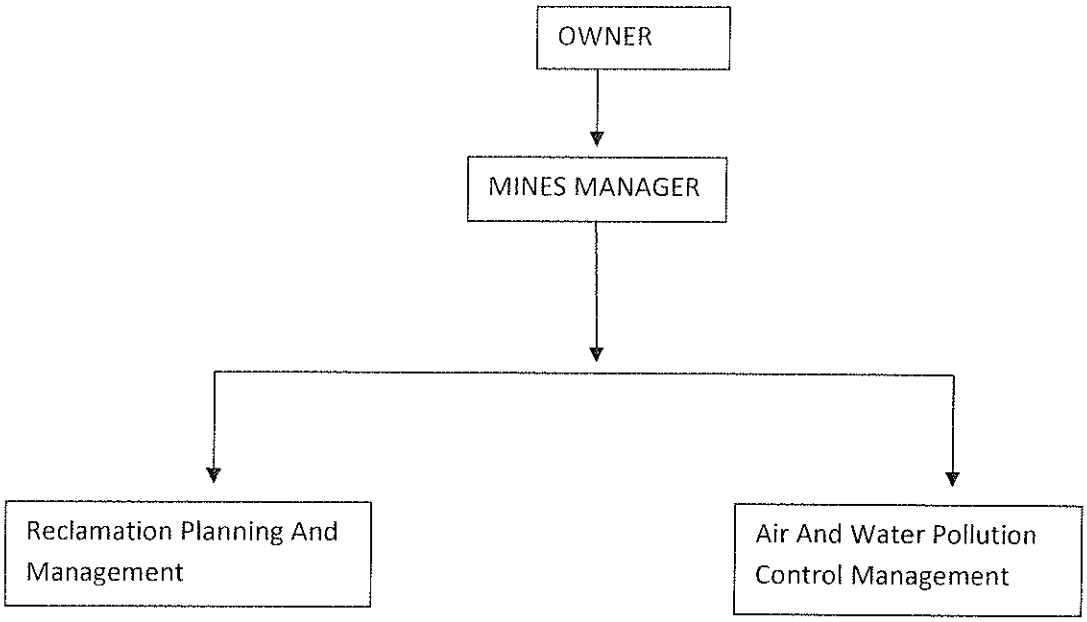
SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 Station	6 Monthly

Note: Monitoring period: Oct 2024 to Dec 2024

Solid Waste Management

13392cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)

- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

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The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge

of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 17, 18, 19, 20, 21 & 22.12.2024, the Committee recommends in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 for issuing of ToR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure II alongwith following specific condition :-

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

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23. Chandipur Stone Mine of Shri Ajit Kumar Singh, Village : Chandipur, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.10 Ha).

(Proposal no.: SIA/JH/MIN/ 508058 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B1.

Application for Terms of Reference (ToR) as per EIA Notification, 2006.

TOR Application for Proposed Capacity: 27598 Cum. / annum or 74513 TPA.

Project and Location Details:

Sl	Parameter		Details
1	Project Name	:	Chandipur Stone Mine
2	Lessee:	:	Proponent- ShriAjit Kumar Singh
3	Lessee Address	:	Shri Ajit Kumar Singh S/o Shri Govardhan Prasad Singh

			R/o Gram- Narodih, PO- Chakai, PS- Chakai, Dist- Jamui, Bihar 811303.	
4	Lease Area	:	2.10 Ha	
5	Type of Land	:	Non-Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 102.69 Lakhs	Recurring Cost: Rs. 7.30 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 9.484 Lakhs	Recurring Cost: Rs. 5.980 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 128022cum	Tonnes: 345659tons
10	Mine Life	:	5 years.	
11	Man power	:	17Person	
12	Water Requirement	:	7.35 KLD (Drinking: 0.255 KLD, Dust Suppression: 1.524KLD, Plantation: 5.589 KLD).	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	20 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani River at 6.8 km North Direction.	
17	Nearest Habitation	:	Ghatakpur village 0.55 km East direction.	
18	Nearest Rail Station	:	Pinergaria Railway Station at an aerial distance of 4.84 km in the NW direction.	
19	Nearest Air Port	:	Deoghar Airport is at an aerial distance of 104 km NW direction.	
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer NOC. letter no.- 2049 Dated- 04/09/2024	
21	Road & Highways	:	The distance of Approach Road is 381m, after that this road continues in village road about 2.5 km in north direction and after that this road connects to NH 114A.	

CO-ORDINATES

Point Name	Latitude	Longitude
1	24° 10' 30.56794589" N	087° 40' 09.38703898" E

2	24° 10' 30.50684075" N	087° 40' 09.70854004" E
3	24° 10' 30.50771689" N	087° 40' 10.03828758" E
4	24° 10' 30.43416382" N	087° 40' 10.29975469" E
5	24° 10' 30.29900896" N	087° 40' 10.57796507" E
6	24° 10' 30.08051853" N	087° 40' 10.80762691" E
7	24° 10' 29.90255447" N	087° 40' 11.39056062" E
8	24° 10' 29.86929785" N	087° 40' 12.00268134" E
9	24° 10' 30.09061816" N	087° 40' 12.08896962" E
10	24° 10' 30.02586774" N	087° 40' 12.63600989" E
11	24° 10' 29.96837995" N	087° 40' 13.13328495" E
12	24° 10' 29.93044165" N	087° 40' 13.82679903" E
13	24° 10' 29.79005043" N	087° 40' 13.79000444" E
14	24° 10' 29.29543964" N	087° 40' 13.80362781" E
15	24° 10' 29.25222638" N	087° 40' 13.72699852" E
16	24° 10' 28.95940938" N	087° 40' 13.62711058" E
17	24° 10' 28.78106249" N	087° 40' 13.61601591" E
18	24° 10' 28.72340514" N	087° 40' 13.50638123" E
19	24° 10' 28.46717659" N	087° 40' 13.42689298" E
20	24° 10' 28.01950469" N	087° 40' 13.44018457" E
21	24° 10' 27.58549965" N	087° 40' 13.44957114" E
22	24° 10' 27.13621740" N	087° 40' 13.53235484" E
23	24° 10' 26.94002772" N	087° 40' 13.66086954" E
24	24° 10' 26.64377341" N	087° 40' 13.58238081" E
25	24° 10' 26.61591069" N	087° 40' 13.51620813" E
26	24° 10' 26.23290784" N	087° 40' 13.51942744" E
27	24° 10' 25.87616930" N	087° 40' 13.52423024" E
28	24° 10' 25.82062060" N	087° 40' 14.13852488" E
29	24° 10' 25.49478369" N	087° 40' 14.13470145" E
30	24° 10' 25.63526585" N	087° 40' 14.58389772" E
31	24° 10' 24.90727482" N	087° 40' 14.66338029" E
32	24° 10' 24.45753519" N	087° 40' 14.52674234" E
33	24° 10' 24.42859580" N	087° 40' 14.48999931" E

34	24° 10' 24.49566570" N	087° 40' 14.37768828" E
35	24° 10' 24.46635093" N	087° 40' 13.78234422" E
36	24° 10' 24.48834908" N	087° 40' 13.30009264" E
37	24° 10' 24.62169060" N	087° 40' 12.80211877" E
38	24° 10' 24.58248503" N	087° 40' 12.51257358" E
39	24° 10' 24.61689989" N	087° 40' 12.38397316" E
40	24° 10' 24.47924042" N	087° 40' 12.19535921" E
41	24° 10' 24.49788262" N	087° 40' 12.08432366" E
42	24° 10' 24.15837155" N	087° 40' 11.92050866" E
43	24° 10' 23.81459187" N	087° 40' 11.83921035" E
44	24° 10' 23.40455652" N	087° 40' 11.80441392" E
45	24° 10' 23.48543949" N	087° 40' 11.50238916" E
46	24° 10' 23.81665977" N	087° 40' 11.53596483" E
47	24° 10' 24.15004639" N	087° 40' 11.57217871" E
48	24° 10' 24.15639751" N	087° 40' 11.61205904" E
49	24° 10' 24.63917950" N	087° 40' 11.63494928" E
50	24° 10' 25.26139597" N	087° 40' 11.66381080" E
51	24° 10' 25.91713460" N	087° 40' 11.65727361" E
52	24° 10' 26.39151453" N	087° 40' 11.62320736" E
53	24° 10' 26.88220815" N	087° 40' 11.64674431" E
54	24° 10' 27.35821557" N	087° 40' 11.70408142" E
55	24° 10' 27.86954090" N	087° 40' 11.85751314" E
56	24° 10' 28.11450041" N	087° 40' 11.80208197" E
57	24° 10' 28.20824492" N	087° 40' 11.54137942" E
58	24° 10' 28.76073987" N	087° 40' 11.55672696" E
59	24° 10' 28.90626284" N	087° 40' 11.35095255" E
60	24° 10' 29.23472560" N	087° 40' 10.62814873" E
61	24° 10' 29.42244111" N	087° 40' 10.07602425" E
62	24° 10' 28.70417858" N	087° 40' 09.79495517" E
63	24° 10' 28.78712000" N	087° 40' 09.45595194" E
64	24° 10' 28.26801062" N	087° 40' 09.26648854" E
65	24° 10' 27.66090109" N	087° 40' 09.00071358" E

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66	24° 10' 27.76792627" N	087° 40' 08.46289420" E
67	24° 10' 28.00770557" N	087° 40' 07.83868068" E
68	24° 10' 28.19603172" N	087° 40' 07.39942079" E
69	24° 10' 28.29488543" N	087° 40' 07.03048770" E
70	24° 10' 27.94883046" N	087° 40' 06.83152610" E
71	24° 10' 28.11998950" N	087° 40' 06.41097756" E
72	24° 10' 28.25703941" N	087° 40' 05.97452812" E
73	24° 10' 28.18570184" N	087° 40' 05.83721367" E
74	24° 10' 28.20479730" N	087° 40' 05.71999975" E
75	24° 10' 28.06342852" N	087° 40' 05.66468868" E
76	24° 10' 28.04299918" N	087° 40' 05.47122491" E
77	24° 10' 27.63525816" N	087° 40' 05.37855723" E
78	24° 10' 27.55307007" N	087° 40' 05.10948155" E
79	24° 10' 28.06576319" N	087° 40' 04.87531456" E
80	24° 10' 28.37680217" N	087° 40' 04.70306431" E
81	24° 10' 28.61504886" N	087° 40' 04.56634527" E
82	24° 10' 28.79437600" N	087° 40' 04.66235505" E
83	24° 10' 28.69786004" N	087° 40' 05.01218168" E
84	24° 10' 29.07594950" N	087° 40' 05.19218879" E
85	24° 10' 29.27483416" N	087° 40' 05.76972766" E
86	24° 10' 29.47562716" N	087° 40' 06.19229150" E
87	24° 10' 29.68570021" N	087° 40' 06.62866542" E
88	24° 10' 29.90523013" N	087° 40' 07.14268712" E
89	24° 10' 30.09821632" N	087° 40' 07.57603204" E
90	24° 10' 30.37353185" N	087° 40' 07.79208075" E
91	24° 10' 30.65787291" N	087° 40' 07.96374721" E
92	24° 10' 30.94739504" N	087° 40' 08.11999673" E
93	24° 10' 31.05976685" N	087° 40' 08.49048821" E
94	24° 10' 31.20050642" N	087° 40' 08.91499620" E
95	24° 10' 31.43111021" N	087° 40' 09.03458414" E
96	24° 10' 31.25477441" N	087° 40' 09.40549489" E
97	24° 10' 30.68423088" N	087° 40' 09.08084030" E

LAND DETAILS

Khata no.	Plot no.
1, 6, 7, 8, 11 & 14	29, 30, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 70 & 71

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 1087/M, dated 21.09.2024.
2	CO	:	The CO, Shikaripara vide letter no. 740/Ra., dated 22.08.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 1269/M, dated 12.11.2024 certified that 03 other mining lease area (4.57 Acre, 6.51 Acre & 7.37 Acre) exists within 500 meters radius from proposed project site and total area is 23.64 Acre.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 2005, dated 13.09.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 2049, dated 04.09.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 69, Page no. 163).
7	Gram Sabha	:	Gram Sabha conducted on 27.06.2024.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1285/M, dated 14.11.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast, Mechanized Method	
2	Quarry Area	:	2.10 Ha	Life of Mine – 5years
3	Waste Generation	:	21782cum	

4	Stripping Ratio	:	37:17
5	Working Days	:	300
6	Benches: size	:	6 m x 6 m,
7	Elevation of Mine	:	82m-56m AMSL
8	Ground Level Elevation	:	33 AMSL
9	Ultimate Working Depth	:	33 m AMSL
10	Water Table	:	Post Monsoon – 22 m AMSL Pre Monsoon – 17 m AMSL
11	Topography of Mine	:	Area represents gently sloping land.
12	Explosive Requirement	:	11.16kg Slurry explosives/day
13	Diesel/Fuel requirement	:	HSD – 246liters/day (78 KL/year)

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum recoverable 95%	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.)
1st	26572	2.7	71746	89	239	10043	33
2nd	27598	2.7	74513	92	248	0	0
3rd	27497	2.7	74241	92	247	4823	16
4th	20420	2.7	55135	68	184	3458	12
5th	26021	2.7	70258	87	234	3458	12
Total	**128108**		**345893**	**92 (max)**	**248 (max)**	**21782**	**73**

Land Use pattern

Sl. No.	Pattern of Utilization	Present/Existing land use pattern in (Ha.)	Proposed Land use for current plan period (Ha.)	Land used at the conceptual stage i.e. end of mine life in (Ha.)	Area to be converted in the conceptual period.
1	Mining Activities	0.000	1.185	1.185	Water body
2	Offices/ Store etc.	0.000	0.000	0.000	Plantation
3	Dumping	0.000	0.000	0.000	Plantation
4	Mining Road	0.000	0.055	0.000	Water body
5	Garland drain	0.000	0.013	0.055	-
6	Settling Tank	0.000	0.744	0.013	-

7	Green belt	0.000	0.000	0.103	Green Belt
8	Safety Zone	2.100	0.103	0.744	Plantation
9	Stone Stock yards	0.000	0.000	0.000	
10	Unutilized	0.000	1.185	0.000	
11	Crusher	0.000	0.000	0.000	
Total		**1.510**	**2.100**	**2.100**	**2.100**

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location	Area/Length	No of Trees
1	Safety Zone and Plantation area	0.847 Ha	1355
2	Along Approach Road	381 m	508
Total			**1863**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1000 per Tanker)	--	3,00,000
2	Plantation 508 X 800 = Rs 4,06,400 (Gabion Plantation along approach road) 1355 X 400 = 5,42,000 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	9,48,400	94,980
3.	Fencing	100000	---
3	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270 • Ground Water (2 point) - Rs.12,420 • Noise 24 hrs (3 point) - Rs.21,000	--	2,03,220

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
	• Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610 (Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2** **= Rs. 2,03,220** Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022		
Total		**10,48,400**	**5,98,200**

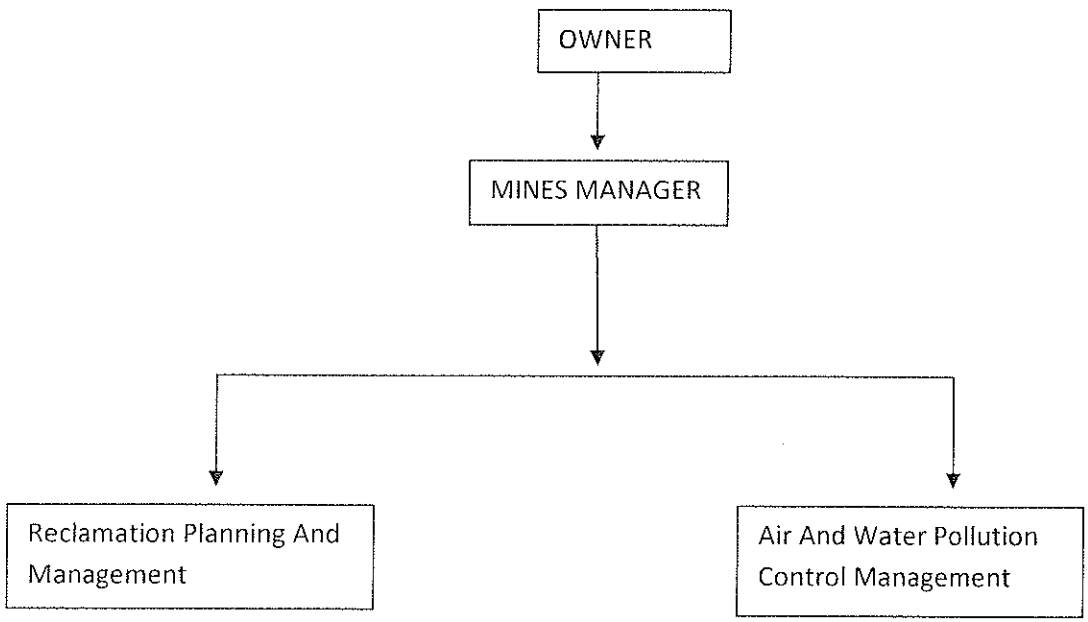
Environment Monitoring Programme

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	3 stations	6 Monthly
3.	Noise	3 stations	6 Monthly

Solid Waste Management

21782 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock	Occasional	Major	6

		(Bodily Injury)			
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 17, 18, 19, 20, 21 & 22.12.2024, the Committee recommends in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 for issuing of ToR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure II **alongwith following specific condition :-**

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

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24. Salbonapahar Stone Mine of Md. Alam Ansari, Village : Salbonapahar, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.34 Ha).

(Proposal no.: SIA/JH/MIN/ 505324 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B1.

Application for Terms of Reference (ToR) as per EIA Notification, 2006.

ToR Application for: Proposed Capacity: 40,014Cum. / annum or 1,08,038 TPA (max.)

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Salbonapahar Stone Mine	
2	Lessee:	:	Proponent- Mr. Mithun Ansari	
3	Lessee Address	:	**Prop- Alam Ansari** S/O Md. Gulam Rasool Village - Kalakata, P.O. – Patjor P.S. – Raneswar, Patjor Dumka, Jharkhand – 814148	
4	Lease Area	:	2.34 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 135.69 Lakhs	Recurring Cost: Rs. 17.45 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 10.268 Lakhs	Recurring Cost: Rs. 5.359 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	1,89,896cum	5,12,718tons
10	Mine Life	:	5 years.	
11	Man power	:	30Person	
12	Water Requirement	:	7.929 KLD (Drinking: 0.45 KLD, Dust Suppression: 2.04KLD, Plantation: 5.439 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	D.G. Set / power	:	20 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani River – 7.90 km – N direction	
17	Nearest Habitation	:	Matiajuri – 0.84 km in the W direction	

18	Nearest Rail Station	:	PakdahaHarinsing Railway Station is at areal distance of 6.66 km N direction.
19	Nearest Air Port	:	Deoghar Airport is at aerial distance of 91.78 km NW direction.
20	Nearest Forest	:	More than 250 m, as per Forest Division, Hazaribagh Letter No. – 3225 Dated - 17/01/2023
21	Road & Highways	:	The distance of Approach Road is 380 m, after that this road connects to NH-114A (Dumka-Rampurhat Road) at 4.16 km (aerial distance) N direction

CO-ORDINATES

Point ID	Latitude	Longitude
P1	24° 10' 48.83956162" N	087° 33' 58.87355213" E
P2	24° 10' 48.69211316" N	087° 33' 59.16948998" E
P3	24° 10' 48.54406178" N	087° 33' 59.47353943" E
P4	24° 10' 48.33939858" N	087° 34' 00.00812443" E
P5	24° 10' 48.13386263" N	087° 34' 00.49359129" E
P6	24° 10' 47.55438900" N	087° 34' 00.53815843" E
P7	24° 10' 47.60221725" N	087° 34' 00.87324067" E
P8	24° 10' 47.62794249" N	087° 34' 01.23300249" E
P9	24° 10' 47.12022195" N	087° 34' 01.49685474" E
P10	24° 10' 46.52142071" N	087° 34' 01.82986362" E
P11	24° 10' 46.61771717" N	087° 34' 02.07482552" E
P12	24° 10' 46.73522354" N	087° 34' 02.35893715" E
P13	24° 10' 46.55456188" N	087° 34' 02.69528502" E
P14	24° 10' 46.28662093" N	087° 34' 03.05666254" E
P15	24° 10' 46.03590665" N	087° 34' 02.96901468" E
P16	24° 10' 45.74232127" N	087° 34' 02.87581215" E
P17	24° 10' 45.44678901" N	087° 34' 02.79142500" E
P18	24° 10' 45.26069811" N	087° 34' 03.11395539" E
P19	24° 10' 44.98603974" N	087° 34' 03.61629133" E

P20	24° 10' 44.62067548" N	087° 34' 04.35382577" E
P21	24° 10' 44.34188719" N	087° 34' 04.92980190" E
P22	24° 10' 43.90640211" N	087° 34' 04.50333060" E
P23	24° 10' 43.83420247" N	087° 34' 04.20918516" E
P24	24° 10' 43.54777258" N	087° 34' 03.70359318" E
P25	24° 10' 42.67431723" N	087° 34' 03.50955345" E
P26	24° 10' 42.63119517" N	087° 34' 03.01177570" E
P27	24° 10' 42.60282687" N	087° 34' 02.34846459" E
P28	24° 10' 42.94044214" N	087° 34' 02.47898278" E
P29	24° 10' 43.17361448" N	087° 34' 02.57264003" E
P30	24° 10' 43.54222974" N	087° 34' 02.24006194" E
P31	24° 10' 44.06057798" N	087° 34' 01.67475214" E
P32	24° 10' 44.43776997" N	087° 34' 01.35963249" E
P33	24° 10' 44.50966264" N	087° 34' 01.23023810" E
P34	24° 10' 44.31920791" N	087° 34' 01.13036404" E
P35	24° 10' 44.09799657" N	087° 34' 01.01158108" E
P36	24° 10' 43.52288707" N	087° 34' 00.65929681" E
P37	24° 10' 43.45563589" N	087° 34' 00.46031259" E
P38	24° 10' 43.02831636" N	087° 34' 00.32491598" E
P39	24° 10' 42.44620576" N	087° 33' 59.98857245" E
P40	24° 10' 42.69080529" N	087° 33' 59.56652318" E
P41	24° 10' 42.99703432" N	087° 33' 59.06206732" E
P42	24° 10' 43.41393043" N	087° 33' 59.09204063" E
P43	24° 10' 43.79529002" N	087° 33' 59.11140897" E
P44	24° 10' 43.90579154" N	087° 33' 59.06607837" E
P45	24° 10' 44.38136284" N	087° 33' 58.49504053" E
P46	24° 10' 44.84312450" N	087° 33' 57.93375795" E

P47	24° 10' 44.90182124" N	087° 33' 57.55353725" E
P48	24° 10' 44.95022844" N	087° 33' 57.01318399" E
P49	24° 10' 45.06312729" N	087° 33' 56.49750363" E
P50	24° 10' 45.21865055" N	087° 33' 55.82225022" E
P51	24° 10' 45.39841737" N	087° 33' 55.13608674" E
P52	24° 10' 45.71277197" N	087° 33' 55.15857642" E
P53	24° 10' 46.37355894" N	087° 33' 55.28246649" E
P54	24° 10' 46.45893170" N	087° 33' 55.17746511" E
P55	24° 10' 46.93333951" N	087° 33' 55.20516629" E
P56	24° 10' 47.17400738" N	087° 33' 55.26023516" E
P57	24° 10' 47.03819576" N	087° 33' 56.47099058" E
P58	24° 10' 46.92223656" N	087° 33' 57.59456730" E
P59	24° 10' 46.79487766" N	087° 33' 58.41143305" E
P60	24° 10' 46.63268162" N	087° 33' 59.25159250" E
P61	24° 10' 47.13755995" N	087° 33' 59.41634353" E
P62	24° 10' 47.61386749" N	087° 33' 59.47866139" E
P63	24° 10' 47.81515248" N	087° 33' 59.05484592" E
P64	24° 10' 48.03127444" N	087° 33' 58.46863841" E
P65	24° 10' 48.42818514" N	087° 33' 58.65886122" E

LAND DETAILS

Khata no.	Plot no.
08, 40 & 25	240, 241, 242, 247 & 248

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 915/M, dated 06.08.2024.
2	CO	:	The CO, Shikaripara vide letter no. 1168/Ra., dated 22.09.2023 has

			mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 983/M, dated 08.08.2024 certified that 03 other mining lease area (4.62 Acre, 3.52 Acre & 5.79 Acre) exists within 500 meters radius from proposed project site and total area is 19.73 Acre.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 109, dated 23.01.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 3225, dated 17.10.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 27, Page no. 154).
7	Gram Sabha	:	Gram Sabha conducted on 25.06.2023.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1181/M, dated 16.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Mechanized Method	
2	Quarry Area	:	2.34 Ha	Life of Mine – 5year
3	Waste Generation	:	58,840cum	
4	Stripping Ratio	:	10:07	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	
7	Elevation of Mine	:	243 m–219m AMSL	
8	Ground Level Elevation	:	219 AMSL	
9	Ultimate Working Depth	:	208 m AMSL	
10	Water Table	:	Post-Monsoon – 174m AMSL Pre-Monsoon – 169m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	48 kg nitro mix explosives/day	

13	Diesel/Fuel requirement	:	HSD – 316liters / day (94.80 KL/year)

Production Details

Years	Production in Cum/Year	Production in Cum/Day	O.B. in Cum/Year	Production in Tons/Year	Prod. in Tons. /Day
1st	37565	125	53848	101425	338
2nd	36319	121	1300	98060	327
3rd	37812	126	3692	102092	340
4th	40014	133	0	108038	360
5th	38186	127	0	103103	344
Total	**189896**	**133 Max.**	**58,840**	**512718**	**360 Max.**

Land Use

Land Use Pattern for Existing,Proposed Plan Period and after Life of the Mine:

Sl. No.	Pattern of Utilization	Present/Existing land use pattern in (acres)	Proposed Land use for current plan period (acres)	Land used at the conceptual stage i.e. end of mine life in (acres)	Area to be converted in the conceptual period.
1	Mining Activities	0.00	3.65	3.65	Water body
2	Offices/ Store etc.	0.00	0.01	0.01	Plantation
3	Dumping	0.00	0.25	0.25	Plantation -
4	Mining Road	0.00	0.00	0.00	Water body
5	Garland drain	0.00	0.10	0.10	-
6	Settling Tank	0.00	0.03	0.03	-
7	Safety Zone	0.00	1.71	1.71	Plantation
8	Stone Stock yards	0.00	0.00	0.00	
9	Unutilized	5.80	0.05	0.05	

10	Crusher	0.00	0.00	0.00	
Total		**5.80**	**5.80**	**5.80**	-

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone		0.8177 Ha	1,309
2	Along Approach Road		0.380m	504
TOTAL				**1,813**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 800 per Tanker)	---	2,40,000
2	Plantation 504 X 800 = Rs 4,03,200 (Gabion Plantation along approach road) 1309 X 400 = 5,23,600 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	9,26,800	92,680
3	Fencing	1,00,000	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) - Rs.27,270 • Ground Water (2 point) - Rs.12,420 • Noise 24 hrs (3 point) -Rs.21,000 • Soil (3 point) -Rs.40,920	--	2,03,220

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
	Total -Rs. 1,01,610 (Per Season) At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220 Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022		
Total		10,26,800	5,35,900

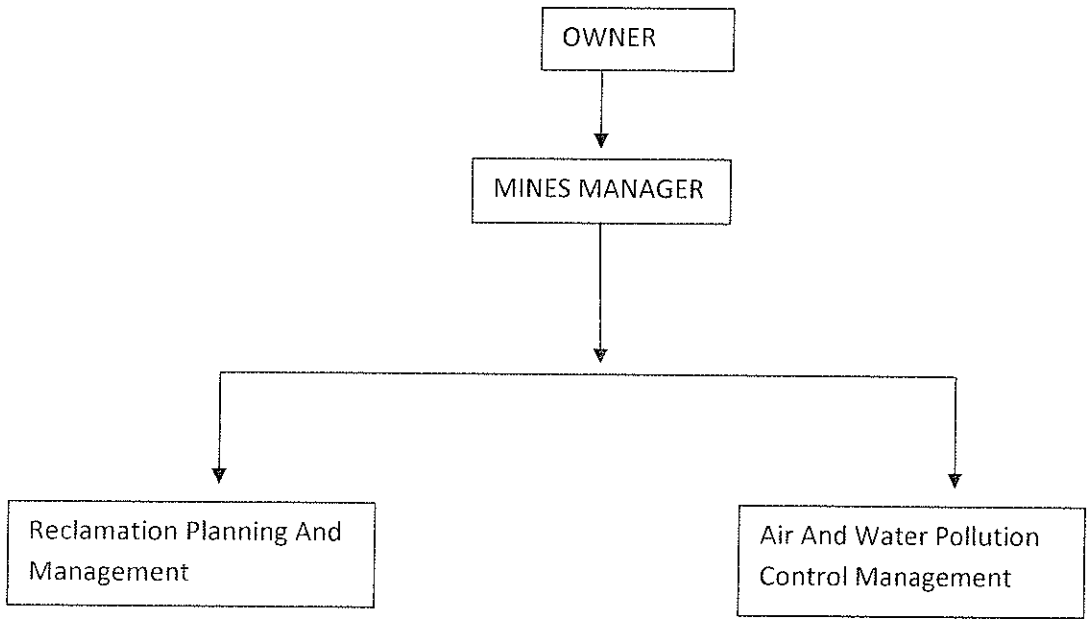
Environment Monitoring Programme

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 Station	6 Monthly

Solid Waste Management

During first year58,840cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock	Occasional	Major	6

		(Bodily Injury)			
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 17, 18, 19, 20, 21 & 22.12.2024, the Committee recommends in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 for issuing of ToR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure II alongwith following specific condition :-

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

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25. Porabasuria Stone Mine of Shri Sanjla Besra, Village : Porabasuria, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.577 Ha).

(Proposal no.: SIA/JH/MIN/ 508641 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B1.

Application for Terms of Reference (ToR) as per EIA Notification, 2006.

ToR Application for: Proposed Capacity: 38849 Cum. / annum or 104893 TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Porabasuria Stone Mine	
2	Lessee: & Lessee Address	:	Proprietor- Shri Sanjla Besra S/O Late Charan Besra, R/o Village- Kuchibona, P.O –Maluti, Thana – Shikaripara, Dist – Dumka, Jharkhand.	
3	Lease Address	:	Village- Porabasuria, Thana- Shikaripara, Thana No- 14, District- Dumka, Jharkhand	
4	Lease Area	:	2.577 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 131.28 Lakhs	Recurring Cost: Rs. 15.09 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 9.72 Lakhs	Recurring Cost: Rs . 5.90 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 137022	Tonnes : 369960
10	Mine Life	:	5 years.	
11	Man power	:	29 Person	
12	Water Requirement	:	7.719 KLD (Drinking: 0.435 KLD, Dust Suppression:1.02KLD, Plantation: 6.264 KLD	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani River – 8.17 km North Direction	

17	Nearest Habitation	:	Porabasuria Village – 1.2 Km in West direction
18	Nearest Rail Station	:	Pakdaha Harinsing Railway Station is at aerial distance of 6.15 km North -East direction
19	Nearest Air Port	:	Deoghar Airport is at aerial distance of 94.1km NW direction
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer . letter no.- 1742 Dated-31/07/2024
21	Road & Highways	:	The distance of Approach Road is 70m, after that this road connects to village road. The village road continues for 3.56 km and after this the road connects to MDR Sarasdangal to Shikaripara.

CO-ORDINATES

Point Name	Latitude	Longitude
1	24° 11' 04.13128388" N	087° 35' 18.19904533" E
2	24° 11' 04.05154599" N	087° 35' 18.46700679" E
3	24° 11' 04.25984302" N	087° 35' 18.59991737" E
4	24° 11' 04.05433439" N	087° 35' 18.96688939" E
5	24° 11' 03.87083345" N	087° 35' 19.21837453" E
6	24° 11' 03.77721068" N	087° 35' 19.16046105" E
7	24° 11' 03.48138078" N	087° 35' 19.61098507" E
8	24° 11' 03.45786052" N	087° 35' 20.30945566" E
9	24° 11' 03.02553639" N	087° 35' 20.25663740" E
10	24° 11' 02.67443235" N	087° 35' 20.18066745" E
11	24° 11' 02.63889946" N	087° 35' 20.01488847" E
12	24° 11' 02.56777144" N	087° 35' 19.96202536" E
13	24° 11' 01.83380916" N	087° 35' 20.47361911" E
14	24° 11' 01.33828221" N	087° 35' 20.74819175" E
15	24° 11' 01.08609297" N	087° 35' 20.62323374" E
16	24° 11' 00.68788783" N	087° 35' 21.37518169" E
17	24° 11' 01.33147785" N	087° 35' 21.56672193" E
18	24° 11' 01.86514647" N	087° 35' 21.60673626" E
19	24° 11' 02.05350452" N	087° 35' 21.56622739" E
20	24° 11' 02.13353814" N	087° 35' 21.34425402" E
21	24° 11' 02.44158422" N	087° 35' 21.17733281" E
22	24° 11' 02.60709448" N	087° 35' 21.28777999" E
23	24° 11' 02.58582992" N	087° 35' 21.46571189" E
24	24° 11' 02.90407181" N	087° 35' 21.78659838" E
25	24° 11' 02.84326831" N	087° 35' 21.95786188" E
26	24° 11' 02.92953533" N	087° 35' 22.05704195" E
27	24° 11' 02.58435670" N	087° 35' 22.65473621" E
28	24° 11' 02.31545785" N	087° 35' 23.08685028" E
29	24° 11' 01.84589300" N	087° 35' 23.06848613" E
30	24° 11' 01.35873909" N	087° 35' 22.98116333" E
31	24° 11' 00.78597876" N	087° 35' 23.17453909" E
32	24° 11' 00.65771576" N	087° 35' 23.57169977" E
33	24° 11' 01.34868357" N	087° 35' 24.07116538" E

34	24° 11' 01.76418622" N	087° 35' 25.06812132" E
35	24° 11' 01.66183338" N	087° 35' 25.44034411" E
36	24° 11' 02.27723005" N	087° 35' 25.33121238" E
37	24° 11' 02.58968522" N	087° 35' 24.82364772" E
38	24° 11' 02.06333685" N	087° 35' 24.49506814" E
39	24° 11' 02.36266351" N	087° 35' 23.99265967" E
40	24° 11' 02.90563437" N	087° 35' 24.34926092" E
41	24° 11' 03.44860498" N	087° 35' 24.70586301" E
42	24° 11' 03.23527378" N	087° 35' 25.19169028" E
43	24° 11' 03.72867115" N	087° 35' 25.43727879" E
44	24° 11' 03.99088255" N	087° 35' 25.69902135" E
45	24° 11' 04.72398248" N	087° 35' 26.25285549" E
46	24° 11' 05.34512108" N	087° 35' 26.62052585" E
47	24° 11' 04.99177116" N	087° 35' 27.33328653" E
48	24° 11' 04.32826981" N	087° 35' 27.08832215" E
49	24° 11' 04.13291762" N	087° 35' 27.48893949" E
50	24° 11' 05.02491092" N	087° 35' 27.84879573" E
51	24° 11' 05.91690392" N	087° 35' 28.20865340" E
52	24° 11' 05.84924922" N	087° 35' 28.65328723" E
53	24° 11' 05.53467715" N	087° 35' 28.84851222" E
54	24° 11' 05.27617030" N	087° 35' 28.82071057" E
55	24° 11' 04.74221293" N	087° 35' 28.70314586" E
56	24° 11' 04.20825552" N	087° 35' 28.58558144" E
57	24° 11' 03.78125113" N	087° 35' 28.52098977" E
58	24° 11' 03.77792659" N	087° 35' 28.24026154" E
59	24° 11' 03.14317623" N	087° 35' 28.12113222" E
60	24° 11' 02.51406415" N	087° 35' 27.83412542" E
61	24° 11' 02.12370766" N	087° 35' 27.72078454" E
62	24° 11' 02.14252029" N	087° 35' 27.46599964" E
63	24° 11' 01.39634960" N	087° 35' 27.12580506" E
64	24° 11' 00.43536419" N	087° 35' 26.70043323" E
65	24° 11' 00.28684930" N	087° 35' 26.93078857" E
66	24° 11' 00.15905725" N	087° 35' 27.10916219" E
67	24° 11' 00.14043511" N	087° 35' 27.35923850" E
68	24° 11' 00.01491540" N	087° 35' 27.40676844" E
69	24° 10' 59.50045441" N	087° 35' 27.37565430" E
70	24° 10' 58.99118085" N	087° 35' 27.16471188" E
71	24° 10' 58.98171233" N	087° 35' 27.08198148" E
72	24° 10' 59.16817225" N	087° 35' 26.61543680" E
73	24° 10' 59.39396973" N	087° 35' 26.07335621" E
74	24° 10' 59.27779004" N	087° 35' 26.02479039" E
75	24° 10' 59.27553931" N	087° 35' 25.96782016" E
76	24° 10' 59.62608964" N	087° 35' 25.24781311" E
77	24° 10' 59.86329014" N	087° 35' 24.62349971" E
78	24° 10' 59.55441066" N	087° 35' 23.89063048" E
79	24° 10' 59.24553018" N	087° 35' 23.15776222" E
80	24° 10' 59.30996069" N	087° 35' 22.55040097" E
81	24° 10' 59.25188366" N	087° 35' 22.45148075" E
82	24° 10' 58.81588474" N	087° 35' 22.03072039" E

83	24° 10' 58.83501660" N	087° 35' 21.85520795" E
84	24° 10' 59.03741236" N	087° 35' 21.58553034" E
85	24° 10' 59.38756604" N	087° 35' 21.30470615" E
86	24° 10' 59.88362246" N	087° 35' 21.02114069" E
87	24° 11' 00.27742037" N	087° 35' 20.69978283" E
88	24° 11' 00.96027997" N	087° 35' 19.75286873" E
89	24° 11' 01.57371409" N	087° 35' 19.78355201" E
90	24° 11' 01.72810765" N	087° 35' 19.66864442" E
91	24° 11' 01.98703323" N	087° 35' 19.11813459" E
92	24° 11' 02.27805344" N	087° 35' 18.63429842" E
93	24° 11' 02.69542115" N	087° 35' 18.96924017" E
94	24° 11' 02.94124003" N	087° 35' 18.58446532" E
95	24° 11' 02.78684188" N	087° 35' 18.34418523" E
96	24° 11' 02.87097258" N	087° 35' 18.20641915" E

LAND DETAILS

Khata no.	Plot no.
08	875, 877, 880/P, 881, 882, 884/P, 886, 887, 888/P, 890 & 891

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 1093/M, dated 24.09.2024.
2	CO	:	The CO, Shikaripara vide letter no. 718/Ra., dated 12.08.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 1161/M, dated 14.10.2024 certified that 01 other mining lease area (6.88 Acre) exists within 500 meters radius from proposed project site and total area is 13.25 Acre.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 1870, dated 27.08.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 1742, dated 31.07.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 72, Page no. 164).

7	Gram Sabha	:	Gram Sabha conducted on 16.04.2023.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1192/M, dated 18.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	2.577 Ha	Life of Mine – 5year
3	Waste Generation	:	24790 cum	
4	Stripping Ratio	:	05:08	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m,	
7	Elevation of Mine	:	104 m – 99 m AMSL	
8	Ground Level Elevation	:	78m AMSL	
9	Ultimate Working Depth	:	105m AMSL	
10	Water Table	:	Post Monsoon – 57m AMSL Pre Monsoon – 53 m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	47.4 kg Slurry explosives/day	
13	Diesel/Fuel requirement	:	HSD –301 liters / day (90.3 KL/year)	

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.
1st	22420	2.7	60534	75	202	12400	41
2nd	22800	2.7	61560	76	205	0	0
3rd	26885	2.7	72590	90	242	0	0
4th	38849	2.7	104893	129	350	6118	0
5th	26068	2.7	70384	87	235	6272	21
Total	**137022**	**2.7**	**369960**	**129 (Max.)**	**350 (Max.)**	**24790**	**41**

Land Use

Existing Land Use pattern

656

SL	Pattern	Existing Land Use (Ha)
1	Mining Area	0.00
2	Office	0.00
3	Dumping	0.00
4	Road	0.00
5	Garland drain	0.00
6	Settling Pond	0.00
7	Green belt	0.00
8	Safety Zone	0.00
9	Stone Stock yards	0.00
10	Crusher	0.00
11	Unutilized	2.577
	TOTAL	**2.577**

Land Use Pattern for Proposed Plan Period:

SL	Pattern	Proposed Land Use (Ha)
1	Mining Area	1.237
2	Office	0.00
3	Dumping	0.180
4	Road	0.000
5	Garland drain	0.072
6	Settling Pond	0.020
7	Green Blel	0.000
8	Safety Zone	1.068
9	Stone Stock Yards	0.000
10	Crusher	0.000
11	Unutilized	0.000
	TOTAL	**2.577**

Land Use Pattern after Life of the Mine:

SL	Pattern	Conceptual Stage Land Use (Acres)	Area to be converted in the

			conceptual period.
1	Mining Activities	1.237	Water body
2	Offices/ Store etc.	0.00	Green Belt
3	Dumping	0.180	Green Belt
4	Mining Road	0.000	Water body
5	Garland drain	0.072	-
6	Settling Tank	0.020	-
7	Green belt	0.000	Greenbelt
8	Safety Zone	1.068	Greenbelt
9	Stone Stock yards	0.000	
10	Unutilized	0.000	
11	Crusher	0.000	
TOTAL		**2.577**	

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone+Dumping		(1.068 Ha+ 0.180)x1600	1996
2	Along Approach Road		0.70 km	92
TOTAL				**2088 Trees**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl. No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1000 per Tanker)	--	3,00,000
2	Plantation: 92X 800 = Rs 73,600 (Gabion Plantation along approach road) 1996X 400 = 7,98,400 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	8,72,000	87,200
3	Fencing around the Lease boundary	1,00,000	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) -Rs.27,270 • Ground Water (2 point) -Rs.12,420 • Noise 24 hrs (3 point) -Rs.21,000 • Soil (3 point) -Rs.40,920 **Total -Rs. 1,01,610 (Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2 = Rs. 2,03,220** **Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022**	--	2,03,220
Total		9,72,000	5,90,420

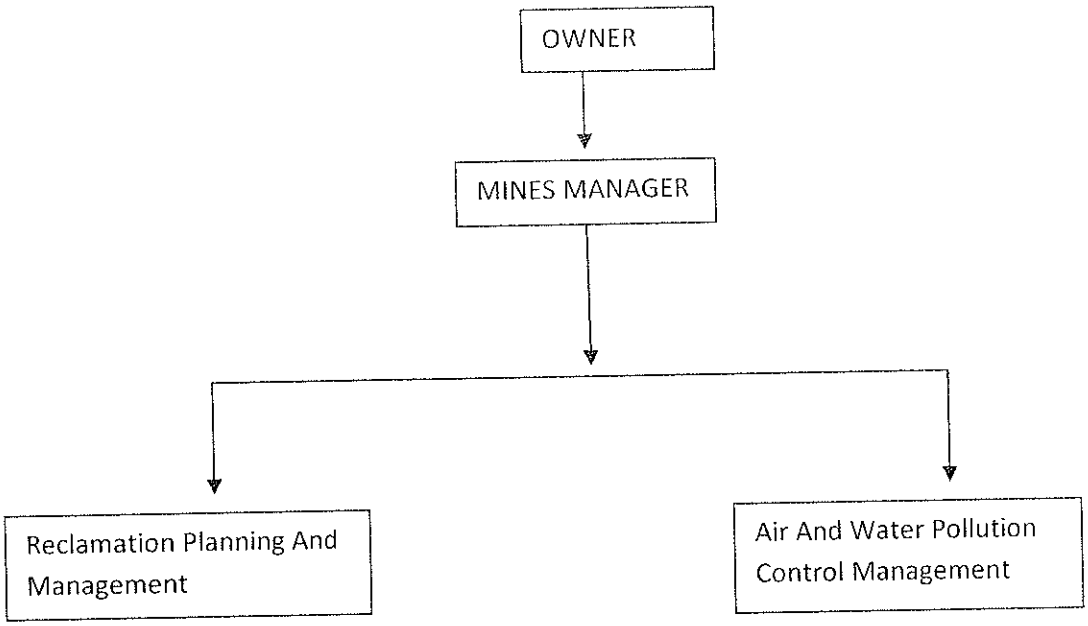
Environment Monitoring Programme :

SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 stations	6 Monthly

Solid Waste Management

During first year 12400 cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)

- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge

of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 17, 18, 19, 20, 21 & 22.12.2024, the Committee recommends in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 for issuing of ToR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure II alongwith following specific condition :-

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

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26. Siyalpahari Stone Mine of M/s Gaurinath Enterprises (Partners : Smt. Sandhya Rani & Smt. Punam Rashmi), Village : Siyalpahari, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.897 Ha).

(Proposal no.: SIA/JH/MIN/ 514163 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B1.

Application for Terms of Reference (ToR) as per EIA Notification, 2006.

ToR application for: Proposed Capacity: 103640Cum. / annum or 279829 TPA

Project and Location Details:

Sl	Parameter		Details
1	Project Name	:	Siyalpahari Stone Mine
2	Lessee:	:	M/s Gaurinath Enterprises, Partners: 1. Smt. Sandhya Rani 2. Smt. Punam Rashmi
3	Lessee Address	:	Proponent

			M/s Gaurinath Enterprises Partners: 1. Smt. Sandhya Rani, D/o Subodh Chandra Pandit, W/o Jagbandhu Pandit, Vill-Tapsi, PO- Bagjhopa, PS- Jama, Dumka. 2. Smt. Punam Rashmi, W/o Shri Manik Chandra Pandit, R/o Minto Road Complex, Flat no. 3/1, New Mintoroad, Hostel Block 1, Indraprast Central, Delhi.	
4	Lease Area	:	2.897 Ha	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital Cost: Rs. 136.79 Lakhs	Recurring Cost: Rs. 47.79 Lakhs
7	EMP Budget	:	Capital Cost: Rs. 10.868 Lakhs	Recurring Cost: Rs. 6.019 Lakhs
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 3,91,070cum	Tonnes: 10,55,890tons
10	Mine Life	:	5 years.	
11	Man power	:	28Person	
12	Water Requirement	:	7.82 KLD (Drinking: 0.42 KLD, Dust Suppression: 1.48KLD, Plantation: 5.92KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	60 KVA D.G. Set proposed	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Brahmani river at 6 km NW direction.	
17	Nearest Habitation	:	Siyalpahari Village – 0.823 Km in SE Direction	
18	Nearest Rail Station	:	Pinargaria Railway Station at areal distance of 5 km in NW direction.	
19	Nearest Air Port	:	Deoghar Airport is at areal distance of 101 km NW direction.	
20	Nearest Forest	:	More than 250 m, as per Division Forest Officer Dumka. letter no.- 1790 Dated- 05/08/2024	
21	Road & Highways	:	The distance of Approach Road is 0.37 Km, after that this road connects to village road. The village road continues for 4.74 km and after this the road connects to NH 114A.	

CO-ORDINATES

Point Name	Longitude	Latitude
1	087° 39' 14.29959786" E	24° 10' 01.59111771" N
2	087° 39' 14.49926579" E	24° 10' 01.56014334" N
3	087° 39' 14.75327801" E	24° 10' 01.52073848" N

4	087° 39' 15.05519295" E	24° 10' 01.47390231" N
5	087° 39' 15.34959184" E	24° 10' 01.44951942" N
6	087° 39' 15.41357595" E	24° 10' 01.33364400" N
7	087° 39' 15.46815448" E	24° 10' 01.22647900" N
8	087° 39' 15.80190496" E	24° 10' 01.19759204" N
9	087° 39' 16.12930401" E	24° 10' 01.15861704" N
10	087° 39' 16.43311553" E	24° 10' 01.12696812" N
11	087° 39' 16.37821904" E	24° 10' 00.86276650" N
12	087° 39' 16.31230532" E	24° 10' 00.60005716" N
13	087° 39' 16.20285151" E	24° 10' 00.13812297" N
14	087° 39' 16.07642702" E	24° 09' 59.74562215" N
15	087° 39' 15.93744736" E	24° 09' 59.36184522" N
16	087° 39' 15.79150536" E	24° 09' 58.84804702" N
17	087° 39' 15.70320430" E	24° 09' 58.51896306" N
18	087° 39' 15.59615131" E	24° 09' 58.21885976" N
19	087° 39' 15.47499025" E	24° 09' 57.93182206" N
20	087° 39' 15.78457662" E	24° 09' 57.79755291" N
21	087° 39' 16.09254367" E	24° 09' 57.65462045" N
22	087° 39' 16.50416205" E	24° 09' 57.45344255" N
23	087° 39' 16.72879673" E	24° 09' 57.33832257" N
24	087° 39' 16.94736730" E	24° 09' 57.26946892" N
25	087° 39' 16.95791475" E	24° 09' 57.48473046" N
26	087° 39' 16.98104701" E	24° 09' 57.69704796" N
27	087° 39' 17.07781849" E	24° 09' 57.83390874" N
28	087° 39' 17.19519693" E	24° 09' 57.99669127" N
29	087° 39' 17.26610623" E	24° 09' 58.00361194" N
30	087° 39' 17.37452679" E	24° 09' 57.95401610" N
31	087° 39' 17.62446375" E	24° 09' 57.85901731" N
32	087° 39' 17.88083305" E	24° 09' 57.79000100" N
33	087° 39' 18.12578104" E	24° 09' 57.73136211" N
34	087° 39' 18.19360534" E	24° 09' 57.66294188" N
35	087° 39' 18.17736202" E	24° 09' 57.56619583" N
36	087° 39' 18.15278696" E	24° 09' 57.37989480" N
37	087° 39' 18.55973569" E	24° 09' 57.30553524" N
38	087° 39' 18.93340399" E	24° 09' 57.22942176" N
39	087° 39' 19.34882584" E	24° 09' 57.13732383" N
40	087° 39' 19.19143042" E	24° 09' 56.67514462" N
41	087° 39' 19.03383944" E	24° 09' 56.17458307" N
42	087° 39' 18.94571681" E	24° 09' 55.78435679" N
43	087° 39' 18.82718871" E	24° 09' 55.22266589" N
44	087° 39' 18.14368931" E	24° 09' 55.25523543" N
45	087° 39' 17.40565478" E	24° 09' 55.30073854" N
46	087° 39' 16.55995853" E	24° 09' 55.34670268" N
47	087° 39' 15.76338011" E	24° 09' 55.35076465" N
48	087° 39' 15.84305228" E	24° 09' 55.01110392" N
49	087° 39' 15.96467166" E	24° 09' 54.45548214" N
50	087° 39' 15.43366087" E	24° 09' 54.42575060" N

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51	087° 39' 14.86759745" E	24° 09' 54.39450705" N
52	087° 39' 14.24540778" E	24° 09' 54.38809700" N
53	087° 39' 13.62474081" E	24° 09' 54.39993751" N
54	087° 39' 13.03459045" E	24° 09' 54.42384810" N
55	087° 39' 12.43186015" E	24° 09' 54.47394702" N
56	087° 39' 11.81004310" E	24° 09' 54.50985209" N
57	087° 39' 11.21902630" E	24° 09' 54.57485880" N
58	087° 39' 11.34689896" E	24° 09' 54.82106164" N
59	087° 39' 11.22401570" E	24° 09' 54.93014436" N
60	087° 39' 11.29068790" E	24° 09' 54.97501554" N
61	087° 39' 11.39216782" E	24° 09' 55.08973046" N
62	087° 39' 11.42833075" E	24° 09' 55.42599260" N
63	087° 39' 11.51128412" E	24° 09' 55.76882786" N
64	087° 39' 11.66426678" E	24° 09' 56.33263076" N
65	087° 39' 11.79483804" E	24° 09' 56.84459944" N
66	087° 39' 11.95545672" E	24° 09' 57.45804182" N
67	087° 39' 12.12548267" E	24° 09' 57.98564622" N
68	087° 39' 12.28798858" E	24° 09' 58.48618879" N
69	087° 39' 12.45023059" E	24° 09' 58.93480230" N
70	087° 39' 12.56803959" E	24° 09' 59.35651213" N
71	087° 39' 12.68566495" E	24° 09' 59.74209740" N
72	087° 39' 12.82613931" E	24° 10' 00.26531246" N
73	087° 39' 12.90153878" E	24° 10' 00.72883831" N
74	087° 39' 12.95847152" E	24° 10' 01.12272143" N
75	087° 39' 13.55167832" E	24° 10' 01.14727322" N
76	087° 39' 13.66962747" E	24° 10' 01.11290020" N
77	087° 39' 14.01605771" E	24° 10' 01.00303929" N
78	087° 39' 14.10474087" E	24° 10' 01.02072176" N
79	087° 39' 14.14709305" E	24° 10' 01.12214261" N
80	087° 39' 14.22196549" E	24° 10' 01.32728427" N

LAND DETAILS

Khata No.	Plot No.
14	124, 125/P
8	126/P

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 1151/M, dated 09.10.2024.
2	CO	:	The CO, Shikaripara vide letter no. 811/Ra., dated 10.09.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.

3	DMO	:	DMO, Dumka vide memo no. 1304/M, dated 27.11.2024 certified that 02 other mining lease area (6.01 Acre & 5.88 Acre) exists within 500 meters radius from proposed project site and total area is 19.05 Acre.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 1831, dated 22.08.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 1790, dated 05.08.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 05).
7	Gram Sabha	:	Gram Sabha conducted on 07.06.2024.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Letter No. 1312/M, dated 02.12.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi-Mechanized Method	
2	Quarry Area	:	2.897 Ha	Life of Mine – 5year
3	Waste Generation	:	40731 cum	
4	Stripping Ratio	:	03:10	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m	
7	Elevation of Mine	:	65m–62m AMSL	
8	Ground Level Elevation	:	64 AMSL	
9	Ultimate Working Depth	:	38 m AMSL	
10	Water Table	:	Post Monsoon – 12m AMSL Pre Monsoon – 7m AMSL	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	96.228 kg Slurry explosives/day	
13	Diesel/Fuel requirement	:	HSD – 482 liters / day (144.6KL/year)	

Production Details

Year	Production of Stone / Year			Per Day Production		Removal of O.B.	
	Cum	T.F.	Tonnes	Cum	Tonnes	Cum	Production per day cum (O.B.
1st	103640	2.7	279829	345	933	40731	136
2nd	97723	2.7	263851	326	880	0	0
3rd	79148	2.7	213700	264	712	0	0
4th	52802	2.7	142565	176	475	0	0
5th	57757	2.7	155944	193	520	0	0
Total	**391070**		**1055890**	**345 (max)**	**933 (max)**	**40731**	**136 (max)**

Land Use pattern

SL	Pattern of Utilization	Existing Land Use (Ha)	Conceptual Land Use (Ha)	Area to be converted in the conceptual period.
1	Mining Activities	0.000	1.930	Water body
2	Offices/ Store etc.	0.000	0.015	Plantation
3	Dumping	0.000	0.058	Plantation
4	Mining Road	0.000	0.000	Water body
5	Garland drain	0.000	0.040	-
6	Settling Tank	0.000	0.000	-
7	Safety Zone	0.000	0.641	Plantation
8	Stone Stock yards	0.000	0.000	
9	Unutilized	2.897	0.213	Green Belt
10	Excavated	0.000	0.068	
	TOTAL	**2.897**	**2.897**	

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone/ Dumping/ Offices/ Store etc.		0.927 Ha	1,483
2	Along Approach Road		700m	492
TOTAL				**1,975**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **Budget for Environmental Management**

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 1000 per Tanker)	--	3,00,000
2	Plantation 492 X 800 = Rs 3,93,600 (Gabion Plantation along approach road) 1483 X 400 = 5,93,200 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	9,86,800	98,680
3	Fencing	100,000	-
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) -Rs.27,270 • Ground Water (2 point) -Rs.12,420 • Noise 24 hrs (3 point) -Rs.21,000 • Soil (3point) -Rs.40,920 **Total -Rs. 1,01,610** **(Per Season)** **At least two seasons in a Year -Rs. 1,01,610 x 2** **= Rs. 2,03,220** Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022	--	2,03,220
Total		**10,86,800**	**6,01,900**

Environment Monitoring Programme

SL. No.	Description	No. Of Monitoring Stations	Duration

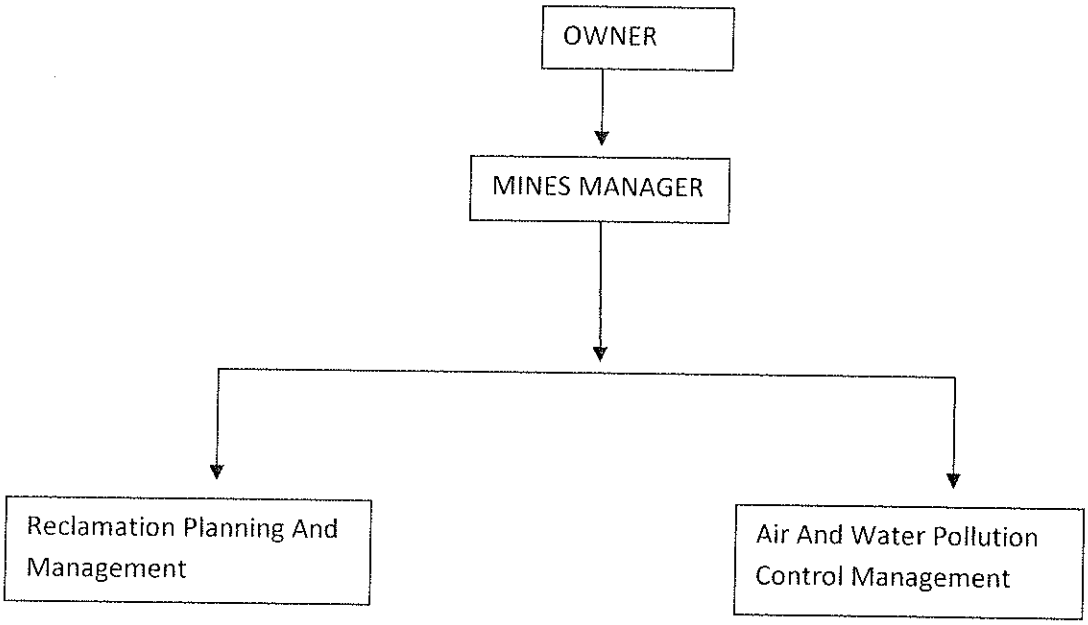
1.	Air	3 stations	6 Monthly
2.	Water	2 stations	6 Monthly
3.	Noise	3 stations	6 Monthly
4.	Soil	3 Station	6 Monthly

Note: Monitoring period Dec 2024 to Feb 2025

Solid Waste Management

40731cum. O.B. will be used in maintenance of mine road and left over O.B. will be used for backfilling.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced
- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.

- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
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The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
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Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

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- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
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j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 17, 18, 19, 20, 21 & 22.12.2024, the Committee recommends in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 for issuing of ToR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure II alongwith following specific condition :-

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27. Karmahi Stone Mine of Shri Ashutosh Kumar Singh, Village : Karmahi, Thana : Vasisthnagar, Thana no. : 149, Distt. : Chatra, Jharkhand (1.17 Ha).

(Proposal no.: SIA/JH/MIN/ 506767 /2024)

Name of the consultant : Sathi Planners Pvt. Ltd., Ranchi, Jharkhand.

This is a new project which has been taken for appraisal on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B1.

Application for Terms of Reference (ToR) as per EIA Notification, 2006.

ToR Application for:Proposed Capacity- 33,798 cum/annum or 94,635 TPA

The Combined EIA (Environmental Impact Assessment) for the Karmahi Stone Mine (Proponent: Sri Ashutosh Kumar Singh, Applied Area: 1.17 Ha.) will be Conducted along with the Karmahi Stone Mine (M/S Kauleshwari Enterprises, Proponent: Shri Rajendra Singh &Prtners, Applied Area: 1.80 Ha.) & Karmahi Stone Mine (CDS Mining, Applied Area: 0.656 Ha.)

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Karmahi Stone Mine Project Type – Stone Mine	
2	Lessee:	:	Sri Ashutosh Kumar Singh	
3	Lessee Address	:	Sri Ashutosh Kumar Singh Address: Village – Nagar, P.O. + Thana - Hunterganj, District- Chatra, Jharkhand, Pin code - 825403	
4	Lease Area	:	1.17Ha. (At. Vill.-Karmahi, Thana - Vasisthnagar, Thana No.- 149, Dist.- Chatra, (Jharkhand)	
5	Type of Land	:	Non Forest Raiyati Land	
6	Project Cost		Capital: 74.09 Lakhs	Recurring: 12.22 Lakhs per year
7	EMP Budget	:	Capital: 7.30Lakhs	Recurring: 5.36Lakhs per year
8	New or Expansion	:	New	
9	Mineable Reserves	:	6,62,398 Tons 2,36,571 Cum	
10	Mine Life	:	7 years.	
11	Man power	:	31Person	
12	Water Requirement	:	5.20KLD (Drinking: 0.47 KLD, Dust Suppression: 1.60 KLD, Plantation: 3.13 KLD)	
13	Water Source	:	From Nearby villages by tankers	

680

14	DG Set / power	:	20 KVA D.G. Set proposed
15	Crusher	:	No crusher
16	Nearest Water Body	:	Amanat River – 44.0 km – WS direction (arial distance).
17	Nearest Habitation	:	KarmahiVillage at 0.5km
18	Nearest Rail Station	:	Kathautia Railway Station is at areal distance of 44.0 km E-S direction.
19	Nearest Air Port	:	Birsa Munda Airport is at areal distance of 122 km E-S direction.
20	Nearest Forest	:	DFO Forest Division letter no.- 1273 Dated: 26/5/2023 certified that the distance of reserved / protected forest is more than 250 m from proposed project site.
21	Road & Highways	:	NH -22 at 1.49 km West Direction

CO-ORDINATES

1	Latitude		From N 24019'14.09992"	To N 24019'17.65819"
2	Longitude		From E 84048'24.79435"	To E 84048'30.22142"

LAND DETAILS

Khata no.	Plot no.
02	05 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Chatra vide letter no. 793/Khanan, dated 22.07.2024.
2	CO	:	The CO, Hunterganj vide letter no. 603, dated 14.07.2023 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Chatra vide memo no. 1163, dated 23.10.2024 certified that 02 other mining lease area (3.90 Acre & 4.26 Acre) and 02 LOI (1.62 Acre & 4.46 Acre) exists within 500 meters radius from proposed project site and total area is 17.13 Acre.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 1855, dated 23.08.2023 certified that the proposed project site is outside Eco Sensitive Zone of Lawalong Wildlife Sanctuary.

5	DFO Territorial	:	Division Forest Officer, Chatra North Forest Division vide letter no. 1986, dated 04.08.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Chatra District (Sl. no. 07, Page no. 68).
7	Gram Sabha	:	BDO, Hunterganj (Chatra) vide letter no. 909, dated 09.10.2023 informed that Gram Sabha conducted on 04.10.2023.
8	Mine Plan Approval	:	Approved by District Mining Officer, Chatra vide Letter No. 1190/Khanan, dated 04.11.2024.
9	Qualified Person	:	Shri P.K. Sen was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Mechanized Method	
2	Quarry Area	:	0.85Ha. (During plan period)	Life of Mine – 7year
3	Waste Generation	:	8,880 cum. Intercalated Waste & 11,303 cum. Gritty soil (During plan period)	
4	Stripping Ratio	:	1:8.34 or 0.12	
5	Working Days	:	300	
6	Benches: size	:	6 m x 6 m	
7	Elevation of Mine	:	201 to 198 m AMSL	
8	Ground Level Elevation	:	201 m AMSL	
9	Ultimate Working Depth	:	33 m	
10	Water Table	:	(During pre-monsoon 147m AMSL) (During post-monsoon 152 m AMSL)	
11	Topography of Mine	:	Area represents gently sloping land.	
12	Explosive Requirement	:	63 kg Slurry explosives/day	
13	Diesel/Fuel requirement	:	HSD – 312liters / day (93.6 KL/year)	

Production Details

Years	Production In Cum/Year	Gritty Soil In Cum/Year	Intercalated waste in Cum/Year	Production In Tons/Year
1st	33,708	6052	1774	94,383
2nd	33,727	000	1775	94,436
3rd	33,761	5251	1777	94,531
4th	33,727	000	1775	94,436
5th	33,798	000	1779	94,635
Total	**1,68,721**	**11303**	**8880**	**4,72,421**

LAND USE

Existing, Proposed & Conceptual Land Use

SL	Pattern	Existing Land Use (Ha)	Proposed Land Use (Ha)	Conceptual Land Use (Ha)	Area to be converted in the conceptual period.
1	Mining Activities	0.00	0.85 (including Dump 0.403 Ha.)	0.85 (including Backfill 0.28 Ha.)	Water body
2	Road	0.02	0.00	0.00	--
3	Safety Zone	0.00	0.32	0.32	Greenbelt
4	Unutilized	1.15	0.00	0.00	--
	TOTAL	**1.17**	**1.17**	**1.17**	

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No of Trees
1	Safety Zone		0.32Ha	512
2	Along Approach Road		0.401km	532
TOTAL				**1,044**

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be

undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

- **EMP BUDGET**

Sl.No.	Particulars	Capital Cost in Rs.	Recurring Cost in Rs. per year
1	Water facility for Dust Suppression, watering plants etc. (Rs. 900 per Tanker)	----	2,70,000
2	Plantation 532 X 800 = Rs 4,25,600 (Gabion Plantation along approach road) 512 X 400 = 2,04,800 (Plantation within lease area) (also includes Fertilizer, Pesticides, Maintenance)	6,30,400	63,040
3	Fencing around the Lease boundary	1,00,000	
4	Environmental Monitoring (One Day Monitoring) • Ambient Air 24 hrs (3 point) -Rs.27,270 • Ground Water (2 point) -Rs.12,420 • Noise 24 hrs (3 point) -Rs.21,000 • Soil (3 point) -Rs.40,920 Total -Rs. 1,01,610 (Per Season) At least two seasons in a Year -Rs.1,01,610 x2 = Rs. 2,03,220 Source: Central Pollution Control Board Notification, New Delhi, the 23rd February, 2022	----	2,03,220
Total		**7,30,400**	**5,36,260**

Environment Monitoring Programme

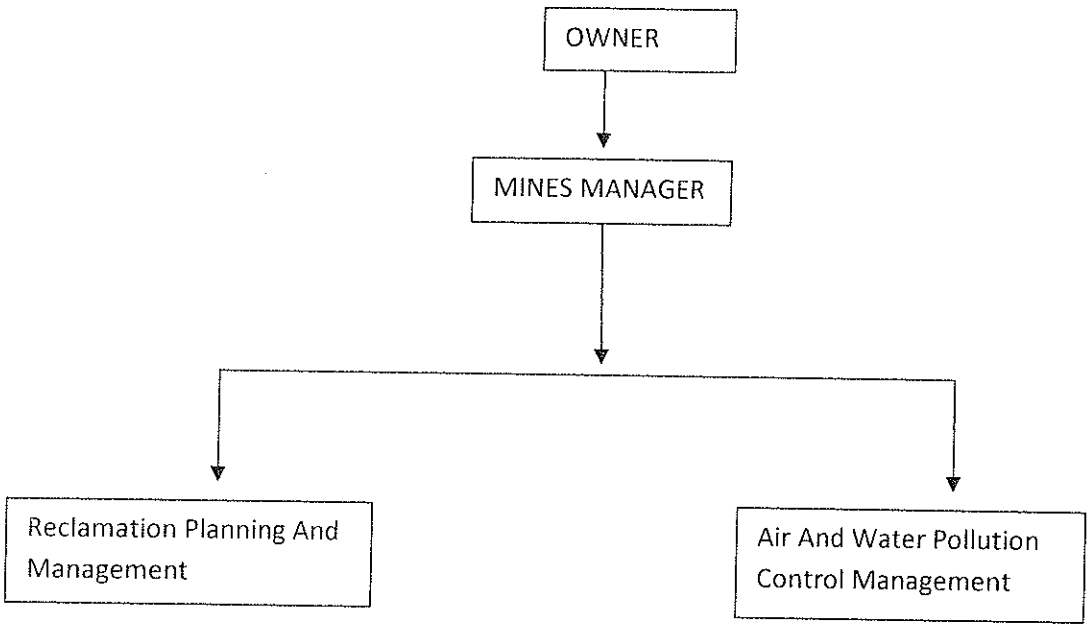
SL. No.	Description	No. Of Monitoring Stations	Duration
1.	Air	3 stations	One Day Monitoring (within 6 months)
2.	Water	2 stations	One Day Monitoring (within 6 months)
3.	Soil	3 stations	One Day Monitoring (within 6 months)
4.	Noise	3 stations	One Day Monitoring (within 6

			months)

Solid Waste Management

8,880 cum. Intercalated Waste & 11,303 cum. Gritty soil shall be generated during the plan period which shall be backfilled within the exhausted quarry.

Organization Structure



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

Use of Sharp Drill Bits

Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced

- Optimum quantity of explosives would be used.
- Blasting to be done during favorable weather conditions.

Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road
- All Trucks carrying stone outside lease area will have PUC certificate.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in

loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

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II. The detailed EMP is to be prepared for the Habitation existing within an area of 500 meter radius of proposed project boundary. This EMP is to be included in EIA report.

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Day 3 : December 19th, 2024 [Thursday]

Consideration of Proposals

1. **Chainpur Stone Deposit of M/s Shree Bhole Minerals (Prop. : Shri Rajesh Kumar Singh), Village : Chainpur, Tehsil : Chas, Distt. : Bokaro, Jharkhand (2.12 Ha).**

(Proposal no.: SIA/JH/MIN/ 504692 /2024)

Name of the consultant : Visiontek Consultancy Services Pvt. Ltd., Bhubaneswar, Odisha.

This is a new project which has been listed for appraisal on 19.12.2024. On the request of the Project Authority this was taken up for consideration on 18.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B1.

Application for Environmental Clearance (EC) after ToR.

The State Expert Appraisal Committee, Jharkhand deliberated the project during its 110th meeting held on 17 - 21.10.2023 and SEIAA, Jharkhand has approved the ToRs in 110th meeting held on 27th , 28th & 29th October, 2023. TOR for the project was issued by SEIAA, Jharkhand vide letter no. EC/SEIAA/2023-24/3010/2023/469, dated 02.11.2023. The final EIA / EMP submitted by PP to SEAC on 18.11.2024.

EC Application for : Annual Production – 75464 Cum/ 2,11,301 TPA
Gritty soil – 8504 Cum in life of mine (5 years)
Intercalated Waste – 19855 Cum in life of mine (5 years)
DG Set - Not proposed
Mobile Crusher: Not proposed

PROJECT & LOCATION DETAILS

Sl.	Parameter		Details	
1	Project Name	:	Chainpur Stone Deposit	
2	Lessee:	:	M/s Shree Bhole Minerals (Shri Rajesh kumar Singh)	
3	Lease Address	:	village-Chainpur, Thana- Balidih, Thana No.- 37, District Bokaro, State- Jharkhand	
4	Lease Area	:	5.24 Acres (2.12 ha)	
5	Type of Land	:	Non-Forest – Rayati Barren Land	
6	Project Cost	:	Approx. Rs. 1.008 Crore	
7	EMP Cost (Capital and Recurring)	:	Capital Cost - Rs. 0.29 Crore Recurring Cost - Rs. 0.14 Crore	
8	New or Expansion	:	New	
9	Mineable Reserves	:	3,77,270 cum.	Tonnes: 10,56,355
10	Mine Life	:	5 years only (proposed lease period is of 5 years)	
11	Manpower	:	51 Person	
12	Water Requirement	:	Total – 6.94 KLD (Domestic – 1.02 KLD, Plantation – 2.5 KLD, Dust Suppression – 3.42 KLD).	
13	Water Source	:	Supply Tankers	

14	DG Set / power	:	Not Proposed/Not Applicable
15	Crusher	:	Not proposed/Not Applicable
16	Nearest Water Body	:	Garga River – 2.93 km N
17	Nearest Town	:	Bokaro - 1.93 km E
18	Nearest Railway Station	:	Radhagaon Railway Station – 3.0 Km E
19	Nearest Airport	:	Birsa Munda Airport, Ranchi- 81.00 km (SW)
20	Nearest Forest	:	Talmu PF - 7.52 km S Fairly Dense Jungle of Sal Tree - 8.22 km W
21	Road & Highways	:	NH-320– 5.60 km NE

CO-ORDINATES

Boundary Pillar No.	Latitude	Longitude
1	23°35' 44.3826"N	86°3' 30.8133"E
2	23°35' 43.471"N	86°3' 32.2543"E
3	23°35' 42.8473"N	86°3' 33.6018"E
4	23°35' 41.278"N	86°3' 33.184"E
5	23°35' 39.7118"N	86°3' 32.7107"E
6	23°35' 38.1738"N	86°3' 32.2406"E
7	23°35' 37.2753"N	86°3' 31.8412"E
8	23°35' 37.5249"N	86°3' 30.7468"E
9	23°35' 37.7992"N	86°3' 29.6523"E
10	23°35' 38.2814"N	86°3' 29.7243"E
11	23°35' 38.6908"N	86°3' 28.4856"E
12	23°35' 39.2827"N	86°3' 27.6819"E
13	23°35' 40.7221"N	86°3' 28.3965"E
14	23°35' 42.1301"N	86°3' 29.2554"E
15	23°35' 43.5066"N	86°3' 30.1897"E

LAND DETAILS :

Khata No.	Plot No.	Area (Acre)
02	943	5.24

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Bokaro vide memo no. 1682/Khanan, dated 29.09.2023.
2	CO	:	The CO, Chas (Bokaro) vide letter no. 763, dated 11.03.2023 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.

3	DMO	:	DMO, Bokaro vide memo no. 1759/Khanan, dated 13.10.2023 certified that 02 other mining lease area (5.37 Acre & 5.57 Acre) exists within 500 m radius from proposed project site and total area is 16.18 Acre (more than 5 Ha).
4	DFO Wild Life	:	DFO, Wildlife Hazaribagh vide letter no. 1404, dated 10.07.2023 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Forest Distance	:	Division Forest Officer, Bokaro Forest Division vide letter no. 1700, dated 22.07.2023 certified that the distance of notified forest is 1200 meter from proposed project site.
6	DSR	:	This project is mentioned in District Survey Report (DSR) of Bokaro district.
7	Gram Sabha	:	BDO, Chas (Bokaro) vide letter no. 906, dated 12.08.2023 informed that Gram Sabha conducted on 24.01.2023.
8	Mine Plan Approval	:	Approved by DMO, Bokaro vide Memo No. 1733/M, dated 07.10.2023.
9	Qualified Person	:	Shri P.K. Sen was present in the meeting and affirmed that the mine plan has been prepared by him.
10	Public Hearing	:	Public Hearing conducted on 24.08.2024.
11	Baseline Monitoring Period	:	December, 2023 to February, 2024.

WORKING DETAILS

1	Mining Method	:	Opencast Mechanized Mining	
2	Quarry Area	:	1.67 ha (Plan Period)	Life of Mine – 5 years (Proposed lease period is of 5 years)
3	Waste Generation	:	Gritty Soil – 8504 cum (plan period) Intercalated Waste – 19855 cum	
4	Stripping Ratio	:	18:01	
5	Working Days	:	300 days/year	
6	Benches: size & No	:	6m x 6m	
7	Elevation of Mine (Maximum)	:	In 270 m amsl	
8	Elevation of Mine (Minimum)		In 268 m amsl	

9	Ultimate Working Depth	:	In 216 m amsl
10	Water Table	:	In 209 m amsl
11	Topography of Mine	:	Gently sloping and Undulating
12	Explosive Requirement	:	Slurry – 126 kg/day

PRODUCTION DETAILS

Year	Removal of Gritty Soil		Intercalated Waste	Production of Stone	
	In cum	In tonnes	In cum	In cum	In tonnes
1st	5046	7569	3971	75450	211258
2nd	1275	1913	3972	75464	211301
3rd	893	1340	3971	75450	211258
4th	1290	1935	3972	75464	211301
5th	000	000	3969	75405	211135
Total	**8504**	**12757**	**19855**	**377233**	**1056253**

LAND USE Pattern

Type of land use	Existing (ha)	During Plan Period (ha)	During Conceptual Period (ha)
Quarry	0.00	1.67 (backfilling 0.26 ha stone pitching wall-0.015 ha)	1.67 Backfilling- 0.058 ha Stone pitching wall - 0.002 ha water body - 1.610 ha
Greenbelt within Safety Barrier	0.00	0.43	0.43
Approach roads	0.08	0.00	0.00
Blocked area due to road safety	0.02	0.02	0.02 (under plantation)
Area unused	2.02	0.00	0.00
Total	**2.12**	**2.12**	**2.12**

Public Hearing Compliances Budget and Action Plan

Major Issues	Action Plan	Time Frame	Budget
Employment	Locals will be preferred for employment	Along with operation of mine	-
Pollution Control	Water Sprinkling	Continuous	Included in EMP
Village Temple Renovation	Renovation of temple in consultation	1 year	Rs. 3.0 Lakh
Changing Room for locals near pond	A changing room will be developed adjacent to the pond	2 years	Rs. 2.0 Lakh
Pond Cleaning and Guard Wall development	A guard wall will be developed around the pond of the length 0.6 km	3 years	Rs. 2.0 Lakh
		Total	**Rs. 7.0 Lakh**

ENVIRONMENT MANAGEMENT

Green Belt Development

Year	Area Covered (ha.)	No. of sapling planted	Cost (Rs. Lakhs)	Types of pollution Tolerant tree species
1st Year	0.45	1,126	14.5 (Including initial development of land and gabion cover)	*Acacia auriculiformis* *Acacia lebbeck* *Butea monosperma* *Cassia fistula* *Dalbergia latifalia* *Ficus elastic* *Lagerstroemia parviflora* *Terminalia arjuna* *Terminalia bellerica* *Thuja plicata*
Total	**0.45**	**1,126**	**14.5**	-

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Activities	Capital Cost (Crore)	Recurring Cost (Per Year) (Crore)

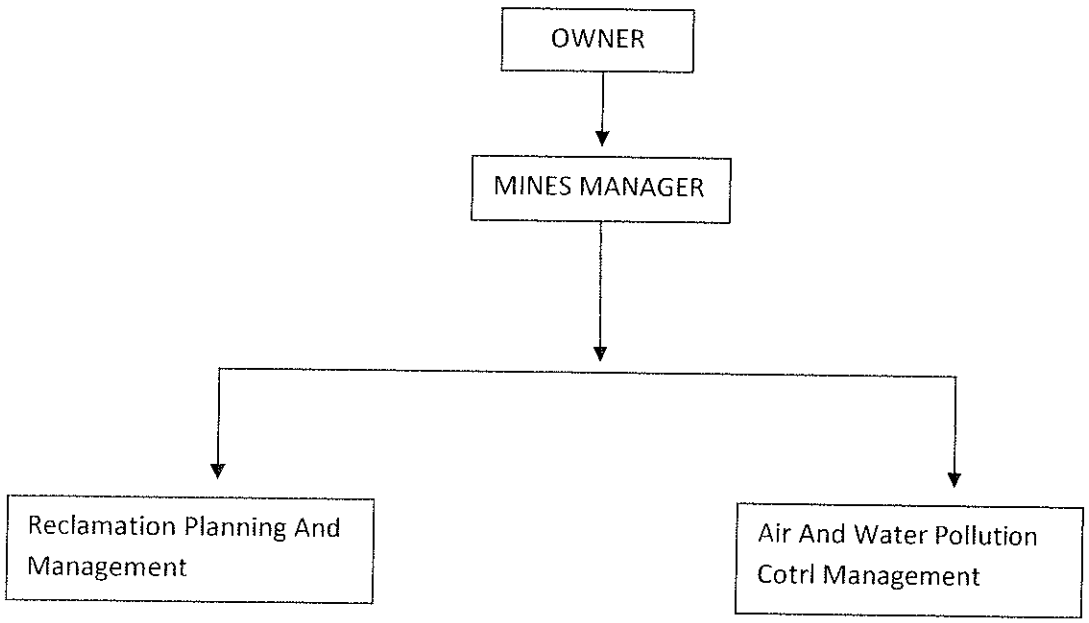
Water Pollution Equipment	-	0.02
Green Belt Development	0.14	0.01
Environment Monitoring	0.0	0.01
PH Compliance Budget	0.04	-
R&R	-	-
Safety & Disaster Management Plan	0.05	0.01
Wildlife Management	0.02	-
Total EMP Cost	**0.25**	**0.05**

Solid Waste Management

- Overburden Generation will be in form of gritty soil 8,504 cum and intercalated waste of 19,855 cum. during the life of mine. The gritty soil will be removed and will be simultaneously used in road dressing, plantation & maintenance of road.

Water Pollution Control Measures:

1. Negligible impact envisaged on surface water and ground water due to mining, as no discharge of effluents or intersection of ground water.
2. Post-project the quarry area will serve as a reservoir, which will be a source of water for the nearby areas.
3. Garland drains shall be developed to divert storm water flowing into the mine pit.



Air and Noise Pollution Control Measures:

1. Water sprinkling shall be done on the haul roads.
2. Plantation to be done in the safety zone develop a green belt along the ML boundary.
3. Sharp drill will be used and wet drilling will be followed.

4. Controlled blasting – Nonel technology will be used.
5. Optimum quantity of explosives would be used
6. Blasting to be done during favorable weather conditions
7. Overloading will be prohibited while transporting. Water sprinkling will be taken up before loading.
8. Plantation along transportation route will be done.
9. Regular monitoring of Air quality & PUC for vehicle will be carried out.

Risk Assessment:

a) The workers will be provided with gloves and safety shoes during loading.
b) Opening of the side covers of the truck should be done carefully and with warning to prevent injury to the loaders.
c) The loading will be done from one side of the truck only.
d) Mining Operations will be takes place during daylight only.
e) The truck will be covered with tarpaulin and maintained to prevent any spillage.
f) To avoid danger while reversing the trackless vehicles especially at the embankment and tipping points, all areas for reversing of lorries should be made man free as far as possible.
g) All transportation within the main working will be carried out directly under the supervision and control of the management.
h) Overloading should not be permitted, and the maximum permissible speed limit should be ensured.
i) There will be regular maintenance of the trucks, and the drivers will have valid driving license.

Hazard identification & Risk Analysis in Stone Mining operation

S. No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20

7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.

- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground. Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.

- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an

interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g.reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.

- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal Chainpur Stone Deposit of M/s Shree Bhole Minerals (Prop. : Shri Rajesh Kumar Singh), Village : Chainpur, Tehsil : Chas, Distt. : Bokaro, Jharkhand (2.12 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines

owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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2. **Residential and Commercial Building "Aaradhya Estate" of M/s Aaradhya Infrastructure and Developers India Pvt. Ltd., Village : Chas, Thana : Chas, Thana no. : 20, Distt. : Bokaro, Jharkhand.**

(Proposal no.: SIA/JH/INFRA2/ 507971 /2024)

Project Authority did not turn up before the SEAC for appraisal of the project listed on 19.12.2024.

Further vide e-mail dated 21.12.2024 their requested for deferment of the proposal.

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3. **Doba Sand Deposit (River Bed of Koel) of M/s Jharkhand State Mineral Development Corporation Limited (JSMDC Ltd.), Village : Doba, Block : Kuru, Distt. : Lohardaga, Jharkhand (3.10 Ha).**

(Proposal No : SIA/JH/MIN/ 509628/2024)

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 19.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity- 46500 Cum/Annum or 79515 TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Doba Sand Deposit (River Bed of Koel) of area 3.10 Ha./ 7.66 Acres	
2	Lessee:	:	M/s Jharkhand State Mineral Development Corporation Limited	
3	Lessee Address	:	Khanij Nigam Bhawan, Doranda, Ranchi – 834002, Jharkhand.	
4	Lease Area	:	3.10 ha.	Acres- 7.66 Acres
5	Type of Land	:	Govt. non forest (river) land	
6	Project Cost	:	Rs. 60 Lakhs	
7	EMP Budget	:	Capital: 15.155 Lakhs	Recurring: 4.86 Lakhs / year
8	New or Expansion	:	New	
9	Mineable Reserves for 1st year & subsequent year 60% of Replenished quantity	:	**46500 Cum/Annum or 79515 TPA (Dry basis)**	
10	Mine Life	:	Lease period i.e. 15.08.2025 as per provisions of Jharkhand State Sand Mining Policy, 2017 and extendable based on amendments in Jharkhand State Sand Mining Policy.	
11	Man power	:	30	
12	Water Requirement	:	16.45 ~17.0 KLD(Drinking: 0.30 KLD, Dust Suppression: 6.0 KLD, Plantation: 10.15 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	NA	
15	Crusher	:	NA	
16	Nearest Water Body	:	Project lies on Koel River.	
17	Nearest	:	Doba village, Approx. 1.28km towards NNE direction.	

	Habitation		
18	Nearest Railway Station	:	Irgaon Railway Station, approx. 8.50 Km in SSW direction.
19	Nearest Air Port	:	Birsa Munda Airport approx. 56.46 km towards ESE direction
20	Nearest Forest	:	Protected Forest Approx. 0.7 Km in North direction from mining lease. Protected Forest Approx. 3.50 Km in North direction from mining lease. Protected Forest Approx. 3.30 Km in SE direction from mining lease. Protected Forest Approx. 4.0 Km in SE direction from mining lease.
21	Road & Highways	:	NH-143A, Approx. 4.60 Km in North direction from mining lease.

CO-ORDINATES

1	Latitude		From 23° 29' 34.6100"N	To 23° 29' 49.9000" N
2	Longitude		From 84° 48' 24.9723" E	To 84° 48' 32.3937"E

LAND DETAILS

Plot no.
1358 (P) & 01 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Auction letter has been issued by Joint Secretary, Mines & Geology Deptt., Govt. of Jharkhand vide letter no. Kha.ni.-(Vividh)-117/2017-2090/M, dated 30.09.2022. According to provisions in Jharkhand State sand Mining Policy and its amendment. JSMDC Ltd. has been nominated as nodal agency for operating sand mines in category II.
2	CO	:	The CO, Kuru vide letter no. 1158, dated 30.12.2022 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Lohardaga vide memo no. 960/M, dated 27.11.2024 certified that no other balughat exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Ranchi vide letter no. 921, dated 12.11.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.

5	DFO Forest Distance	:	Division Forest Officer, Lohardaga Forest Division vide letter no. 04, dated 02.01.2023 certified that the distance of forest is 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Lohardaga district (Page No. – 73, Sl. No. – LK02)
7	Gram Sabha	:	Gram Sabha conducted on 21.06.2024.
8	Mine Plan Approval	:	Approved by District Mining Officer, Lohardaga vide Memo No. 954/Mining, dated 26.11.2024.
9	Qualified Person	:	Shri Vidya Bhushan Mishra was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Manual Method	
2	Quarry Area	:	3.10 ha. or 7.66 Acres	Life of Mine – Lease period i.e. 15.08.2025 as per provisions of Jharkhand State Sand Mining Policy, 2017 and extendable based on amendments in Jharkhand State Sand Mining Policy.
3	Waste Generation	:	NA, as it is sand mining project.	
4	Stripping Ratio	:	0:0	
5	Working Days	:	200 Days	
6	Benches: size & No	:	Bench height – 2.5 m & Bench width - 20.0 m.	
7	Elevation of Mine	:	641 mRL to 644 mRL	
8	Ground Level Elevation	:	641 mRL	
9	Ultimate Working Depth	:	2.5 m	
10	Water Table	:	NA	
11	Topography of Mine	:	Area lying in river plain.	
12	Explosive Requirement	:	NA	
13	Diesel/Fuel requirement	:	NA	

Production Details

Year	Thickness (m)	Average	Production of sand	Production of

		Replenishment Rate	(Cum)	sand –MT
1st	2.50	60%	46500	79515

The Development Plan submitted along with the mine plan relates to mining operation during the first year.

Land Use

Type of Land	Area in (ha)
Forest Land	Nil
Govt. waste land (River)	3.10
Residential area	Nil
Company land	Nil
Private Land	Nil
Total	**3.10**

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Plantation along both sides of approach road		1000 m	2000
2	No. of Plants distributed with consultation local authorities/ village Panchayat		--	31

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Environment Management Plan

Sl. No	Description	Capital Cost (Rs.)	Recurring Cost (Rs.)
1	Pollution Control & Dust Suppression	Nil	2,00,000

2	Baseline Monitoring i) Air ii) Water iii) Soil iv) Noise	--	 14,000 8,000 7,000 7,000
3	Plantation	10,15,500	1,00,000
4	Construction and maintenance of haul road	5,00,000	1,50,000
Total		**15,15,500**	**4,86,000**

Note: *2031 plants *500 Rs (for each plants including hedges and fences) = Rs. 10,15,500/-

Salary of Labor for haul road maintenance 1 labor*300 = 300 per day

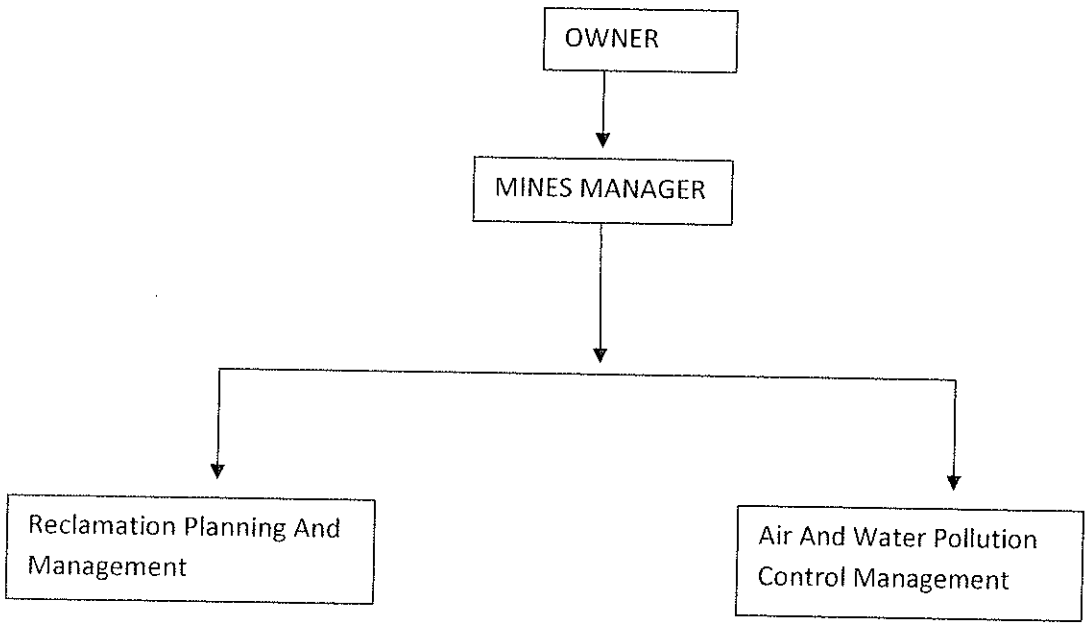
300* 200 = 60,000/-~ 1,50,000/- (including Maintenance)

* 5 lakh per kilometer (500000 * 1.0 km haul road = 5,00,000/-)

Environment Monitoring Programme

S. No.	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Organization Structure



Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
k. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.
l. Transportation from the river bed to the SH-1 will be done using the existing road.
m. The Mining Plan has been prepared and approved in consonance with Enforcement & Monitoring Guidelines for Sand Mining, 2020.
n. Wet sand will not be transported.

Solid Waste Management

No solid waste is generated during the course of mining.

Water Quality Management

A. Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.

B. Sewage from rest shelter would be treated in Septic Tank soak pit.

C. There is no other source for generation or discharge of trade effluent.

Air Quality Management

Sand will be mined manually. No mining equipment would be needed. However, diesel operated tippers/tractors would be used for transportation of sand from mine to stockyard.

I. **Operation of Diesel Equipment's –** They generate Noxious gases. It will be ensured that all transport vehicles would be repaired & maintained regularly.

II. **Loading of Product on tippers** – Water will be sprinkled on blasted Sand mass before they are loaded to trucks for transport.

III. **Movement of tippers on Road** – Movement of tippers on road generate dust. For mitigation of this pollution following measures will be taken

- Regular water sprinkling on Haul road by using water tankers.
- Regular repair of Haul road
- All Trucks carrying Sand outside lease area will have PUC certificate.
- Transport tippers/traders moving on public road will be covered with tarpaulin.

RISK ASSOCIATED WITH PROJECT ACTIVITIES AND THEIR MITIGATION MEASURES ARE DICUSSED BELOW:

Road accidents

Transportation of sand along the public road may cause accident which may cause injury.

Preventive Measures;

1. Ensure speed limit for the haulage vehicle for 40 KMPH.
2. Regular maintenance of haulage road
3. Appropriate navigational signs informing sensitive area like school and habitation
4. Regular maintenance of the vehicles.

Dust generation

- No drilling involved
- Dust mass would be supplied to workers.
- Regular sprinkling of water on road

Noise Generation

Source of noise pollution in the project would be movement of tippers / tractors transporting sand from mine to stock yard. In general tippers / tractors produce a noise level of 75 – 90 (A) measured at distance of 3m from the source.

Preventive measures

- Transportation activities would be confined during day time only.
- There would be a speed limit of 40 kmph for tippers. Higher is speed higher is noise.
- Regular repair and maintenance of tippers/tractors.
- Plantation on both sides of haulage road.
- Tippers having PUC certified will be allowed to be used for sand transportation.

Health Hazards

During digging and handling of sand i.e. loading, transportation and unloading of sand, workmen would be exposed to inhalation of fine dust particles. This poses a health hazard.

Measures

Following mitigation measures would be taken to minimize this impact on health

- Regular water sprinkling on haulage roads
- Tree plantation on both sides of haulage road
- Tippers / Tractors carrying sand would be covered
- Mask would be provided to workmen employed for digging, loading, transportation and unloading activities

Accident at Site

This is a project with only source of accident at site would be movement of tippers /tractors within mine site for transportation of sand.

Preventive measures

Following mitigation measures would be taken to minimize risk of road accident:

- Separate alignment for movement of loaded vehicles coming out of mine site
- Ensure speed restriction of 10 KMPH within mine site for incoming and outgoing tippers
- Regular maintenance and repair of haulage vehicles employed for sand transportation
- No overtaking of transportation vehicles within mine site
- Proper maintenance of haulage roads

Transportation

The usual method of transporting minerals from the working face is by tractor. Large earth moving equipment's are not used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road/approach road shall be made smooth regularly with a road roller.
- Mine road/approach road will be cleaned daily for smooth transportation.
- Mine road/approach road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Doba Sand Deposit (River Bed of Koel) of M/s Jharkhand State Mineral Development Corporation Limited (JSMDC Ltd.), Village : Doba, Block : Kuru, Distt. : Lohardaga, Jharkhand (3.10 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and

the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. The Environmental Clearance granted for lease period i.e. 15.08.2025 as per provisions of Jharkhand State Sand Mining Policy, 2017 and extendable based on amendments in Jharkhand State Sand Mining Policy.

IV. Replenishment study shall be conducted during pre-monsoon and post monsoon every year and study report have to be submitted to SEIAA / SEAC, Jharkhand. The production shall be restricted to 60% of the replenished quantity or the proposed quantity in the mine plan, which ever is less.

V. Suitable plant species of not less than 2 M height to be planted in area equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

VI. Dedicated water tanker to be provided for spraying water on haul road and for irrigating newly planted saplings only. Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

VII. Pre-employment Occupational health checkup for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests. Summary findings of same to submitted along with 6 monthly compliance.

VIII. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted within 6 monthly compliance report with Geo-Tagged photographs.

IX. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted within 6 monthly compliance report.

X. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

XI. Project Authority will ensure that personal protective equipments such as protective clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel's.

XII. River Sand Mining shall not be done in rainy Season (mid June to mid October of each calendar year).

XIII. Dept. of Mines & Geology, Govt. of Jharkhand shall keep a strict vigil in the compliance of relevant provisions of applicable Jharkhand Minerals (Prevention of illegal mining, Transportation and Storage) Rule 2017 and its amendment especially scientific execution of mining plan (as approved by they themselves) and report violations if any is found as well as action taken for the same.

XIV. Project Proponent shall submit (to the SEIAA, Jharkhand, Regional Office of MoEF&CC at Ranchi, Jharkhand State Pollution Control Board) six monthly compliance report with evidence of the conditions within a fortnight after the end of every six month till validity period of Environmental Clearance.

XV. The project proponent before starting any activity / preparation of ground, on the leased area shall demarcate his lease hold by RCC pillars erected at the cost of lease holder after certification of the mining officer. On each pillar Geo-Coordinate and fore bearing / back bearing shall be written with permanent paint mark as described in the mining plan. All the pillars should remain intact at same geo-coordinate. Establishment / labeling of Benchmark at each pillars or ground control points.

XVI. Extraction of sand beyond annual production capacity is not permitted.

XVII. The Project Proponent should undertake the sand mining limited to 03 meter (three meter) depth by exclusively manual method.

XVIII. The stacking area of mined-out sand which shall be situated near the mining site within a fenced area from all sides to avoid being spread in the nearby areas by high winds and the height of stacking should not exceed 2 meter. Transportation shall be confined to day time only that is from sunrise to sunset, to avoid inconvenience to local population in any manner.

XIX. Mining activity shall not be done for mine lease where mining can cause danger to site of flood protection works, places of cultural, religious, historical and archaeological importance.

XX. Project Proponent shall submit the annual replenishment report certified by an authorized agency.

XXI. No labour camp shall be allowed in riverbed.

XXII. Provision shall be made for housing labour with all necessary infrastructure and facilities (outside mining Block and river-bed) such as fuel for cooking, toilets / mobile toilets, safe drinking water, First-Aid facilities, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

XXIII. Labour & Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers shall be undertaken periodically to observe any adverse health impact due to exposure to dust and take corrective measures, if needed.

XXIV. The Project Proponent shall make arrangements for safe drinking water, first aid facility along with anti-venom injection, in case of emergency for the workers.

XXV. Sand and gravel may be extracted across the entire active channel during the dry season.

XXVI. Abandoned stream channels on the terrace and inactive floodplains be preferred rather than active channels and their deltas and flood plains. The stream should not be diverted to form the inactive channel.

XXVII. Layers of sand and gravel which could be removed from the river bed shall depend on the width of the river and replenishment rate of the river.

XXVIII. Sand and gravel shall not be allowed to be extracted where erosion may occur, such as at the concave bank.

XXIX. Sand and gravel shall not be extracted up to a distance of 1 kilo meter (1 km.) from major bridges and highways on both sides, of five times (5x) of the span (x) of a bridge / public civil structure (including water intake points) on up-stream side and

ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side.

XXX. Sand and gravel could be extracted from the downstream of the sand bar at river bends.

XXXI. Mining depth should be restricted to 3 meters and distance from the band should be $1/4^{th}$ of river width and should not be less than 7.5 meters.

XXXII. A buffer distance / unmined block of 50 meters after every block of 1000 meters over which mining is undertaken or at such distance as may be the directed / prescribed by the regulatory authority shall be maintained.

XXXIII. River bed sand mining shall be restricted within the central $3/4^{th}$ width of the river/rivulet of 7.5 meters (inward) from river banks but up to 10% of the width of the river, as the case may be. Regulating authority while regulating the zone of river bed mining shall ensure that the objective to minimize the effects of riverbank erosion and consequential channel migration are achieved to the extent possible. In general, the area for removal of minerals shall not exceed 60% of the mine lease area, and any deviation of relaxation in this regard shall be adequately supported by the scientific report.

****

4. **Gitilghar & Kharta Sand Deposit (River Bed of Koel) of M/s Jharkhand State Mineral Development Corporation Limited (JSMDC Ltd.), Village : Gitilghar & Kharta, Block : Kairo, Distt. : Lohardaga, Jharkhand (4.67 Ha).**

(Proposal No : SIA/JH/MIN/ 513124/2024)

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 19.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity- 70050Cum/Annum or 119786 TPA

Project and Location Details:

Sl	Parameter		Details
1	Project Name	:	Gitilghar & Kharta Sand Deposit (River Bed of Koel) of area 4.67 Ha. / 11.53 Acres
2	Lessee:	:	M/s Jharkhand State Mineral Development Corporation Limited
3	Lessee Address	:	Khanij Nigam Bhawan, Doranda, Ranchi – 834002, Jharkhand.

4	Lease Area	:	4.67 Ha.	Acres - 11.53 Acres
5	Type of Land	:	Govt. Non forest (river) land	
6	Project Cost	:	Rs. 90 Lakhs	
7	EMP Budget	:	Capital: 8.275 Lakhs	Recurring: 4.86 Lakhs/year
8	New or Expansion	:	New	
9	Mineable Reserves for 1st year & subsequent year 60% of Replenished quantity	:	**70050Cum/Annum or 119786 TPA (Dry basis)**	
10	Mine Life	:	Lease period i.e. 15.08.2025 as per provisions of Jharkhand State Sand Mining Policy, 2017 and extendable based on amendments in Jharkhand State Sand Mining Policy.	
11	Man power	:	40	
12	Water Requirement	:	9.21 ~ 10.0 KLD (Drinking: 0.40 KLD, Dust Suppression: 3.21 KLD, Plantation: 5.60 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	NA	
15	Crusher	:	NA	
16	Nearest Water Body	:	Project lies on Koel River.	
17	Nearest Habitation	:	Kharta village, Approx. 0.85 km towards SSE direction.	
18	Nearest Railway Station	:	Nagjua Railway Station, approx. 9.40 Km in South direction.	
19	Nearest Air Port	:	Birsa Munda Airport approx. 46.40 km towards ESE direction.	
20	Nearest Forest	:	Open Mix Jungle, Approx. 3.50 Km in North direction from mining lease. Huddu Pahar/Open Mix Jungle, Approx. 2.40 Km in NW direction from mining lease. Dense Mix Jungle/PF, Approx. 1.80 Km in SE direction from mining lease.	
21	Road & Highways	:	NH-39, Approx. 7.0 Km in NE direction from mining lease.	

CO-ORDINATES

1	Latitude		From 23° 28' 08.9898"N	To 23° 28' 16.9286" N
2	Longitude		From 84° 54' 05.1408" E	To 84° 54' 24.7661"E

LAND DETAILS

Village	Plot no.
Gitillghar	1925 (P)
Kharta	973 & 59

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Auction letter has been issued by Joint Secretary, Mines & Geology Deptt., Govt. of Jharkhand vide letter no. Kha.ni.-(Vividh)-117/2017-2090/M, dated 30.09.2022. According to provisions in Jharkhand State sand Mining Policy and its amendment. JSMDC Ltd. has been nominated as nodal agency for operating sand mines in category II.
2	CO	:	The CO, Kairo vide letter no. 514, dated 30.12.2022 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Lohardaga vide memo no. 959/M, dated 27.11.2024 certified that no other balughat exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Ranchi vide letter no. 920, dated 12.11.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.
5	DFO Forest Distance	:	Division Forest Officer, Lohardaga Forest Division vide letter no. 04, dated 02.01.2023 certified that the distance of forest is 500 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Lohardaga district (Page No. – 73, Sl. No. – LK01)
7	Gram Sabha	:	Gram Sabha conducted on 27.05.2023.
8	Mine Plan Approval	:	Approved by District Mining Officer, Lohardaga vide Memo No. 953/Mining, dated 26.11.2024.
9	Qualified Person	:	Shri Vidya Bhushan Mishra was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Manual Method	
2	Quarry Area	:	4.67 Ha. / 11.53 Acres	Life of Mine – Lease period i.e.

				15.08.2025 as per provisions of Jharkhand State Sand Mining Policy, 2017 and extendable based on amendments in Jharkhand State Sand Mining Policy.
3	Waste Generation	:	NA, as it is sand mining project.	
4	Stripping Ratio	:	01:00	
5	Working Days	:	200 Days	
6	Benches: size & No	:	Bench height – 2.5 m & Bench width - 20.0 m.	
7	Elevation of Mine	:	645 mRL to 648 mRL	
8	Ground Level Elevation	:	645 mRL	
9	Ultimate Working Depth	:	2.50 m	
10	Water Table	:	NA	
11	Topography of Mine	:	Area lying in river plain.	
12	Explosive Requirement	:	NA	
13	Diesel/Fuel requirement	:	NA	

Production Details

Year	Thickness (m)	Average Replenishment Rate	Production of sand (Cum)	Production of sand –MT
1st	2.50	60%	70050	119786

The Development Plan submitted along with the mine plan relates to mining operation during the first year.

Land Use

Type of Land	Area in (ha)
Forest Land	Nil
Govt. waste land (River)	4.67
Residential area	Nil
Company land	Nil
Private Land	Nil

Total	4.67

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Plantation along both sides of approach road		535 m	1070
2	No. of Plants distributed with consultation local authorities/ village Panchayat		--	50

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Environment Management Plan

Sl. No	Description	Capital Cost (lakh)	Recurring Cost (lakh)
1	Pollution Control & Dust Suppression	Nil	2,00,000
2	Baseline Monitoring i) Air ii) Water iii) Soil iv) Noise	--	 14,000 8,000 7,000 7,000
3	Plantation	5,60,000	1,00,000
4	Construction and maintenance of haul road	2,67,500	1,50,000
TOTAL		**8,27,500**	**4,86,000**

Note: *1120plants *500 Rs (for each plants including hedges and fences) = Rs. 5,60,000/-

Salary of Labor for haul road maintenance 1 labor*300 = 300 per day

300* 200 = 60,000/-~ 1,50,000/- (including Maintenance)

**** 5 lakh per kilometer (500000 * 0.535 km haul road = 2,67,500/-)***

Environment Monitoring Programme

S. No.	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
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3	Surface Water	2 Stations	6 Monthly
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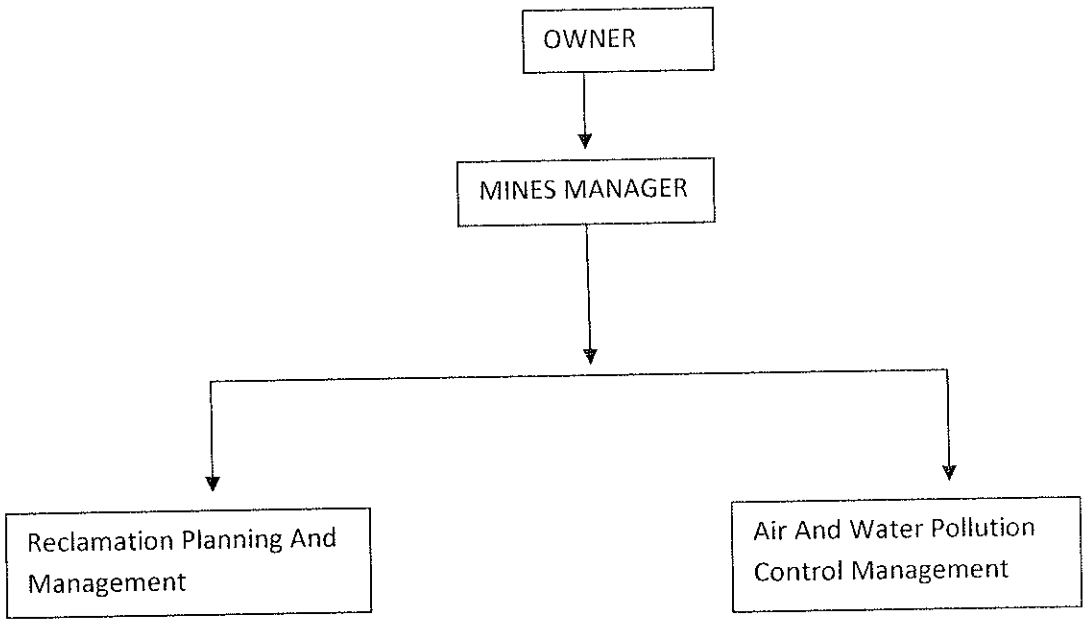

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.

720

i. If any tree felling than necessary permission shall be taken from the competent authority.

j. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

k. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

l. Transportation from the river bed to the SH-1 will be done using the existing road.

m. The Mining Plan has been prepared and approved in consonance with Enforcement & Monitoring Guidelines for Sand Mining, 2020.

n. Wet sand will not be transported.

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III. **Movement of tippers on Road** – Movement of tippers on road generate dust. For mitigation of this pollution following measures will be taken

- Regular water sprinkling on Haul road by using water tankers.
- Regular repair of Haul road
- All Trucks carrying Sand outside lease area will have PUC certificate.
- Transport tippers/traders moving on public road will be covered with tarpaulin.

RISK ASSOCIATED WITH PROJECT ACTIVITIES AND THEIR MITIGATION MEASURES ARE DICUSSED BELOW:

Road accidents

Transportation of sand along the public road may cause accident which may cause injury.

Preventive Measures;

1. Ensure speed limit for the haulage vehicle for 40 KMPH.
2. Regular maintenance of haulage road
3. Appropriate navigational signs informing sensitive area like school and habitation
4. Regular maintenance of the vehicles.

Dust generation

- No drilling involved
- Dust mass would be supplied to workers.
- Regular sprinkling of water on road

Noise Generation

Source of noise pollution in the project would be movement of tippers / tractors transporting sand from mine to stock yard. In general tippers / tractors produce a noise level of 75 – 90 (A) measured at distance of 3m from the source.

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- Transportation activities would be confined during day time only.
- There would be a speed limit of 40 kmph for tippers. Higher is speed higher is noise.
- Regular repair and maintenance of tippers/tractors.
- Plantation on both sides of haulage road.
- Tippers having PUC certified will be allowed to be used for sand transportation.

Health Hazards

During digging and handling of sand i.e. loading, transportation and unloading of sand, workmen would be exposed to inhalation of fine dust particles. This poses a health hazard.

Measures

Following mitigation measures would be taken to minimize this impact on health

- Regular water sprinkling on haulage roads
- Tree plantation on both sides of haulage road
- Tippers / Tractors carrying sand would be covered
- Mask would be provided to workmen employed for digging, loading, transportation and unloading activities

Accident at Site

This is a project with only source of accident at site would be movement of tippers /tractors within mine site for transportation of sand.

Preventive measures

Following mitigation measures would be taken to minimize risk of road accident:

- Separate alignment for movement of loaded vehicles coming out of mine site
- Ensure speed restriction of 10 KMPH within mine site for incoming and outgoing tippers
- Regular maintenance and repair of haulage vehicles employed for sand transportation
- No overtaking of transportation vehicles within mine site
- Proper maintenance of haulage roads

Transportation

The usual method of transporting minerals from the working face is by tractor. Large earth moving equipment's are not used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

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- Mine road/approach road will be cleaned daily for smooth transportation.

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- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Gitilghar & Kharta Sand Deposit (River Bed of Koel) of M/s Jharkhand State Mineral Development Corporation Limited (JSMDC Ltd.), Village : Gitilghar & Kharta, Block : Kairo, Distt. : Lohardaga, Jharkhand (4.67 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. The Environmental Clearance granted for lease period i.e. 15.08.2025 as per provisions of Jharkhand State Sand Mining Policy, 2017 and extendable based on amendments in Jharkhand State Sand Mining Policy.

IV. Replenishment study shall be conducted during pre-monsoon and post monsoon every year and study report have to be submitted to SEIAA / SEAC, Jharkhand. The production shall be restricted to 60% of the replenished quantity or the proposed quantity in the mine plan, which ever is less.

V. Suitable plant species of not less than 2 M height to be planted in area equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

VI. Dedicated water tanker to be provided for spraying water on haul road and for irrigating newly planted saplings only. Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

VII. Pre-employment Occupational health checkup for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests. Summary findings of same to submitted along with 6 monthly compliance.

VIII. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted within 6 monthly compliance report with Geo-Tagged photographs.

IX. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted within 6 monthly compliance report.

X. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

XI. Project Authority will ensure that personal protective equipments such as protective clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel's.

XII. River Sand Mining shall not be done in rainy Season (mid June to mid October of each calendar year).

XIII. Dept. of Mines & Geology, Govt. of Jharkhand shall keep a strict vigil in the compliance of relevant provisions of applicable Jharkhand Minerals (Prevention of illegal mining, Transportation and Storage) Rule 2017 and its amendment especially scientific execution of mining plan (as approved by they themselves) and report violations if any is found as well as action taken for the same.

XIV. Project Proponent shall submit (to the SEIAA, Jharkhand, Regional Office of MoEF&CC at Ranchi, Jharkhand State Pollution Control Board) six monthly compliance report with evidence of the conditions within a fortnight after the end of every six month till validity period of Environmental Clearance.

XV. The project proponent before starting any activity / preparation of ground, on the leased area shall demarcate his lease hold by RCC pillars erected at the cost of lease holder after certification of the mining officer. On each pillar Geo-Coordinate and fore bearing / back bearing shall be written with permanent paint mark as described in the mining plan. All the pillars should remain intact at same geo-coordinate. Establishment / labeling of Benchmark at each pillars or ground control points.

XVI. Extraction of sand beyond annual production capacity is not permitted.

XVII. The Project Proponent should undertake the sand mining limited to 03 meter (three meter) depth by exclusively manual method.

XVIII. The stacking area of mined-out sand which shall be situated near the mining site within a fenced area from all sides to avoid being spread in the nearby areas by high winds and the height of stacking should not exceed 2 meter. Transportation shall be confined to day time only that is from sunrise to sunset, to avoid inconvenience to local population in any manner.

XIX. Mining activity shall not be done for mine lease where mining can cause danger to site of flood protection works, places of cultural, religious, historical and archaeological importance.

XX. Project Proponent shall submit the annual replenishment report certified by an authorized agency.

XXI. No labour camp shall be allowed in riverbed.

XXII. Provision shall be made for housing labour with all necessary infrastructure and facilities (outside mining Block and river-bed) such as fuel for cooking, toilets / mobile toilets, safe drinking water, First-Aid facilities, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

XXIII. Labour & Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers shall be undertaken periodically to observe any adverse health impact due to exposure to dust and take corrective measures, if needed.

XXIV. The Project Proponent shall make arrangements for safe drinking water, first aid facility along with anti-venom injection, in case of emergency for the workers.

XXV. Sand and gravel may be extracted across the entire active channel during the dry season.

XXVI. Abandoned stream channels on the terrace and inactive floodplains be preferred rather than active channels and their deltas and flood plains. The stream should not be diverted to form the inactive channel.

XXVII. Layers of sand and gravel which could be removed from the river bed shall depend on the width of the river and replenishment rate of the river.

XXVIII. Sand and gravel shall not be allowed to be extracted where erosion may occur, such as at the concave bank.

XXIX. Sand and gravel shall not be extracted up to a distance of 1 kilo meter (1 km.) from major bridges and highways on both sides, of five times (5x) of the span (x) of a bridge / public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side.

XXX. Sand and gravel could be extracted from the downstream of the sand bar at river bends.

XXXI. Mining depth should be restricted to 3 meters and distance from the band should be $1/4^{th}$ of river width and should not be less than 7.5 meters.

XXXII. A buffer distance / unmined block of 50 meters after every block of 1000 meters over which mining is undertaken or at such distance as may be the directed / prescribed by the regulatory authority shall be maintained.

XXXIII. River bed sand mining shall be restricted within the central $3/4^{th}$ width of the river/rivulet of 7.5 meters (inward) from river banks but up to 10% of the width of the river, as the case may be. Regulating authority while regulating the zone of river bed mining shall ensure that the objective to minimize the effects of riverbank erosion and consequential channel migration are achieved to the extent possible. In general, the area for removal of minerals shall not exceed 60% of the mine lease area, and any deviation of relaxation in this regard shall be adequately supported by the scientific report.

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5. **Kaimo-Bhakso Sand Deposit (River Bed of Sankh) of M/s Jharkhand State Mineral Development Corporation Limited (JSMDC Ltd.), Village : Kaimo & Bhakso, Block : Lohardaga, Distt. : Lohardaga, Jharkhand (4.32 Ha).**

(Proposal No : SIA/JH/MIN/ 512477/2024)

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 19.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity- 51800 Cum/Annum or 89614 TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Kaimo - Bhakso Sand Deposit (River Bed of Sankh) of area 4.32 Ha../ 10.67 Acres	
2	Lessee:	:	M/s Jharkhand State Mineral Development Corporation Limited	
3	Lessee Address	:	Khanij Nigam Bhawan, Doranda, Ranchi – 834002, Jharkhand.	
4	Lease Area	:	4.32 ha.	Acres- 10.67 Acres
5	Type of Land	:	Govt. non forest (river) land	
6	Project Cost	:	Rs. 120 Lakhs	
7	EMP Budget	:	Capital: 5.58 Lakhs	Recurring: 4.86 Lakhs / year
8	New or Expansion	:	New	
9	Mineable Reserves for 1st year & subsequent year 60% of Replenished quantity	:	**51800 Cum/Annum or 89614 TPA (Dry basis)**	
10	Mine Life	:	Lease period i.e. 15.08.2025 as per provisions of Jharkhand State Sand Mining Policy, 2017 and extendable based on amendments in Jharkhand State Sand Mining Policy.	
11	Man power	:	35	
12	Water Requirement	:	5.93 ~6.0 KLD(Drinking: 0.35 KLD, Dust Suppression: 2.0 KLD, Plantation: 3.58 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	NA	
15	Crusher	:	NA	
16	Nearest Water Body	:	Project lies on Sankh River.	

17	Nearest Habitation	:	Lohardaga Railway Station, approx. 1.30 Km in SSW direction.
18	Nearest Railway Station	:	Irgaon Railway Station, approx. 8.50 Km in SSW direction.
19	Nearest Air Port	:	Birsa Munda Airport approx. 65.0 km towards East direction.
20	Nearest Forest	:	Open Mixed Jungle Approx. 3.20 Km in NE direction from mining lease.
21	Road & Highways	:	NH-143A, Approx. 1.15 Km in West direction from mining lease.

CO-ORDINATES

1	Latitude		From 23° 27' 27.2000" N	To 23° 27' 40.3500" N
2	Longitude		From 84° 42' 33.6200" E	To 84° 42' 42.9000" E

LAND DETAILS

Village	Plot no.
Kaimo	2114 (P)
Bhakso	01 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Auction letter has been issued by Joint Secretary, Mines & Geology Deptt., Govt. of Jharkhand vide letter no. Kha.ni.-(Vividh)-117/2017-2090/M, dated 30.09.2022. According to provisions in Jharkhand State sand Mining Policy and its amendment. JSMDC Ltd. has been nominated as nodal agency for operating sand mines in category II.
2	CO	:	The CO, Lohardaga (Sadar) vide letter no. 1808, dated 31.12.2022 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Lohardaga vide memo no. 964/M, dated 27.11.2024 certified that no other balughat exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Ranchi vide letter no. 917, dated 12.11.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.
5	DFO Forest	:	Division Forest Officer, Lohardaga Forest Division vide letter no. 04, dated 02.01.2023 certified that the distance of forest is 500

	Distance		meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Lohardaga district (Page No. – 76, Sl. No. – LS02)
7	Gram Sabha	:	Gram Sabha conducted on 07.10.2024.
8	Mine Plan Approval	:	Approved by District Mining Officer, Lohardaga vide Memo No. 958/Mining, dated 27.11.2024.
9	Qualified Person	:	Shri Vidya Bhushan Mishra was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Manual Method	
2	Quarry Area	:	4.32 ha. or 10.67 Acres	Life of Mine : Lease period i.e. 15.08.2025 as per provisions of Jharkhand State Sand Mining Policy, 2017 and extendable based on amendments in Jharkhand State Sand Mining Policy.
3	Waste Generation	:	NA, as it is sand mining project.	
4	Stripping Ratio	:	0:0	
5	Working Days	:	200 Days	
6	Benches: size & No	:	Bench height – 2 m & Bench width - 20.0 m.	
7	Elevation of Mine	:	625 mRL to 628 mRL	
8	Ground Level Elevation	:	625 mRL	
9	Ultimate Working Depth	:	2 m	
10	Water Table	:	NA	
11	Topography of Mine	:	Area lying in river plain.	
12	Explosive Requirement	:	NA	
13	Diesel/Fuel requirement	:	NA	

Production Details

Year	Thickness (m)	Average Replenishment Rate	Production of sand (Cum)	Production of sand –MT

1st	2	60%	51800	89614

The Development Plan submitted along with the mine plan relates to mining operation during the first year.

Land Use

Type of Land	Area in (ha)
Forest Land	Nil
Govt. waste land (River)	4.32
Residential area	Nil
Company land	Nil
Private Land	Nil
Total	**4.32**

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Plantation along both sides of approach road		336 m	672
2	No. of Plants distributed with consultation local authorities/ village Panchayat		--	44

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Environment Management Plan

Sl. No	Description	Capital Cost (Rs.)	Recurring Cost (Rs.)
1	Pollution Control & Dust Suppression	Nil	2,00,000

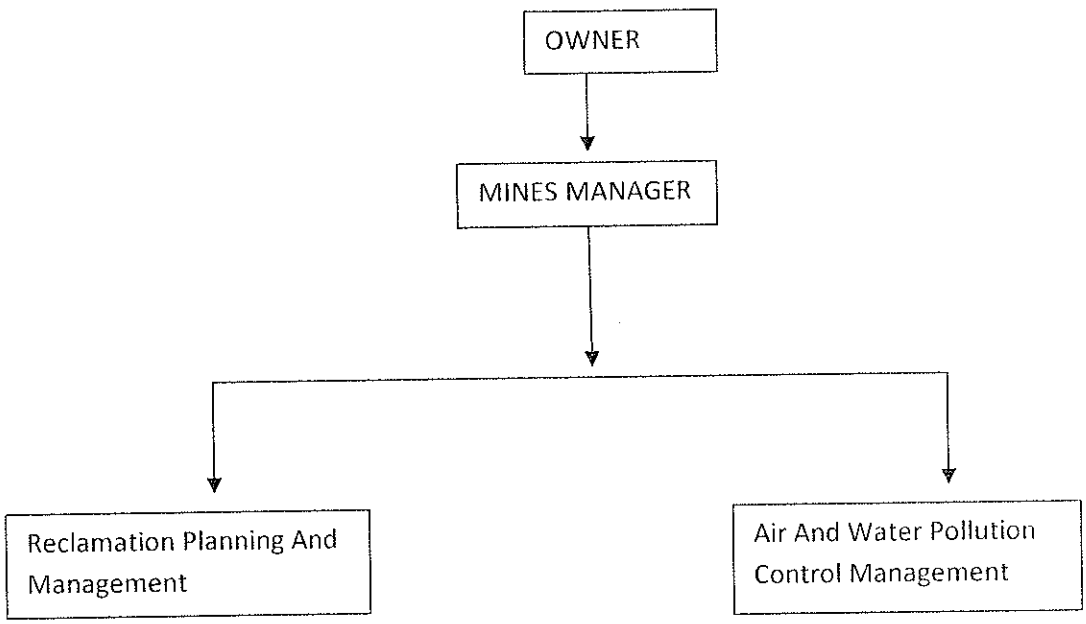
2	Baseline Monitoring i) Air ii) Water iii) Soil iv) Noise	--	 14,000 8,000 7,000 7,000
3	Plantation	3,58,000	1,00,000
4	Construction and maintenance of haul road	2,00,000	1,50,000
Total		**5,58,000**	**4,86,000**

Note: *716 plants *500 Rs (for each plants including hedges and fences) = Rs. 3,58,000/-
Salary of Labor for haul road maintenance 1 labor*300 = 300 per day
300* 200 = 60,000/- ~ 1,50,000/- (including Maintenance)
* 5 lakh per kilometer (500000 * 0.336 km haul road = 1,68,000/- or 2,00,000/-)

Environment Monitoring Programme

S. No.	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Organization Structure



Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
k. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.
l. Transportation from the river bed to the SH-1 will be done using the existing road..
m. The Mining Plan has been prepared and approved in consonance with Enforcement & Monitoring Guidelines for Sand Mining, 2020.
n. Wet sand will not be transported.

Solid Waste Management

No solid waste is generated during the course of mining.

Water Quality Management

A. Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.

B. Sewage from rest shelter would be treated in Septic Tank soak pit.

C. There is no other source for generation or discharge of trade effluent.

Air Quality Management

Sand will be mined manually. No mining equipment would be needed. However, diesel operated tippers/tractors would be used for transportation of sand from mine to stockyard.

I. **Operation of Diesel Equipment's** – They generate Noxious gases. It will be ensured that all transport vehicles would be repaired & maintained regularly.

II. **Loading of Product on tippers** – Water will be sprinkled on blasted Sand mass before they are loaded to trucks for transport.

III. **Movement of tippers on Road** – Movement of tippers on road generate dust. For mitigation of this pollution following measures will be taken

- Regular water sprinkling on Haul road by using water tankers.
- Regular repair of Haul road
- All Trucks carrying Sand outside lease area will have PUC certificate.
- Transport tippers/traders moving on public road will be covered with tarpaulin.

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XXI. No labour camp shall be allowed in riverbed.

XXII. Provision shall be made for housing labour with all necessary infrastructure and facilities (outside mining Block and river-bed) such as fuel for cooking, toilets / mobile toilets, safe drinking water, First-Aid facilities, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

XXIII. Labour & Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers shall be undertaken periodically to observe any adverse health impact due to exposure to dust and take corrective measures, if needed.

XXIV. The Project Proponent shall make arrangements for safe drinking water, first aid facility along with anti-venom injection, in case of emergency for the workers.

XXV. Sand and gravel may be extracted across the entire active channel during the dry season.

XXVI. Abandoned stream channels on the terrace and inactive floodplains be preferred rather than active channels and their deltas and flood plains. The stream should not be diverted to form the inactive channel.

XXVII. Layers of sand and gravel which could be removed from the river bed shall depend on the width of the river and replenishment rate of the river.

XXVIII. Sand and gravel shall not be allowed to be extracted where erosion may occur, such as at the concave bank.

XXIX. Sand and gravel shall not be extracted up to a distance of 1 kilo meter (1 km.) from major bridges and highways on both sides, of five times (5x) of the span (x) of a

bridge / public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side.

XXX. Sand and gravel could be extracted from the downstream of the sand bar at river bends.

XXXI. Mining depth should be restricted to 3 meters and distance from the band should be $1/4^{th}$ of river width and should not be less than 7.5 meters.

XXXII. A buffer distance / unmined block of 50 meters after every block of 1000 meters over which mining is undertaken or at such distance as may be the directed / prescribed by the regulatory authority shall be maintained.

XXXIII. River bed sand mining shall be restricted within the central $3/4^{th}$ width of the river/rivulet of 7.5 meters (inward) from river banks but up to 10% of the width of the river, as the case may be. Regulating authority while regulating the zone of river bed mining shall ensure that the objective to minimize the effects of riverbank erosion and consequential channel migration are achieved to the extent possible. In general, the area for removal of minerals shall not exceed 60% of the mine lease area, and any deviation of relaxation in this regard shall be adequately supported by the scientific report.

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6. **Lawagain & Nadinagra Sand Deposit (River Bed of Koel) of M/s Jharkhand State Mineral Development Corporation Limited (JSMDC Ltd.), Village : Lawagain & Nadinagra, Block : Kuru & Lohardaga, Distt. : Lohardaga, Jharkhand (3.61 Ha).**

(Proposal No : SIA/JH/MIN/ 510212/ 2024)

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 19.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity- 54250 Cum Per Annum Or 93310 TPA.

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Lawagain & Nadinagra Sand Deposit (River Bed of Koel) of area 3.61 Ha./ 8.92 Acres	
2	Lessee:	:	M/s Jharkhand State Mineral Development Corporation Limited	
3	Lessee Address	:	Khanij Nigam Bhawan, Doranda, Ranchi – 834002, Jharkhand.	
4	Lease Area	:	3.61 Ha.	Acres- 8.92 Acres

5	Type of Land	:	Govt. non forest (river) land	
6	Project Cost	:	Rs. 80 Lakhs	
7	EMP Budget	:	Capital: 3.085 Lakhs	Recurring: 4.86 Lakhs / year
8	New or Expansion	:	New	
9	Mineable Reserves for 1st year & subsequent year 60% of Replenished quantity	:	**54250 Cum Per Annum Or 93310 TPA (Dry basis)**	
10	Mine Life	:	Lease period i.e. 15.08.2025 as per provisions of Jharkhand State Sand Mining Policy, 2017 and extendable based on amendments in Jharkhand State Sand Mining Policy.	
11	Man power	:	25	
12	Water Requirement	:	1.87 ~2.0 KLD(Drinking: 0.25 KLD, Dust Suppression: 0.54 KLD, Plantation: 1.08 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	NA	
15	Crusher	:	NA	
16	Nearest Water Body	:	Project lies on Koel River.	
17	Nearest Habitation	:	Nadinagra village, Approx. 0.85 km towards SE direction.	
18	Nearest Railway Station	:	Lohardaga Railway Station, Approx. 7.96 Km in WSW direction.	
19	Nearest Air Port	:	Birsa Munda Airport, Approx. 58.51 km towards ESE direction	
20	Nearest Forest	:	Protected Forest, Approx. 4.5 Km in NE direction from mining lease. Protected Forest, Approx. 4.3 Km in SE direction from mining lease. Protected Forest, Approx. 4.3 Km in East direction from mining lease. Open mixed jungle, Approx. 3.9 Km in East direction from mining lease. Protected Forest, Approx. 4.5 Km in NW direction from mining lease.	
21	Road & Highways	:	NH-143A, Approx. 4.15 Km in NW direction from mining lease.	

CO-ORDINATES

1	Latitude		From 23° 28' 39.8070"N	To 23° 28' 48.1912" N
2	Longitude		From 84° 46' 37.6604" E	To 84° 46' 52.3909"E

LAND DETAILS

Village	Plot no.
Lawagain	1881 (P)
Nadinagra	01 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Auction letter has been issued by Joint Secretary, Mines & Geology Deptt., Govt. of Jharkhand vide letter no. Kha.ni.-(Vividh)-117/2017-2090/M, dated 30.09.2022. According to provisions in Jharkhand State sand Mining Policy and its amendment. JSMDC Ltd. has been nominated as nodal agency for operating sand mines in category II.
2	CO	:	The CO, Kuru vide letter no. 1158, dated 30.12.2022 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Lohardaga vide memo no. 962/M, dated 27.11.2024 certified that no other balughat exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Ranchi vide letter no. 919, dated 12.11.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.
5	DFO Forest Distance	:	Division Forest Officer, Lohardaga Forest Division vide letter no. 04, dated 02.01.2023 certified that the distance of forest is 500 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Lohardaga district (Page No. – 73, Sl. No. – LK04)
7	Gram Sabha	:	Gram Sabha conducted on 21.06.2024.
8	Mine Plan Approval	:	Approved by District Mining Officer, Lohardaga vide Memo No. 956/Mining, dated 26.11.2024.
9	Qualified Person	:	Shri Vidya Bhushan Mishra was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Manual Method	
2	Quarry Area	:	3.61 Ha. or 8.92 Acres	Life of Mine – Lease period i.e. 15.08.2025 as per provisions of Jharkhand State Sand Mining Policy, 2017 and extendable based on amendments in Jharkhand State Sand Mining Policy.
3	Waste Generation	:	NA, as it is sand mining project.	
4	Stripping Ratio	:	01:00	
5	Working Days	:	200 Days	
6	Benches: size & No	:	Bench height – 2.5 m & Bench width - 20.0 m.	
7	Elevation of Mine	:	660 mRL to 663 mRL	
8	Ground Level Elevation	:	660 mRL	
9	Ultimate Working Depth	:	2.50 m	
10	Water Table	:	NA	
11	Topography of Mine	:	Area lying in river plain.	
12	Explosive Requirement	:	NA	
13	Diesel/Fuel requirement	:	NA	

Production Details

Year	Thickness (m)	Average Replenishment Rate	Production of sand (Cum)	Production of sand –MT
1st	2.50	60%	**54250**	**93310**

The Development Plan submitted along with the mine plan relates to mining operation during the first year.

Land Use

Type of Land	Area in (ha)
Forest Land	Nil
Govt. waste land (River)	3.61

Residential area	Nil
Company land	Nil
Private Land	Nil
Total	**3.61**

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Plantation along both sides of approach road		90 m	180
2	No. of Plants distributed with consultation local authorities/ village Panchayat		--	37

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Environment Management Plan

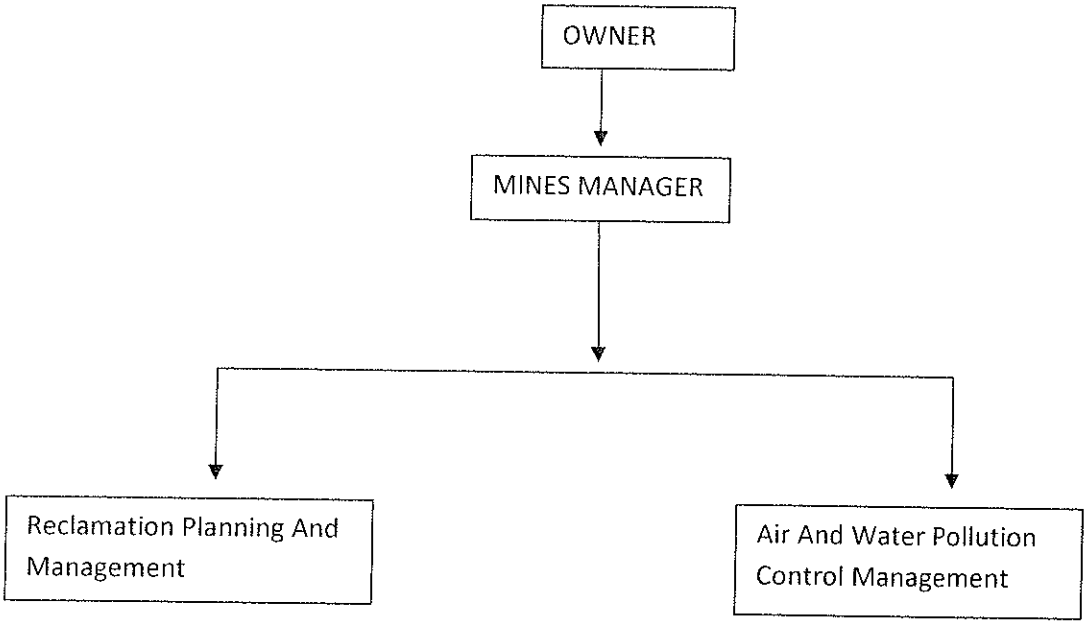
Sl. No	Description	Capital Cost (Rs.)	Recurring Cost (Rs.)
1	Pollution Control & Dust Suppression	Nil	2,00,000
2	Baseline Monitoring i) Air ii) Water iii) Soil iv) Noise	--	 14,000 8,000 7,000 7,000
3	Plantation	1,08,500	1,00,000
4	Construction and maintenance of haul road	2,00,000	1,50,000
Total		**3,08,500**	**4,86,000**

Note: *217 plants *500 Rs (for each plants including hedges and fences) = Rs. 1,08,500/-
Salary of Labor for haul road maintenance 1 labor*300 = 300 per day
300* 200 = 60,000/-~ 1,50,000/- (including Maintenance)

Environment Monitoring Programme

S. No.	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Organization Structure



Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.

i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
k. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.
l. Transportation from the river bed to the SH-1 will be done using the existing road.
m. The Mining Plan has been prepared and approved in consonance with Enforcement & Monitoring Guidelines for Sand Mining, 2020.
n. Wet sand will not be transported.

Solid Waste Management

No solid waste is generated during the course of mining.

Water Quality Management

A. Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.

B. Sewage from rest shelter would be treated in Septic Tank soak pit.

C. There is no other source for generation or discharge of trade effluent.

Air Quality Management

Sand will be mined manually. No mining equipment would be needed. However, diesel operated tippers/tractors would be used for transportation of sand from mine to stockyard.

I. **Operation of Diesel Equipment's –** They generate Noxious gases. It will be ensured that all transport vehicles would be repaired & maintained regularly.

II. **Loading of Product on tippers –** Water will be sprinkled on blasted Sand mass before they are loaded to trucks for transport.

III. **Movement of tippers on Road –** Movement of tippers on road generate dust. For mitigation of this pollution following measures will be taken

- Regular water sprinkling on Haul road by using water tankers.
- Regular repair of Haul road
- All Trucks carrying Sand outside lease area will have PUC certificate.
- Transport tippers/traders moving on public road will be covered with tarpaulin.

RISK ASSOCIATED WITH PROJECT ACTIVITIES AND THEIR MITIGATION MEASURES ARE DICUSSED BELOW:

Road accidents

Transportation of sand along the public road may cause accident which may cause injury.

Preventive Measures;

1. Ensure speed limit for the haulage vehicle for 40 KMPH.
2. Regular maintenance of haulage road
3. Appropriate navigational signs informing sensitive area like school and habitation
4. Regular maintenance of the vehicles.

Dust generation

- No drilling involved
- Dust mass would be supplied to workers.

- Regular sprinkling of water on road

Noise Generation

Source of noise pollution in the project would be movement of tippers / tractors transporting sand from mine to stock yard. In general tippers / tractors produce a noise level of 75 – 90 (A) measured at distance of 3m from the source.

Preventive measures

- Transportation activities would be confined during day time only.
- There would be a speed limit of 40 kmph for tippers. Higher is speed higher is noise.
- Regular repair and maintenance of tippers/tractors.
- Plantation on both sides of haulage road.
- Tippers having PUC certified will be allowed to be used for sand transportation.

Health Hazards

During digging and handling of sand i.e. loading, transportation and unloading of sand, workmen would be exposed to inhalation of fine dust particles. This poses a health hazard.

Measures

Following mitigation measures would be taken to minimize this impact on health

- Regular water sprinkling on haulage roads
- Tree plantation on both sides of haulage road
- Tippers / Tractors carrying sand would be covered
- Mask would be provided to workmen employed for digging, loading, transportation and unloading activities

Accident at Site

This is a project with only source of accident at site would be movement of tippers /tractors within mine site for transportation of sand.

Preventive measures

Following mitigation measures would be taken to minimize risk of road accident:

- Separate alignment for movement of loaded vehicles coming out of mine site
- Ensure speed restriction of 10 KMPH within mine site for incoming and outgoing tippers
- Regular maintenance and repair of haulage vehicles employed for sand transportation
- No overtaking of transportation vehicles within mine site
- Proper maintenance of haulage roads

Transportation

The usual method of transporting minerals from the working face is by tractor. Large earth moving equipment's are not used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road/approach road shall be made smooth regularly with a road roller.
- Mine road/approach road will be cleaned daily for smooth transportation.
- Mine road/approach road will be made sufficiently wide to keep two-way traffic.

- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Lawagain & Nadinagra Sand Deposit (River Bed of Koel) of M/s Jharkhand State Mineral Development Corporation Limited (JSMDC Ltd.), Village : Lawagain & Nadinagra, Block : Kuru & Lohardaga, Distt. : Lohardaga, Jharkhand (3.61 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. The Environmental Clearance granted for lease period i.e. 15.08.2025 as per provisions of Jharkhand State Sand Mining Policy, 2017 and extendable based on amendments in Jharkhand State Sand Mining Policy.

IV. Replenishment study shall be conducted during pre-monsoon and post monsoon every year and study report have to be submitted to SEIAA / SEAC, Jharkhand. The production shall be restricted to 60% of the replenished quantity or the proposed quantity in the mine plan, which ever is less.

V. Suitable plant species of not less than 2 M height to be planted in area equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

VI. Dedicated water tanker to be provided for spraying water on haul road and for irrigating newly planted saplings only. Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

VII. Pre-employment Occupational health checkup for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests. Summary findings of same to submitted along with 6 monthly compliance.

VIII. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted within 6 monthly compliance report with Geo-Tagged photographs.

IX. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted within 6 monthly compliance report.

X. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

XI. Project Authority will ensure that personal protective equipments such as protective clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel's.

XII. River Sand Mining shall not be done in rainy Season (mid June to mid October of each calendar year).

XIII. Dept. of Mines & Geology, Govt. of Jharkhand shall keep a strict vigil in the compliance of relevant provisions of applicable Jharkhand Minerals (Prevention of illegal mining, Transportation and Storage) Rule 2017 and its amendment especially scientific execution of mining plan (as approved by they themselves) and report violations if any is found as well as action taken for the same.

XIV. Project Proponent shall submit (to the SEIAA, Jharkhand, Regional Office of MoEF&CC at Ranchi, Jharkhand State Pollution Control Board) six monthly compliance report with evidence of the conditions within a fortnight after the end of every six month till validity period of Environmental Clearance.

XV. The project proponent before starting any activity / preparation of ground, on the leased area shall demarcate his lease hold by RCC pillars erected at the cost of lease holder after certification of the mining officer. On each pillar Geo-Coordinate and fore bearing / back bearing shall be written with permanent paint mark as described in the mining plan. All the pillars should remain intact at same geo-coordinate. Establishment / labeling of Benchmark at each pillars or ground control points.

XVI. Extraction of sand beyond annual production capacity is not permitted.

XVII. The Project Proponent should undertake the sand mining limited to 03 meter (three meter) depth by exclusively manual method.

XVIII. The stacking area of mined-out sand which shall be situated near the mining site within a fenced area from all sides to avoid being spread in the nearby areas by high winds and the height of stacking should not exceed 2 meter. Transportation shall be confined to day time only that is from sunrise to sunset, to avoid inconvenience to local population in any manner.

XIX. Mining activity shall not be done for mine lease where mining can cause danger to site of flood protection works, places of cultural, religious, historical and archaeological importance.

XX. Project Proponent shall submit the annual replenishment report certified by an authorized agency.

XXI. No labour camp shall be allowed in riverbed.

XXII. Provision shall be made for housing labour with all necessary infrastructure and facilities (outside mining Block and river-bed) such as fuel for cooking, toilets / mobile toilets, safe drinking water, First-Aid facilities, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

XXIII. Labour & Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers shall be undertaken periodically to observe any adverse health impact due to exposure to dust and take corrective measures, if needed.

XXIV. The Project Proponent shall make arrangements for safe drinking water, first aid facility along with anti-venom injection, in case of emergency for the workers.

XXV. Sand and gravel may be extracted across the entire active channel during the dry season.

XXVI. Abandoned stream channels on the terrace and inactive floodplains be preferred rather than active channels and their deltas and flood plains. The stream should not be diverted to form the inactive channel.

XXVII. Layers of sand and gravel which could be removed from the river bed shall depend on the width of the river and replenishment rate of the river.

XXVIII. Sand and gravel shall not be allowed to be extracted where erosion may occur, such as at the concave bank.

XXIX. Sand and gravel shall not be extracted up to a distance of 1 kilo meter (1 km.) from major bridges and highways on both sides, of five times (5x) of the span (x) of a bridge / public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side.

XXX. Sand and gravel could be extracted from the downstream of the sand bar at river bends.

XXXI. Mining depth should be restricted to 3 meters and distance from the band should be $1/4^{th}$ of river width and should not be less than 7.5 meters.

XXXII. A buffer distance / unmined block of 50 meters after every block of 1000 meters over which mining is undertaken or at such distance as may be the directed / prescribed by the regulatory authority shall be maintained.

XXXIII. River bed sand mining shall be restricted within the central $3/4^{th}$ width of the river/rivulet of 7.5 meters (inward) from river banks but up to 10% of the width of the river, as the case may be. Regulating authority while regulating the zone of river bed mining shall ensure that the objective to minimize the effects of riverbank erosion and consequential channel migration are achieved to the extent possible. In general, the area for removal of minerals shall not exceed 60% of the mine lease area, and any deviation of relaxation in this regard shall be adequately supported by the scientific report.

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7. **Amar Chhechharia Khajuri Nawadih, Bajudih & Ataula Sand Deposit in North Koel River of M/s Jharkhand State Mineral Development Corporation Ltd. (JSMDC Ltd.), Village : Amar Chhechharia Khajuri Nawadih, Bajudih & Ataula, Distt. : Garhwa, Jharkhand (22.50 Ha).**

(Proposal No. SIA/JH/MIN/514259/2024).

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 19.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B1.

Application for Environmental Clearance (EC) after ToR.

The State Expert Appraisal Committee, Jharkhand deliberated the project during its 108th meeting held on 19 - 25.09.2023 and SEIAA, Jharkhand has approved the ToRs in 109th meeting held on 27th & 28th September, 2023. TOR for the project was issued by SEIAA, Jharkhand vide letter no. EC/SEIAA/2023-24/2934/2023/311, dated 06.10.2023. The final EIA / EMP submitted by PP to SEAC on 13.12.2024.

EC Application for: Proposed Capacity- 393400 cum/annum or 629440 TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Amar Chhechharia, Khajuri Nawadih, Bajudih & Ataula Sand Deposit (North Koel Sand Ghat – 9)	
2	Lessee:	:	M/s Jharkhand State Mineral Development Corporation Limited	
3	Lessee Address	:	Khanij Nigam Bhawan, Doranda, Ranchi – 834002, Jharkhand.	
4	Lease Area	:	22.50 ha.	Acres- 55.59 Acres
5	Type of Land	:	Govt. non forest (river) land	
6	Project Cost	:	Rs. 90 Lakhs	
7	EMP Budget	:	Capital: 3.25 Lakhs	Recurring: 9.70 Lakhs / year
8	New or Expansion	:	New	
9	Mineable Reserves for 1st year & subsequent year 60% of Replenished quantity	:	**393400 cum/annum or 629440 TPA (Dry basis)**	

10	Mine Life	:	Lease period i.e. 15.08.2025 as per provisions of Jharkhand State Sand Mining Policy, 2017 and extendable based on amendments in Jharkhand State Sand Mining Policy.
11	Man power	:	15
12	Water Requirement	:	1.25 ~ 1.50 KLD (Drinking: 0.15 KLD, Dust Suppression: 0.60 KLD, Plantation: 0.50 KLD)
13	Water Source	:	From Nearby villages by tankers
14	DG Set / power	:	NA
15	Crusher	:	NA
16	Nearest Water Body	:	Project lies on North Koel River.
17	Nearest Habitation	:	Approx 0.24 km towards SW direction.
18	Nearest Railway Station	:	Karkatta Railway station, approx. 2.39 km towards ENE direction.
19	Nearest Air Port	:	Birsa Munda Airport, approx. 186.85 km towards SE direction.
20	Nearest Forest	:	Majuraha Pahar Open Mixed Jungle, approx. 3.40 km towards WSW direction of mine site. Kholra Protected Forest, approx.2.52 km towards SW direction of mine site. Amba Pahar Mixed Jungle, approx.4.32 km towards SW direction of mine site.
21	Road & Highways	:	NH-39, Approx.13.60 km in South direction.

CO-ORDINATES

1	Latitude		From 24° 16' 46.230"N	To 24° 17' 41.726" N
2	Longitude		From 83° 48' 52.634" E	To 83° 49' 25.937"E

LAND DETAILS:

Plot no.
2243, 2934, 01 & 1767

STATUTORY CLEARANCES:

1	LOI/Lease docs	:	The Auction letter has been issued by Joint Secretary, Mines & Geology Deptt., Govt. of Jharkhand vide letter no. Kha.ni.-(Vividh)- 117/2017-2090/M, dated 30.09.2022. According to provisions in Jharkhand State sand Mining Policy and its amendment. JSMDC Ltd. has been nominated as nodal agency for operating sand mines in category II.
2	CO	:	The CO, Majhion vide letter no. : 434, dated 08.08.2023 has mentioned the plot no. of the project is not recorded as "Jungle Jhari" in Khatiyan.
3	DMO	:	DMO, Garhwa vide memo no. 981/M, dated 17.07.2023 certified that no another mining lease area exists 500 m radius from proposed project site.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, North Division, Medininagar vide letter no. : 376, dated 08.08.2023 certified that the proposed project site is outside Eco Sensitive Zone of Palamu Wildlife Sanctuary, Betla National Park and Mahuadanr Wolf Sanctuary.
5	DFO Territorial	:	DFO, Garhwa North Forest Division vide letter no. : 579, 580, 607 & 608, dated 28.03.2023 certified that the distance of reserved / protected forest is more than 250 meter from proposed project site.
6	DSR	:	This project is mentioned in District Survey Report (DSR) of Garhwa.
7	Gram Sabha	:	Majhion Nagar Panchayat, Majhion vide letter no. 794, dated 02.09.2023 informed that Gram Sabha conducted on 12.08.2023.
8	Mine Plan Approval	:	Assistant Mining Officer, Garhwa vide letter no. 709, dated 31.05.2023.
9	Qualified Person	:	Shri Vidya Bhushan Mishra was present in the meeting and affirmed that the mine plan has been prepared by him.
10	Public Hearing	:	Public Hearing conducted on 23.10.2024.
11	Baseline Data Period	:	October, 2023 to December, 2023.

Working Details

1	Mining Method	:	Opencast Manual Method	
2	Quarry Area	:	22.05 ha. or 55.59 Acres	Life of Mine – Lease period i.e. 15.08.2025 as per provisions of Jharkhand State Sand Mining Policy, 2017 and extendable based on amendments in Jharkhand State Sand Mining Policy.
3	Waste Generation	:	NA, as it is sand mining project.	
4	Stripping Ratio	:	0:0	
5	Working Days	:	200 Days	
6	Benches: size & No	:	Bench height – 2.0 m & Bench width - 20.0 m.	
7	Elevation of Mine	:	138 AMSL to 158 AMSL	
8	Ground Level Elevation	:	138 AMSL	
9	Ultimate Working Depth	:	136 AMSL (2.0 m)	
10	Water Table	:	NA	
11	Topography of Mine	:	Area lying in river plain.	
12	Explosive Requirement	:	NA	
13	Diesel/Fuel requirement	:	NA	

Production Details

Year	Thickness (m)	Average Replenishment Rate	Production of sand(Cum)	Production of sand –MT (Cum*1.6)
1st	2	60 %	393400	629440

The Development Plan submitted along with the mine plan relates to mining operation during the first year.

Land Use

Type of Land	Area in (ha)
Forest Land	Nil

Govt. waste land (River)	22.50
Residential area	Nil
Company land	Nil
Private Land	Nil
Total	**22.50**

Public Hearing:

Public hearing was successfully executed on date 23.10.2024.

S. No.	Name and Address	Issues raised by Locals/Public	Replied by Project Proponent	Action Plan
1.	Shri Ashok Pandey, Village-Amar Chhechharia, District-Garhwa, Jharkhand	He asked that, what effect will be there on ground water level.	The project proponent replied that there will be no impact on ground water level due to sand mining activities. Sand mining will be done up to the approved mining depth of 2.0 m or above ground level.	--
2.	Shri Bhagwan Dutt Tiwari Village-Amar Chhechharia, District-Garhwa, Jharkhand	He asked that, will the villagers also get sand, and at what rate?	The project proponent replied that the villagers will get sand as per the govt. rate of @ Rs. 7.50/- Cubic Feet (CFT)	--
3.	Shri Avdhesh Pandey, Village-Amar Chhechharia, District-Garhwa, Jharkhand	He asked that, the local people will get employment opportunities or not?	The project proponent replied that the local people will get employment on the basis of their qualification and experience.	Employment will be given as per the merit.

4.	Shri Arun Kumar Dubey, Village-Bakoiya, District-Garhwa, Jharkhand	He asked that, what benefits will be there to the villagers.	The project proponent replied that the local people will get employment and other benefits will be given as per the rules applicable for the project.	Employment will be given as per the merit. Medical facilities for the villagers (Medical health camps) will be provided under which Rs 2.0 lakh will be spent as recurring cost. This budget has been included in the EMP.
5.	Shri Prasiddh Kumar, Village-Amar Chhechharia, District-Garhwa, Jharkhand	He asked that, the employment requirement is the major problem of our youth, what action being taken for that.	The project proponent replied that the local people will get employment on the basis of their qualification and experience.	Employment will be given as per the merit.
6.	Shri Satender Pandey, Village-Amar Chhechharia, District-Garhwa, Jharkhand	He asked that, what benefits will be there to the local people.	The project proponent replied that the local people will get employment and time to time medical camps also will be organized for health checkup.	Medical facilities for the villagers (Medical health camps) will be provided under which Rs 2.0 lakh will be spent as recurring cost. This budget has been included in the EMP. Employment will be given as per the merit.
7.	Shri Santosh Kumar, Village-	He said that, there is our land along the	The project proponent replied that the land is rayati	--

	Amar Chhechharia, District-Garhwa, Jharkhand	bank of Koel River. Will the sand mining cause any harm to our crops.	lands and no one can use without consent of the owners/farmers and actions will be taken with mutual consents.	
8.	Shri Anand Kumar Pandey, Village-Amar Chhechharia, District-Garhwa, Jharkhand	He also asked that, what will be the role of local people in sand mining project activities.	The project proponent replied that the local people will get employment and other benefits will be given as per the rules applicable for the project.	Employment will be given as per the merit.
9.	Shri Shashi Ranjan, Village-Amar Chhechharia, District-Garhwa, Jharkhand	He said that, can our tractor be used in sand mining activities, will the sand rates be reduced or not?	The project proponent replied that the Tractors will be hired from local people and sand will be provided to them on the Govt. rate of @Rs. 7.50/Cubic Feet (CFT) + GST	--
10.	Shri Babu Lal, Village-Ataula, District-Garhwa, Jharkhand	He asked that, the local people will get employment opportunities or not?	The project proponent replied that the local people will get employment and other benefits will be given as per the rules applicable for the project.	Employment will be given as per the merit.

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Plantation along both sides of approach road		100 m	200
2	No. of Plants distributed with consultation local authorities/ village		--	50

	Panchayat			

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Environment Management Plan

Sl. No	Description	Capital Cost (Rs)	Recurring Cost (Rs)
1	Pollution Control & Dust Suppression	--	4,00,000
2	Baseline Monitoring i) Air ii) Water iii) Soil iv) Noise	--	 50,000 40,000 20,000 10,000
3	Plantation	1,25,000	1,00,000
4	Construction and maintenance of haul road	2,00,000	1,50,000
As suggested during Public Hearing			
5	Fund for Medical camp in nearby village (twice in a year)	--	2,00,000
TOTAL		3,25,000	9,70,000

*Note: *250 plants *500 Rs (for each plants including hedges and fences) = Rs. 1,25,000/-*

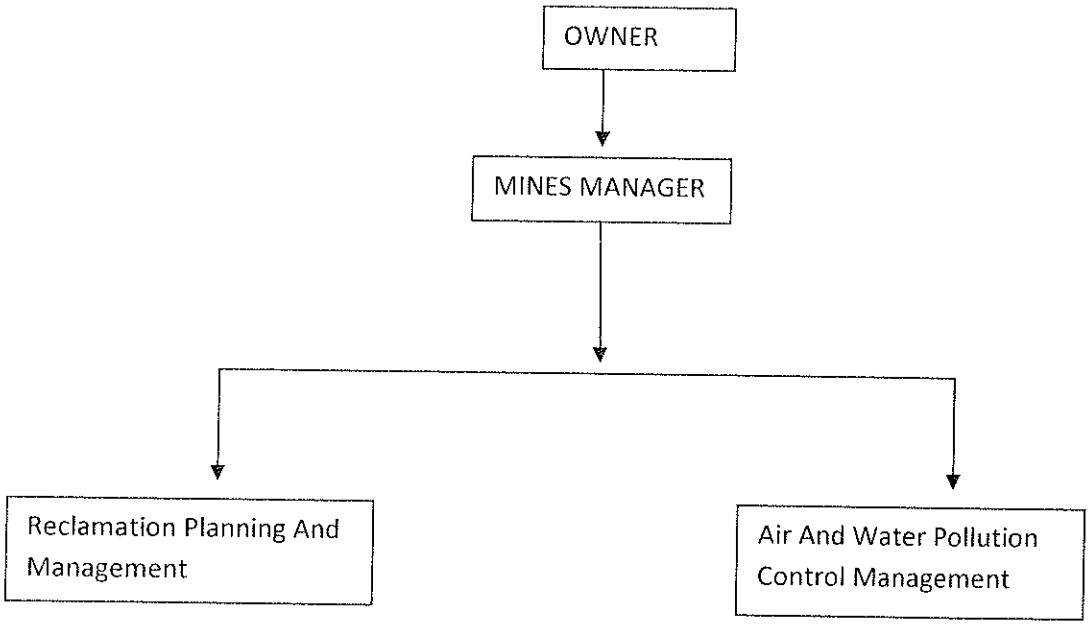
*Salary of Labor for haul road maintenance 1 labor*300 = 300 per day*

300 200 = 60,000/- ~ 1,50,000/- (including Maintenance)*

Environment Monitoring Programme

S. No.	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Organization Structure



Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
k. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

l. Transportation from the river bed to the SH-1 will be done using the existing road.
m. The Mining Plan has been prepared and approved in consonance with Enforcement & Monitoring Guidelines for Sand Mining, 2020.
n. Wet sand will not be transported.

Solid Waste Management

No solid waste is generated during the course of mining.

Water Quality Management

A. Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.

B. Sewage from rest shelter would be treated in Septic Tank soak pit.

C. There is no other source for generation or discharge of trade effluent.

Air Quality Management

Sand will be mined manually. No mining equipment would be needed. However, diesel operated tippers/tractors would be used for transportation of sand from mine to stockyard.

I. **Operation of Diesel Equipment's** – They generate Noxious gases. It will be ensured that all transport vehicles would be repaired & maintained regularly.

II. **Loading of Product on tippers** – Water will be sprinkled on blasted Sand mass before they are loaded to trucks for transport.

III. **Movement of tippers on Road** – Movement of tippers on road generate dust. For mitigation of this pollution following measures will be taken

- Regular water sprinkling on Haul road by using water tankers.
- Regular repair of Haul road
- All Trucks carrying Sand outside lease area will have PUC certificate.
- Transport tippers/traders moving on public road will be covered with tarpaulin.

RISK ASSOCIATED WITH PROJECT ACTIVITIES AND THEIR MITIGATION MEASURES ARE DICUSSED BELOW:

Road accidents

Transportation of sand along the public road may cause accident which may cause injury.

Preventive Measures;

1. Ensure speed limit for the haulage vehicle for 40 KMPH.
2. Regular maintenance of haulage road
3. Appropriate navigational signs informing sensitive area like school and habitation
4. Regular maintenance of the vehicles.

Dust generation

- No drilling involved
- Dust mass would be supplied to workers.
- Regular sprinkling of water on road

Noise Generation

Source of noise pollution in the project would be movement of tippers / tractors transporting sand from mine to stock yard. In general tippers / tractors produce a noise level of 75 – 90 (A) measured at distance of 3m from the source.

Preventive measures

- Transportation activities would be confined during day time only.
- There would be a speed limit of 40 kmph for tippers. Higher is speed higher is noise.
- Regular repair and maintenance of tippers/tractors.
- Plantation on both sides of haulage road.
- Tippers having PUC certified will be allowed to be used for sand transportation.

Health Hazards

During digging and handling of sand i.e. loading, transportation and unloading of sand, workmen would be exposed to inhalation of fine dust particles. This poses a health hazard.

Measures

Following mitigation measures would be taken to minimize this impact on health

- Regular water sprinkling on haulage roads
- Tree plantation on both sides of haulage road
- Tippers / Tractors carrying sand would be covered
- Mask would be provided to workmen employed for digging, loading, transportation and unloading activities

Accident at Site

This is a project with only source of accident at site would be movement of tippers /tractors within mine site for transportation of sand.

Preventive measures

Following mitigation measures would be taken to minimize risk of road accident:

- Separate alignment for movement of loaded vehicles coming out of mine site
- Ensure speed restriction of 10 KMPH within mine site for incoming and outgoing tippers
- Regular maintenance and repair of haulage vehicles employed for sand transportation
- No overtaking of transportation vehicles within mine site
- Proper maintenance of haulage roads

Transportation

The usual method of transporting minerals from the working face is by tractor. Large earth moving equipment's are not used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road/approach road shall be made smooth regularly with a road roller.
- Mine road/approach road will be cleaned daily for smooth transportation.
- Mine road/approach road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.

- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Amar Chhechharia Khajuri Nawadih, Bajudih & Ataula Sand Deposit in North Koel River of M/s Jharkhand State Mineral Development Corporation Ltd. (JSMDC Ltd.), Village : Amar Chhechharia Khajuri Nawadih, Bajudih & Ataula, Distt. : Garhwa, Jharkhand (22.50 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. The Environmental Clearance granted for lease period i.e. 15.08.2025 as per provisions of Jharkhand State Sand Mining Policy, 2017 and extendable based on amendments in Jharkhand State Sand Mining Policy.

IV. Replenishment study shall be conducted during pre-monsoon and post monsoon every year and study report have to be submitted to SEIAA / SEAC, Jharkhand. The production shall be restricted to 60% of the replenished quantity or the proposed quantity in the mine plan, which ever is less.

V. Suitable plant species of not less than 2 M height to be planted in area equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

VI. Dedicated water tanker to be provided for spraying water on haul road and for irrigating newly planted saplings only. Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

VII. Pre-employment Occupational health checkup for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests. Summary findings of same to submitted along with 6 monthly compliance.

VIII. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted within 6 monthly compliance report with Geo-Tagged photographs.

IX. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted within 6 monthly compliance report.

X. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

XI. Project Authority will ensure that personal protective equipments such as protective clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel's.

XII. River Sand Mining shall not be done in rainy Season (mid June to mid October of each calendar year).

XIII. Dept. of Mines & Geology, Govt. of Jharkhand shall keep a strict vigil in the compliance of relevant provisions of applicable Jharkhand Minerals (Prevention of illegal mining, Transportation and Storage) Rule 2017 and its amendment especially scientific execution of mining plan (as approved by they themselves) and report violations if any is found as well as action taken for the same.

XIV. Project Proponent shall submit (to the SEIAA, Jharkhand, Regional Office of MoEF&CC at Ranchi, Jharkhand State Pollution Control Board) six monthly compliance report with evidence of the conditions within a fortnight after the end of every six month till validity period of Environmental Clearance.

XV. The project proponent before starting any activity / preparation of ground, on the leased area shall demarcate his lease hold by RCC pillars erected at the cost of lease holder after certification of the mining officer. On each pillar Geo-Coordinate and fore bearing / back bearing shall be written with permanent paint mark as described in the mining plan. All the pillars should remain intact at same geo-coordinate. Establishment / labeling of Benchmark at each pillars or ground control points.

XVI. Extraction of sand beyond annual production capacity is not permitted.

XVII. The Project Proponent should undertake the sand mining limited to 03 meter (three meter) depth by exclusively manual method.

XVIII. The stacking area of mined-out sand which shall be situated near the mining site within a fenced area from all sides to avoid being spread in the nearby areas by high winds and the height of stacking should not exceed 2 meter. Transportation shall be confined to day time only that is from sunrise to sunset, to avoid inconvenience to local population in any manner.

XIX. Mining activity shall not be done for mine lease where mining can cause danger to site of flood protection works, places of cultural, religious, historical and archaeological importance.

XX. Project Proponent shall submit the annual replenishment report certified by an authorized agency.

XXI. No labour camp shall be allowed in riverbed.

XXII. Provision shall be made for housing labour with all necessary infrastructure and facilities (outside mining Block and river-bed) such as fuel for cooking, toilets / mobile

toilets, safe drinking water, First-Aid facilities, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

XXIII. Labour & Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers shall be undertaken periodically to observe any adverse health impact due to exposure to dust and take corrective measures, if needed.

XXIV. The Project Proponent shall make arrangements for safe drinking water, first aid facility along with anti-venom injection, in case of emergency for the workers.

XXV. Sand and gravel may be extracted across the entire active channel during the dry season.

XXVI. Abandoned stream channels on the terrace and inactive floodplains be preferred rather than active channels and their deltas and flood plains. The stream should not be diverted to form the inactive channel.

XXVII. Layers of sand and gravel which could be removed from the river bed shall depend on the width of the river and replenishment rate of the river.

XXVIII. Sand and gravel shall not be allowed to be extracted where erosion may occur, such as at the concave bank.

XXIX. Sand and gravel shall not be extracted up to a distance of 1 kilo meter (1 km.) from major bridges and highways on both sides, of five times (5x) of the span (x) of a bridge / public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side.

XXX. Sand and gravel could be extracted from the downstream of the sand bar at river bends.

XXXI. Mining depth should be restricted to 3 meters and distance from the band should be $1/4^{th}$ of river width and should not be less than 7.5 meters.

XXXII. A buffer distance / unmined block of 50 meters after every block of 1000 meters over which mining is undertaken or at such distance as may be the directed / prescribed by the regulatory authority shall be maintained.

XXXIII. River bed sand mining shall be restricted within the central $3/4^{th}$ width of the river/rivulet of 7.5 meters (inward) from river banks but up to 10% of the width of the river, as the case may be. Regulating authority while regulating the zone of river bed mining shall ensure that the objective to minimize the effects of riverbank erosion and consequential channel migration are achieved to the extent possible. In general, the area for removal of minerals shall not exceed 60% of the mine lease area, and any deviation of relaxation in this regard shall be adequately supported by the scientific report.

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8. Harmu - Bhakso Sand Deposit (River Bed of Koel) of M/s Jharkhand State Mineral Development Corporation Limited (JSMDC Ltd.), Village : Harmu & Bhakso, Block : Lohardaga, Distt. : Lohardaga, Jharkhand (7.29 Ha).

(Proposal No : SIA/JH/MIN/ 511243/2024)

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 19.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B1.

Application for Terms of Reference (ToR) as per EIA Notification, 2006.

ToR Application for: Proposed Capacity- 109250 cum per annum or 189003 TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Harmu - Bhakso Sand Deposit (In The River Bed of Koel)	
2	Lessee	:	M/s Jharkhand State Mineral Development Corporation Limited	
3	Lessee Address	:	Khanij Nigam Bhawan, Doranda, Ranchi – 834002, Jharkhand.	
4	Lease Area	:	7.29 ha.	Acres- 18.01 Acres
5	Type of Land	:	Govt. non forest (river) land	
6	Project Cost	:	Rs. 140 Lakhs	
7	EMP Budget	:	Capital: 15.005 Lakh	Recurring: 5.70 Lakh
8	New or Expansion	:	New	
9	Mineable Reserves for 1st year & subsequent year 60% of Replenished quantity	:	Cum : 109250 cum (dry basis)	Tonnes: 189003 tonnes (dry basis)
10	Mine Life	:	Life of Mine/lease period i.e. 15.08.2025 as per provision of Jharkhand state Sand mining policy, 2017 and extendable based on amendments in Jharkhand State Sand Mining Policy.	
11	Man power	:	50	
12	Water Requirement	:	16.47~ 17.0 KLD (Drinking: 0.50 KLD, Dust Suppression: 5.85 KLD, Plantation: 10.12 KLD)	
13	Water Source	:	From Nearby villages by tankers	
14	DG Set / power	:	NA	
15	Crusher	:	NA	
16	Nearest Water Body	:	Project lies on Koel River.	
17	Nearest Habitation	:	Arkosa Village Approx 0.54 km towards East direction.	

18	Nearest Rail Station	:	Lohardaga Railway Station, approx. 2.10 Km in NW direction.
19	Nearest Air Port	:	Birsa Munda Airport approx 63.0 km towards East direction.
20	Nearest Forest	:	Open mixed Jungle Approx. 4.00 Km in SE direction from mining lease.
21	Road & Highways	:	NH-143AG, Approx. 2.72 Km in SW direction from mining lease.

CO-ORDINATES

1	Latitude		From 23° 25' 31.0900" N	To 23° 25' 54.9800" N
2	Longitude		From 84° 43' 05.3100" E	To 84° 43' 15. 5400" E

LAND DETAILS

Village	Plot no.
Harmu	1606 (P)
Bhakso	2462 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Auction letter has been issued by Joint Secretary, Mines & Geology Deptt., Govt. of Jharkhand vide letter no. Kha.ni.-(Vividh)-117/2017-2090/M, dated 30.09.2022. According to provisions in Jharkhand State sand Mining Policy and its amendment. JSMDC Ltd. has been nominated as nodal agency for operating sand mines in category II.
2	CO	:	The CO, Lohardaga (Sadar) vide letter no. 1808, dated 31.12.2022 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Lohardaga vide memo no. 961/M, dated 27.11.2024 certified that no other balughat exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Ranchi vide letter no. 918, dated 12.11.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.
5	DFO Forest Distance	:	Division Forest Officer, Lohardaga Forest Division vide letter no. 04, dated 02.01.2023 certified that the distance of forest is 500 meters from proposed project site.

6	DSR	:	This project is mentioned in approved DSR of Lohardaga district (Page No. – 74, Sl. No. – LK06)
7	Gram Sabha	:	Gram Sabha conducted on 12.10.2024.
8	Mine Plan Approval	:	Approved by District Mining Officer, Lohardaga vide Memo No. 955/Mining, dated 26.11.2024.
9	Qualified Person	:	Shri Vidya Bhushan Mishra was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast manual Method	
2	Quarry Area	:	7.29 ha. or 18.01 Acres	Life of Mine – Life of Mine/lease period i.e. 15.08.2025 as per provision of Jharkhand state Sand mining policy, 2017 and extendable based on amendments in Jharkhand State Sand Mining Policy.
3	Waste Generation	:	00 cum, as it is sand mining project.	
4	Stripping Ratio	:	0:0	
5	Working Days	:	200 Days	
6	Benches: size & No	:	Bench height – 2.50 m & Bench width - 20.0 m.	
7	Elevation of Mine	:	641 mRL to 639 mRL (maximum 2.50 m)	
8	Ground Level Elevation	:	636.5 mRL	
9	Ultimate Working Depth	:	2.50 m	
10	Water Table	:	NA	
11	Topography of Mine	:	Area lying in river plain.	
12	Explosive Requirement	:	NA	
13	Diesel/Fuel requirement	:	NA	

Production Details

Year	Thickness (m)	Average Replenishment Rate	Production of sand(Cum)	Production of sand –MT (Cum*1.73)	Bench RL in Meters
1st Year	2.50	60 %	109250	189003	NA

The Development Plan submitted along with the mine plan relates to mining operation during the first year

Land Use

Type of Land	Area in (ha)
Forest Land	Nil
Govt. waste land (River)	7.29
Residential area	Nil
Company land	Nil
Private Land	Nil
Total	**7.29**

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location	Area/Length	No of Trees
1	Plantation along both sides of approach road	976 m	1952
2	No. of Plants distributed with consultation local authorities/ village Panchayat	-	73

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Environment Management Plan

Sl. No	Description	Capital Cost (lakh)	Recurring Cost (lakh)
1	Pollution Control & Dust Suppression	Nil	2,00,000
2	Baseline Monitoring i) Air ii) Water iii) Soil iv) Noise	--	 50,000 40,000 20,000 10,000
3	Plantation	10,12,500	1,00,000

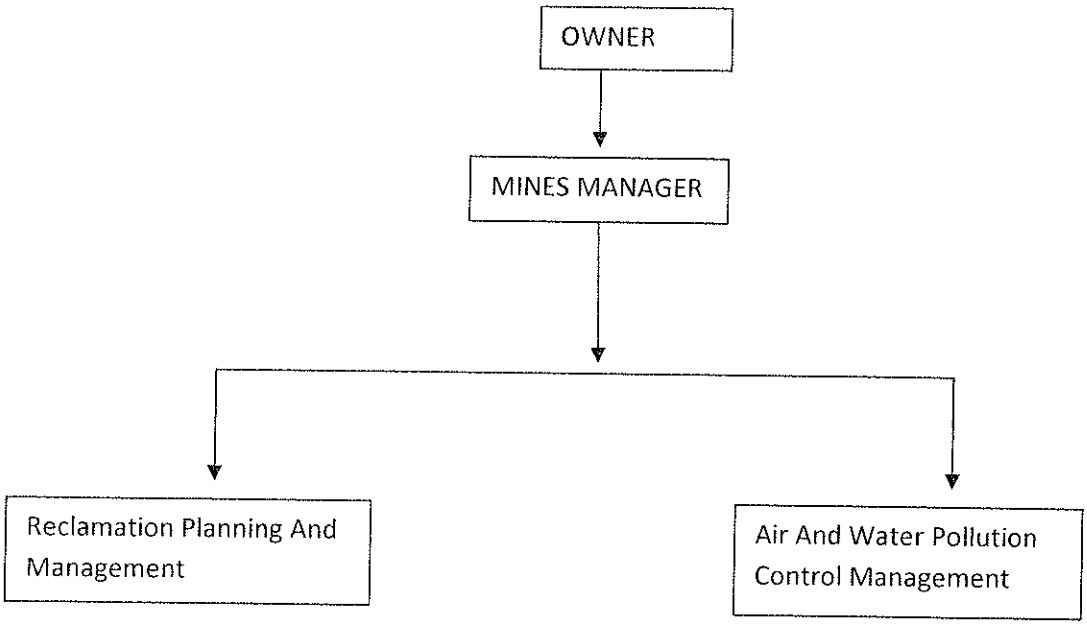
4	Construction and maintenance of haul road	4,88,000	1,50,000
TOTAL		**15,00,500**	**5,70,000**

Note: *2025 plants *500 Rs (for each plants including hedges and fences) = Rs. 10,12,500/-
Salary of Labor for haul road maintenance 1 labor*300 = 300 per day
300* 200 = 60,000/-~ 1,50,000/- (including Maintenance)
**** 5 lakh per kilometer (500000 * 0.976 km haul road = 4,88,000/-)***

Environment Monitoring Programme

S. No.	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Organization Structure



Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.

e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
k. Personal protective equipments such as protecting clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.
l. Transportation from the river bed to the NH-143AG will be done using the existing road.
m. The Mining Plan has been prepared and approved in consonance with Enforcement & Monitoring Guidelines for Sand Mining, 2020.
n. Wet sand will not be transported.

Solid Waste Management

- No solid waste is generated during the course of mining.

Water Quality Management

A. Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.

B. Sewage from rest shelter would be treated in Septic Tank soak pit.

C. There is no other source for generation or discharge of trade effluent.

Air Quality Management

Sand will be mined manually. No mining equipment would be needed. However, diesel operated tippers/tractors would be used for transportation of sand from mine to stockyard.

I. **Operation of Diesel Equipment's** – They generate Noxious gases. It will be ensured that all transport vehicles would be repaired & maintained regularly.

II. **Loading of Product on tippers** – Water will be sprinkled on blasted Sand mass before they are loaded to trucks for transport.

III. **Movement of tippers on Road** – Movement of tippers on road generate dust. For mitigation of this pollution following measures will be taken

- Regular water sprinkling on Haul road by using water tankers.
- Regular repair of Haul road
- All Trucks carrying Sand outside lease area will have PUC certificate.
- Transport tippers/traders moving on public road will be covered with tarpaulin.

RISK ASSOCIATED WITH PROJECT ACTIVITIES AND THEIR MITIGATION MEASURES ARE DICUSSED BELOW:

Road accidents

Transportation of sand along the public road may cause accident which may cause injury.

Preventive Measures;

1. Ensure speed limit for the haulage vehicle for 40 KMPH.
2. Regular maintenance of haulage road
3. Appropriate navigational signs informing sensitive area like school and habitation
4. Regular maintenance of the vehicles.

Dust generation

- No drilling involved
- Dust mass would be supplied to workers.
- Regular sprinkling of water on road

Noise Generation

Source of noise pollution in the project would be movement of tippers / tractors transporting sand from mine to stock yard. In general tippers / tractors produce a noise level of 75 – 90 (A) measured at distance of 3m from the source.

Preventive measures

- Transportation activities would be confined during day time only.
- There would be a speed limit of 40 kmph for tippers. Higher is speed higher is noise.
- Regular repair and maintenance of tippers/tractors.
- Plantation on both sides of haulage road.
- Tippers having PUC certified will be allowed to be used for sand transportation.

Health Hazards

During digging and handling of sand i.e. loading, transportation and unloading of sand, workmen would be exposed to inhalation of fine dust particles. This poses a health hazard.

Measures

Following mitigation measures would be taken to minimize this impact on health

- Regular water sprinkling on haulage roads
- Tree plantation on both sides of haulage road
- Tippers / Tractors carrying sand would be covered
- Mask would be provided to workmen employed for digging, loading, transportation and unloading activities

Accident at Site

This is a project with only source of accident at site would be movement of tippers /tractors within mine site for transportation of sand.

Preventive measures

Following mitigation measures would be taken to minimize risk of road accident:

- Separate alignment for movement of loaded vehicles coming out of mine site
- Ensure speed restriction of 10 KMPH within mine site for incoming and outgoing tippers
- Regular maintenance and repair of haulage vehicles employed for sand transportation
- No overtaking of transportation vehicles within mine site
- Proper maintenance of haulage roads

Transportation

The usual method of transporting minerals from the working face is by trucks, tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Baseline period : October, 2024 to December, 2024.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 17, 18, 19, 20, 21 & 22.12.2024, the Committee recommends in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 for issuing of ToR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure II alongwith following specific condition :-

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. Pre-monsoon data of current year is to be included in final EIA report.

III. Satellite imagery with Geo-Cordinates of pre-monsoon (current year) to be included in the final EIA report.

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9. **Loharsi Stone Mine of M/s Santosh Construction (Prop. : Shri Santosh Kumar Singh), Village : Loharsi, Thana : Chandwa, Distt. : Latehar, Jharkhand (2.128 Ha).**

(Proposal no.: SIA/JH/MIN/ 504598 /2024)

Name of the consultant : P & M Solution, Noida, U.P.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC) (re-appraisal of Environment Clearance issued by DEIAA, Latehar).

The project has been granted EC by DEIAA, Latehar vide letter no. 44/EC/DEIAA/2017 /Latehar dated 26.08.2017.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Latehar which has been taken up for consideration on 19.12.2024. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B2.

Existing baseline condition as per monitoring report submitted by PP is as follows PM10 -96 $\mu g/m^3$PM 2.5-567 $\mu g/m^3$ SO2-18.2 NO2- 19.0 $\mu g/m^3$ All the data are within the permissible limit.

Dust suppression is being carried out on regular basis.

Greenbelt Developed.

As per compliance report of JSPCB regarding previous EC, plantation has been done in safety zone

Production detail as per memo no. 537/M dated 10.05.2023 and memo no. 976, dated 29.10.2024 by DMO, Latehar is within the permissible limit of EC.

The compliance report of previous EC has been issued by JSPCB, Regional Office, Dhurwa vide letter no. 1382, dated 30.10.2024.

The SEAC has found that the certification of the compliance of the conditions of previous EC is not appropriate with respect to the following :-

i. There is no clarity on the status of execution of compliance and no details have been provided.
ii. The word "AGREED" has been mentioned as compliance status of many of the conditions. This has been written without the consent of the project authorities.
iii. The date of inspection has not been specified in the CCR.

Hence, the Committee decided to obtain a self certified compliance report along with the supporting details as evidence of execution.

EC Application for: **Proposed Capacity- 11701.15 cum/annum or 31593.11 TPA**

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Loharsi Stone Mine	
2	Lessee:	:	M/s Santosh Construction Proprietor: Sri Santosh Kumar Singh	
3	Lease Address	:	Mouza - Loharsi, Thana - Chandwa, District – Latehar, State- Jharkhand	
4	Lease Area	:	2.128 ha.	Acres- 5.26 Acres
5	Type of Land	:	Non-Forest (GM Land)	
6	Project Cost	:	Rs. 1.10 cr.	
7	EMP Budget	:	Capital: Rs. 4.50 Lakhs	Recurring: 4.87 Lakhs / year
8	New or Expansion	:	Re-appraisal of DEIAA EC	
9	Mineable Reserves	:	423051 tons	156685.55cum
10	Mine Life	:	Up to the lease period i.e. 09.11.2017 to 08.11.2027.	
11	Man power	:	31	
12	Water Requirement	:	4.96~5.00 KLD (Drinking: 0.31 KLD, Dust Suppression: 3.65 KLD, Plantation: 1.00 KLD)	
13	Water Source	:	Water will be taken from nearby village	
14	DG Set / power	:	500 KVA	
15	Crusher	:	No Crusher	
16	Nearest Water Body	:	Damodar river, Approx. 2.50 km towards North direction of mine site.	
17	Nearest Habitation	:	Approx. 430 m in ESE direction	
18	Nearest Railway Station	:	Mahuamilan Railway station, approx. 3.40 km towards NW direction.	
19	Nearest Air Port	:	Birsa Munda Airport, Ranchi approx. 63.30 km towards SE direction.	
20	Nearest Forest	:	Protected Forest, Approx. 4.90 km towards NNW direction of mine site.	
21	Road & Highways	:	NH-39, Approx.5.20km. in WSW direction.	

CO-ORDINATES

1	Latitude	:	From 23°38'24.08737181" N	To 23°38'30.05323678" N
2	Longitude	:	From 84°48'52.52296154"E	To 84°48'58.77272897" E

LAND DETAILS

Khata no.	Plot no.
123	1858

STATUTORY CLEARANCES

1	LOI / Lease docs	:	Lease Deed- 09.11.2017 to 08.11.2027.
2	CO	:	The CO, Chandwa vide letter no. 722, dated 30.08.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan.
3	DMO	:	DMO, Latehar vide memo no. 771/M, dated 29.08.2024 certified that 01 other mining lease area (2.76 Acre) exists within 500 m radius from proposed project site and total area is 8.02 Acre.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, South Division, Medininagar vide letter no. 637, dated 23.07.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palamau Tiger Reserve.
5	DFO Forest Distance	:	Division Forest Officer, Latehar Forest Divisioin vide letter no. 182 dated 24.01.2017 certified that the distance of forest land is 310 meter from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Latehar District (Sl. no. 04, Page no. 54).
7	Gram Sabha	:	CO, Chandwa vide letter no. 305, dated 23.08.2017 inform that Gram Sabha conducted on 02.01.2017.
8	Mine Plan Approval	:	Mining scheme approved by AMO –cum- Incharge DMO, Latehar vide memo no. 931/Mining, dated 08.10.2024.
9	Previous Environmental Clearance (EC)	:	Previous EC granted by DEIAA, Latehar vide letter no. 44/EC/DEIAA /2017/Latehar dated 26.08.2017.
10	Compliance report of EC	:	EC compliance report issued by JSPCB, Regional Office, Dhurwa vide letter no. 1382, dated 30.10.2024.
11	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. JSPCB/HO/RNC/CTE-1981856 /2018 /134, dated 07.02.2018.
12	Consent to Operate (CTO)	:	CTO issued by JSPCB vide Ref. no. : JSPCB/RO/RNC/CTO-17713382/2024 /3, dated 06.01.2024.
13	Production Report	:	Production report issued by DMO, Latehar vide memo no. 537/M dated 10.05.2023 and memo no. 976, dated 29.10.2024.
9	Qualified Person	:	Shri P.K. Sen was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	opencast semi-mechanized (OTFM) mining	
2	Quarry Area	:	2.128 ha. or 5.26 Acres	Life of Mine – Up to the lease period i.e. 09.11.2017 to 08.11.2027.
3	Waste Generation	:	1836 Cum	
4	Stripping Ratio	:	1:0.1	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Elevation of Mine	:	498 AMSL to 507 AMSL	
8	Ground Level Elevation	:	498 AMSL	
9	Ultimate Working Depth	:	476 AMSL (22 mbgl)	
10	Water Table	:	469-460 AMSL (38-29 mbgl)	
11	Topography of Mine	:	Area represents a small hillock with rock mass of Granite- gneiss.	
12	Explosive Requirement	:	110 kg/day	
13	Diesel/Fuel requirement	:	140 litre/day	

Production Details

Year	Production of Stone in Cum	Production of Stone in tons	Bench in AMSL
1st	11628	31398	506-494
2nd	11614	31357	506-494
3rd	11643	31437	500-488
Total	**34885**	**94192**	

Year	Production in EC (tons)
1st	30617.12
2nd	31435.36
3rd	30087.15
4th	31177.58
5th	31593.11
Total	**154910.62**

As per approved mine plan production: - 11643 cum/annum or 31437 TPA.

As per EC letter production: - 11701.15 cum/annum or 31593.11 TPA.

Land Use

Land Use Pattern			
Type of Land	Present land use (in Ha)	At the End of Plan Period (in Ha)	At the end of Mine (in Ha)

Quarry	1.428	1.638	1.638 (Entire area will be converted as Water Reservoir)
Road	0.036	--	--
Safety Zone	0.490 (Plantation)	0.490 (Plantation)	0.490 (Plantation)
Total area in use	**1.954**	**2.128**	**2.128**
Balanced unused Area	0.174	0.00	0.00
Total Lease area	**2.128**	**2.128**	**2.128**

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Safety Zone	:	0.49 ha	1225 (Already done during previous year of mining)
2	Along Approach Road	:	200 m	400
3	No. of plants distributed with consultation local authorities /village Panchayat	:	--	100

Note: A total of 1725 saplings were proposed to be planted. Out of which 1225 plant in Safety Zone area have been planted during previous year of mining.
(400 plant along approach road & 100 plants with consultation from local authorities/ village Panchayat) will be done in the first year of operation. (Total 500 Plants)

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

COST PROPOSED FOR EMP

Sl. No	Description	Capital Cost (Rs.)	Recurring Cost (Rs.)
1	Pollution Control & Dust Suppression	--	2,00,000
2	Baseline Monitoring i) Air ii) Water iii) Soil iv) Noise	--	 14,000 8,000 8,000 7,000
3	Plantation	2,50,000	1,00,000

4	Construction and maintenance of haul road	2,00,000	1,50,000
TOTAL		**4,50,000**	**4,87,000**

Note: *500 plants * 500 Rs (for each plants including hedges and fences) = 2.50 Lakh
A total of 1725 saplings were proposed to be planted. Out of which 1225 plant in Safety Zone area have been planted during previous year of mining.
(400 plant along approach road & 100 plants with consultation from local authorities/ village Panchayat) will be done in the first year of operation. (Total 500 Plants)
Salary of Labor for haul road maintenance 1 labor*300 =300 per day
300* 300 = 90000/- or 1,50,000/-(including maintenance)

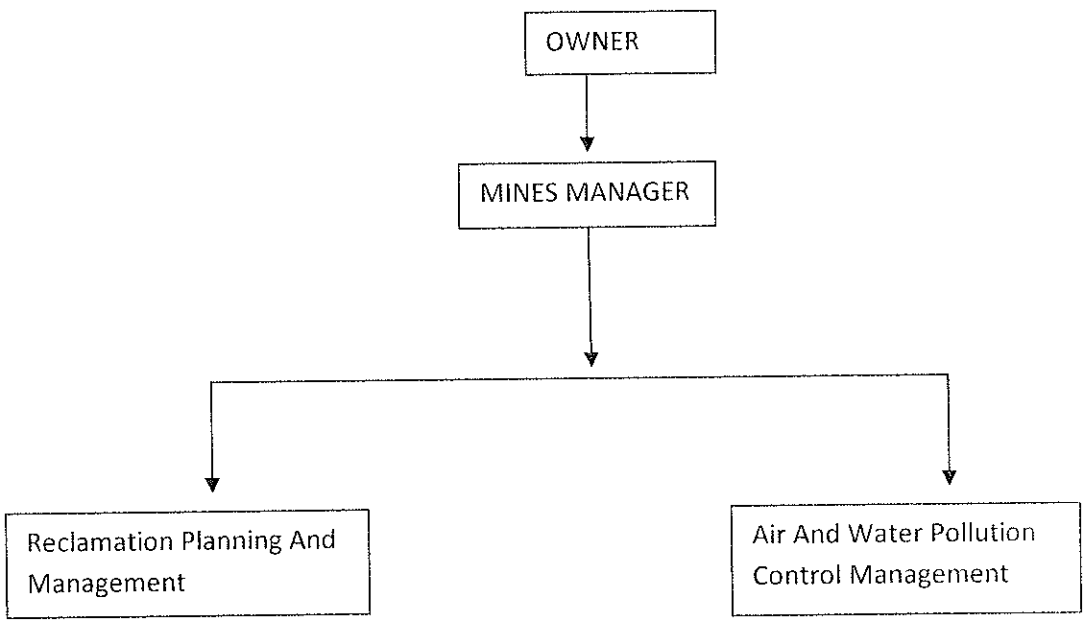
Environment Monitoring Programme

Sl. No	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Solid Waste Management

Total 1836 Cum waste to be generated during plan period. During Plan removed intercalated waste will be used haul road dressing. In conceptual period removed intercalated waste will be used in haul road dressing.

Organization Structure



Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.

- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injuryor system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	4	3	2	1
C2 (Major)	10	8	6	4	2
C3 (Moderate)	15	12	9	6	3
C4 (Minor)	20	16	12	8	4
C5 (Insignificant)	25	20	15	10	5

Risk Rating Scale

S. No.	Rating	Scale
1	High Risk	1-4
2	Medium Risk	5-12
3	Low Risk	13-25

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Hazard identification & Risk Analysis in Stone mining operation

S. No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.

- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming

vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Loharsi Stone Mine of M/s Santosh Construction (Prop. : Shri Santosh Kumar Singh), Village : Loharsi, Thana : Chandwa, Distt. : Latehar, Jharkhand (2.128 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. The production shall be restricted as per approved mining scheme or the approved mine plan at the time of EC, which ever is less.

II. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

III. During appraisal of the project it is seen that the project authority have not fully complied the condition of green belt development as per the previous EC. Hence, the project authorities are required to plant twice the number of trees as was required in the previous EC. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

IV. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

V. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

VI. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VII. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VIII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

IX. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

10. Gerua Stone Mine of M/s Satya Stone Mines (Prop. : Shri Kamlesh Prajapati), Village : Gerua, Thana : Hunterganj, Distt. : Chatra, Jharkhand (1.83 Ha).

(Proposal no.: SIA/JH/MIN/ 505783 /2024)

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 19.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity- 35773 cum/year or 96587.1 TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Gerua Stone Mine	
2	Lessee:	:	M/s Satya Stone Mines Proprietor – Sri Kamlesh Prajapati	
3	Lease Address	:	Village – Gerua, Thana – Hunterganj, District – Chatra, State – Jharkhand	
4	Lease Area	:	1.83 ha.	Acres- 4.52 Acres
5	Type of Land	:	Non-Forest (Raiyati Land)	
6	Project Cost	:	Rs. 90.0 Lakhs	
7	EMP Budget	:	Capital: Rs. 10.65 Lakhs	Recurring: 4.87 Lakhs / year
8	New or Expansion	:	New	
9	Mineable Reserves	:	234152cum	632210.4 tonnes
10	Mine Life	:	10 years	
11	Man power	:	21	
12	Water Requirement	:	7.53 ~ 8.00 KLD (Drinking: 0.21 KLD, Dust Suppression: 3.86 KLD, Plantation: 3.46 KLD)	
13	Water Source	:	Water will be taken from nearby village	
14	DG Set / power	:	200 KVA	
15	Crusher	:	No Crusher	
16	Nearest Water Body	:	Falgu River, Approx.7.06 km. in ESE direction of mine site Mrohor River, Approx.8.34 km. in NW direction of mine site	
17	Nearest Habitation	:	Gerua village approx. 540 meters WNW direction of mine site	
18	Nearest Railway Station	:	Kurhagada Railway station, approx. 60 km towards SE direction.	
19	Nearest Airport	:	Gaya Airport, approx. 38.20 km towards NE direction	
20	Nearest Forest	:	Open Scrub, Approx. 1.0 km. in NW direction of mine site. Protected Forest, Approx. 3.55 km. in NE direction of mine site. Protected Forest, Approx. 3.85 km. in SE direction of mine site. Fairly Dense mixed Jungle, Approx. 2.10 km. in SW direction of mine site.	
21	Road & Highways	:	NH-22, Approx. 6.76 km in ESE direction	

CO-ORDINATES

1	Latitude	:	From 24°26'39.716" N	To 24°26'46.732" N
2	Longitude	:	From 84°44'44.069" E	To 84°44'47.628" E

LAND DETAILS

Khata no.	Plot no.
01	378 (P)
31	379 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Chatra vide letter no. 254/Khanan, dated 11.03.2024.
2	CO	:	The CO, Hunterganj vide letter no. 230, dated 18.03.2023 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Chatra vide memo no. 1171, dated 28.10.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site and total area is 4.52 Acre.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 867, dated 28.04.2023 certified that the proposed project site is outside Eco Sensitive Zone of Lawalong Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Chatra North Forest Division vide letter no. 897, dated 12.04.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Chatra District (Sl. no. 18, Page no. 78).
7	Gram Sabha	:	CO, Hunterganj (Chatra) vide letter no. 278, dated 08.04.2023 informed that Gram Sabha conducted on 26.03.2023.
8	Mine Plan Approval	:	Approved by District Mining Officer, Chatra vide Letter No. 1083/Khanan, dated 04.10.2024.
9	Qualified Person	:	Shri Malay Kumar Mukhopadhyay has confirm vide letter dated 19.12.2024 that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast mechanized method.	
2	Quarry Area	:	1.83 Ha. or 4.52 Acre	Life of Mine – 10 Years
3	Waste Generation	:	26815 cum	
4	Stripping Ratio	:	1: 0.7	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Elevation of Mine	:	190 AMSL to 194 AMSL	
8	Ground Level Elevation	:	190 AMSL	
9	Ultimate Working Depth	:	155 AMSL (35 mbgl)	
10	Water Table	:	154-149 AMSL (36-41 mbgl)	
11	Topography of Mine	:	Area represents gently slop of Chhotanagpur gneiss.	
12	Explosive Requirement	:	70 kg/day	
13	Diesel/Fuel requirement	:	100 litre/day	

Production Details

Year	Production of Stone in cum	Production of Stone in tons	Overburden in cum	Bench AMSL
1st	2,849	7,692.3	26,815	192-185
2nd	17,633	47,609.1	0	191-185
3rd	35,773	96,587.1	0	190-184
4th	25,896	69,919.2	0	190-184
5th	33,117	89,415.9	0	185-179
Total	**1,15,268**	**3,11,223.6**	**26,815**	

Land Use

Pattern of Utilization	Existing Land Use (Ha)	At the end of Plan Period (Ha)	At the Conceptual stage i.e. end of mine life (Ha)
Mining Activities	--	1.193	1.193 (Entire area will be converted into water reservoir)
Offices Store etc.	--	0.004	0.004
Dumping	--	0.048	0.048
Mining Road	--	0.008	0.008
Garland drain	--	0.024	0.024
Settling Tank	--	0.016	0.016
Safety Zone	--	0.412 (Plantation)	0.412 (Plantation)
Stone Stock yards	--	0.00	0.00

Unutilized	1.83	0.125	0.125
Total	**1.83**	**1.83**	**1.83**

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Safety Zone	:	0.412 ha	1030
2	Along Approach Road	:	300 m	600
3	No. of plants distributed with consultation local authorities /village Panchayat	:	--	100

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

COST PROPOSED FOR EMP

Sl. No	Description	Capital Cost (Rs)	Recurring Cost (Rs)
1	Pollution Control & Dust Suppression	Nil	2,00,000
2	Baseline Monitoring i) Air ii) Water iii) Soil iv) Noise	--	 14,000 8,000 8,000 7,000
3	Plantation	8,65,000	1,00,000
4	Construction and maintenance of haul road	2,00,000	1,50,000
TOTAL		**10,65,000**	**4,87,000**

Note: *1730 plants * 500 Rs (for each plants including hedges and fences)= 8.65 lakh
Salary of Labor for haul road maintenance 1 labor*300 =300 per day
300* 300 = 90,000/- or 1,50,000/- (including maintenance)
**** 5.0 lakh per kilometer (5,00,000* 0.30 km haul road = 1,50,000 ~ 2,00,000/-)***

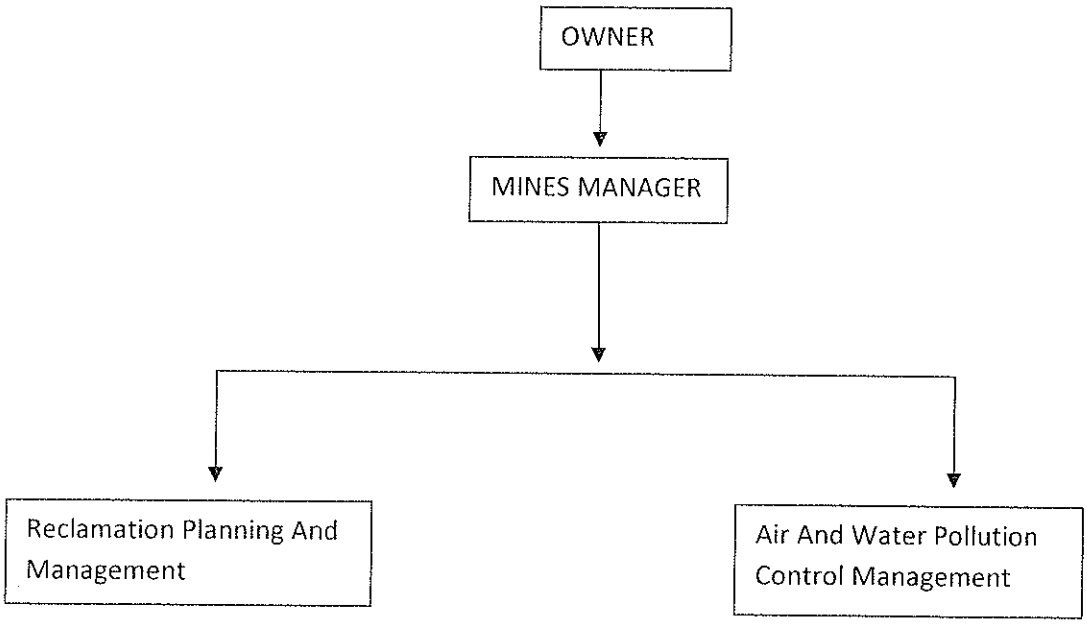
Environment Monitoring Programme

Sl. No	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Solid Waste Management

Total 26815 cum of waste will be generated during the plan period. During the 1st year plan period waste generated will be safely dump in SW direction of the lease area. Waste will be used in maintenance of haul road, approach road & slope maintenance for haul road. After the end of the mine remaining waste is to be backfilled to excavated quarry.

Organization Structure



Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside

- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or

		major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injuryor system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	**4**	**3**	**2**	**1**
C2 (Major)	10	8	6	**4**	**2**
C3 (Moderate)	*15*	12	9	6	**3**
C4 (Minor)	*20*	*16*	12	8	**4**
C5 (Insignificant)	*25*	*20*	*15*	10	5

Risk Rating Scale

S. No.	Rating	Scale
1	**High Risk**	**1-4**
2	Medium Risk	5-12
3	*Low Risk*	*13-25*

Hazard identification & Risk Analysis in Stone mining operation

S. No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5

3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling

- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.
While others may need to work at or near the edge of a working bench the person most at risk
during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.
The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work

in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine

- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

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- Time pressure
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To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

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I. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Gerua Stone Mine of M/s Satya Stone Mines (Prop. : Shri Kamlesh Prajapati), Village : Gerua, Thana : Hunterganj, Distt. : Chatra, Jharkhand (1.83 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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11. **Hethma Stone Mine of Shri Ashok Kumar Gupta, Village : Hethma, Thana : Kurdeg, Distt. : Simdega, Jharkhand (2.79 Ha).**

(Proposal no.: SIA/JH/MIN/ 504566 /2024)

Name of the consultant : P & M Solution, Noida, U.P.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC) (re-appraisal of Environment Clearance issued by DEIAA, Simdega).

The project has been granted EC by DEIAA, Simdega vide letter no. EC/DEIAA /2016-17/03 dated 07.06.2016.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Simdega which has been taken up for consideration on 19.12.2024. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B2.

Existing baseline condition as per monitoring report submitted by PP is as follows PM10 -96 $\mu g/m^3$PM 2.5-567 $\mu g/m^3$ SO2-18.2 NO2- 19.0 $\mu g/m^3$ All the data are within the permissible limit.

Dust suppression is being carried out on regular basis.

Greenbelt Developed.

As per compliance report of JSPCB regarding previous EC, plantation has been done in safety zone.

Production detail as per letter no. 761/M dated 08.10.2024 by DMO, Simdega is within the permissible limit of EC.

The compliance report of previous EC has been issued by JSPCB, Regional Office, Dhurwa vide letter no. 789, dated 04.07.2024.

The SEAC has found that the certification of the compliance of the conditions of previous EC is not appropriate with respect to the following :-

i. There is no clarity on the status of execution of compliance and no details have been provided.
ii. The word "AGREED" has been mentioned as compliance status of many of the conditions. This has been written without the consent of the project authorities.
iii. The date of inspection has not been specified in the CCR.

Hence, the Committee decided to obtain a self certified compliance report along with the supporting details as evidence of execution.

EC Application for: Proposed Capacity- 27205.55 cum/annum or 73455 TPA.

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Hethma Stone Mine	
2	Lessee:	:	Sri Ashok Kumar Gupta	
3	Lease Address	:	Mouza- Hethma, Thana - Kurdeg, District – Simdega, State- Jharkhand	
4	Lease Area	:	2.79 ha.	Acres- 6.90 Acres
5	Type of Land	:	Non-Forest	
6	Project Cost	:	Rs. 1.30 cr.	
7	EMP Budget	:	Capital: Rs. 4.20 Lakhs	Recurring: 4.87 Lakhs / year
8	New or Expansion	:	Re-appraisal of DEIAA EC	
9	Mineable Reserves	:	528403 tons	195704.81cum
10	Mine Life	:	Up to the lease period i.e. 26.08.2016 to 25.08.2026.	
11	Man power	:	27	
12	Water Requirement	:	7.92 ~ 8.0 KLD (Drinking: 0.27 KLD, Dust Suppression: 6.57 KLD, Plantation: 1.08 KLD)	
13	Water Source	:	Water will be taken from nearby village	
14	DG Set / power	:	500 KVA	
15	Crusher	:	No Crusher	
16	Nearest Water Body	:	Sankh River, Approx. 6.75 km towards ESE direction of mine site.	
17	Nearest Habitation	:	Approx. 640 m in WNW direction	
18	Nearest Railway Station	:	Kurkura Railway Station, approx. 76.14 km towards East direction.	
19	Nearest Air Port	:	Birsa Munda Airport Ranchi, approx. 139.82 km towards NE direction.	
20	Nearest Forest	:	Protected Forest, Approx. 5.0 km towards North direction of mine site. Protected Forest, Approx. 0.400 km towards South direction. Protected Forest, Approx. 6.05 km towards East direction. Protected Forest, Approx. 7.0 km towards West direction.	
21	Road & Highways	:	Kurdeg Rd, Approx1.78 km. in North direction. NH-143, Approx. 26.84 km in E direction.	

CO-ORDINATES

1	Latitude	:	From 22°34'33.20"N	To 22°34'48.20"N
2	Longitude	:	From 84°12'54.10"E	To 84°13'10.40"E

LAND DETAILS

Khata no.	Plot no.
693	9536

STATUTORY CLEARANCES

1	LOI / Lease docs	:	Lease Deed- 26.08.2016 to 25.08.2026.
2	CO	:	The CO, Kurdega vide letter no. 298 (ii), dated 26.09.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan or Register II.
3	DMO	:	DMO, Simdega vide memo no. 737/M, dated 30.09.2024 certified that no other mining lease area exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Ranchi vide letter no. 892, dated 22.10.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.
5	DFO Forest Distance	:	Division Forest Officer, Simdega Forest Divisioin vide letter no. 2272, dated 24.11.2015 certified that the distance of forest land is more than 250 meter from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Simdega District (Sl. no. 07, Page no. 70).
7	Gram Sabha	:	Gram Sabha conducted on 02.11.2015.
8	Mine Plan Approval	:	Mining shceme approved by DMO, Simdega vide memo no. 329/M, dated 18.06.2021.
9	Previous Environmental Clearance (EC)	:	Previous EC granted by DEIAA, Simdega vide letter no. EC/DEIAA /2016-17/03 dated 07.06.2016.
10	Compliance report of EC	:	EC compliance report issued by JSPCB, Regional Office, Dhurwa vide letter no. 789, dated 04.07.2024.
11	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. JSPCB/HO/RNC/CTE-2079742 /2018 /959, dated 10.09.2018.
12	Consent to Operate (CTO)	:	CTO issued by JSPCB/RO/RNC/CTO-15762812/2023 /67, dated 29.03.2023.
13	Production Report	:	Production report issued by DMO, Simdega vide letter no. 761/M dated 08.10.2024.
9	Qualified Person	:	Shri P.K. Sen was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast mechanized mining method	
2	Quarry Area	:	2.79 hectare or 6.90 Acres	Life of Mine – Up to the lease period i.e. 26.08.2016 to 25.08.2026.
3	Waste Generation	:	-	
4	Stripping Ratio	:	1:00.00	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Elevation of Mine	:	412 AMSL to 415 AMSL	
8	Ground Level Elevation	:	412 AMSL	
9	Ultimate Working Depth	:	384 AMSL (28 mbgl)	
10	Water Table	:	373-378 AMSL (34-39 mbgl)	
11	Topography of Mine	:	Area represents a slight inclination.	
12	Explosive Requirement	:	110 kg/day	
13	Diesel/Fuel requirement	:	140 litre/day	

Production Details

Year	Production in EC (tons)	Production of Stone in Tonnes	Production of Stone in Cum	Bench in AMSL
1st	73410	73440	27200	418-414
2nd	73413	73351	27167	414-408
3rd	73415	73440	27200	414-408
4th	73371	73360	27170	408-402
5th	73455	73346	27165	402-396
Total	**367064**	**366937**	**135902**	

As per approved mine plan production: - 27200 cum/annum or 73440 TPA
As per EC letter production: - 27205.55 cum/annum or 73455 TPA

Land Use

Pattern of Utilization	Present/existing Land Use (in Ha)	Proposed Land use for current plan period (in Ha)	Land used at conceptual stage i.e. end of mine life (in Ha)
Quarry	0.10	0.96	0.96 (Entire area will be converted into water reservoir)
Road	0.10	0.04	0.04

Blocked Area for Road Safety	0.74	0.64	0.64
Green Belt	1.05 (Plantation)	1.05 (Plantation)	1.05 (Plantation)
Dump with Parapet wall and Garland Drain	--	0.10	0.10
Total Area in Use	**1.99**	**2.79**	**2.79**
Balance Area in use	0.80	0.00	0.00
Total Lease area	**2.79**	**2.79**	**2.79**

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Safety Zone	:	1.05 ha	2625 (Already done during previous year of mining)
2	Along Approach Road	:	220 m	440
3	No. of plants distributed with consultation local authorities /village Panchayat	:	--	100

Note: A total of 3165 saplings were proposed to be planted. Out of which 2625 plant in Safety Zone area have been planted during previous year of mining.
(440 plant along approach road & 100 plants with consultation from local authorities/ village Panchayat) will be done in the first year of operation. (Total 540 Plants)

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

COST PROPOSED FOR EMP

Sl. No	Description	Capital Cost (Rs.)	Recurring Cost (Rs.)
1	Pollution Control & Dust Suppression	--	2,00,000
2	Baseline Monitoring i) Air ii) Water iii) Soil iv) Noise	--	 14,000 8,000 8,000 7,000

3	Plantation	2,70,000	1,00,000
4	Construction and maintenance of haul road	2,00,000	1,50,000
TOTAL		**4,20,000**	**4,87,000**

Note: *540 plants * 500 Rs (for each plants including hedges and fences) = 2.70 Lakh
A total of 3165 saplings were proposed to be planted. Out of which 2625 plant in Safety Zone area have been planted during previous year of mining.
(440 plant along approach road & 100 plants with consultation from local authorities/ village Panchayat) will be done in the first year of operation. (Total 540 Plants)
Salary of Labor for haul road maintenance 1 labor*300 =300 per day
300* 300 = 90000/- or 1,50,000/-(including maintenance)

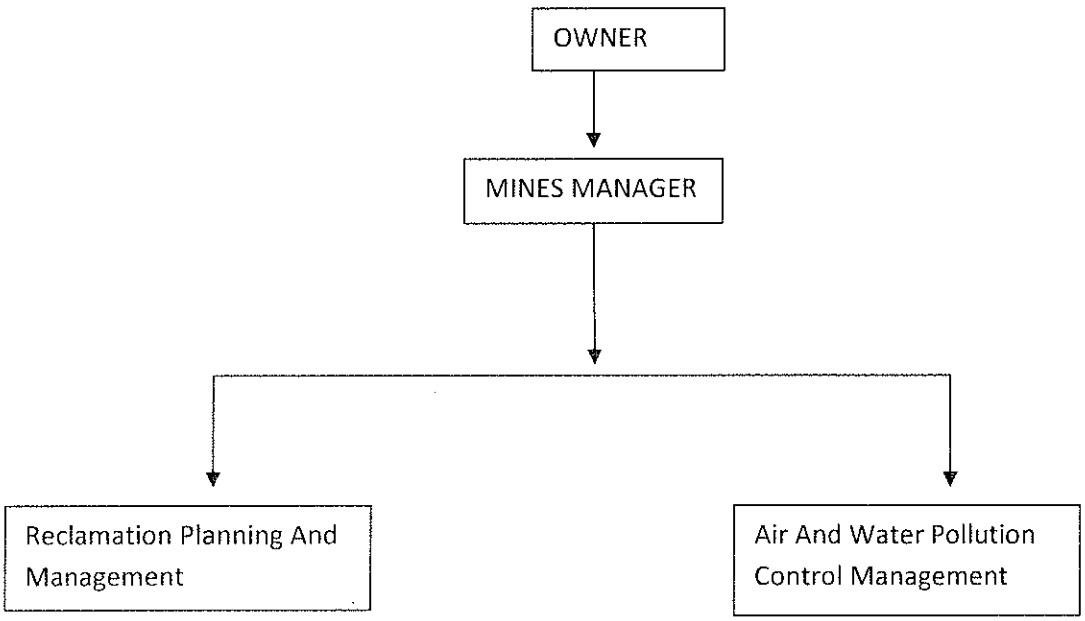
Environment Monitoring Programme

Sl. No	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Solid Waste Management

It is proposed that the total wastes will be dumped at site & will be used in maintenance of road and partly backfilled.

Organization Structure



Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.

L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injuryor system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	**4**	**3**	**2**	**1**
C2 (Major)	10	8	6	**4**	**2**
C3 (Moderate)	*15*	12	9	6	**3**
C4 (Minor)	*20*	*16*	12	8	**4**
C5 (Insignificant)	*25*	*20*	*15*	10	5

Risk Rating Scale

S. No.	Rating	Scale
1	**High Risk**	**1-4**
2	Medium Risk	5-12

3	*Low Risk*	*13-25*

Hazard identification & Risk Analysis in Stone mining operation

S. No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.

- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area,

utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.

j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Hethma Stone Mine of Shri Ashok Kumar Gupta, Village : Hethma, Thana : Kurdeg, Distt. : Simdega, Jharkhand (2.79 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. The production shall be restricted as per approved mining scheme or the approved mine plan at the time of EC, which ever is less.

II. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

III. During appraisal of the project it is seen that the project authority have not fully complied the condition of green belt development as per the previous EC. Hence, the project authorities are required to plant twice the number of trees as was required in the previous EC. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

IV. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

V. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

VI. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VII. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VIII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

IX. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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12. Kharikabad Stone Deposit of M/s A & S Minerals (Partners : Shri Arun Kumar Singh & Shri Sudhir Kumar Singh), Village : Kharikabad, Thana : Nala, Distt. : Jamtara, Jharkhand (2.50 Ha).

(Proposal no.: SIA/JH/MIN/ 506340 /2024)

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 19.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity- 59035 cum/annum or 165298 TPA.

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Kharikabad Stone Deposit	
2	Lessee:	:	M/s A & S Minerals Partner – 1 Sri Arun Kumar Singh 2. Sri Sudhir Kumar Singh	
3	Lease Address	:	Mouza-Kharikabad, Thana – Nala, Thana No - 35, District – Jamtara, State - Jharkhand	
4	Lease Area	:	2.50 ha.	Acres- 6.19 Acres
5	Type of Land	:	Non-Forest (Raiyati Barren Land)	
6	Project Cost	:	Rs. 150.0 Lakhs	
7	EMP Budget	:	Capital: Rs. 13.075 Lakhs	Recurring: 4.87 Lakhs / year
8	New or Expansion	:	New	
9	Mineable Reserves	:	589836 cum	1651540 tonnes
10	Mine Life	:	10 years	
11	Man power	:	53	
12	Water Requirement	:	9.63 ~ 10.0 KLD (Drinking: 0.53 KLD, Dust Suppression: 4.67 KLD, Plantation: 4.43 KLD)	
13	Water Source	:	Water will be taken from nearby village	

14	DG Set / power	:	500 KVA
15	Crusher	:	No Crusher
16	Nearest Water Body	:	Ajay River, approx. 3.96 km towards WSW direction of mine site.
17	Nearest Habitation	:	Husunnagar village approx. 730 meters South direction of mine site
18	Nearest Railway Station	:	Jamuria Railway station, approx. 14.20 km towards SSW direction.
19	Nearest Airport	:	Birsa Munda Airport, Ranchi approx. 193.50 km towards WSW direction.
20	Nearest Forest	:	Protected Forest, Approx.1.05 km towards ESE direction of mine site. Protected Forest, Approx. 1.25 km towards NE direction of mine site. Protected Forest, Approx. 4.10 km towards NE direction of mine site. Protected Forest, Approx. 1.60 km towards North direction of mine site. Protected Forest, Approx. 2.65 km towards NNW direction of mine site. Protected Forest, Approx. 2.75 km towards West direction of mine site. Protected Forest, Approx. 3.55 km towards NW direction of mine site.
21	Road & Highways	:	NH-14 - Approx. 19.25 km in E direction.

CO-ORDINATES

1	Latitude	:	From 23°48'49.44546" N	To 23°48'55.87556" N
2	Longitude	:	From 87°08'23.11105" E	To 87°08'30.91708" E

LAND DETAILS

Khata no.	Plot no.
14, 19 & 25	144 (P), 145 (P), 146 (P), 148, 149 & 72

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Jamtara vide letter no. 504/Khanan, dated 15.07.2024.
2	CO	:	The CO, Nala vide letter no. 245A/Ra., dated 15.03.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Jamtara vide memo no. 621, dated 03.09.2024 certified that 01 other mining lease area (5.02 Acre) exists within 500 meters

			radius from proposed project site and total area is 11.21 Acre .
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 1257, dated 29.06.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Jamtara Forest Division vide letter no. 751, dated 20.05.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Jamtara District (Sl. no. 04, Page no. 114).
7	Gram Sabha	:	BDO, Nala vide letter no. 856/Vi., dated 29.06.2024 informed that Gram Sabha conducted on 25.06.2024.
8	Mine Plan Approval	:	Approved by Deputy Director Mines, Santhal Pargana Circle, Dumka vide Memo No. 245/DDM, dated 05.12.2024.
9	Qualified Person	:	Shri P.K. Sen was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast mechanized method.	
2	Quarry Area	:	2.50 ha. or 6.19 Acres	Life of Mine – 10 Years
3	Waste Generation	:	10185 cum of Gritty Soil and 15278 cum of Intercalated Waste.	
4	Stripping Ratio	:	1: 0.4	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Elevation of Mine	:	141 AMSL to 144 AMSL	
8	Ground Level Elevation	:	141 AMSL	
9	Ultimate Working Depth	:	96 AMSL (45 mbgl)	
10	Water Table	:	90-79 AMSL (62-51 mbgl)	
11	Topography of Mine	:	AREA represents a gently sloping land with rock mass of Granite-gneiss	
12	Explosive Requirement	:	110 kg/day	
13	Diesel/Fuel requirement	:	150 litre/day	

Production Details

Year	Removal of Gritty Soil		Intercalated waste in Cum	Production of Stone		Bench AMSL
	In cum	In tons		in Cum	in tons	

812

1st	5280	7920	3104	58984	165154	144-138
2nd	1425	2138	3106	59004	165212	144-132
3rd	000	000	3106	59035	165298	138-126
4th	3480	5220	3106	59004	165212	144-132
5th	000	000	3106	59035	165298	138-126
Total	**10185**	**15278**	**15532**	**295062**	**826174**	

Land Use

Pattern of Utilization	Present Land Use (Ha)	At the end of Plan period (Ha)	At the end of mine (Ha)	Conceptual Period (In Ha)			
				Backfill	Stone Pitching Wall	Water Body	Plantation
Quarry	Nil	1.83 (including backfill 0.17 Ha)	1.83 (including backfill 0.17 Ha)	0.158	0.006	1.666	-
Greenbelt within Safety Barrier	Nil	0.67 (Plantation)	0.67 (Plantation)	---	---	---	0.670
Road	0.02	Nil	Nil	---	---	---	---
Total Area in Use	**0.02**	**2.50**	**2.50**	**0.158**	**0.006**	**1.250**	**0.670**
Balanced Area unused	2.48	Nil	Nil	---	---	---	---
Total Applied Area	**2.50**	**2.50**	**2.50**	**2.500**			

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Safety Zone	:	0.67 ha	1675
2	Along Approach Road	:	220 m	440
3	No. of plants distributed with consultation local authorities /village Panchayat	:	--	100

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation.

Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

COST PROPOSED FOR EMP

Sl. No	Description	Capital Cost (Rs)	Recurring Cost (Rs)
1	Pollution Control & Dust Suppression	Nil	2,00,000
2	Baseline Monitoring i) Air I) Water Ii) Soil iv) Noise	--	 14,000 8,000 8,000 7,000
3	Plantation	11,07,500	1,00,000
4	Construction and maintenance of haul road	2,00,000	1,50,000
TOTAL		**13,07,500**	**4,87,000**

Note: *2215 plants*500 Rs (for each plants including hedges and fences) = Rs. 11.075 lakhs
Salary of Labor for haul road maintenance 1 labor*300 =300 per day
300* 300 = 90000/- or 150000/- (including maintenance)

Environment Monitoring Programme

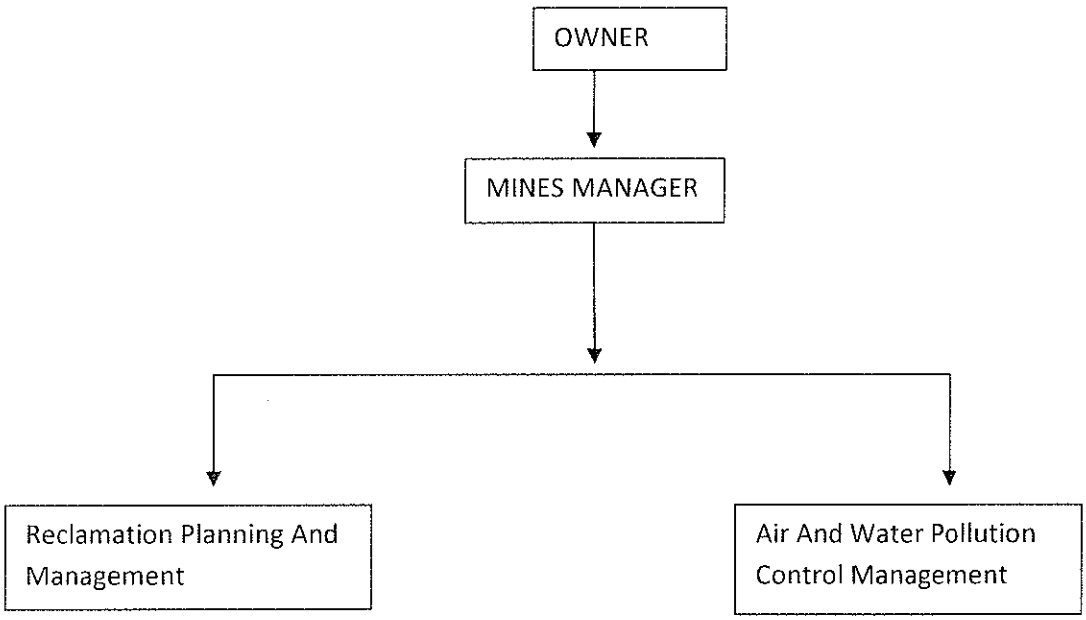
Sl. No	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Solid Waste Management

It has been calculated that total 15532 cum intercalated waste and 10185 cum gritty soil shall be generated during the plan period. During quarry development in 1st year removed gritty soil & Intercalated waste will be temporarily dumped [(Area - 0.167 Ha, (L x W x H = 60m x 28m x 5m) at the north-west part of the area with precautions like parapet wall, garland drain & 2nd year removed gritty soil & intercalated waste & existing temporarily dumped material will be temporarily dumped Area - 0.258 Ha, (L x W x H= 74m x 35m x 5m)] at the south-east part of the area with suitable precaution like parapet wall, garland drain & in 3rd year removed gritty soil, intercalated & existing temporarily dumped material will be backfill within the exhausted quarry at north-west part & in 4th year removed gritty soil, intercalated waste & existing temporarily dumped material will be backfill within the exhausted quarry at north-east part & in 5th year removed Intercalated waste will be backfilled within the

exhausted quarry. In conceptual period removed total intercalated waste will be backfill lower bench of the exhausted quarry.

Organization Structure



Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission

- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injuryor system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	4	3	2	1
C2 (Major)	10	8	6	4	2
C3 (Moderate)	15	12	9	6	3
C4 (Minor)	20	16	12	8	4
C5 (Insignificant)	25	20	15	10	5

Risk Rating Scale

S. No.	Rating	Scale
1	High Risk	1-4
2	Medium Risk	5-12
3	Low Risk	13-25

Hazard identification & Risk Analysis in Stone mining operation

S. No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading	Very	Minor	20

		material, Exposure to Dust	Unlikely		
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.

- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.
The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.
The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.
Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.
Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.

- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective

equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Kharikabad Stone Deposit of M/s A & S Minerals (Partners : Shri Arun Kumar Singh & Shri Sudhir Kumar Singh), Village : Kharikabad, Thana : Nala, Distt. : Jamtara, Jharkhand (2.50 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a

time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

13. **Jamkanali & Kharikabad Stone Deposit of M/s A & S Minerals (Partners : Shri Arun Kumar Singh & Shri Sudhir Kumar Singh), Village : Jamkanali & Kharikabad, Thana : Nala, Distt. : Jamtara, Jharkhand (2.03 Ha).**

(Proposal no.: SIA/JH/MIN/ 506328 /2024)

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 19.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity- 26889 cum/annum or 75289 TPA

Project and Location Details:

Sl	Parameter		Details
1	Project Name	:	Jamkanali & Kharikabad Stone Deposit

2	Lessee:	:	M/s A & S Minerals Partner – 1 Sri Arun Kumar Singh 2. Sri Sudhir Kumar Singh	
3	Lease Address	:	Mouza- Jamkanali & Kharikabad, Thana – Nala, District – Jamtara, State - Jharkhand	
4	Lease Area	:	2.03 ha.	Acres- 5.02 Acres
5	Type of Land	:	Non-Forest (Raiyati Land)	
6	Project Cost	:	Rs. 90.0 Lakhs	
7	EMP Budget	:	Capital: Rs. 14.15 Lakhs	Recurring: 4.87 Lakhs / year
8	New or Expansion	:	New	
9	Mineable Reserves	:	268398 cum	751513 tonnes
10	Mine Life	:	10 years	
11	Man power	:	33	
12	Water Requirement	:	10.13 ~ 10.50 KLD (Drinking: 0.33 KLD, Dust Suppression: 4.94 KLD, Plantation: 4.86 KLD)	
13	Water Source	:	Water will be taken from nearby village	
14	DG Set / power	:	500 KVA	
15	Crusher	:	No Crusher	
16	Nearest Water Body	:	Ajay River, approx. 4.06 km towards SW direction of mine site.	
17	Nearest Habitation	:	Badhha Dangal village approx. 740 meters NNW direction of mine site	
18	Nearest Railway Station	:	Jamuria Railway station, approx. 13.80 km towards SSW direction	
19	Nearest Airport	:	Birsa Munda Airport, Ranchi approx. 194.20 km towards WSW direction.	
20	Nearest Forest	:	Protected Forest , Approx. 1.05 km towards ESE direction of mine site. Protected Forest , Approx. 1.25 km towards NE direction of mine site. Protected Forest , Approx. 4.10 km towards NE direction of mine site. Protected Forest , Approx. 1.60 km towards North direction of mine site. Protected Forest , Approx. 2.65 km towards NNW direction of mine site. Protected Forest , Approx. 2.75 km towards West direction of mine site. Protected Forest , Approx. 3.55 km towards NW direction of mine site.	
21	Road & Highways	:	NH-14, Approx. 16.75 km in SE direction	

CO-ORDINATES

1	Latitude	:	From 23°48'58.33408" N	To 23°49'03.68270" N

2	Longitude	:	From 87°06'20.30039" E	To 87°08'30.75263" E

LAND DETAILS

Khata No.	Plot No.
9	59,64,
19	60(P),62(P), 65, 66, 68
147	516/(P), 514/2163

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Jamtara vide letter no. 503/Khanan, dated 15.07.2024.
2	CO	:	The CO, Nala vide letter no. 245/Ra., dated 15.03.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Jamtara vide memo no. 620, dated 03.09.2024 certified that 01 other mining lease area (6.19 Acre) exists within 500 meters radius from proposed project site and total area is 11.21 Acre.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 1256, dated 29.06.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Jamtara Forest Division vide letter no. 750, dated 20.05.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Jamtara District (Sl. no. 11, Page no. 114C).
7	Gram Sabha	:	BDO, Nala vide letter no. 857/Vi., dated 29.06.2024 informed that Gram Sabha conducted on 28.06.2024.
8	Mine Plan Approval	:	Approved by Deputy Director Mines, Santhal Pargana Circle, Dumka vide Memo No. 243/DDM, dated 05.12.2024.
9	Qualified Person	:	Shri P.K. Sen was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast mechanized method.	
2	Quarry Area	:	2.03 ha. or 5.02 Acres	Life of Mine – 10 Years
3	Waste Generation	:	6670 cum of Gritty Soil & 7071 cum of Intercalated Waste.	
4	Stripping Ratio	:	1: 0.5	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Elevation of Mine	:	140 AMSL to 143 AMSL	
8	Ground Level Elevation	:	140 AMSL	
9	Ultimate Working Depth	:	119 AMSL (21 m bgl)	
10	Water Table	:	90-79 AMSL (61-50 m bgl)	
11	Topography of Mine	:	Area represents a gently sloping land with rock mass of Granite-gneiss	
12	Explosive Requirement	:	110 kg/day	
13	Diesel/Fuel requirement	:	150 litre/day	

Production Details

Year	Removal of Gritty Soil		Intercalated waste in cum	Production of Stone		Bench AMSL
	in cum	in tones		in cum	in tones	
1st	1682	2523	1413	26840	75153	143-137
2nd	2088	3132	1415	26889	75289	143-137
3rd	580	870	1414	26866	75223	143-131
4th	522	783	1415	26889	75289	143-131
5th	1798	2697	1414	26866	75223	143-131
Total	**6670**	**10005**	**7071**	**134350**	**376177**	

Land Use

Pattern of Utilization	Existing (Ha)	At the End of Plan Period (In Ha.)	At the End of Mine (In Ha.)	Conceptual Period (In Ha.)			
				Backfill	Stone Pitching Wall	Water Body	Plantation
Quarry	-	0.97 (including backfill 0.17 ha. & Stone pitching wall 0.002 ha.)	1.21 (including backfill 0.31 ha. & Stone pitching wall 0.002 ha.)	0.170	0.002	1.038	-
Safety Barrier	-	0.82 (Plantation)	0.82 (Plantation)	-	-	-	0.82

Road	0.005	-	-	-	-	-	-
Total area in use	**0.005**	**1.79**	**2.03**	**0.170**	**0.002**	**1.038**	**0.82**
Balance Unused Area	2.025	0.24	-	-	-	-	-
Total Applied Area	**2.03**	**2.03**	**2.03**	**2.03**			

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Safety Zone	:	0.82 ha	2050
2	Along Approach Road	:	140 m	280
3	No. of plants distributed with consultation local authorities /village Panchayat	:	--	100

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

COST PROPOSED FOR EMP

Sl. No	Description	Capital Cost (Rs.)	Recurring Cost (Rs.)
1	Pollution Control & Dust Suppression	--	2,00,000
2	Baseline Monitoring i) Air ii) Water iii) Soil iv) Noise	--	 14,000 8,000 8,000 7,000
3	Plantation	12,15,000	1,00,000
4	Construction and maintenance of haul road	2,00,000	1,50,000

TOTAL	14,15,000	4,87,000

Note: *2430 plants * 500 Rs (for each plants including hedges and fences) = Rs. 12.15 lakhs
Salary of Labor for haul road maintenance 1 labor*300 =300 per day
300* 300 = 90000/- or 150000/- (including maintenance)

Environment Monitoring Programme

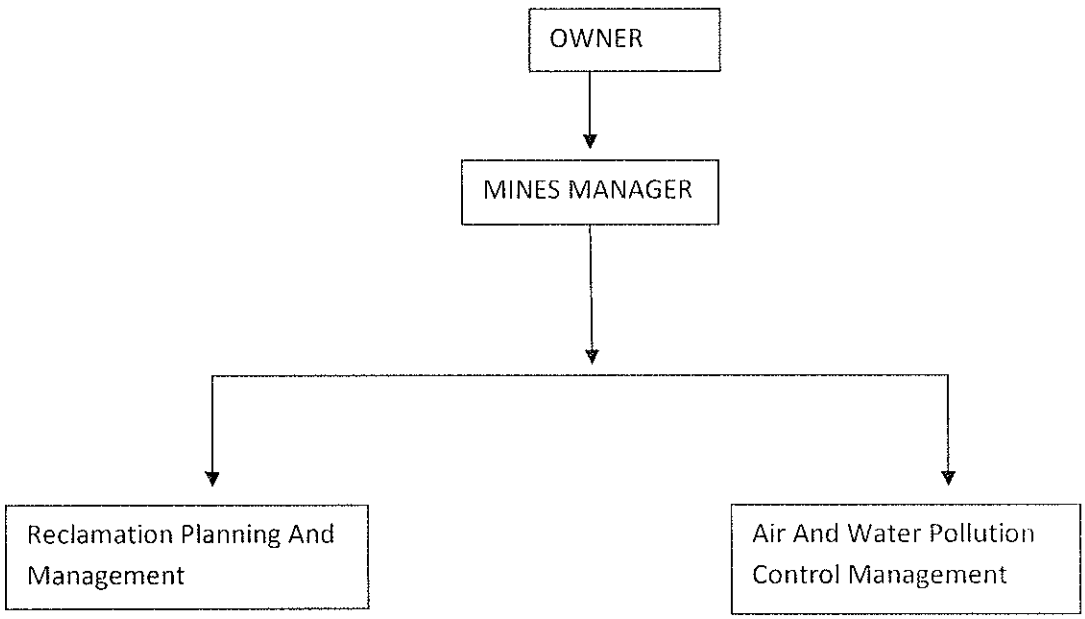
Sl. No	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Solid Waste Management

Total 6670 cum of Gritty Soil & 7071 cum of Intercalated Waste will be generated during the plan period.

During quarry development in 1st, 2nd & 3rd year removed gritty soil & intercalated waste will be temporarily dumped at the north west part of the area with suitable precautions like parapet wall, garland drain & in 4th year removed gritty soil, intercalated waste & existing temporarily dumped material will be backfill within the exhausted quarry at south-east part & in 5th year removed gritty soil & intercalated waste will be backfill within the exhausted quarry. In conceptual period removed total intercalated waste will be backfill on lower bench of the exhausted quarry.

Organization Structure



Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.

- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injuryor system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	**4**	**3**	**2**	**1**
C2 (Major)	10	8	6	**4**	**2**
C3 (Moderate)	*15*	12	9	6	**3**
C4 (Minor)	*20*	*16*	12	8	**4**
C5 (Insignificant)	*25*	*20*	*15*	10	5

Risk Rating Scale

S. No.	Rating	Scale
1	**High Risk**	**1-4**
2	Medium Risk	5-12
3	*Low Risk*	*13-25*

Hazard identification & Risk Analysis in Stone mining operation

S. No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.

- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area,

utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Jamkanali & Kharikabad Stone Deposit of M/s A & S Minerals (Partners : Shri Arun Kumar Singh & Shri Sudhir Kumar Singh), Village : Jamkanali & Kharikabad, Thana : Nala, Distt. : Jamtara, Jharkhand (2.03 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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14. **Phuljori Stone Deposit of M/s Koleshwari Minerals Pvt. Ltd. (Partner : Shri Ashutosh Kumar Singh), Mouza : Phuljori, Thana : Jamtara, Distt. : Jamtara, Jharkhand (2.81 Ha).**

(Proposal no.: SIA/JH/MIN/ 505993 /2024)

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 19.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity- 96448 cum/annum or 270055 TPA.

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Phuljori Stone Deposit	
2	Lessee:	:	M/s Koleshwari Minerals Pvt. Ltd. Partner – Sri Ashutosh Kumar Singh & Others AT Village- Nagar, P.O. + Thana-Hunterganj, District- Chatra, State –Jharkhand, Pin Code – 825403	
3	Lease Address	:	Mouza-Phuljori, Thana – Jamtara, Thana No. - 16, District – Jamtara, State - Jharkhand	
4	Lease Area	:	2.81 ha.	Acres- 6.95 Acres
5	Type of Land	:	Non-Forest (Raiyati Barren Land)	
6	Project Cost	:	Rs. 100.0 Lakhs	
7	EMP Budget	:	Capital: Rs. 12.05 Lakhs	Recurring: 4.87 Lakhs / year
8	New or Expansion	:	New	
9	Mineable Reserves	:	964227 cum	2699833 tonnes
10	Mine Life	:	10 years	
11	Man power	:	66	
12	Water Requirement	:	8.56 ~ 9.0 KLD (Drinking: 0.66 KLD, Dust Suppression: 3.88 KLD, Plantation: 4.02 KLD)	
13	Water Source	:	Water will be taken from nearby village	
14	DG Set / power	:	500 KVA	
15	Crusher	:	No Crusher	
16	Nearest Water Body	:	Rajoya Nadi, Approx. 1.47 km towards NNW direction of mine site.	
17	Nearest Habitation	:	Phuljori village approx. 160 meters NE direction of mine site	
18	Nearest Railway Station	:	Jamtara Railway station, approx. 11.57 km towards East direction.	
19	Nearest Airport	:	Deoghar Airport, approx. 56.30 km towards North direction	
20	Nearest Forest	:	Dense Mixed Jungle, approx. 2.0 Km in West direction.	
21	Road & Highways	:	NH-419 - Approx. 1.07 km in NE direction.	

CO-ORDINATES

1	Latitude	:	From 23°56'10.02865" N	To 23°56'20.28862" N
2	Longitude	:	From 86°41'37.76269" E	To 86°41'44.62908" E

LAND DETAILS

Khata No.	Plot No.
79, 65, 72, 70, 75K, 11, 19k, 16, 06, 20	2075(P), 2078, 2079(P), 2080, 2097(P), 2098(P), 2099, 2100, 2101(P), 2102(P), 2107, 2108(P), 2109(P), 2110(P), 2111, 2112, 2113 & 2117(P),

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Jamtara vide letter no. 505/Khanan, dated 15.07.2024.
2	CO	:	The CO, Jamtara vide letter no. 257/Ra., dated 29.02.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Jamtara vide memo no. 163, dated 17.02.2024 certified that 01 other mining lease area (3.14 Acre) exists within 500 meters radius from proposed project site and total area is 10.09 Acre.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 1255, dated 29.06.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Jamtara Forest Division vide letter no. 781, dated 27.05.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Jamtara District (Sl. no. 10, Page no. 114 C).
7	Gram Sabha	:	BDO, Jamtara vide letter no. 887/Vi., dated 05.07.2024 informed that Gram Sabha conducted on 04.07.2024.
8	Mine Plan Approval	:	Approved by Deputy Director Mines, Santhal Pargana Circle, Dumka vide Memo No. 244/DDM, dated 05.12.2024.
9	Qualified Person	:	Shri P.K. Sen was present in the meeting and affirmed that the

			mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast mechanized method.	
2	Quarry Area	:	2.81 ha. or 6.95 Acres	Life of Mine – 10 Years
3	Waste Generation	:	15704 cum of Gritty Soil and 25374 cum of Intercalated Waste.	
4	Stripping Ratio	:	1: 1.2	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Elevation of Mine	:	226 AMSL to 228 AMSL	
8	Ground Level Elevation	:	226 AMSL	
9	Ultimate Working Depth	:	180 AMSL (46 mbgl)	
10	Water Table	:	174-163 AMSL (63-52 mbgl)	
11	Topography of Mine	:	Area represents a gently sloping land with rock mass of Granite-gneiss	
12	Explosive Requirement	:	110 kg/day	
13	Diesel/Fuel requirement	:	150 litre/day	

Production Details

Year	Removal of Gritty Soil		Intercalated waste in Cum	Production of Stone		Bench AMSL
	In cum	In tonnes		in Cum	in tonnes	
1st	5984	8976	5072	96377	269854	228-216
2nd	000	000	5075	96423	269985	222-204
3rd	4590	6885	5076	96448	270055	228-204
4th	5130	7695	5075	96423	269985	228-216
5th	000	000	5076	96448	270055	222-210
Total	**15704**	**23556**	**25374**	**482119**	**1349934**	

Land Use

Pattern of Utilization	Present Land Use (Ha)	At the end of Plan period (Ha)	At the end of mine (Ha)	Conceptual Period (In Ha)		
				Backfill	Water Body	Plantation
Quarry	Nil	2.07 (including backfill 0.40 Ha)	2.07 (0.66 Ha area shall be backfilled and after backfilling entire area will be converted into water reservoir)	0.40	1.10	0.57 (dead bench)

Greenbelt within Safety Barrier	Nil	0.74 (Plantation)	0.74 (Plantation)	---	---	0.74
Road	0.03	Nil	Nil	---	---	---
Total Area in Use	**0.03**	**2.81**	**2.81**	**0.40**	**1.10**	**1.31**
Balanced Area unused	2.78	Nil	Nil	---	---	---
Total Applied Area	**2.81**	**2.81**	**2.81**	**2.81**		

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Safety Zone	:	0.74 ha	1850
2	Along Approach Road	:	30 m	60
3	No. of plants distributed with consultation local authorities /village Panchayat	:	--	100

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

COST PROPOSED FOR EMP

Sl. No	Description	Capital Cost (Rs)	Recurring Cost (Rs)
1	Pollution Control & Dust Suppression	Nil	2,00,000
2	Baseline Monitoring i) Air I) Water Ii) Soil iv) Noise	--	 14,000 8,000 8,000 7,000
3	Plantation	10,05,000	1,00,000

4	Construction and maintenance of haul road	2,00,000	1,50,000
TOTAL		**12,05,000**	**4,87,000**

Note: * 2010 plants*500 Rs (for each plants including hedges and fences) = Rs. 10.05 lakhs
Salary of Labor for haul road maintenance 1 labor*300 =300 per day
300* 300 = 90000/- or 150000/- (including maintenance)

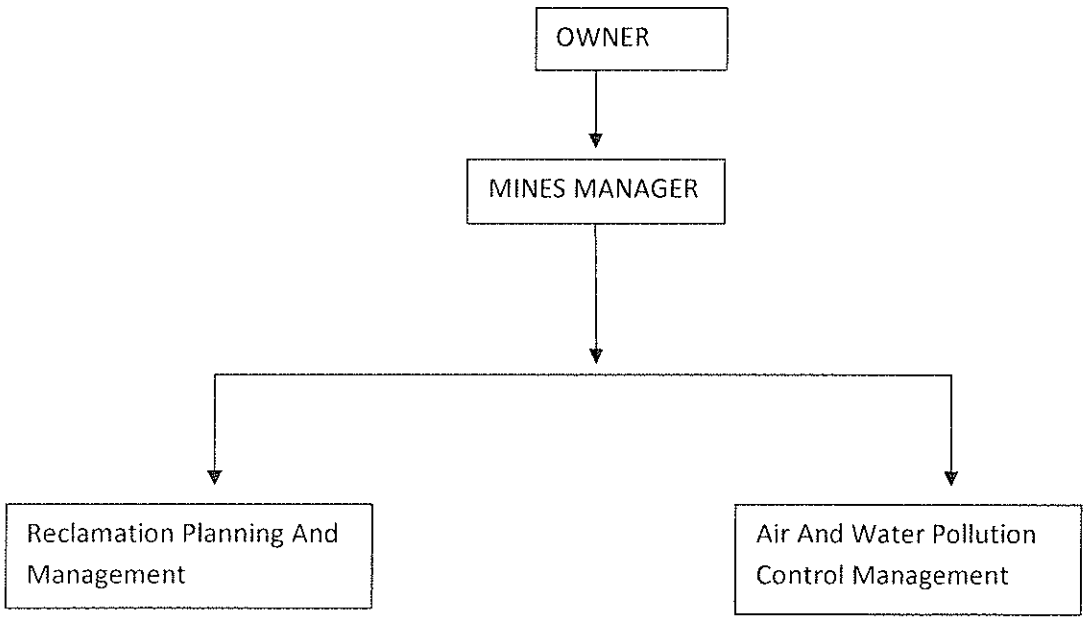
Environment Monitoring Programme

Sl. No	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Solid Waste Management

It has been calculated that total 25374 cum intercalated waste and 15704 cum gritty soil shall be generated during the plan period. During quarry development in 1st & 2nd year removed gritty soil & Intercalated waste will be temporarily dumped [(Area - 0.22 Ha, (L x W x H = 69m x 32m x 5m). Area - 0.10 Ha, (L x W x H= 63m x 18m x 5m)] at the south-east part of the area with suitable precaution like parapet wall, garland drain & in 3rd year removed gritty soil, intercalated & existing temporarily dumped material will be backfill within the exhausted quarry at north part & in 4th & 5th year removed gritty soil & Intercalated waste will be backfilled within the exhausted quarry. In conceptual period removed total intercalated waste will be backfill lower bench of the exhausted quarry.

Organization Structure



Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.

L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injuryor system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	**4**	**3**	**2**	**1**
C2 (Major)	10	8	6	**4**	**2**
C3 (Moderate)	*15*	12	9	6	**3**
C4 (Minor)	*20*	*16*	12	8	**4**
C5 (Insignificant)	*25*	*20*	*15*	10	5

Risk Rating Scale

S. No.	Rating	Scale
1	**High Risk**	**1-4**

2	Medium Risk	5-12
3	*Low Risk*	*13-25*

Hazard identification & Risk Analysis in Stone mining operation

S. No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)

- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.

- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.
The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.
The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.
Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.
Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Phuljori Stone Deposit of M/s Koleshwari Minerals Pvt. Ltd. (Partner : Shri Ashutosh Kumar Singh), Mouza : Phuljori, Thana : Jamtara, Distt. : Jamtara, Jharkhand (2.81 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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15. **Munkeri Stone Deposit of M/s Sushila Devi and Satyendra Kumar Yadav Stone (Partners : Mrs. Sushila Devi & Shri Satyendra Kumar Yadav), Village : Munkeri, Thana : Chhatarpur, Distt. : Palamau, Jharkhand (2.83 Ha).**

(Proposal no.: SIA/JH/MIN/ 507237 /2024)

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 19.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity- 54879.60 cum/annum or 153662.90 TPA.

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Munkeri Stone Deposit	
2	Lessee:	:	M/s Sushila Devi And Satyendra Kumar Yadav Stone, Partner – 1. Smt. Sushila Devi 2. Sri Satyendra Kumar Yadav	
3	Lease Address	:	Mauza – Munkeri, Thana – Chhatarpur, District – Palamu, State – Jharkhand	
4	Lease Area	:	2.83 ha.	Acres- 7.00 Acres
5	Type of Land	:	Non-Forest (Raiyati Land)	
6	Project Cost	:	Rs. 1.20 Cr.	
7	EMP Budget	:	Capital: Rs. 24.915 Lakhs	Recurring: 4.87 Lakhs / year
8	New or Expansion	:	New	
9	Mineable Reserves	:	548739 cum	1536469 tons
10	Mine Life	:	10 years	
11	Man power	:	36	
12	Water Requirement	:	17.68 ~ 18.0 KLD (Drinking: 0.36 KLD, Dust Suppression: 9.76 KLD, Plantation: 7.56 KLD)	
13	Water Source	:	Water will be taken from nearby village	
14	DG Set / power	:	500 KVA	
15	Crusher	:	No Crusher	
16	Nearest Water Body	:	Batane Nadi, Approx. 2.50 km. in East direction	
17	Nearest Habitation	:	Approx. 270 meters in NW direction of mine site	
18	Nearest Railway Station	:	Japla Railway Station, approx. 31.30 km towards NW direction	
19	Nearest Airport	:	Gaya international Airport, approx. 82.40 km towards NE direction.	
20	Nearest Forest	:	Protected Forest, Approx. 1.00 km. in SW direction Protected Forest, Approx. 4.00 km. in South direction Protected Forest, Approx. 4.80 km. in SW direction	
21	Road & Highways	:	NH-139, Approx. 5.00 km. in West direction	

CO-ORDINATES

1	Latitude	:	From 24°21'59.192" N	To 24°22'06.429" N
2	Longitude	:	From 84°14'48.302" E	To 84°14'53.599" E

LAND DETAILS

Khata No.	Plot No.
02	416 (P)
69	1178 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Palamau vide letter no. 1441/M, dated 06.07.2024.
2	CO	:	The CO, Chhatarpur (Palamau) vide letter no. 68, dated 19.01.2024 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Palamau vide memo no. 1543, dated 24.07.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, South Division, Medininagar vide letter no. 818, dated 19.09.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palamau Tiger Project.
5	DFO Territorial	:	Division Forest Officer, Medininagar Forest Division vide letter no. 954, dated 13.03.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Palamau District (Sl. no. 19, Page no. 106).
7	Gram Sabha	:	BDO, Chhatarpur (Palamau) vide letter no. 536, dated 28.06.2024 informed that Gram Sabha conducted on 20.06.2024.
8	Mine Plan Approval	:	Approved by Assistant Director, Geology, District Geological Officer, Palamau vide Letter No. 211, dated 11.11.2024.
9	Qualified Person	:	Shri P.K. Sen was present in the meeting and affirmed that the

			mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast mechanized method.	
2	Quarry Area	:	2.83 ha or 7.00 Acres	Life of Mine – 10 Years
3	Waste Generation	:	23760 cum gritty soil and 11624 cum Intercalated Waste	
4	Stripping Ratio	:	1:0.04	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Elevation of Mine	:	258 AMSL to 263 AMSL	
8	Ground Level Elevation	:	258 AMSL	
9	Ultimate Working Depth	:	218 AMSL (40 m bgl)	
10	Water Table	:	210-205 AMSL (48-53 m bgl)	
11	Topography of Mine	:	Area represents a gently sloping land with rock mass of Granite-gneiss	
12	Explosive Requirement	:	110 kg/day	
13	Diesel/Fuel requirement	:	150 litre/day	

Production Details

Year	Removal of Gritty Soil		Intercalated waste in cum	Production of Stone		Bench AMSL
	in cum	in tones		in cum	in tones	
1st	11880	17820	2888	54862.50	153615.00	262-254
2nd	0	0	2289	54879.60	153662.90	260-248
3rd	11880	8820	2886	54834.00	153535.20	262-242
4th	0	0	675	54834.00	153535.20	260-242
5th	0	0	2886	54834.00	153535.00	248-236
Total	**23760**	**26640**	**11624**	**274244.10**	**767883.30**	

Land Use

Category	Present Land Use (in Ha)	At The End Of Plan Period (In Ha.)	At the end of mine (in Ha.)	Conceptual period (in Ha.)		
				Backfill	Water body	Plantation
Quarry	Nil	1.842	2.319 (including backfill)	0.488	1.831	--
Dump	Nil	0.477	Nil	--	--	--
Safety Zone	Nil	0.512 (Plantation)	0.513 (Plantation)	--	--	0.513
Road	Nil	0.001	Nil	--	--	--
Total area in	**Nil**	**2.83**	**2.83**	**0.488**	**1.831**	**0.513**

852

use						
Balanced Unused Area	2.83	Nil	Nil	--	--	--
Total Lease area	**2.83**	**2.83**	**2.83**	**2.83**		

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Safety Zone	:	0.513 ha	1283
2	Along Approach Road	:	1200 m	2400
3	No. of plants distributed with consultation local authorities /village Panchayat	:	--	100

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

COST PROPOSED FOR EMP

Sl. No	Description	Capital Cost (Rs.)	Recurring Cost (Rs.)
1	Pollution Control & Dust Suppression	--	2,00,000
2	Baseline Monitoring i) Air ii) Water iii) Soil iv) Noise	--	 14,000 8,000 8,000 7,000
3	Plantation	18,91,500	1,00,000
4	Construction and maintenance of haul road	6,00,000	1,50,000
TOTAL		**24,91,500**	**4,87,000**

Note: *3783 plants * 500 Rs (for each plants including hedges and fences) = 18.915 Lakh
Salary of Labor for haul road maintenance 1 labor*300 =300 per day
300* 300 = 90000/- or 1,50,000/- (including maintenance material)
**** 5.0 lakh per kilometer (500000 * 1.20 km haul road = 6,00,000 /-)***

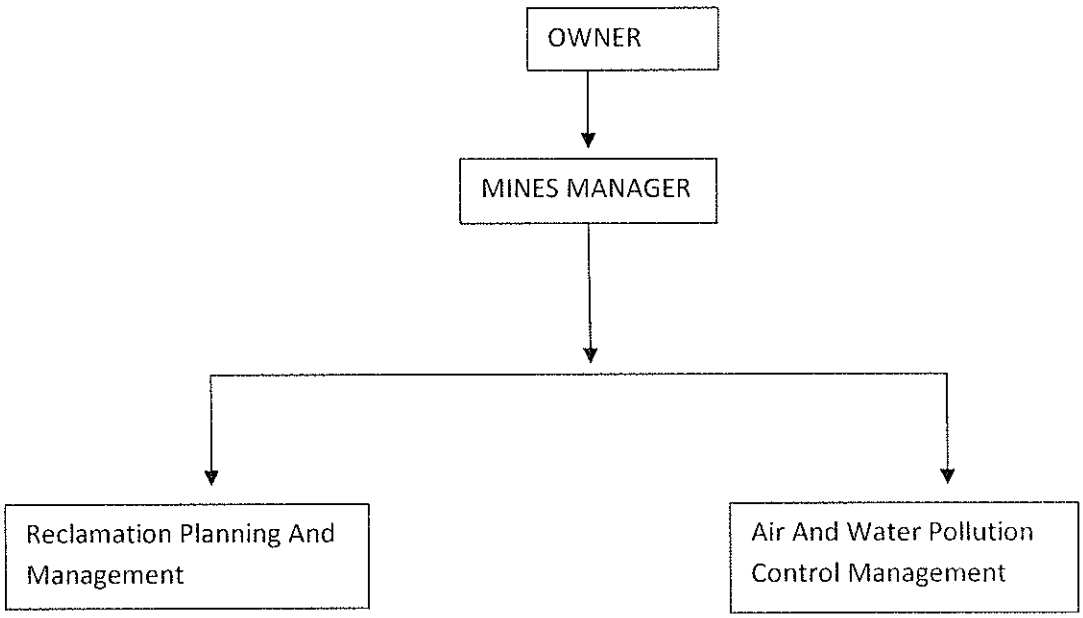
Environment Monitoring Programme

Sl. No	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Solid Waste Management

Total 23760 cum gritty soil and 11624 cum intercalated waste will be generated during the plan period. During quarry development in 1st year removed gritty soil & intercalated waste will be temporarily dumped at the north part of the area with suitable precautions like parapet wall, garland drain & 2nd year removed intercalated waste will be dump over 1st year dump and partly used in haul road dressing & in 3rd year removed gritty soil, intercalated waste dump over 2nd year dump & partly uses in approaching and haul road dressing in 4th & 5th year intercalated waste will also be used in haul road dressing and part waste dump over 3rd year Dump.

Organization Structure



Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.

- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injuryor system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	**4**	**3**	**2**	**1**
C2 (Major)	10	*8*	6	**4**	**2**
C3 (Moderate)	*15*	12	9	6	**3**
C4 (Minor)	*20*	*16*	12	8	**4**
C5 (Insignificant)	*25*	*20*	*15*	10	5

Risk Rating Scale

S. No.	Rating	Scale
1	**High Risk**	**1-4**
2	Medium Risk	5-12
3	*Low Risk*	*13-25*

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Hazard identification & Risk Analysis in Stone mining operation

S. No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.

- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area,

utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Munkeri Stone Deposit of M/s Sushila Devi and Satyendra Kumar Yadav Stone (Partners : Mrs. Sushila Devi & Shri Satyendra Kumar Yadav), Village : Munkeri, Thana : Chhatarpur, Distt. : Palamau, Jharkhand (2.83 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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16. **Munkeri Stone Deposit of Shri Anil Singh, Village : Munkeri, Thana : Chhatarpur, Distt. : Palamau, Jharkhand (1.68 Ha).**

(Proposal no.: SIA/JH/MIN/ 508341 /2024)

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 19.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity- 18801 cum/annum or 52642 TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Munkeri Stone Deposit	
2	Lessee:	:	Sri Anil Singh	
3	Lease Address	:	Mouza – Munkeri, Thana – Chhatarpur, District – Palamu, State- Jharkhand	
4	Lease Area	:	1.68 ha.	Acres- 4.16 Acres
5	Type of Land	:	Non-Forest (Raiyati Land)	
6	Project Cost	:	Rs. 90.0 Lakhs	
7	EMP Budget	:	Capital: Rs. 19.80 Lakhs	Recurring: 4.87 Lakhs / year
8	New or Expansion	:	New	
9	Mineable Reserves	:	187781 cum	525789 tonnes
10	Mine Life	:	10 years	
11	Man power	:	32	
12	Water Requirement	:	14.52 ~ 15.00 KLD (Drinking: 0.32 KLD, Dust Suppression: 7.72 KLD, Plantation: 6.48 KLD)	
13	Water Source	:	Water will be taken from nearby village	
14	DG Set / power	:	200 KVA	
15	Crusher	:	No Crusher	
16	Nearest Water Body	:	Batane Nadi, Approx. 4.00 km. in East direction of mine site	
17	Nearest Habitation	:	Munkeri village approx. 220 meters South direction of mine site	
18	Nearest Railway Station	:	Japla Railway Station, approx. 30.00 km towards North West direction.	
19	Nearest Airport	:	Gaya International Airport, approx. 83.50 km towards ENE direction.	
20	Nearest Forest	:	Protected forest, Approx. 1.00 km. in South direction Protected Forest, approx. 3.50 km. in South direction Protected Forest, approx. 3.70 km. in SE direction	
21	Road & Highways	:	NH-139, Approx. 3.50 km. in West direction.	

CO-ORDINATES

1	Latitude	:	From 24°22'01.645"N	To 24°22'08.147"N

2	Longitude	:	From 84°13'54.180"E	To 84°14'01.153"E

LAND DETAILS

Khata No.	Plot No.
69	22 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Palamau vide letter no. 1346/M, dated 28.06.2024.
2	CO	:	The CO, Chhatarpur (Palamau) vide letter no. 92, dated 09.02.2023 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Palamau vide memo no. 1778, dated 27.08.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, South Division, Medininagar vide letter no. 547, dated 08.07.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palamau Tiger Project.
5	DFO Territorial	:	Division Forest Officer, Medininagar Forest Division vide letter no. 1515, dated 22.05.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Palamau District (Sl. no. 17, Page no. 105).
7	Gram Sabha	:	BDO, Chhatarpur (Palamau) vide letter no. 267, dated 14.03.2023 informed that Gram Sabha conducted on 09.03.2023.
8	Mine Plan Approval	:	Approved by Assistant Director, Geology, District Geological Officer, Palamau vide Memo No. 210, dated 11.11.2024.
9	Qualified Person	:	Shri P.K. Sen was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast mechanized Mining method.

2	Quarry Area	:	1.68 ha. or 4.16 Acres	Life of Mine – 10 Years
3	Waste Generation	:	8180 cum gritty soil and 4938 cum intercalated waste.	
4	Stripping Ratio	:	1: 0.6	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Elevation of Mine	:	262 AMSL to 267 AMSL	
8	Ground Level Elevation	:	262 AMSL	
9	Ultimate Working Depth	:	243 AMSL (19 m bgl)	
10	Water Table	:	236-227 AMSL (26-35 m bgl)	
11	Topography of Mine	:	Area represents a gently sloping land with rock mass of Granite-gneiss	
12	Explosive Requirement	:	110 kg/day	
13	Diesel/Fuel requirement	:	150 litre/day	

Production Details

Year	Removal of gritty soil		Intercalated waste	Production of stone		Bench AMSL
	in cum	in tonnes	in cum	in cum	in tonnes	
1st	4180	6270	986	18734	52455	267-255
2nd	000	000	990	18801	52642	261-249
3rd	4000	6000	988	18772	52562	267-261
4th	000	000	986	18734	52455	261-255
5th	000	000	988	18772	52562	261-249
Total	**8180**	**12270**	**4938**	**93813**	**262676**	

Land Use

Category	Present Land Use (in Ha)	At The End Of Plan Period (In Ha.)	At the end of mine (in Ha.)	Conceptual period (in Ha.)		
				backfill	Water body	plantation
Quarry	0.018 (Earth Cutting Area)	0.61(including backfill 0.124Ha)	1.00(including backfill 0.199Ha)	0.124	0.876	--
Safety Zone	Nil	0.68 (Plantation)	0.68 (Plantation)	--	--	0.680
Road	0.029	Nil	Nil	--	--	--
Total area in use	**0.047**	**1.29**	**1.68**	**0.124**	**0.876**	**0.680**
Balanced Unused Area	1.633	0.39	Nil	--	--	--
Total Lease area	**1.68**	**1.68**	**1.68**	**1.680**		

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Safety Zone	:	0.68 ha	1700
2	Along Approach Road	:	720 m	1440
3	No. of plants distributed with consultation local authorities /village Panchayat	:	--	100

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

COST PROPOSED FOR EMP

Sl. No	Description	Capital Cost (Rs.)	Recurring Cost (Rs.)
1	Pollution Control & Dust Suppression	--	2,00,000
2	Baseline Monitoring i) Air ii) Water iii) Soil iv) Noise	--	14,000 8,000 8,000 7,000
3	Plantation	16,20,000	1,00,000
4	Construction and maintenance of haul road	3,60,000	1,50,000
TOTAL		**19,80,000**	**4,87,000**

Note: *3240 plants * 500 Rs (for each plants including hedges and fences) = 16.20 Lakh
Salary of Labor for haul road maintenance 1 labor*300 =300 per day
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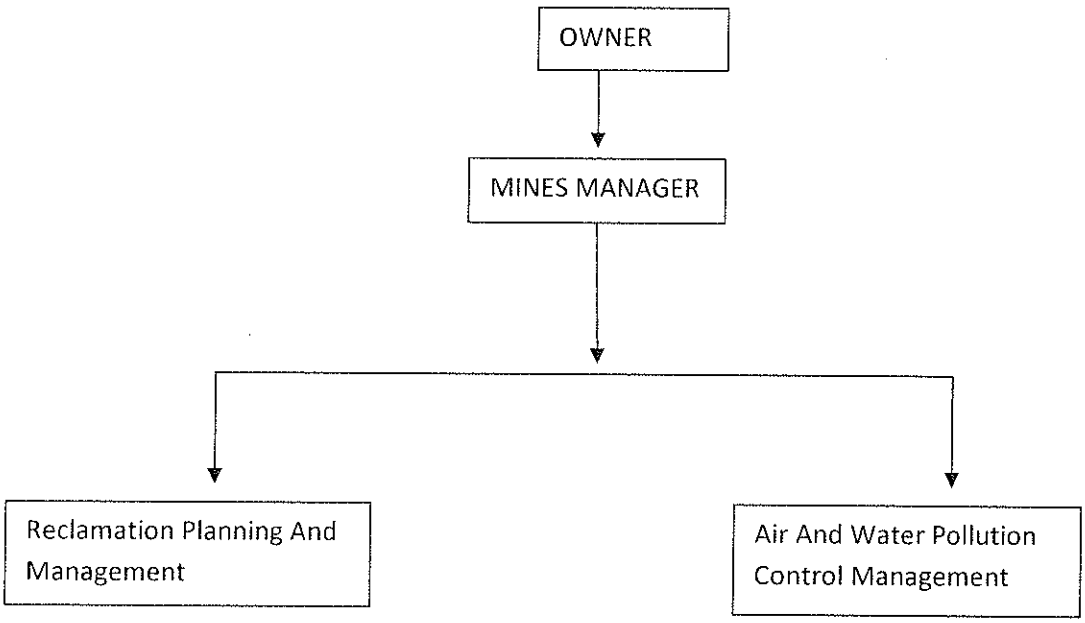
5	Noise	4 Stations	6 Monthly

Solid Waste Management

Total 6670 cum of Gritty Soil & 7071 cum of Intercalated Waste will be generated during the plan period.

During quarry development in 1st, 2nd & 3rd year removed gritty soil & intercalated waste will be temporarily dumped at the north west part of the area with suitable precautions like parapet wall, garland drain & in 4th year removed gritty soil, intercalated waste & existing temporarily dumped material will be backfill within the exhausted quarry at south-east part & in 5th year removed gritty soil & intercalated waste will be backfill within the exhausted quarry. In conceptual period removed total intercalated waste will be backfill on lower bench of the exhausted quarry.

Organization Structure



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C2	Major	May commonly cause severe injury or illness or

		major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injuryor system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	**4**	**3**	**2**	**1**
C2 (Major)	10	8	6	**4**	**2**
C3 (Moderate)	*15*	12	9	6	**3**
C4 (Minor)	*20*	*16*	12	8	**4**
C5 (Insignificant)	*25*	*20*	*15*	10	5

Risk Rating Scale

S. No.	Rating	Scale
1	**High Risk**	**1-4**
2	Medium Risk	5-12
3	*Low Risk*	*13-25*

Hazard identification & Risk Analysis in Stone mining operation

S. No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives .	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5

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3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling

- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.
While others may need to work at or near the edge of a working bench the person most at risk
during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge

of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Munkeri Stone Deposit of Shri Anil Singh, Village : Munkeri, Thana : Chhatarpur, Distt. : Palamau, Jharkhand (1.68 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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17. **Masihani Stone Deposit of M/s MCC Mahadeo Constructions Private Limited, Village : Masihani, Thana : Chhatarpur, Distt. : Palamau, Jharkhand (2.99 Ha).**

(Proposal no.: SIA/JH/MIN/ 514562 /2024)

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 19.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity- 52706 cum/annum or 147577 TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Masihani Stone Deposit	
2	Lessee:	:	MCC Mahadeo Constructions Private Limited Director: Sri Anil Kumar Singh	
3	Lease Address	:	Village – Masihani, Thana - Chhatarpur, Thana No. - 336, District – Palamu, State–Jharkhand	
4	Lease Area	:	2.99 ha.	Acres- 7.40 Acres
5	Type of Land	:	Non-Forest (Raiyati Barren Land)	
6	Project Cost	:	Rs. 90 Lakhs	
7	EMP Budget	:	Capital: Rs. 23.225 Lakhs	Recurring: 4.87 Lakhs / year
8	New or Expansion	:	New	
9	Mineable Reserves	:	1474811 tons	526719 cum
10	Mine Life	:	10 years	
11	Man power	:	36	
12	Water Requirement	:	17.16~17.50KLD (Drinking: 0.36 KLD, Dust Suppression: 9.09 KLD, Plantation: 7.71 KLD)	
13	Water Source	:	Water will be taken from nearby village	
14	DG Set / power	:	500 KVA	
15	Crusher	:	No Crusher	
16	Nearest Water Body	:	Batane River, Approx. 5.5 km. in NE direction of mine site	
17	Nearest Habitation	:	Approx. 300 meters in SE direction.	
18	Nearest Railway Station	:	Haidar Nagar Railway station, approx 29.53 km in WNW direction.	
19	Nearest Air Port	:	Gaya International Airport, approx. 85.12 km towards NE direction	
20	Nearest Forest	:	Protected Forest ,Approx. 1.2 km. in NE direction of mine site, Protected Forest ,Approx. 2.50 km. in SE direction of mine site.	
21	Road & Highways	:	NH-139, Approx. 0.73 km in West direction	

CO-ORDINATES

1	Latitude	:	From 24°22'02.50" N	To 24°22'15.85" N

876

2	Longitude	:	From 84°12'23.78" E	To 84°12'29.11" E

LAND DETAILS

Khata No.	Plot No.
12	616 & 620

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Palamau vide letter no. 89/M, dated 12.01.2023.
2	CO	:	The CO, Chhatarpur (Palamau) vide letter no. 661, dated 16.12.2022 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Palamau vide memo no. 2608, dated 14.11.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, South Division, Medininagar vide letter no. 140, dated 23.02.2023 certified that the proposed project site is outside Eco Sensitive Zone of Palamau Tiger Project.
5	DFO Territorial	:	Division Forest Officer, Medininagar Forest Division vide letter no. 23, dated 05.01.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Palamau District (Sl. no. 04, Page no. 102).
7	Gram Sabha	:	BDO, Chhatarpur (Palamau) vide letter no. 868, dated 17.11.2022 informed that Gram Sabha conducted on 17.11.2022.
8	Mine Plan Approval	:	Approved by Assistant Mining Officer, Garhwa vide Memo No. 828, dated 21.06.2023.
9	Qualified Person	:	Shri P.K. Sen was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Mechanized method.

2	Quarry Area	:	2.99 ha. or 7.40 Acres	Life of Mine –10 Years
3	Waste Generation	:	13133 cum of Gritty Soil and 13865 cum of Intercalated Waste.	
4	Stripping Ratio	:	1: 0.5	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Elevation of Mine	:	258 AMSL to 263 AMSL	
8	Ground Level Elevation	:	258 AMSL	
9	Ultimate Working Depth	:	221 AMSL (37 mbgl)	
10	Water Table	:	208-205 AMSL (50-53 mbgl)	
11	Topography of Mine	:	Area represents a gently sloping land with rock mass of Granite gneiss.	
12	Explosive Requirement	:	110 kg/day	
13	Diesel/Fuel requirement	:	150 litre/day	

Production Details

Year	Removal of Gritty soil in cum	Removal of Gritty soil in tonnes	Intercalated Waste in cum	Production of stone in Cum	Production of stone in Tonnes	Bench in AMSL
1st	4378	6567	2773	52672	147481	263-251
2nd	6885	10328	2772	52671	147478	263-251
3rd	000	000	2774	52706	147577	257-251
4th	000	000	2772	52671	147478	257-245
5th	1870	2805	2774	52706	147577	263-245
Total	**13133**	**19700**	**13865**	**263426**	**737591**	

Land Use

Type of Land	Present Land Use (In Ha)	At the End of the Five year Plan Period (In Ha)	At the End of Mine (In Ha.)	Conceptual Period (In Ha)			
				Public Use	Backfill	Water Body	Plantation
Quarry	Nil	2.12 (including backfilling 0.25 Ha)	2.12 (including backfilling 0.25 Ha)	-	0.25	1.41	0.46
Safety Barrier	Nil	0.87	0.87	-	-	-	0.87

Road	0.01	Nil	Nil	-	-	-	-
Total area in Use	**0.01**			**-**	**0.25**	**1.41**	**1.33**
Balanced unused Area	2.98	Nil	Nil	-	-	-	-
Total Applied Area	**2.99**	**2.99**	**2.99**	**2.99**			

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Safety Zone	:	0.87 ha	2175
2	Along Approach Road	:	790 m	1580
3	No. of plants distributed with consultation local authorities /village Panchayat	:	--	100

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

COST PROPOSED FOR EMP

Sl. No	Description	Capital Cost (Rs.)	Recurring Cost (Rs.)
1	Pollution Control & Dust Suppression	--	2,00,000
2	Baseline Monitoring i) Air ii) Water iii) Soil iv) Noise	--	 14,000 8,000 8,000 7,000
3	Plantation	19,27,500	1,00,000
4	Construction and maintenance of	3,95,000	1,50,000

	haul road		
TOTAL		23,22,500	4,87,000

*Note: *3855 plants * 500 Rs (for each plants including hedges and fences) = 19.275 lakhs*
*Salary of Labor for haul road maintenance 1 labor*300 =300 per day*
*300*300 = 90,000/- or 1,50,000/-*
** 5.0 lakh per kilometer (500000 * 0.79 km haul road = 3,95,000/-)*

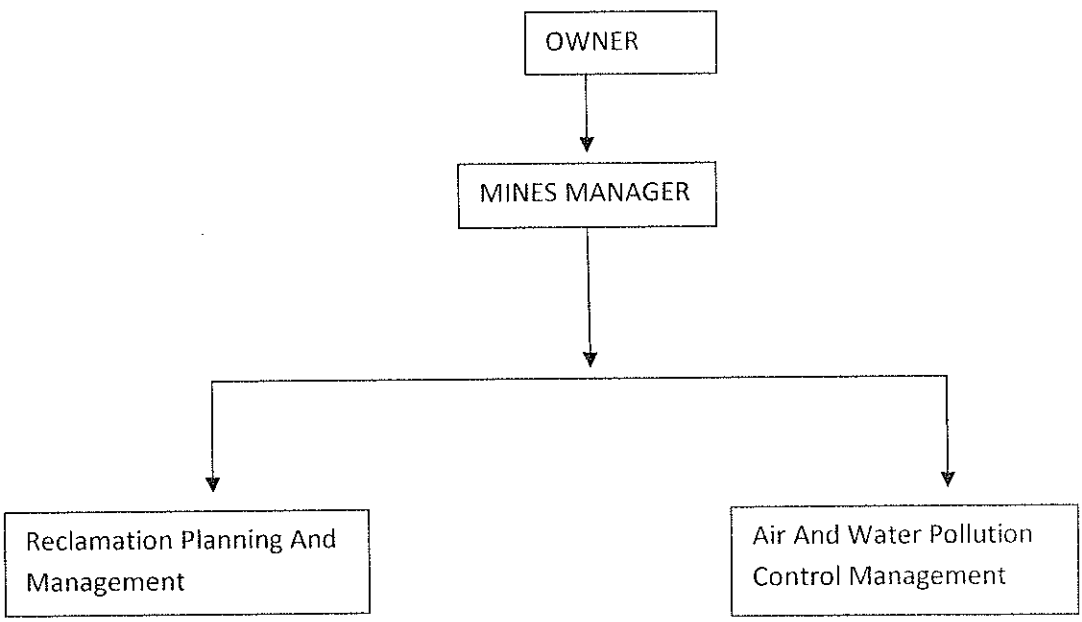
Environment Monitoring Programme

Sl. No	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Solid Waste Management

Total 13133 cum of Gritty Soil and 13865 cum of Intercalated Waste will be generated during the plan period. During quarry development in 1st gritty soil and Intercalated waste will be removed and this will be backfill within the exhausted quarry & in 2nd & 3rd year removed soil & Intercalated waste will be temporarily dumped at the north part of the area with suitable precautions like parapet wall, garland drain & in 4th year intercalated waste & existing dumped soil will be backfilled within the exhausted quarry& in 5th year removed soil & intercalated waste will be backfill within exhausted quarry.

Organization Structure



Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.

L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injuryor system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
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Hazard identification & Risk Analysis in Stone mining operation

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3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

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- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
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The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.

- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area,

utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Masihani Stone Deposit of M/s MCC Mahadeo Constructions Private Limited, Village : Masihani, Thana : Chhatarpur, Distt. : Palamau, Jharkhand (2.99 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

****

18. **Lakrahi Stone Deposit of M/s Magadh Minerals (Partners : Shri Kamal Kumar & Shri Pradeep Singh), Village : Lakrahi, Thana : Naudiha Bazar, Distt. : Palamau, Jharkhand (1.34 Ha).**

(Proposal no.: SIA/JH/MIN/ 509336 /2024)

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 19.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity- 35226 cum/year or 98633 TPA

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Lakrahi Stone Deposit	
2	Lessee:	:	M/s Magadh Minerals Partners – 1. Sri Kamal Kumar 2. Sri Pradeep Singh	
3	Lease Address	:	Mouza – Lakrahi, Thana – Naudiha Bazar, District – Palamu, State - Jharkhand	
4	Lease Area	:	1.34 ha.	Acres- 3.32 Acres
5	Type of Land	:	Non-Forest (Raiyati Land)	
6	Project Cost	:	Rs. 100 Lakhs	
7	EMP Budget	:	Capital: Rs. 16.25 Lakhs	Recurring: 4.87 Lakhs / year
8	New or Expansion	:	New	
9	Mineable Reserves	:	176016 cum	492844 tonnes
10	Mine Life	:	05 years	
11	Man power	:	31	
12	Water Requirement	:	11.71 ~ 12.00 KLD (Drinking: 0.31 KLD, Dust Suppression: 6.30 KLD, Plantation: 5.10 KLD)	
13	Water Source	:	Water will be taken from nearby village	
14	DG Set / power	:	200 KVA	
15	Crusher	:	No Crusher	
16	Nearest Water Body	:	Batane Nadi, approx. 3.0 km towards NW direction of mine site.	
17	Nearest Habitation	:	Garhwa Road Junction, approx. 42.00 km toward WSW direction	
18	Nearest Railway Station	:	Pakur Railway station, approx. 6.95 km towards NNW direction.	
19	Nearest Airport	:	Birsa Munda Airport approx. 152.80 km towards SE direction	
20	Nearest Forest	:	Protected Forest, Approx. 2.65 km. in NE direction. Chhatarpur East Protected Forest, Approx. 2.60 km. in South direction.	
21	Road & Highways	:	NH- 139, Approx. 11.50 km. in NW direction.	

CO-ORDINATES

1	Latitude	:	From 24°18'20.55" N	To 24°18'25.54" N
2	Longitude	:	From 84°17'20.55" E	To 84°17'25.65" E

LAND DETAILS

Khata No.	Plot No.
20	269

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Palamau vide letter no. 213/M, dated 27.01.2023.
2	CO	:	The CO, Naudiha Bazar, Palamau vide letter no. 217, dated 14.07.2021 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Palamau vide memo no. 234, dated 30.01.2023 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, North Division, Medininagar vide letter no. 1211, dated 23.12.2022 certified that the proposed project site is outside Eco Sensitive Zone of Palamau Tiger Project.
5	DFO Territorial	:	Division Forest Officer, Medininagar Forest Division vide letter no. 3558, dated 24.09.2021 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Palamau District (Sl. no. 05, Page no. 102).
7	Gram Sabha	:	BDO, Naudiha Bazar, Palamau vide letter no. 681, dated 20.12.2022 informed that Gram Sabha conducted on 14.12.2022.
8	Mine Plan Approval	:	Approved by District Mining Officer, Garhwa vide Memo No. 642/M, dated 18.05.2023.
9	Qualified Person	:	Shri P.K. Sen was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast mechanized method.	
2	Quarry Area	:	1.34 Ha. or 3.32 Acre	Life of Mine – 05 Years
3	Waste Generation	:	Total 5267 cum of Gritty Soil & 9264 cum of Intercalated Waste	
4	Stripping Ratio	:	1: 0.4	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Elevation of Mine	:	291 AMSL to 294 AMSL	
8	Ground Level Elevation	:	291 AMSL	
9	Ultimate Working Depth	:	264 AMSL (27 mbgl)	
10	Water Table	:	249-246 AMSL (42-45 mbgl)	
11	Topography of Mine	:	Area represents a gently sloping land with rock mass of Granite- Gneiss.	
12	Explosive Requirement	:	70 kg/day	
13	Diesel/Fuel requirement	:	100 litre/day	

Production Details

Year	Removal of Gritty Soil		Intercalated waste in cum	Production of Stone	
	in cum	in tones		in cum	in tones
1st	3040	4560	1853	35203	98569
2nd	-	-	1854	35226	98633
3rd	480	720	1853	35203	98569
4th	1275	1913	1854	35226	98633
5th	472	708	1850	35158	98440
Total	**5267**	**7901**	**9264**	**176016**	**492844**

Land Use

Type of Land	Existing (Ha)	At the End of Plan Period (In Ha.)	At the End of Mine (In Ha.)	Conceptual Period (In Ha.)		
				Backfill	Water Body	Plantation
Quarry	-	0.92 (including backfill & mobile crusher 0.10 ha.)	0.92 (including backfill 0.10 ha.)	-	0.92	-
Safety Barrier	-	0.42 (Plantation)	0.42 (Plantation)	-	-	0.42
Road	0.06	-	-	-	-	-
Total area in use	**0.06**	**1.34**	**1.34**	**-**	**0.92**	**0.42**
Balance Unused Area	1.28	-	-	-	-	-
Total Applied	**1.34**	**1.34**	**1.34**	**1.34**		

Area				

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Safety Zone	:	0.42 ha	1050
2	Along Approach Road	:	700 m	1400
3	No. of plants distributed with consultation local authorities /village Panchayat	:	--	100

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

COST PROPOSED FOR EMP

Sl. No	Description	Capital Cost (Rs)	Recurring Cost (Rs)
1	Pollution Control & Dust Suppression	Nil	2,00,000
2	Baseline Monitoring i) Air I) Water Ii) Soil iv) Noise	--	 14,000 8,000 8,000 7,000
3	Plantation	12,75,000	1,00,000
4	Construction and maintenance of haul road	3,50,000	1,50,000
TOTAL		**16,25,000**	**4,87,000**

Note: *2550 plants * 500 Rs (for each plants including hedges and fences)= 12.75 lakhs
Salary of Labor for haul road maintenance 1 labor*300 =300 per day
300* 300 = 90,000/- or 1,50,000/- (including maintenance)
**** 5.0 lakh per kilometer (500000 * 0.70 km haul road = 3,50,000/-)***

Environment Monitoring Programme

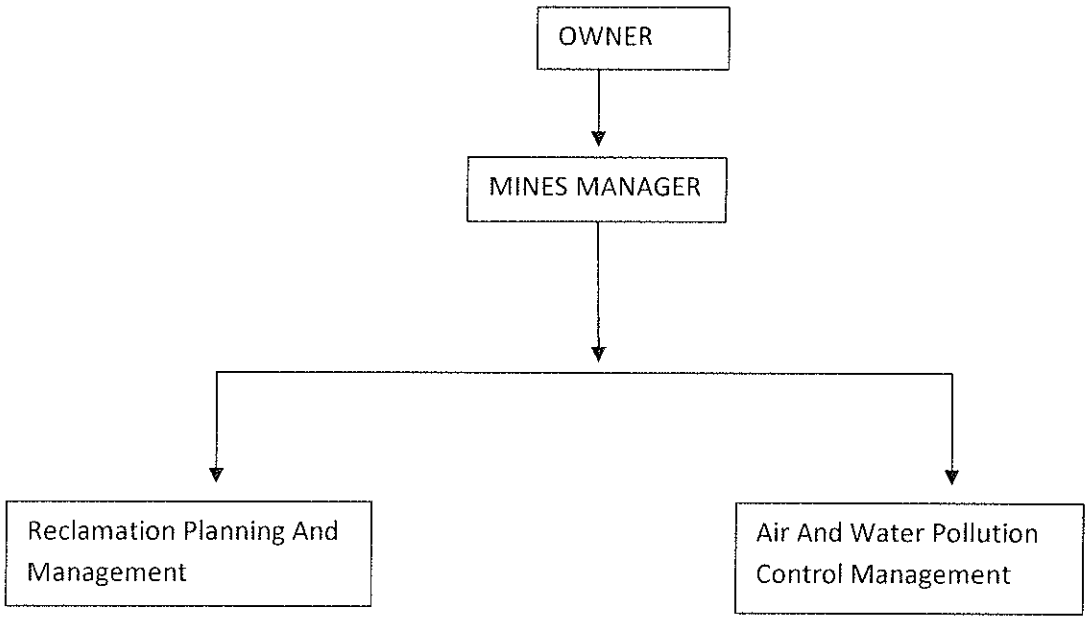
Sl. No	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly

3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Solid Waste Management

It has been calculated that total 6766 cum of Gritty Soil and 3948 cum of Intercalated Waste shall be generated during the plan period. The area is covered with a layer of gritty soil. During quarry development in 1st & 2nd year gritty soil and intercalated waste will be removed and this gritty soil & waste will be temporarily dumped [area -0.068 Ha, (L x W x H = 30m x 23m x 5m) & area 0.036 (L x W x H = 21m x 18m x 5m) at the north east part of the area with suitable precautions like parapet wall, garland drain & in 3rd year total removal gritty soil and intercalated waste & existing temporarily dumped materials will be temporarily within quarry & in 4th year removed intercalated waste, existing temporarily dumped materials will be temporarily dumped within the quarry & in 5th year removed intercalated waste & existing dumped materials will be backfill within the lower bench of the exhausted quarry.

Organization Structure



Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before

allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside

- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe

		activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injuryor system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	4	**3**	**2**	**1**
C2 (Major)	10	8	6	**4**	**2**
C3 (Moderate)	*15*	12	9	6	**3**
C4 (Minor)	*20*	*16*	12	8	**4**
C5 (Insignificant)	*25*	*20*	*15*	10	5

Risk Rating Scale

S. No.	Rating	Scale
1	**High Risk**	**1-4**
2	Medium Risk	5-12
3	*Low Risk*	*13-25*

Hazard identification & Risk Analysis in Stone mining operation

S. No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5

2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling

- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.
While others may need to work at or near the edge of a working bench the person most at risk
during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
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- Blast site shall be wetted before and after blasting operations are completed.
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- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
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- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge

of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Lakrahi Stone Deposit of M/s Magadh Minerals (Partners : Shri Kamal Kumar & Shri Pradeep Singh), Village : Lakrahi, Thana : Naudiha Bazar, Distt. : Palamau, Jharkhand (1.34 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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19. Madaria Stone Mine of Partners : Shri Rajeshwar Singh & Shri Pradeep Shankar Singh, Village : Madaria, Thana : Patan, Distt. : Palamau, Jharkhand (3.763 Ha).

(Proposal no.: SIA/JH/MIN/ 510264 /2024)

Name of the consultant : P & M Solution, Noida, U.P.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC) (re-appraisal of Environment Clearance issued by DEIAA, Palamau).

The project has been granted EC by DEIAA, Palamau vide letter no. EC/DEIAA/2016-17/55, dated 17.08.2017.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Palamau which has been taken up for consideration on 19.12.2024. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B2.

Existing baseline condition as per monitoring report submitted by PP is as follows PM10 -96 $\mu g/m^3$PM 2.5-567 $\mu g/m^3$ SO2-18.2 NO2- 19.0 $\mu g/m^3$ All the data are within the permissible limit.

Dust suppression is being carried out on regular basis.

Greenbelt Developed.

As per compliance report of JSPCB regarding previous EC, plantation has been done in safety zone.

Production detail as per memo no. 2642, dated 28.11.2024 by DMO, Palamau is within the permissible limit of EC.

The compliance report of previous EC has been issueed by JSPCB, Regional Office, Dhurwa vide letter no. 1545, dated 09.12.2024.

The SEAC has found that the certification of the compliance of the conditions of previous EC is not appropriate with respect to the following :-

i. There is no clarity on the status of execution of compliance and no details have been provided.
ii. The word "AGREED" has been mentioned as compliance status of many of the conditions. This has been written without the consent of the project authorities.
iii. The date of inspection has not been specified in the CCR.

Hence, the Committee decided to obtain a self certified compliance report along with the supporting details as evidence of execution.

EC Application for: Proposed Capacity- 91028.92 cum/annum or 254881 TPA

<u>Project and Location Details:</u>

Sl	Parameter		Details	
1	Project Name	:	Madaria Stone Mine	
2	Lessee:	:	Partner – Sri Rajeshwar Singh & Sri Pradeep Shankar Singh	
3	Lease Address	:	Village – Madaria, Thana – Patan, District – Palamu, State- Jharkhand	
4	Lease Area	:	3.763 ha.	Acres- 9.30 Acres
5	Type of Land	:	Non-Forest (G.M. Land)	
6	Project Cost	:	Rs. 1.40cr.	
7	EMP Budget	:	Capital: Rs. 5.50 Lakhs	Recurring: 4.87 Lakhs / year
8	New or Expansion	:	New (Re-appraisal of DEIAA EC)	
9	Mineable Reserves	:	1152127 tons	411473.92 cum
10	Mine Life	:	Up to the lease period i.e. 18.10.2017 to 17.10.2027.	
11	Man power	:	34	
12	Water Requirement	:	7.34 ~ 7.50 KLD (Drinking: 0.34 KLD, Dust Suppression: 5.50 KLD, Plantation: 1.40 KLD)	
13	Water Source	:	Water will be taken from nearby village	
14	DG Set / power	:	500 KVA	
15	Crusher	:	Yes Crusher	
16	Nearest Water Body	:	Jinjoi Nadi, Approx. 3.21 km towards SE direction of mine site.	
17	Nearest Habitation	:	Approx. 0.45 km towards SSE direction.	
18	Nearest Railway Station	:	Kajri Railway station, approx. 17.30 km towards SW direction.	
19	Nearest Air Port	:	Gaya International Airport, approx. 95.60 km towards NE direction..	
20	Nearest Forest	:	Bardag Protected Forest ,Approx. 0.30 km towards East direction of mine site Chilho Kalan Protected Forest, Approx. 3.35 km towards NNW direction of mine site. Kundri Protected Forest ,Approx. 4.0 km towards SW direction of mine site. Mahugain Protected Forest ,Approx. 0.30 km towards North direction of mine site. Joda Protected Forest ,Approx. 3.0 km towards West direction of mine site.	
21	Road & Highways	:	NH-139, approx 10.40 km. in NW direction	

CO-ORDINATES

1	Latitude	:	From 24°12'31.778 " N	To 24°12'40.107" N
2	Longitude	:	From 84°10'52.492" E	To 84°11'03.627" E

LAND DETAILS

Khata no.	Plot no.
25	01 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	Lease Deed- 18.10.2017 to 17.10.2027.
2	CO	:	The CO, Patan vide letter no. 170, dated 13.05.2016 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan.
3	DMO	:	DMO, Palamau vide memo no. 1663/M, dated 31.07.2023 certified that no other mining lease area exists within 500 m radius from proposed project site and total area is 9.30 Acre.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, South Division, Medininagar vide letter no. 378, dated 11.08.2023 certified that the proposed project site is outside Eco Sensitive Zone of Palamau Tiger Reserve.
5	DFO Forest Distance	:	Division Forest Officer, Medininagar Forest Divisioin vide letter no. 2381, dated 11.07.2016 certified that the distance of forest land is more than 250 meter from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Palamau District (Sl. no. 13, Page no. 68).
7	Gram Sabha	:	Gram Sabha conducted on 11.07.2016.
8	Mine Plan Approval	:	Mining scheme approved by Assistant Director, Geology, Palamau vide Memo No. 209, dated 11.11.2024.
9	Previous Environmental Clearance (EC)	:	Previous EC granted by DEIAA, Palamau vide letter no. EC/DEIAA/2016-17/55, dated 17.08.2017.
10	Compliance report of EC	:	EC compliance report issued by JSPCB, Regional Office, Dhurwa vide letter no. 1545, dated 09.12.2024.
11	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. JSPCB/HO/RNC/CTE-2012240 /2018 /53, dated 09.01.2018.
12	Consent to Operate (CTO)	:	**CTO issued by JSPCB vide ref. no. :** i. JSPCB/HO/RNC/CTO-11526948/2022/33, dated 03.01.2022.

			ii. JSPCB/HO/RNC/CTO-13789663/2022/1848, dated 28.12.2022.
13	Production Report	:	Production report issued by DMO, Palamau vide memo no. 2642, dated 28.11.2024.
9	Qualified Person	:	Shri P.K. Sen was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Mechanized Mining Method	
2	Quarry Area	:	3.763 ha or 9.30 Acres	Life of Mine – Up to the lease period i.e. 18.10.2017 to 17.10.2027.
3	Waste Generation	:	Total 14361 cum of Intercalated waste	
4	Stripping Ratio	:	1:0.1	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Elevation of Mine	:	291 AMSL to 299 AMSL	
8	Ground Level Elevation	:	291 AMSL	
9	Ultimate Working Depth	:	255 AMSL (36 mbgl)	
10	Water Table	:	250-237 AMSL (41-54 mbgl)	
11	Topography of Mine	:	Area represents a hillock with rock mass of granite gneiss	
12	Explosive Requirement	:	110 kg/day	
13	Diesel/Fuel requirement	:	160 litre/day	

Production Details

Year	Production of Stone in Cum	Production of Stone in Tonnes	Intercalated waste in cum	Bench AMSL
1st	90720	254002	4779	299-285
2nd	90977	254732	4790	297-273
3rd	91023	254855	4792	297-267
Total	**272720**	**763589**	**14361**	

Year	Production of Stone in tons as per EC
1st	254629
2nd	254425
3rd	254092

4th	254783
5th	254881
Total	**1272810**

As per approved mine plan production: - 91023 cum/annum or 254855 TPA
As per EC letter production: - 91028.92 cum/annum or 254881 TPA

Land Use

Category	Present Land Use (in Ha)	At the end of plan period (in Ha)	At the end of Mine (in Ha)	Conceptual period (in ha)		
				Public Use	Water Body	Plantation
Quarry	2.002	2.716(including dump 0.286 ha)	3.023(including backfill 0.296 ha)	--	3.023	--
Safety Barrier	0.740 (Plantation)	0.740 (Plantation)	0.740 (Plantation)	--	--	0.740
Road	0.026	0.002	Nil	--	--	--
Crusher	0.179	0.179	Nil	--	--	--
Total area in use	**2.947**	**3.637**	**3.763**	**--**	**3.023**	**0.740**
Balanced Unused Area	0.816	0.126	Nil	--	--	--
Total Lease area	**3.763**					

ENVIRONMENT MANAGEMENT
Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Safety Zone	:	0.740 ha	1850 (Already done during previous year of mining)
2	Along Approach Road	:	300m	600
3	No. of plants distributed with consultation local authorities /village Panchayat	:	--	100

Note: A total of 2550 saplings were proposed to be planted. Out of which 1850 plant in Safety Zone area have been planted during previous year of mining.
(600 plant along approach road & 100 plants with consultation from local authorities/ village Panchayat) will be done in the first year of operation. (Total 700 Plants)

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

COST PROPOSED FOR EMP

Sl. No	Description	Capital Cost (Rs.)	Recurring Cost (Rs.)
1	Pollution Control & Dust Suppression	--	2,00,000
2	Baseline Monitoring i) Air ii) Water iii) Soil iv) Noise	--	 14,000 8,000 8,000 7,000
3	Plantation	3,50,000	1,00,000
4	Construction and maintenance of haul road	2,00,000	1,50,000
TOTAL		**5,50,000**	**4,87,000**

Note: *700 plants * 500 Rs (for each plants including hedges and fences) = 3.50 Lakhs
A total of 2550 saplings were proposed to be planted. Out of which 1850 plant in Safety Zone area have been planted during previous year of mining.
(600 plant along approach road & 100 plants with consultation from local authorities/ village Panchayat) will be done in the first year of operation. (Total 700 Plants)
Salary of Labor for haul road maintenance 1 labor*300 =300 per day
300* 300 = 90000/- or 1,50,000/-(including maintenance)
* 5.0 lakh per kilometer (500000 * 0.30 km haul road = 1,50,000/- or 2,00,000/-)

Environment Monitoring Programme

Sl. No	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly

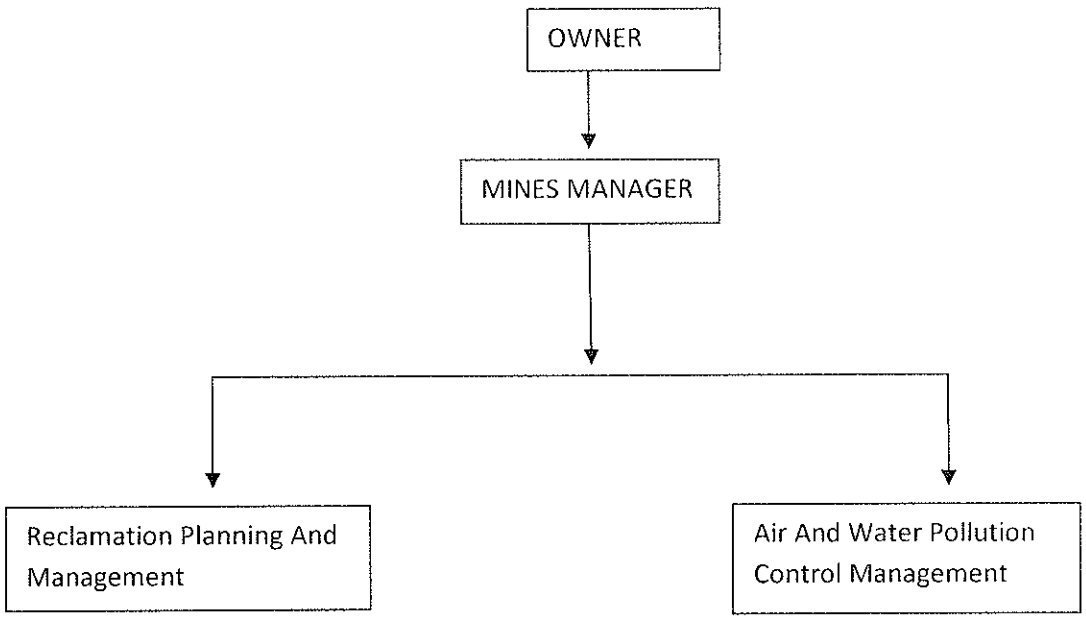
907

5	Noise	4 Stations	6 Monthly

Solid Waste Management

Total 14351 cum of Intercalated waste will be generated during the plan period. During quarry development intercalated waste will be removed and this will be temporarily dumped within he exhausted quarry of the lease area with suitable precautions like parapet wall, garland drain. In conceptual period total removed intercalated waste & plan period temporarily dumped material will be backfill lower bench of the exhausted quarry.

Organization Structure



Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to

		personnel
C5	Insignificant	May result in no, or less minor, illness, injuryor system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	**4**	**3**	**2**	**1**
C2 (Major)	10	8	6	**4**	**2**
C3 (Moderate)	*15*	12	9	6	**3**
C4 (Minor)	*20*	*16*	12	8	**4**
C5 (Insignificant)	*25*	*20*	*15*	10	5

Risk Rating Scale

S. No.	Rating	Scale
1	**High Risk**	**1-4**
2	Medium Risk	5-12
3	*Low Risk*	*13-25*

Hazard identification & Risk Analysis in Stone mining operation

S. No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5

5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.
While others may need to work at or near the edge of a working bench the person most at risk
during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.
The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.
Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.
Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.

- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.

- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Madaria Stone Mine of Partners : Shri Rajeshwar Singh & Shri Pradeep Shankar Singh, Village : Madaria, Thana : Patan, Distt. : Palamau, Jharkhand (3.763 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. The production shall be restricted as per approved mining scheme or the approved mine plan at the time of EC, which ever is less.

II. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

III. During appraisal of the project it is seen that the project authority have not fully complied the condition of green belt development as per the previous EC. Hence, the project authorities are required to plant twice the number of trees as was required in the previous EC. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

IV. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

V. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

VI. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VII. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VIII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

IX. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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20. M/s Vaishno Minerals Stone Mines of M/s Vaishno Minerals (Prop. : Shri Abhishek Kumar Singh), Mouza : Sohri, Thana : Lesliganj, Distt. : Palamau, Jharkhand (2.02 Ha).

(Proposal no.: SIA/JH/MIN/ 512726 /2024)

Name of the consultant : P & M Solution, Noida, U.P.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC) (re-appraisal of Environment Clearance issued by DEIAA, Palamau).

The project has been granted EC by DEIAA, Palamau vide letter no. EC/DEIAA/2016-17/30, dated 13.06.2017.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Palamau which has been taken up for consideration on 19.12.2024. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B2.

Existing baseline condition as per monitoring report submitted by PP is as follows PM10 -96 $\mu g/m^3$PM 2.5-567 $\mu g/m^3$ SO2-18.2 NO2- 19.0 $\mu g/m^3$. All the data are within the permissible limit.

Dust suppression is being carried out on regular basis.

Greenbelt Developed.

As per compliance report of JSPCB regarding previous EC, plantation has been done in safety zone.

Production detail as per memo no. 2651 dated 28.11.2024 by DMO, Palamau is within the permissible limit of EC.

The compliance report of previous EC has been issued by JSPCB, Regional Office, Dhurwa vide letter no. 1567, dated 12.12.2024.

The SEAC has found that the certification of the compliance of the conditions of previous EC is not appropriate with respect to the following :-

i. There is no clarity on the status of execution of compliance and no details have been provided.
ii. The word "AGREED" has been mentioned as compliance status of many of the conditions. This has been written without the consent of the project authorities.
iii. The date of inspection has not been specified in the CCR.

Hence, the Committee decided to obtain a self certified compliance report along with the supporting details as evidence of execution.

EC Application for: **Proposed Capacity- 49500 cum/annum or 148500 TPA.**

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	M/s Vaishno Minerals Stone Mines	
2	Lessee:	:	M/s Vaishno Minerals Proprietor: Sri Abhishek Kumar Singh	
3	Lease Address	:	Mauza – Sohri, Thana – Lesliganj, District – Palamu, State- Jharkhand.	
4	Lease Area	:	2.02 Ha.	Acres- 5.0 Acres
5	Type of Land	:	Non-Forest (Gov. Land)	
6	Project Cost	:	Rs. 1.40 cr.	
7	EMP Budget	:	Capital: Rs. 6.10 Lakhs	Recurring: 4.87 Lakhs / year
8	New or Expansion	:	New (Re-appraisal of DEIAA EC)	
9	Mineable Reserves	:	1588191.0 tons	529397 cum
10	Mine Life	:	Up to the lease period i.e. 18.10.2017 to 17.10.2027.	
11	Man power	:	15	
12	Water Requirement	:	7.25 ~ 8.00 KLD (Drinking: 0.15 KLD, Dust Suppression: 5.46 KLD, Plantation: 1.64 KLD)	
13	Water Source	:	Water will be taken from nearby village	
14	DG Set / power	:	500 KVA	
15	Crusher	:	No Crusher	
16	Nearest Water Body	:	Koili Nala, approx. 0.17 km towards NW direction of mine site. Bhalwahi Nala, approx. 6.44 km towards SW direction of mine site.	
17	Nearest Habitation	:	Approx. 550 m in SE direction.	
18	Nearest Railway Station	:	Daltonganj Railway Station, approx. 25.00 km towards WNW direction.	
19	Nearest Air Port	:	Gaya International Airport, approx. 107 km towards NE direction.	
20	Nearest Forest	:	Fairly Dense Mixed Jungle, approx. 1.90 km. in SE direction Hurlaung RF, approx. 4.35 km. in NE direction. Rajhara PF, approx. 6.18 km. in NW direction. Dense Mixed Jungle, approx. 4.75 km. in SW direction.	
21	Road & Highways	:	NH-39, Approx. 9.70 km. in west direction.	

CO-ORDINATES

1	Latitude	:	From 23°58'26.45" N	To 23°58'31.05" N
2	Longitude	:	From 84°18'38.34" E	To 84°18'43.52" E

LAND DETAILS

Khata no.	Plot no.
81	14 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	i. The Letter of Intent (LoI) has been issued by District Mining Officer, Palamau vide letter no. 2225/M, dated 30.11.2016. ii. Lease Deed- 18.10.2017 to 17.10.2027.
2	CO	:	The CO, Satbarwa, Palamau vide letter no. 241, dated 15.09.2016 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan.
3	DMO	:	DMO, Palamau vide memo no. 1179/M, dated 03.06.2024 certified that no other mining lease area exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, South Division, Medininagar vide letter no. 363, dated 25.04.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palamau Tiger Reserve.
5	DFO Forest Distance	:	Division Forest Officer, Medininagar Forest Divisioin vide letter no. 4439, dated 08.11.2016 certified that the distance of forest land is more than 250 meter from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Palamau District (Sl. no. 12, Page no. 68).
7	Gram Sabha	:	Gram Sabha conducted on 27.10.2016 and 28.10.2016.
8	Mine Plan Approval	:	Approved by Additional Director, Geology, Hazaribag vide Letter No. 764/G, dated 17.11.2021.
9	Previous Environmental Clearance (EC)	:	Previous EC granted by DEIAA, Palamau vide letter no. EC/DEIAA/2016-17/30, dated 13.06.2017.
10	Compliance report of EC	:	EC compliance report certified by JSPCB, Regional Office, Dhurwa vide letter no. 1567, dated 12.12.2024.
11	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. JSPCB/HO/RNC/CTE-1951806 /2017 /808, dated 22.12.2017.
12	Consent to Operate (CTO)	:	CTO issued by JSPCB vide ref. no. : JSPCB/RO/RNC/CTO-11624958/2021/195, dated 30.12.2021.
13	Production Report	:	Production report issued by DMO, Palamau vide memo no. 2651 dated 28.11.2024.

9	Qualified Person	:	Dr. Amarjeet Kumar Singh has confirm through email dated 20.12.2024 that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast other than fully mechanized mining method	
2	Quarry Area	:	2.02 ha or 5.0 Acres	Life of Mine – Up to the lease period i.e. 18.10.2017 to 17.10.2027.
3	Waste Generation	:	Nil	
4	Stripping Ratio	:	01:00	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Elevation of Mine	:	386 AMSL to 392 AMSL	
8	Ground Level Elevation	:	386 AMSL	
9	Ultimate Working Depth	:	350 AMSL (36 mbgl)	
10	Water Table	:	340-337 AMSL (46-49 mbgl)	
11	Topography of Mine	:	Area represents an almost flat land.	
12	Explosive Requirement	:	110 kg/day	
13	Diesel/Fuel requirement	:	140 litre/day	

Production Details

Year	Production in EC (tons)	Production of Stone in Cum	Production of Stone in tons	Bench in AMSL
1st	148500	49500	148500	392-386
2nd	148500	49500	148500	392-386
3rd	148500	49500	148500	386-380
4th	148500	49500	148500	386-380
5th	148500	49500	148500	380-374
Total	**742500**	**247500**	**742500**	

As per approved mine plan production: - 49500 cum/annum or 148500 TPA
As per EC letter production: - 49500 cum/annum or 148500 TPA

Land Use

Category	Present Land Use (in Ha)	At the End of Plan Period (in Ha.)	At the End of mine (in Ha.)
Quarry	0.27	1.27	1.27 (entire area will converted as water reservoir)

Safety Zone	0.66 (Plantation)	0.66 (Plantation)	0.66 (Plantation)
Infrastructure	Nil	0.02	0.02
Garland drain & Settling tank	Nil	0.07	0.07
Total area in use	**0.93**	**2.02**	**2.02**
Balanced Unused Area	1.09	Nil	Nil
Total Lease area	**2.02**	**2.02**	**2.02**

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Safety Zone	:	0.66 ha	1650 (Already done during previous year of mining)
2	Along Approach Road	:	360 m	720
3	No. of plants distributed with consultation local authorities /village Panchayat	:	--	100

Note: A total of 2470 saplings were proposed to be planted. Out of which 1650 plant in Safety Zone area have been planted during previous year of mining.
(720 plant along approach road & 100 plants with consultation from local authorities/ village Panchayat) will be done in the first year of operation. (Total 820 Plants).

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

COST PROPOSED FOR EMP

Sl. No	Description	Capital Cost (Rs.)	Recurring Cost (Rs.)
1	Pollution Control & Dust Suppression	--	2,00,000
2	Baseline Monitoring i) Air ii) Water iii) Soil iv) Noise	--	 14,000 8,000 8,000 7,000
3	Plantation	4,10,000	1,00,000

4	Construction and maintenance of haul road	2,00,000	1,50,000
TOTAL		**6,10,000**	**4,87,000**

Note: *820 plants * 500 Rs (for each plants including hedges and fences) = 4.10 Lakh
A total of 2470 saplings were proposed to be planted. Out of which 1650 plant in Safety Zone area have been planted during previous year of mining.
(720 plant along approach road & 100 plants with consultation from local authorities/ village Panchayat) will be done in the first year of operation. (Total 820 Plants)
Salary of Labor for haul road maintenance 1 labor*300 =300 per day
300* 300 = 90000/- or 1,50,000/- (including maintenance material)
* 5.0 lakh per kilometer (500000 * 0.36 km haul road = 1,80,000/-or 2,00,000/-)

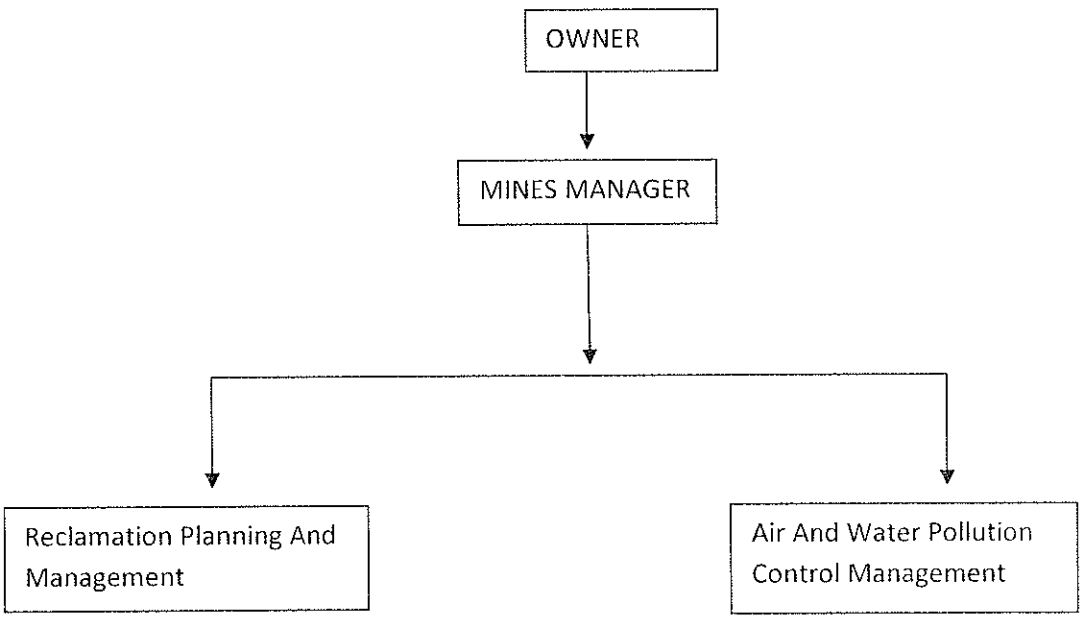
Environment Monitoring Programme

Sl. No	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Solid Waste Management

During the plan period little amount of waste will be generated which will be used to construct approach road to the Mine.

Organization Structure



Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.

L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injuryor system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	**4**	**3**	**2**	**1**
C2 (Major)	10	8	6	**4**	**2**
C3 (Moderate)	*15*	12	9	6	**3**
C4 (Minor)	*20*	*16*	12	8	4
C5 (Insignificant)	*25*	*20*	*15*	10	5

Risk Rating Scale

S. No.	Rating	Scale
1	**High Risk**	**1-4**
2	Medium Risk	5-12

3	*Low Risk*	*13-25*

Hazard identification & Risk Analysis in Stone mining operation

S. No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.

- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area,

utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired

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a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

I. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for M/s Vaishno Minerals Stone Mines of M/s Vaishno Minerals (Prop. : Shri Abhishek Kumar Singh), Mouza : Sohri, Thana : Lesliganj, Distt. : Palamau, Jharkhand (2.02 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. The production shall be restricted as per approved mining scheme or the approved mine plan at the time of EC, which ever is less.

II. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

III. During appraisal of the project it is seen that the project authority have not fully complied the condition of green belt development as per the previous EC. Hence, the project authorities are required to plant twice the number of trees as was required in the previous EC. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

IV. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

V. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

VI. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VII. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VIII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

IX. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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21. **Bansdohar Stone Mine of Shri Prem Shankar Kumar Singh, Mouza : Bansdohar, Thana : Pipra, Distt. : Palamau, Jharkhand (1.62 Ha).**

(Proposal no.: SIA/JH/MIN/ 511732 /2024)

Name of the consultant : P & M Solution, Noida, U.P.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC) (re-appraisal of Environment Clearance issued by DEIAA, Palamau).

The project has been granted EC by DEIAA, Palamau vide letter no. EC/DEIAA/2016-17/19, dated 29.05.2017.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Palamau which has been taken up for consideration on 19.12.2024. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B2.

Existing baseline condition as per monitoring report submitted by PP is as follows PM10 -96 $\mu g/m^3$PM 2.5-567 $\mu g/m^3$ SO2-18.2 NO2- 19.0 $\mu g/m^3$ All the data are within the permissible limit.

Dust suppression is being carried out on regular basis.

Greenbelt Developed.

As per compliance report of JSPCB regarding previous EC, plantation has been done in safety zone.

Production detail as per memo no. 2627 dated 26.11.2024 by DMO, Palamau is within the permissible limit of EC.

The compliance report of previous EC has been issued by JSPCB, Regional Office, Dhurwa vide letter no. 1470, dated 30.11.2024.

The SEAC has found that the certification of the compliance of the conditions of previous EC is not appropriate with respect to the following :-

i. There is no clarity on the status of execution of compliance and no details have been provided.
ii. The word "AGREED" has been mentioned as compliance status of many of the conditions. This has been written without the consent of the project authorities.
iii. The date of inspection has not been specified in the CCR.

Hence, the Committee decided to obtain a self certified compliance report along with the supporting details as evidence of execution.

EC Application for: **Proposed Capacity- 28930 cum/annum or 78111 TPA.**

<u>Project and Location Details:</u>

Sl	Parameter		Details	
1	Project Name	:	Bansdohar Stone Mine	
2	Lessee:	:	Shri Prem Shankar Kumar Singh	
3	Lease Address	:	Mauza – Bansdohar, Thana – Pipra, District – Palamu, State- Jharkhand.	
4	Lease Area	:	1.62 ha.	Acres- 4.0 Acres
5	Type of Land	:	Non-Forest (G.M. Land)	
6	Project Cost	:	Rs. 1.30 cr.	
7	EMP Budget	:	Capital: Rs. 5.0 Lakhs	Recurring: 4.87 Lakhs / year
8	New or Expansion	:	New (Re-appraisal of DEIAA EC)	
9	Mineable Reserves	:	514501 tons	190555.92 cum
10	Mine Life	:	2 years	
11	Man power	:	34	
12	Water Requirement	:	4.84 ~ 5.0 KLD (Drinking: 0.34 KLD, Dust Suppression: 3.30 KLD, Plantation: 1.20 KLD)	
13	Water Source	:	Water will be taken from nearby village	
14	DG Set / power	:	200 KVA	
15	Crusher	:	No Crusher	
16	Nearest Water Body	:	Batane River, Approx. 9.02 km towards East direction of mine site.	
17	Nearest Habitation	:	Approx. 818 m in WSW direction	
18	Nearest Railway Station	:	Japla Railway Station, approx. 16.41 km towards WNW direction.	
19	Nearest Air Port	:	Gaya International Airport, approx. 85.90 km towards NE direction.	
20	Nearest Forest	:	Protected Forest , Approx. 0.20 km. in North direction Protected Forest, Approx. 3.20 km. in SW direction. Protected Forest , Approx. 3.90 km. in SE direction.	
21	Road & Highways	:	NH-139, Approx. 8.0 km. in ESE direction.	

CO-ORDINATES

1	Latitude	:	From 24°26'25.2" N	To 24°28'29.0" N
2	Longitude	:	From 84°08'57.1" E	To 84°09'00.08" E

LAND DETAILS

Khata no.	Plot no.
30	184 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	i. The Letter of Intent (LoI) has been issued by District Mining Officer, Palamau vide letter no. 1933/M, dated 14.09.2016.

			ii. Lease Deed- 24.10.2017 to 23.10.2027.
2	CO	:	The CO, Pipra, Palamau vide letter no. 47, dated 28.04.2016 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan.
3	DMO	:	DMO, Palamau vide memo no. 1456/M, dated 08.07.2024 certified that 01 other mining lease area (6.00 Acre) exists within 500 m radius from proposed project site and total area is 10.00 Acre.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, South Division, Medininagar vide letter no. 756, dated 24.08.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palamau Tiger Reserve.
5	DFO Forest Distance	:	Division Forest Officer, Medininagar Forest Divisioin vide letter no. 2584, dated 22.07.2016 certified that the distance of forest land is more than 250 meter from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Palamau District (Sl. no. 19, Page no. 69).
7	Gram Sabha	:	Gram Sabha conducted on 23.06.2016.
8	Mine Plan Approval	:	i. Mine plan approved by Deputy Director, Mines, Daltonganj, Palamau vide Letter No. 398, dated 23.12.2016. ii. Mining scheme approved by Additional Director, Geology, Hazaribag vide letter no. G/2022-23-245, dated 14.09.2022.
9	Previous Environmental Clearance (EC)	:	Previous EC granted by DEIAA, Palamau vide letter no. EC/DEIAA/2016-17/19, dated 29.05.2017.
10	Compliance report of EC	:	EC compliance report certified by JSPCB, Regional Office, Dhurwa vide letter no. 1470, dated 30.11.2024.
11	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. JSPCB/HO/RNC/CTE-2018289 /2018 /7, dated 04.01.2018.
12	Consent to Operate (CTO)	:	**CTO issued by JSPCB vide ref. no. :** i. JSPCB/RO/RNC/CTO-9324878/2020/213, dated 29.12.2020. ii. JSPCB/RO/RNC/CTO-14414466/2022/211, dated 10.10.2022.

13	Production Report	:	Production report issued by DMO, Palamau vide memo no. 2627 dated 26.11.2024.
9	Qualified Person	:	Shri J.P. Bhattacharya vide letter dated 19.12.2024 affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast semi-mechanized mining method	
2	Quarry Area	:	1.62 ha. or 4.0 Acres	Life of Mine – 2 Years
3	Waste Generation	:	Nil	
4	Stripping Ratio	:	1:00	
5	Working Days	:	300	
6	Benches: size & No	:	2m x 2.5m	
7	Elevation of Mine	:	170 AMSL to 183 AMSL	
8	Ground Level Elevation	:	170 AMSL	
9	Ultimate Working Depth	:	147 AMSL (23 mbgl)	
10	Water Table	:	134-131 AMSL (36-39 mbgl)	
11	Topography of Mine	:	Area represents an almost flat land with two hillocks.	
12	Explosive Requirement	:	110 kg/day	
13	Diesel/Fuel requirement	:	140 litre/day	

Production Details

Year	Production in EC (tons)	Production of Stone in Cum	Production of Stone in tons	Bench in AMSL
1st	78025	28897	78021	183-171
2nd	78111	28930	78111	183-171
3rd	78019	28894	78015	177-165
4th	78006	28897	78023	171-159
5th	78003	28889	78001	165-153
Total	**390164**	**144507**	**390170**	

As per approved mine plan production: - 28930 cum/annum or 78111 TPA
As per EC letter production: - 28930 cum/annum or 78111 TPA

Land Use

Category	Present Land Use (in Ha)	At the End of Plan Period (in Ha.)	At the End of mine (in Ha.)	Conceptual period (in Ha.)		
				Public use	Water body	Plantation
Quarry	0.59	1.26 (including backfill 0.06	1.26 (including backfill 0.06	--	1.26	--

		Ha)	Ha)			
Safety Zone	0.36 (Plantation)	0.36 (Plantation)	0.36 (Plantation)	--	--	0.36
Road	0.02	Nil	Nil	--	--	--
Total area in use	**0.97**	**1.62**	**1.62**	**--**	**0.85**	**0.71**
Balanced Unused Area	0.65	Nil	Nil	--	--	--
Total Lease area	**1.62**	**1.62**	**1.62**	**1.62**		

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Safety Zone	:	0.36 ha	900 (Already done during previous year of mining)
2	Along Approach Road	:	250 m	500
3	No. of plants distributed with consultation local authorities /village Panchayat	:	--	100

Note: A total of 1500 saplings were proposed to be planted. Out of which 900 plant in Safety Zone area have been planted during previous year of mining.
(500 plant along approach road & 100 plants with consultation from local authorities/ village Panchayat) will be done in the first year of operation. (Total 600 Plants)

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

COST PROPOSED FOR EMP

Sl. No	Description	Capital Cost (Rs.)	Recurring Cost (Rs.)
1	Pollution Control & Dust Suppression	--	2,00,000
2	Baseline Monitoring i) Air ii) Water	--	 14,000 8,000

	iii) Soil iv) Noise		8,000 7,000
3	Plantation	3,00,000	1,00,000
4	Construction and maintenance of haul road	2,00,000	1,50,000
TOTAL		**5,00,000**	**4,87,000**

Note: *600 plants * 500 Rs (for each plants including hedges and fences) = 3.0 Lakh
A total of 1500 saplings were proposed to be planted. Out of which 900 plant in Safety Zone area have been planted during previous year of mining.
(500 plant along approach road & 100 plants with consultation from local authorities/ village Panchayat) will be done in the first year of operation. (Total 600 Plants)
Salary of Labor for haul road maintenance 1 labor*300 =300 per day
300* 300 = 90000/- or 1,50,000/- (including maintenance material)
* 5.0 lakh per kilometer (500000 * 0.25 km haul road = 1,25,000/-or 2,00,000/-)

Environment Monitoring Programme

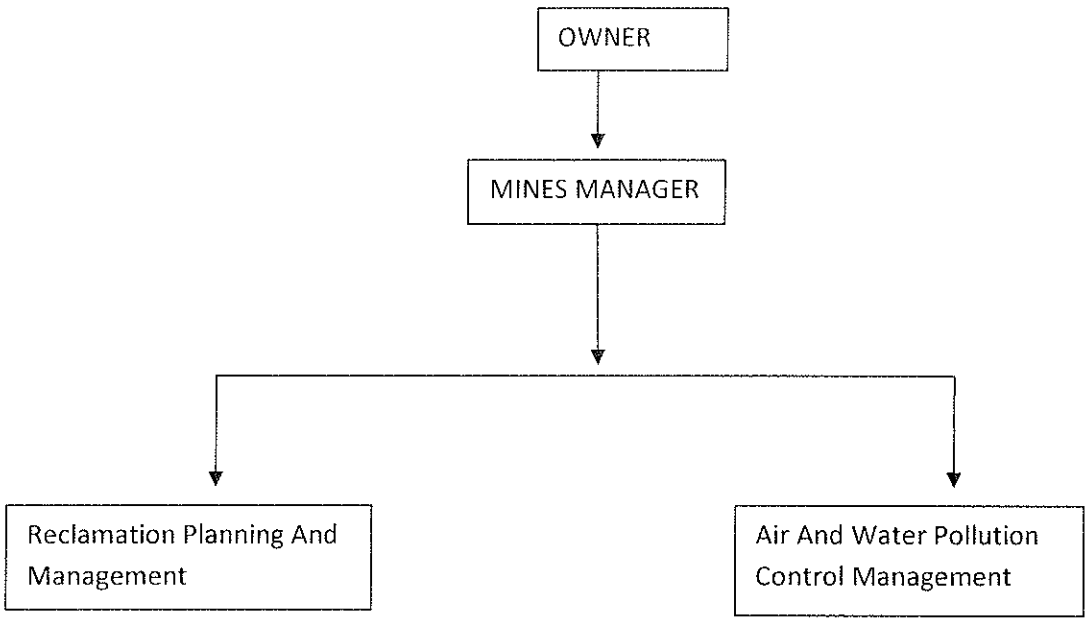
Sl. No	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Solid Waste Management

The entire produced materials will be used as constructional activity. Hence, no generation of waste will be proposed.

Selection of Dumping Site: The area is covered with a layer of gritty soil. During quarry development gritty soil will be removed in year (2022-2023) and this will be temporarily dumped at the south-east part of the lease area with suitable precautions & during in year (2026-2027) of plan period total removal soil & existing dump soil will be backfill within the exhausted quarry.

Organization Structure



Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.

937

- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injuryor system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)

C1 (Catastrophic)	5	4	3	2	1
C2 (Major)	10	8	6	4	2
C3 (Moderate)	15	12	9	6	3
C4 (Minor)	20	16	12	8	4
C5 (Insignificant)	25	20	15	10	5

Risk Rating Scale

S. No.	Rating	Scale
1	High Risk	1-4
2	Medium Risk	5-12
3	Low Risk	13-25

Hazard identification & Risk Analysis in Stone mining operation

S. No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident,	Remote	Minor	16

		Exposure to Dust			

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench

- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.

- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.

b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Bansdohar Stone Mine of Shri Prem Shankar Kumar Singh, Mouza : Bansdohar, Thana : Pipra, Distt. : Palamau, Jharkhand (1.62 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. The production shall be restricted as per approved mining scheme or the approved mine plan at the time of EC, which ever is less.
II. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
III. During appraisal of the project, it is seen that the project authority have not fully complied the condition of green belt development as per the previous EC. Hence, the project authorities are required to plant twice the number of trees as was required in the previous EC. The Deputy Commissioner through District Mining

Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

IV. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

V. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

VI. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VII. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VIII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

IX. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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22. Asni Stone Mine of M/s RKD Construction Pvt. Ltd., Village : Asni, P.S. : Gumla, Distt.: Gumla, Jharkhand (2.92 Ha).

(Proposal no.: SIA/JH/MIN/469430/2024)

Name of the consultant: P & M Solution, Noida, UP.

This is an amendment project which has been taken for appraisal on 19.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

Amendment EC Application for: **Boulder Stone: 133350 Cu.m. / Year i.e. 360045 TPA**

Waste: Nil

DG Set:No

PROJECT and LOCATION Details:

Sl	Parameter		Details	
1	Project Name	:	Asni Stone Mine	
2	Lessee:	:	M/s RKD Construction Pvt Ltd, Director- Laxman Sethi.	
3	Lease Address	:	Mouza – Asni; Thana – Gumla District – Gumla; State Jharkhand	
4	Lease Area	:	Ha:2.92 Ha	Acres:7.23 Acres
5	Type of Land	:	Non Forest – Rayati Land	
6	Project Cost	:	33.70 Lakhs	
7	EMP Budget	:	Capital: 10.80 Lakhs	Recurring: 5.40 Lakh / year
8	CSR / CER Budget	:	Rs. 2.50 Lakhs	
9	New or Expansion	:	Amendment of the Project	
10	Mineable Reserves	:	Cu.m.: 6,90,575 Cu. M.	Tonnes:1864553Tonnes
11	Mine Life	:	5 years	
12	Man power	:	21	
13	Water Requirement	:	08 KLD (Drinking: 2KLD, Dust Suppression: 04 KLD, Plantation: 2 KLD)	
14	Water Source	:	From Nearby villages by tankers	
15	DG Set / power	:	No	
16	Crusher	:	No	
17	Nearest Water Body	:	River 2.9 KM	
18	Nearest Habitation	:	Tatanagar Village: 1.2 KM; Gumla 4.3 KM	
19	Nearest Rail Station	:	Lohardaga 65 KM	
20	Nearest Air Port	:	Ranchi: 80 KM	
21	Nearest Forest	:	PF 3.4 KM in west direction.	
22	Road & Highways	:	NH- 23, Approx. 1.4 km. State Highway SH-08, Approx. 2.7 Km	

CO-ORDINATES

1	Latitude		From : **23° 3' 39.01'N**	To **23° 3' 45.07" N**

2	Longitude		From 84° 33' 56.86" E	To 84° 34' 8.27" E

Land Details :

Khata no.	Plot no.
24	2733 (P), 2734, 2735 & 2737 (P)
52	2730 (P) & 2731
66	2721, 2722, 2727 & 2728

STATUTORY CLEARANCES

1	LOI / Lease docs	:	Lease Deed : Dated 14.09.2021 to 13.03.2025.
2	CO	:	The CO, Gumla (Sadar) vide letter no. 341., dated 24.03.2021 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Gumla vide memo no. 801/M, dated 22.06.2021 certified that 01 other mining lease area (2.50 Acre) exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Ranchi vide memo no. 496, dated 26.06.2021 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.
5	DFO Forest Distance	:	Division Forest Officer, Gumla Forest Division vide letter no. 955, dated 23.03.2021 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Gumla District (Sl. no. 11, Page no. 29).
7	Gram Sabha	:	Gram Sabha conducted on 20.03.2021.
8	Mine Plan Approval	:	Approved by District Mining Officer, Gumla vide Letter No. 947/M, dated 16.10.2023.
9	Production Report	:	Production report issued by DMO, Gumla vide memo no. 607/M, dated 29.07.2024.
10	Consent to	:	CTE issued by JSPCB vide Ref. no. JSPCB/HO/RNC/CTE-11269790/

	Establish (CTE)		2021/270, dated 24.09.2022.
11	Consent to Operate (CTO)	:	CTO issued by JSPCB vide Ref. no. JSPCB/RO/RNC/CTO-13871570/ 2022/200, dated 24.09.2022.
12	Previous Environmental Clearance (EC)	:	Previous EC granted by SEIAA, Jharkhand vide letter no. EC/SEIAA/ 2021-22 /2382/2021/99, dated 14.08.2021.
13	EC compliance report	:	EC compliance report certified by JSPCB, Regional Office, Dhurwa vide letter no. 1502, dated 03.12.2024.
9	Qualified Person	:	Mine Plan prepared by Shri Ravi Prakash, Gems Projects Pvt. Ltd.

Working details :

1	Mining Method	:	Semi Mechanized. Jack Hammer, Drilling & Blasting to be used	
2	Quarry Area	:	2 years–1.23 ha	Life of Mine – 1.59 ha
3	Waste Generation	:	2 years– Nil	Life of Mine – Nil
4	Stripping Ratio	:		
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Elevation of Mine	:	In AMSL	
8	Ground Level Elevation		In AMSL	
9	Ultimate Working Depth	:	585mSL (Hence forth In AMSL)	
10	Water Table	:	580mSL (Hence forth In AMSL) & also bgl	
11	Topography of Mine	:	Plain	
12	Explosive Requirement	:	42.43 kg/day	
13	Diesel/Fuel requirement	:		

Production Details

Year	Production of stone (Cum)	Production of stone (Tons)	Bench RL in Meters
3rd	133350	360045	631-620
4th	133350	360045	620-610

Total	**2,66,700**	**7,20,090**	

Land Use

SL	Pattern	Existing Land Use (Ha)	Proposed Current Plan Period (Ha)	Proposed Land Use at End of Life of Mine (Ha)	Land Usage at Conceptual Stage
1	Mining Area	0.36	1.23	1.59	Water Body
2	Office /Store	0.00	0.00	0.00	
3	Crusher	0.00	0.00	0.00	
4	Road	0.01	0.01	0.00	
5	Garland Drain	0.00	0.00	0.00	
6	Safety Zone	0.00	0.38	0.96	Plantation
7	Settling Tank	0.00	0.00	0.00	
8	Unutilized	2.55	1.30	0.37	
	TOTAL	**2.92**	**2.92**	**2.92**	

ENVIRONMENT MANAGEMENT

Green Belt Development

SL	LOCATION		Area/Length	No of Trees
1	Safety Zone	:	0.38 ha	960 trees @ 2500 trees per ha
2	Other Reclaimed Area	:	NIL	NIL
3	Haul /Approach Road	:	0.10KM	66 trees on both sides – 3 m distance

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

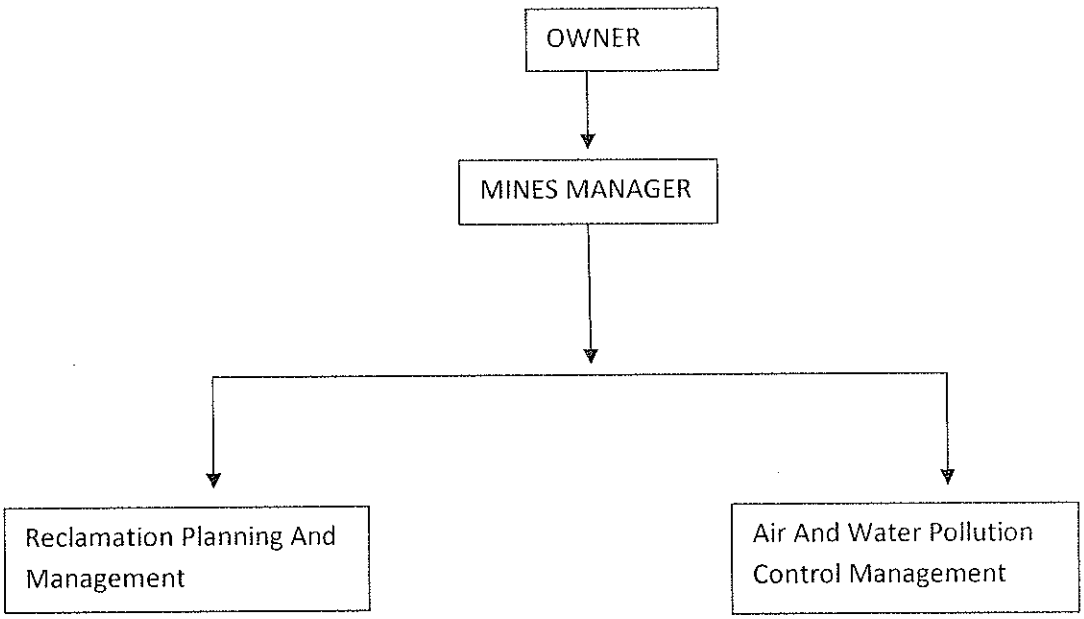
Environment Monitoring Programme

Sl. No	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Solid Waste Management

- There is no waste to be generated during life of mine.

Organization Structure



Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.

- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.

C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injuryor system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	**4**	**3**	**2**	**1**
C2 (Major)	10	8	6	**4**	**2**
C3 (Moderate)	*15*	12	9	6	**3**
C4 (Minor)	*20*	*16*	12	8	**4**
C5 (Insignificant)	*25*	*20*	*15*	10	5

Risk Rating Scale

S. No.	Rating	Scale
1	**High Risk**	**1-4**
2	Medium Risk	5-12
3	*Low Risk*	*13-25*

Hazard identification & Risk Analysis in Stone mining operation

S. No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock	Occasional	Major	6

		(Bodily Injury)			
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

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Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.
While others may need to work at or near the edge of a working bench the person most at risk
during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.
The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.
Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.
Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.

- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge

of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Asni Stone Mine of M/s RKD Construction Pvt. Ltd., Village : Asni, P.S. : Gumla, Distt.: Gumla, Jharkhand (2.92 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone. Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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23. **Pahaldeva Stone Mine of M/s Shanti & Raj Infracon Pvt. Ltd., Village : Pahaldeva, Thana : Pipra, Distt. : Palamau, Jharkhand (4.05 Ha).**

(Proposal no.: SIA/JH/MIN/ 511741 /2024)

Name of the consultant : P & M Solution, Noida, U.P.

Project Sector: 1(a) Mining of Minerals, Category: B1.

Application for Terms of Reference (ToR) as per EIA Notification, 2006 (re-appraisal of Environment Clearance issued by DEIAA, Palamau).

The project has been granted EC by DEIAA, Palamau vide letter no. EC/DEIAA/2016-17/15, dated 29.05.2017.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Palamau which has been taken up for consideration on 19.12.2024. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B1.

Existing baseline condition as per monitoring report submitted by PP is as follows PM10 -96 $\mu g/m^3$PM 2.5-567 $\mu g/m^3$ SO2-18.2 NO2- 19.0 $\mu g/m^3$ All the data are within the permissible limit.

Dust suppression is being carried out on regular basis.

Greenbelt Developed.

As per compliance report of JSPCB regarding previous EC, plantation has been done in safety zone.

Production detail as per memo no. 2626 dated 26.11.2024 by DMO, Palamau is within the permissible limit of EC.

The compliance report of previous EC has been issued by JSPCB, Regional Office, Dhurwa vide letter no. 1471, dated 30.11.2024.

The SEAC has found that the certification of the compliance of the conditions of previous EC is not appropriate with respect to the following :-

i. There is no clarity on the status of execution of compliance and no details have been provided.
ii. The word "AGREED" has been mentioned as compliance status of many of the conditions. This has been written without the consent of the project authorities.
iii. The date of inspection has not been specified in the CCR.

Hence, the Committee decided to obtain a self certified compliance report along with the supporting details as evidence of execution.

TOR Application for: Proposed Capacity- 111150 cum/annum or 300105TPA.

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Pahaldeva Stone Mine	
2	Lessee:	:	M/s Shanti & Raj Infracon Pvt. Ltd. Director – Sri Amit Raj	
3	Lease Address	:	Village – Pahaldeva, Thana -Pipra, District –Palamu, State – Jharkhand	
4	Lease Area	:	4.05 ha	Acres- 10.00 Acres
5	Type of Land	:	Non-Forest (Raiyati Land)	
6	Project Cost	:	Rs. 1.60 cr.	
7	EMP Budget	:	Capital: Rs. 11.0 Lakhs	Recurring: 5.70 Lakhs / year
8	New or Expansion	:	New (Re-appraisal of DEIAA EC)	
9	Mineable Reserves	:	2396147 tons	887461.85cum
10	Mine Life	:	Up to the lease period i.e. 24.10.2017 to 23.10.2027.	
11	Man power	:	41	
12	Water Requirement	:	10.56 ~ 11.0 KLD (Drinking: 0.41 KLD, Dust Suppression: 7.15 KLD, Plantation: 3.0 KLD)	
13	Water Source	:	Water will be taken from nearby village	
14	DG Set / power	:	500 KVA	
15	Crusher	:	No Crusher	
16	Nearest Water Body	:	--	
17	Nearest Habitation	:	Pahaldeva, Approx. 0.45 km in ESE direction	
18	Nearest Railway Station	:	Japla Railway Station, approx. 17.50 km towards WNW direction.	
19	Nearest Air Port	:	Gaya International Airport, approx. 85.30 km towards ENE direction.	
20	Nearest Forest	:	Protected Forest, Approx. 4.00 km. in SSE direction Protected Forest, Approx. 4.70 km. in East direction Protected Forest, Approx. 4.60 km. in West direction	
21	Road & Highways	:	NH-139, Approx. 7.30 km. in East direction.	

CO-ORDINATES

1	Latitude	:	From 24°28'24.42" N	To 24°28'32.10" N
2	Longitude	:	From 84°09'34.45" E	To 84°09'43.56" E

LAND DETAILS

Khata no.	Plot no.
01	34 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	i. The Letter of Intent (LoI) has been issued by District Mining Officer, Palamau vide letter no. 1982/M, dated 28.09.2016. ii. Lease Deed- 24.10.2017 to 23.10.2027.
2	CO	:	The CO, Pipra, Palamau vide letter no. 48, dated 28.04.2016 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan.
3	DMO	:	DMO, Palamau vide memo no. 1452/M, dated 08.07.2024 certified that 03 other mining lease area (12.09 Acre, 6.00 Acre & 8.00 Acre) exists within 500 m radius from proposed project site and total area is 36.09 Acre.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, South Division, Medininagar vide letter no. 735, dated 10.08.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palamau Tiger Reserve.
5	DFO Forest Distance	:	Division Forest Officer, Medininagar Forest Divisioin vide letter no. 2581, dated 22.07.2016 certified that the distance of forest land is more than 250 meter from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Palamau District (Sl. no. 18, Page no. 69).
7	Gram Sabha	:	Gram Sabha conducted on 23.06.2016.
8	Mine Plan Approval	:	Modification mining plan approved by Additional Director, Geology, Hazaribag vide letter no. G/2022-23-288, dated 11.10.2022.
9	Previous Environmental Clearance (EC)	:	Previous EC granted by DEIAA, Palamau vide letter no. EC/DEIAA/2016-17/15, dated 29.05.2017.
10	Compliance report of EC	:	EC compliance report certified by JSPCB, Regional Office, Dhurwa vide letter no. 1471, dated 30.11.2024.
11	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. JSPCB/HO/RNC/CTE-2017953 /2018 /6, dated 04.01.2018.
12	Consent to Operate (CTO)	:	**CTO issued by JSPCB vide ref. no. :** i. JSPCB/RO/RNC/CTO-9310207/2020/214, dated 29.12.2020.

			ii. JSPCB/RO/RNC/CTO-14522346/2022/243, dated 28.11.2022.
13	Production Report	:	Production report issued by DMO, Palamau vide memo no. 2626 dated 26.11.2024.
9	Qualified Person	:	Shri J.P. Bhattacharya vide letter dated 19.12.2024 affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast mechanized mining method	
2	Quarry Area	:	4.05 ha or 10.0 Acres	Life of Mine – Up to the lease period i.e. 24.10.2017 to 23.10.2027.
3	Waste Generation	:	Total 24438 cum or 36657 tonnes gritty soil.	
4	Stripping Ratio	:	1:0.2	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Elevation of Mine	:	197 AMSL to 205 AMSL	
8	Ground Level Elevation	:	197 AMSL	
9	Ultimate Working Depth	:	150 AMSL (47 mbgl)	
10	Water Table	:	137-134 AMSL (63- 60 mbgl)	
11	Topography of Mine	:	Area is a very gently sloping land with mass of Granite-gneiss.	
12	Explosive Requirement	:	110 kg/day	
13	Diesel/Fuel requirement	:	120 litre/day	

Production Details

Year	Proposed Production of EC in Tons	Proposed Production of Stone in Cum	Proposed Production of Stone in Tons	Gritty Soil in Cum	Gritty Soil in tons	Bench section
1st	300046	111128	300046	17958	26937	204-186
2nd	300067	111134	300062	6480	9720	192-180
3rd	300089	111144	300089	000	000	204-180
4th	300105	111148	300100	000	000	192-174
5th	300013	111114	300008	000	000	180-168
Total	**1500320**	**555668**	**1500305**	**24438**	**36657**	

As per approved mine plan production: - 111148 cum/annum or 300100 TPA

As per EC letter production: - 111150 cum/annum or 300105 TPA

Land Use

Category	Present Land Use (in Ha)	At the End of Plan Period (in Ha.)	At the End of mine (in Ha.)	Conceptual period (in Ha.)			
				Public use	backfill	Water body	plantation
Quarry	1.85	3.46 (including backfill 0.13 Ha)	3.46 (including backfill 0.13 Ha)	--	0.13	3.33	--
Safety Zone	0.59 (Plantation)	0.59 (Plantation)	0.59 (Plantation)	--	--	--	0.59
Road	0.06	Nil	Nil	--	--	--	--
Total area in use	**2.50**	**4.05**	**4.05**	**--**	**0.13**	**3.33**	**0.59**
Balanced Unused Area	1.55	Nil	Nil	--	--	--	--
Total Lease area	**4.05**	**4.05**	**4.05**	**--**	**4.05**		

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Safety Zone	:	0.59 ha	1475 (Already done during previous year of mining)
2	Along Approach Road	:	700 m	1400
3	No. of plants distributed with consultation local authorities /village Panchayat	:	--	100

Note: A total of 2975 saplings were proposed to be planted. Out of which 1475 plant in Safety Zone area have been planted during previous year of mining.

(1400 plant along approach road & 100 plants with consultation from local authorities/ village Panchayat) will be done in the first year of operation. (Total 1500 Plants)

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same

to be maintained and will be submitted with compliance report.

COST PROPOSED FOR EMP

Sl. No	Description	Capital Cost (Rs.)	Recurring Cost (Rs.)
1	Pollution Control & Dust Suppression	--	2,00,000
2	Baseline Monitoring i) Air ii) Water iii) Soil iv) Noise	--	 50,000 40,000 20,000 10,000
3	Plantation	7,50,000	1,00,000
4	Construction and maintenance of haul road	3,50,000	1,50,000
TOTAL		**11,00,000**	**5,70,000**

Note: *1500 plants * 500 Rs (for each plants including hedges and fences) =7.50 Lakh
A total of 2975 saplings were proposed to be planted. Out of which 1475 plant in Safety Zone area have been planted during previous year of mining.
(1400 plant along approach road & 100 plants with consultation from local authorities/ village Panchayat) will be done in the first year of operation. (Total 1500 Plants)
Salary of Labor for haul road maintenance 1 labor*300 =300 per day
300* 300 = 90000/- or 1,50,000/-(including maintenance material)
* 5.0 lakh per kilometer (500000 * 0.70 km haul road = 3,50,000/-)

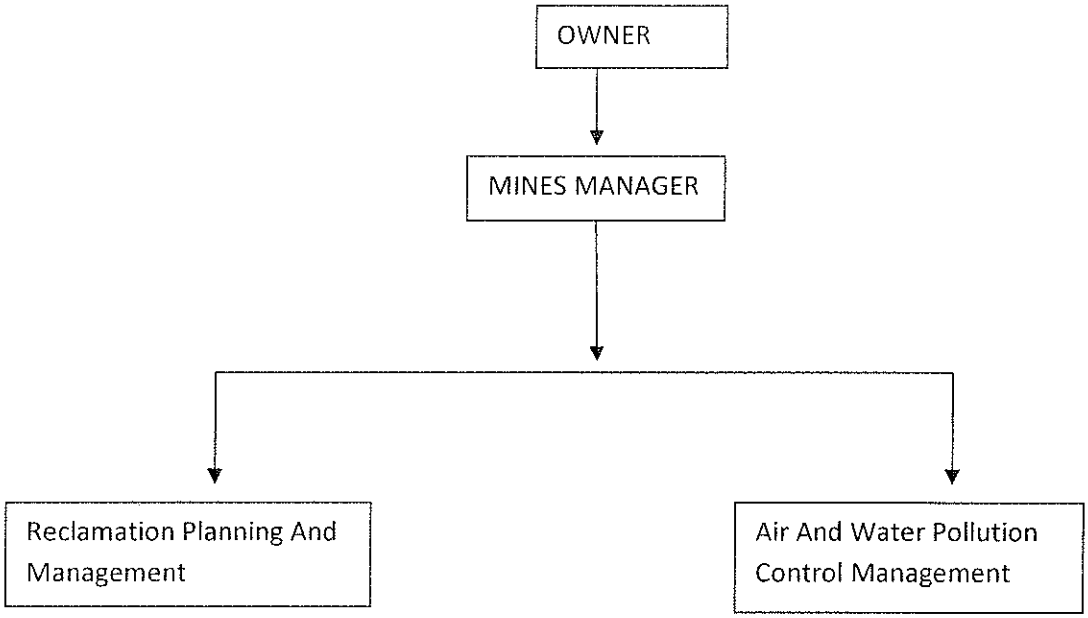
Environment Monitoring Programme

Sl. No	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Solid Waste Management

Total 24438 cum or 36657 tonnes gritty soil will be generated during the plan period. The area is covered with a layer of gritty soil. During quarry development gritty soil will be removed and this will be temporary dumped at the existing dumped yard of the area with suitable precaution& during plan period total removal soil & existing dump soil will be backfill within the exhausted quarry.

Organization Structure



Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done

- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injuryor system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1	5	4	3	2	1

(Catastrophic)					
C2 (Major)	10	8	6	4	2
C3 (Moderate)	*15*	12	9	6	3
C4 (Minor)	*20*	*16*	12	8	4
C5 (Insignificant)	*25*	*20*	*15*	10	5

Risk Rating Scale

S. No.	Rating	Scale
1	**High Risk**	**1-4**
2	Medium Risk	5-12
3	*Low Risk*	*13-25*

Hazard identification & Risk Analysis in Stone mining operation

S. No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench

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- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.

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- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.

c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Baseline period : October 2024 to December 2024.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 17, 18, 19, 20, 21 & 22.12.2024, the Committee recommends in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 for issuing of ToR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure II alongwith following specific condition :-

I. The production shall be restricted as per approved mining scheme or the approved mine plan at the time of EC, which ever is less.
II. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
III. During appraisal of the project, it is seen that the project authority have not fully complied the condition of green belt development as per the previous EC. Hence, the project authorities are required to plant twice the number of trees as was required in the previous EC. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

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24. **Jagatpur Stone Deposit of M/s Rudra Minerals, Village : Jagatpur, Distt. : Pakur, Jharkhand (2.83 Ha).**

(Proposal no.: SIA/JH/MIN/ 503061 /2024)

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 19.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B1.

Application for Terms of Reference (ToR) as per EIA Notification, 2006.

TOR Application for: Proposed Capacity- 67032 cum/year or 180986.40 TPA

Project and Location Details :

Sl	Parameter		Details	
1	Project Name	:	Jagatpur Stone Deposit	
2	Lessee:	:	M/s Rudra Minerals Director-Sri Amar Mandal S/o- Late Ramnarayan Mandal	
3	Lease Address	:	Village – Jagatpur, District – Pakur, Jharkhand	
4	Lease Area	:	2.83 Ha	Acres- 7.0 Acres
5	Type of Land	:	Non- Forest (Raiyati Land)	
6	Project Cost	:	Rs. 150 Lakhs	
7	EMP Budget	:	Capital: Rs. 19.0 lakhs	Recurring: Rs. 5.70 Lakh / year
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 667940 cum	Tonnes: 1803438 tons
10	Mine Life	:	9.96 or 10 years	
11	Man power	:	20	
12	Water Requirement	:	15.10 ~15.50 KLD (Drinking: 0.20 KLD, Dust Suppression: 8.30 KLD, Plantation: 6.6 KLD)	
13	Water Source	:	Water will be taken from nearby village	
14	DG Set / power	:	500 KVA	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Bansoli River, approx. 10.80 km towards South direction	
17	Nearest Habitation	:	Approx. 0.42 km	
18	Nearest Rail Station	:	Pakur Railway station, approx. 16.34 km towards NE direction	
19	Nearest Air Port	:	Deoghar Airport, approx. 102.48 km towards SW direction	
20	Nearest Forest	:	Protected Forest, Approx. 0.50 km. in SW direction of mine site. Protected Forest, Approx. 1.20 km. in NW direction of mine site. Protected Forest, Approx. 3.45 km. in NE direction of mine site. Protected Forest, Approx. 2.00 km. in South direction of mine site.	
21	Road & Highways	:	NH- 133A - Approx. 8.52 km in NE direction.	

CO-ORDINATES

1	Latitude	From 24°35'40.27" N	To 24°35'48.32" N
2	Longitude	From 87°41'57.55" E	To 87°42'03.93" E

LAND DETAILS

Khata no.	Plot no.
22	966 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by DMO, Pakur vide memo no. 1722/M, dated 09.10.2024.
2	CO	:	The CO, Hiranpur vide letter no. 25/Ra. dated 18.01.2024 has mentioned the plot no. of the project is not recorded as "Jungle Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Pakur vide memo no. 1828/M, dated 19.10.2024 certified that 01 LoI exists (7.00 Acre) within 500 meters radius from proposed project site and total area is 14.00 Acre.
4	DFO Wild Life	:	DFO –cum- Incharge Wildlife Sanctuary, Udhwa (Sahibganj) vide letter no.: 1077, dated 05.06.2024 certified that the proposed project site is outside Eco Sensitive Zone of Udhwa Bird Sanctuary.
5	DFO Territorial	:	DFO, Pakur Forest Division vide letter no. 232, dated 09.02.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	The DMO, Pakur has been certified vide memo no. 1829/M, dated 19.10.2024 that this project is mentioned in approved DSR of Pakur District as a potential area (Sl. no. 117, Page no. 119).
7	Gram Sabha	:	BDO, Hiranpur vide letter no. 265/Vi., dated 02.03.2024 informed that Gram Sabha conducted on 27.02.2024.
8	Mine Plan Approval	:	Approved by District Mining Officer, Pakur vide Memo No. 1846/M, dated 24.10.2024.
9	Qualified Person	:	Shri Tapan Kumar Chakravarty vide e-mail dated 19.12.2024 affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi Mechanized Method	
2	Quarry Area	:	2.83 ha or 7.0 Acres	Life of Mine – 9.96 or 10 Years
3	Waste Generation	:	5290.0 cum	
4	Stripping Ratio	:	1: 0.07	
5	Working Days	:	300	
6	Benches: size & No	:	6m to 6m	
7	Elevation of Mine	:	100 AMSL to 101 AMSL	
8	Ground Level Elevation	:	100 AMSL	
9	Ultimate Working Depth	:	Up to 70 AMSL (30 mgbl)	
10	Water Table	:	55 AMSL (45 mbgl)	
11	Topography of Mine	:	The area represents undulating topography	
12	Explosive Requirement	:	110 kg/day	
13	Diesel/Fuel requirement	:	140 litre/day	

Production Details

Year	Production of stone in Cum	Production of stone in Tonnes	Waste (cum) in plan period	Bench AMSL
1st	65800.00	177660.00	2489.00	100-94
2nd	66816.00	180403.20	1456.00	100-88
3rd	66582.00	179771.40	1345.00	100-88
4th	66884.00	180586.80	-	94-82
5th	67032.00	180986.40	-	88-82
Total	**333114.00**	**899407.80**	**5290.00**	

Land Use

Pattern of Utilization	Existing Land Use (Ha)	At the end of Plan Period (Ha)	After life of mine (Ha)
Excavation	--	2.31	2.31 (Entire area has been converted in to water reservoir)
Waste Dump	--	-	-
Road	--	-	--
Safety Zone	--	0.52 (Plantation)	0.52 (Plantation)
Total	**0.0**	**2.83**	**2.83**
Balance	2.83	-	0.00
Lease Hold Area	**2.83**	**2.83**	**2.83**

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Safety Zone	:	0.52 ha	1300
2	Along Approach Road	:	950 m	1900
3	No. of plants distributed with consultation local authorities /village Panchayat	:	--	100

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

COST PROPOSED FOR EMP

Sl. No	Description	Capital Cost (Rs)	Recurring Cost (Rs)
1	Pollution Control & Dust Suppression	--	2,00,000
2	Baseline Monitoring i) Air ii) Water iii) Soil iv) Noise	--	 50,000 40,000 20,000 10,000
3	Plantation	16,50,000	1,00,000
4	Construction and maintenance of haul road	2,50,000	1,50,000
TOTAL		**19,00,000**	**5,70,000**

Note: *3300 plants * 500 Rs (for each plants including hedges and fences)= 16.50 lakh
Salary of Labor for haul road maintenance 1 labor*300 =300 per day
300* 300 = 90,000/- or 1,50,000/- (including maintenance)
**** 2.5 lakh per kilometer (250000 * 0.95 km haul road = 2,37,500 or 2,50,000/-)***

Environment Monitoring Programme

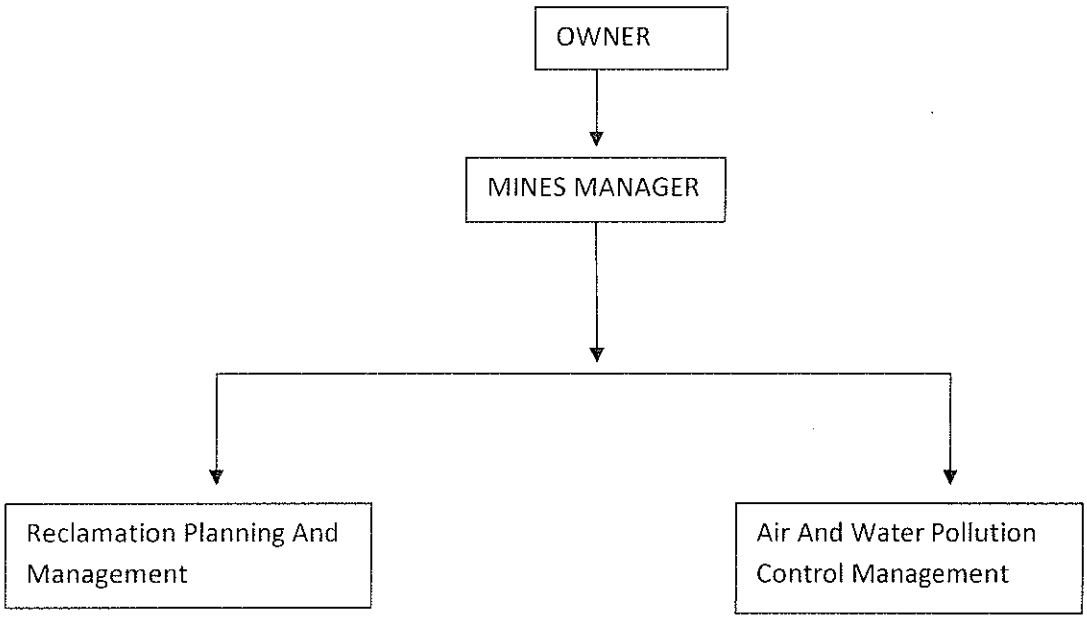
Sl. No	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly

2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Solid Waste Management

Total 5290.00 cum waste will be generated during the plan period. It will be utilized for approach & haul road maintenance.

Organization Structure



Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.

- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.
- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.

C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injuryor system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)
C1 (Catastrophic)	5	**4**	**3**	**2**	**1**
C2 (Major)	10	8	6	**4**	**2**
C3 (Moderate)	*15*	12	9	6	**3**
C4 (Minor)	*20*	*16*	12	*8*	**4**
C5 (Insignificant)	*25*	*20*	*15*	10	5

Risk Rating Scale

S. No.	Rating	Scale
1	**High Risk**	**1-4**
2	Medium Risk	5-12
3	*Low Risk*	*13-25*

Hazard identification & Risk Analysis in Stone mining operation

S. No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock	Occasional	Major	6

		(Bodily Injury)			
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the

face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.
While others may need to work at or near the edge of a working bench the person most at risk
during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.
The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.
The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.
Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container

- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.

- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Baseline period : October 2024 to December 2024.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 17, 18, 19, 20, 21 & 22.12.2024, the Committee recommends in the light of Hon'ble

NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 for issuing of ToR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure II alongwith following specific condition :-

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

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25. Chandradipa Stone Deposit of Partners (i) Shri Ranjit Kumar Singh (ii) Mr. Ibrahim Ansari (iii) Mr. Aashiq Ansari (iv) Smt. Gulshan Bibi (v) Mr. Roshan Ali, Village : Chandradipa, Thana : Mihijam, Distt. : Jamtara, Jharkhand (2.169 Ha).

(Proposal no.: SIA/JH/MIN/ 514564 /2024)

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 19.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B1.

Application for Terms of Reference (ToR) as per EIA Notification, 2006.

TOR Application for: Proposed Capacity- 33394.40 cum/annum or 90164.88 TPA

Project and Location Details :

Sl	Parameter		Details	
1	Project Name	:	Chandradipa Stone Deposit	
2	Lessee:	:	Partners- 1) Sri Ranjit Kumar Singh, 2) Sri Ibrahim Ansari, 3) Sri Aashiq Ansari, 4) Smt. Gulshan Bibi, 5) Sri Roshan Ali	
3	Lease Address	:	Village – Chandradipa, Anchal – Jamtara, District – Jamtara, Jharkhand	
4	Lease Area	:	2.169 Ha	Acres- 5.36 Acres
5	Type of Land	:	Non- Forest (Raiyati Land)	
6	Project Cost	:	Rs. 70 Lakhs	
7	EMP Budget	:	Capital: Rs. 14.015 lakhs	Recurring: Rs. 5.70 Lakh / year
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 314381.6 cum	Tonnes: 848830.32 tons
10	Mine Life	:	9.7 or 10 years	
11	Man power	:	18	
12	Water Requirement	:	10.30~10.50 KLD (Drinking: 0.18 KLD, Dust Suppression: 5.40 KLD, Plantation: 4.72 KLD)	

13	Water Source	:	Water will be taken from nearby village
14	DG Set / power	:	500 KVA
15	Crusher	:	No crusher
16	Nearest Water Body	:	Barakar River, Approx. 8.60 km. in WSW direction of mine site.
17	Nearest Habitation	:	Approx. 0.71 km
18	Nearest Rail Station	:	Bodhma Railway station, approx. 2.0 km in East direction.
19	Nearest Air Port	:	Deoghar Airport, approx. 61.90 km towards NNW direction
20	Nearest Forest	:	Dense mix jungle, Approx. 3.50 km in SW direction of mine site Dense mix jungle, Approx. 3.80 km in SSW direction of mine site.
21	Road & Highways	:	NH-419, Approx. 1.50 km in East direction.

CO-ORDINATES

1	Latitude	From N 23°53'53.768"	To N 23°54' 3.148"
2	Longitude	From E86°49'42.995"	To E 86°49' 48.998"

LAND DETAILS

Khata no.	Plot no.
76	1193 & 1163 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Jamtara vide letter no. 203/M, dated 28.02.2024.
2	CO	:	The CO, Jamtara vide letter no. 46/Ra., dated 11.01.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Jamtara vide memo no. 224, dated 05.03.2024 certified that 01 other mining lease area (2.30 Acre) and LoI 7.19 Acre exists within 500 meters radius from proposed project site and total area is 14.85 Acre.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 238, dated 10.02.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Jamtara Forest Division vide letter no. 158, dated 02.02.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project

			site.
6	DSR	:	This project is mentioned in approved DSR of Jamtara District (Sl. no. 05, Page no. 114A).
7	Gram Sabha	:	BDO, Jamtara vide letter no. 1321/Vi., dated 31.12.2023 informed that Gram Sabha conducted on 22.11.2023.
8	Mine Plan Approval	:	Approved by Deputy Director Mines, Santhal Pargana Circle, Dumka vide Memo No. 56/DDM, dated 25.04.2024.
9	Qualified Person	:	Shri Vidya Bhushan Mishra was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Semi Mechanized Method	
2	Quarry Area	:	2.169 ha	Life of Mine – 9.7 or 10 Years
3	Waste Generation	:	27024 cum	
4	Stripping Ratio	:	1: 0.13	
5	Working Days	:	300	
6	Benches: size & No	:	6m to 6m	
7	Elevation of Mine	:	221 AMSL to 203 AMSL	
8	Ground Level Elevation	:	203 AMSL	
9	Ultimate Working Depth	:	Up to 193 AMSL (10 mgbl)	
10	Water Table	:	182 AMSL (21 mbgl)	
11	Topography of Mine	:	The area represents a small hillock.	
12	Explosive Requirement	:	110 kg/day	
13	Diesel/Fuel requirement	:	140 litre/day	

Production Details

Year	Production of Stone		Overburden in cum	Intercalated waste in cum	Total waste in cum	Bench AMSL
	cum	tons				
1st year	29837.60	80561.52	8320.00	1570.40	9890.40	217-211
2nd year	30628.00	82695.60	0.00	1612.00	1612.00	205

3rd year	31616.00	85363.20	4576.00	1664.00	6240.00	205-199
4th year	32604.00	88030.80	0.00	1716.00	1716.00	199
5th year	33394.40	90164.88	0.00	1757.60	1757.60	199-193
Total	**158080.00**	**426816.00**	**12896.00**	**8320.00**	**21216.00**	

Land Use

Pattern of Utilization	Existing Land Use(Ha)	At The End of Plan Period(Ha)	At Conceptual Period (Ha)
Excavation	0.0	1.193	1.616 (0.396 ha area shall be backfilled, 1.22 ha converted in to water reservoir)
Waste Dump	0.0	0.348	Nil (waste dump to be removed and backfilled)
Road	0.0	0.015	0.0
Crusher	0.0	0.0	0.0
Safety Zone	0.0	0.553 (Plantation)	0.553 (Plantation)
TOTAL	**0.00**	**2.109**	**2.169**
Unused Area	2.169	0.060	0.0
Total Area	**2.169**		

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Safety Zone	:	0.553 ha	1383
2	Along Approach Road	:	440 m	880
3	No. of plants distributed with consultation local authorities /village Panchayat	:	--	100

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

COST PROPOSED FOR EMP

Sl. No	Description	Capital Cost (Rs)	Recurring Cost (Rs)
1	Pollution Control & Dust Suppression	--	2,00,000
2	Baseline Monitoring i) Air ii) Water iii) Soil iv) Noise	--	 50,000 40,000 20,000 10,000
3	Plantation	11,81,500	1,00,000
4	Construction and maintenance of haul road	2,20,000	1,50,000
TOTAL		**14,01,500**	**5,70,000**

Note: *2363 plants * 500 Rs (for each plants including hedges and fences) = 11.815 lakhs
Salary of Labor for haul road maintenance 1 labor*300 =300 per day
300*300 = 90,000/- or 1,50,000 /- (including maintenance)
**** 5.0 lakh per kilometer (500000 * 0.440 km haul road = Rs. 2,20,000 /-)***

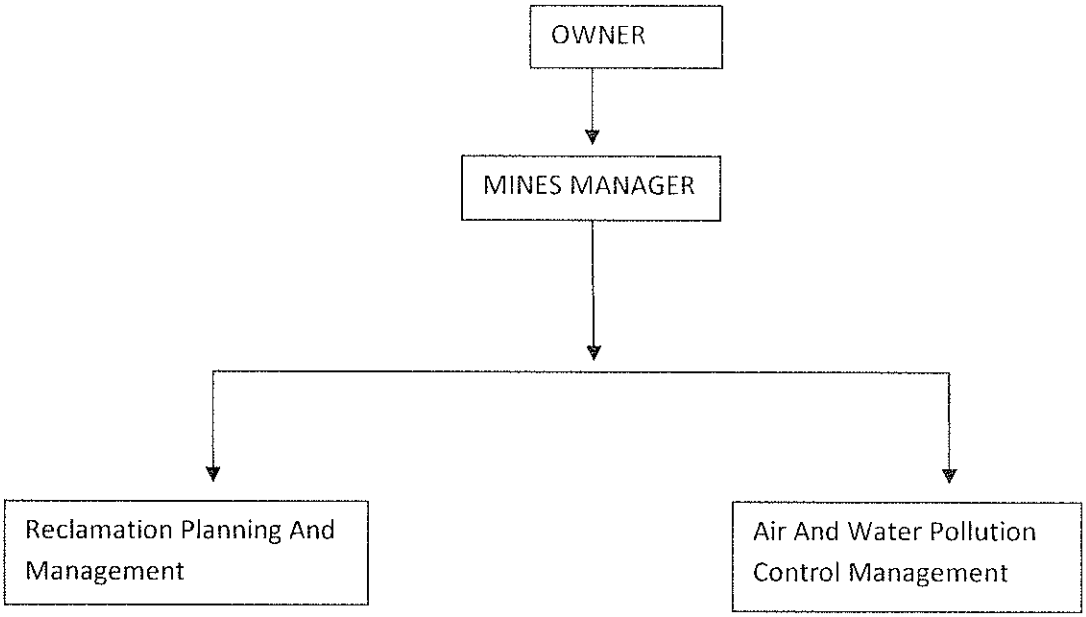
Environment Monitoring Programme

Sl. No	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Solid Waste Management

Total 21216.00 cum of total waste will be generated during the plan period. The 50 % of waste generated during the plan period i.e. 10608.00 cum (insitu) shall be utilized for approach & haul road maintenance. The rest waste material 50 % i.e. 10608.00 cum insitu 13260.0 cum loose & 11271.00 cum compact waste shall be temporary dumped in southern part of the applied area with maximum height of 4.91m and it will cover 0.348 ha area.

Organization Structure



Water Quality Management

- Mining is planned to above the ground water table. In case any intersection is likely, mining activities will be stopped 2m above the Ground Water Table.
- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
- Garland drain shall be made around the Waste dump and the rain water shall be collected in garland drain and allowed to settle in a small pit for settling suspended particles before allowing discharge to natural drainage system. Check Pits and Retainer walls shall be constructed to prevent water flowing into the lease area from outside or from inside the lease area to the outside
- For domestic waste water Septic Tank with Soak Pit shall be provided, discharge from Soak Pit, if any shall be used for plantation.
- It shall be ensured that quality of drinking water for the worker is hygienic and good sanitation system shall be made available.

Air Quality Management

- Dust extractor or wet drilling shall be followed to control dust at source of emission during drilling.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce the dust generation.
- Controlled blasting to reduce dust emission and reduction in NOx emission
- All machineries and transport vehicles shall be properly maintained and pollution check will be done once in a year to keep the emissions from machineries and vehicle under control. Records for same to be maintained.
- Water sprinkling will be done on haul road to control emission of dust while transporting minerals and waste. Provision for water spray by tankers on 'kaccha road shall be done.

- Water sprinkling at loading area shall be done
- Use of personal protective equipment like dust mask e.t.c shall be put in practice
- Ambient air pollution monitoring shall be carried out every six months.

RISK ASSESSMENT

The hazard identification and risk analysis is done using qualitative method:

Probability/Likelihood of Occurrence of Hazard

Likelihood Level	Probability	Description
L5	Very Unlikely	Has not occurred/reported within last 5 years.
L4	Remote / Moderate	May occur if conditions exist. Has occurred within last 3 years.
L3	Occasional	Likely to occur if conditions exist. Has occurred within last 2 years.
L2	Probable	Very likely to occur. Has occurred within last year.
L1	Frequent	Almost certain to occur. Has occurred more than one within last year.

Severity/Impact Intensity

Severity Level	Severity	Description
C1	Catastrophic	May commonly cause death or major system loss, thereby requiring immediate cessation of the unsafe activity or operation.
C2	Major	May commonly cause severe injury or illness or major system damage thereby requiring immediate corrective action.
C3	Moderate	Minor injury to personnel or environment
C4	Minor	Minor damage but does not cause injury to personnel
C5	Insignificant	May result in no, or less minor, illness, injuryor system damage

Risk Assessment Chart (Qualitative Method)

Risk Rank (Likelihood x Consequence)	L5 (Very Unlikely)	L4 (Remote)	L3 (Occasional)	L2 (Probable)	L1 (Frequent)

C1 (Catastrophic)	5	4	3	2	1
C2 (Major)	10	8	6	4	2
C3 (Moderate)	*15*	12	9	6	3
C4 (Minor)	*20*	*16*	12	8	4
C5 (Insignificant)	*25*	*20*	*15*	10	5

Risk Rating Scale

S. No.	Rating	Scale
1	**High Risk**	**1-4**
2	Medium Risk	5-12
3	*Low Risk*	*13-25*

Hazard identification & Risk Analysis in Stone mining operation

S. No.	Activity	Hazard	Probability	Severity	Score
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident,	Remote	Minor	16

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		Exposure to Dust			

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.

While others may need to work at or near the edge of a working bench the person most at risk

during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench

- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.

Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.

Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.

- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.

b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Baseline period : October 2024 to December 2024.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 17, 18, 19, 20, 21 & 22.12.2024, the Committee recommends in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 for issuing of ToR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure II alongwith following specific condition :-

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

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26. **Kuchu Stone Deposit of M/s Shiv Stone and Crusher (Partners (i) Shri Ajay Kumar (ii) Shri Sathish Prasad (iii) Shri Monu Kumar, Village : Kuchu, Thana : Angara, Distt. : Ranchi, Jharkhand (2.335 Ha).**

(Proposal no.: SIA/JH/MIN/ 507243 /2024)

Name of the consultant : P & M Solution, Noida, U.P.

This is a new project which has been taken for appraisal on 19.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B1.

Application for Terms of Reference (ToR) as per EIA Notification, 2006.

TOR Application for: Proposed Capacity-71791 cum/annum or 201014 TPA.

Project and Location Details:

Sl	Parameter		Details	
1	Project Name	:	Kuchu Stone Deposit	
2	Lessee:	:	M/s Shiv Stone and Crusher, (Partners – Sri Ajay Kumar, Sri Satish Prasad & Sri Monu Kumar)	
3	Lease Address	:	Mouza – Kuchu, Thana- Angara, District- Ranchi, State –Jharkhand	
4	Lease Area	:	2.335 Ha	Acres- 5.77 Acres
5	Type of Land	:	Non- Forest (Raiyati Land)	
6	Project Cost	:	Rs. 100 Lakhs	
7	EMP Budget	:	Capital: Rs. 12.50 lakhs	Recurring: Rs. 5.70 Lakh / year
8	New or Expansion	:	New	
9	Mineable Reserves	:	cum.: 358872 cum	Tonnes: 1004842 tones
10	Mine Life	:	5 years	
11	Man power	:	40	
12	Water Requirement	:	9.345 ~ 9.50 KLD (Drinking: 0.40 KLD, Dust Suppression: 4.745 KLD, Plantation: 4.20 KLD)	
13	Water Source	:	Water will be taken from nearby village	
14	DG Set / power	:	500 KVA	
15	Crusher	:	No crusher	
16	Nearest Water Body	:	Subarnarekha River, Approx 3.90 km towards North direction of mine site. Dora Nadi, Approx 3.45 km towards WNW direction of mine site.	
17	Nearest Habitation	:	Approx. 0.22 km towards West direction.	
18	Nearest Rail Station	:	Jonha Railway station, approx. 9.10 km towards SW direction	
19	Nearest Air Port	:	Birsa Munda Airport, Ranchi, approx. 35.75 km towards WSW direction	
20	Nearest Forest	:	Fairly Dense Mixed Jungle, Approx. 1.0 km towards NE direction of mine site Open Jungle, Approx. 1.70 km towards NNW direction of mine site. Open Jungle mainly sal, Approx 3.15 km towards WSW direction of mine site.	

			Fairly Dense Mixed Jungle, Approx 4.85 km towards SE direction of mine site.
21	Road & Highways	:	NH-320 at Approx. 8.10 km. in North direction SH-1 at Approx. 6.40 km. in SW direction

CO-ORDINATES

1	Latitude	From 23°25'18.36" N	To 23°25'24.35" N
2	Longitude	From 85°39'50.90" E	To 85"39'56.80" E

LAND DETAILS

Khata no.	Plot no.
99	1500 & 1502

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Ranchi vide letter no. 44/M, dated 08.01.2024.
2	CO	:	The CO, Angara, Ranchi vide letter no. 768 (ii), dated 11.11.2023 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Ranchi vide memo no. 271/M, dated 17.02.2024 certified that 02 other mining lease area (6.25 Acre & 4.67 Acre) exists within 500 meters radius from proposed project site and total area is 16.69 Acre.
4	DFO Wild Life	:	DFO, Wildlife Division, Ranchi vide letter no. 703, dated 16.08.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Ranchi Forest Division vide letter no. 4198, dated 02.11.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Ranchi District (Sl. no. 06, Page no. 64).
7	Gram Sabha	:	BDO, Angara, Ranchi vide letter no. 1511 (ii), dated 24.11.2023 informed that Gram Sabha conducted on 10.10.2023.

8	Mine Plan Approval	:	Approved by District Mining Officer, Ranchi vide Memo No. 1161/M, dated 03.08.2024.
9	Qualified Person	:	Shri P.K. Sen was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	Opencast Mechanized Method	
2	Quarry Area	:	2.335 ha or 5.77 acres	Life of Mine – 5 Years
3	Waste Generation	:	8786 cum of gritty soil and 18889 cum intercalated waste	
4	Stripping Ratio	:	01:0.3	
5	Working Days	:	300	
6	Benches: size & No	:	6m * 6m	
7	Elevation of Mine	:	532 AMSL to 542AMSL	
8	Ground Level Elevation	:	532 AMSL	
9	Ultimate Working Depth	:	up to 492 AMSL (40 mbgl)	
10	Water Table	:	484-477 AMSL (55-48 mbgl)	
11	Topography of Mine	:	The area represents a moderately sloping land with rock mass of Granite - gneiss	
12	Explosive Requirement	:	110 kg/day	
13	Diesel/Fuel requirement	:	140 litre/day	

Production Details

Year	Removal of Gritty Soil		Intercalated waste in cum	Production of Stone		Bench AMSL
	in cum	in tones		in cum	in tones	
1st	4582	6873	3777	71755	200915	540-528
2nd	3634	5451	3778	71778	200978	540-522
3rd	570	855	3777	71755	200915	534-516
4th	-	-	3778	71778	200978	522-510
5th	-	-	3779	71791	201014	516-492
Total	**8786**	**13179**	**18889**	**358857**	**1004800**	

Land Use

Pattern of Utilization	Existing (ha)	During Plan Period (ha)	During Conceptual Period (ha)
Quarry	--	1.842 (including backfilling 0.356 ha.)	1.842 (Entire area left as water reservoir)
Safety Zone	--	0.493 (Plantation)	0.493 (Plantation)

Road	0.076	--	--
Total Area in Use	**0.076**	**2.335**	**2.335**
Untouched Area	2.259	--	--
Total Lease Hold Area	**2.335**	**2.335**	**2.335**

ENVIRONMENT MANAGEMENT

Green Belt Development

S. No.	Location		Area/Length	No. of Trees
1	Safety Zone	:	0.493 ha	1240
2	Along Approach Road	:	380 m	760
3	No. of plants distributed with consultation local authorities /village Panchayat	:	--	100

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

COST PROPOSED FOR EMP

Sl. No	Description	Capital Cost (Rs.)	Recurring Cost (Rs.)
1	Pollution Control & Dust Suppression	--	2,00,000
2	Baseline Monitoring i) Air ii) Water iii) Soil iv) Noise	--	 50,000 40,000 20,000 10,000
3	Plantation	10,50,000	1,00,000
4	Construction and maintenance of haul road	2,00,000	1,50,000
TOTAL		**12,50,000**	**5,70,000**

Note: *2100 plants * 500 Rs (for each plants including hedges and fences) = Rs. 10.50 lakhs
Salary of Labor for haul road maintenance 1 labor*300 =300 per day
300* 300 = 90000/- or 150000/- (including maintenance)
**** 5.0 lakh per kilometer (500000 * 0.38 km haul road = 1,90,000/- or 2,00,000/-)***

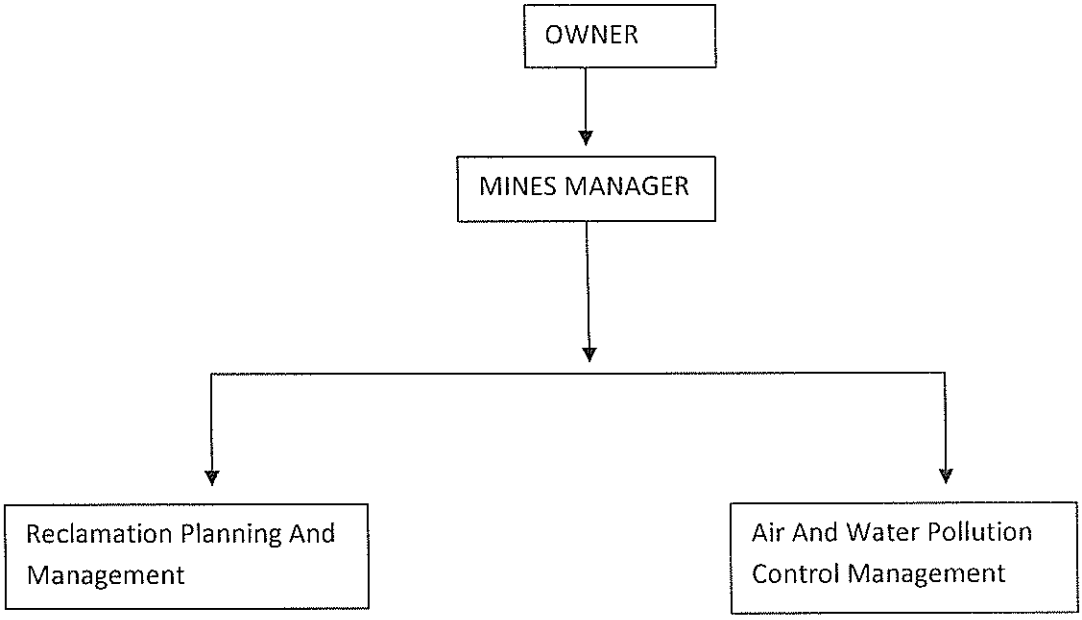
Environment Monitoring Programme

Sl. No	Description	No. Monitoring Stations	Duration
1	Air	4 Stations	6 Monthly
2	Soil	2 Stations	6 Monthly
3	Surface Water	2 Stations	6 Monthly
4	Ground Water	2 Stations	6 Monthly
5	Noise	4 Stations	6 Monthly

Solid Waste Management

Total 8786 cum of gritty soil and 18889 cum intercalated waste shall be generated during this plan Period. During quarry development in 1st year gritty soil and intercalated waste will be removed and this soil & waste will be temporarily dumped at the northwest part of the area with suitable precautions like parapet wall, garland drain & in 2nd year removed gritty soil & intercalated waste & existing temporarily dumped soil will be temporarily backfilled within the exhausted quarry & in 3rd & 4th year removed gritty soil & intercalated waste will be temporarily backfilled within the exhausted quarry & in 5th year removed intercalated waste & total temporarily backfill soil will be backfilled within lower three bench of the exhausted quarry.

Organization Structure



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- The rain water during rainy season will be collected in a pit and shall be use for dust suppression and plantation. Excess water, if any shall be discharged in natural stream after settling of suspended particles in the pit. Pump having required capacity will be installed to lift accumulated rain water from working pit and pumped to the settling tank.
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Risk Rating Scale

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Hazard identification & Risk Analysis in Stone mining operation

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2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to Low-Risk Rank and hence the risk is "**Acceptable**"

Preventive Measures:

Face Stability

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the following measures will be taken:

- Overall slope angles of benches will be maintained at 45°
- Unmanageable heights are not created
- Loose sides are properly dressed
- No tree, loose stone or debris will be permitted to remain within 3 meters of the edge or side of any excavation (Regulation 106(4) of MMR 1961)
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them.
While others may need to work at or near the edge of a working bench the person most at risk
during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.
The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.
The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling.
Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to overcharging of the shot holes as a result of certain special features of the local ground.
Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favorable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers
- Explosives and detonators shall not be carried in the same container
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to

ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the workplace (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks / tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any incoming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Baseline period : October 2024 to December 2024.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 17, 18, 19, 20, 21 & 22.12.2024, the Committee recommends in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 for issuing of ToR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure II alongwith following specific condition :-

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

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Day 4 : December 20th, 2024 [Friday]

Consideration of Proposals

1. **Grain based Distillery to produce Ethanol with installed capacity 40 KLPD under 100% EBP program by M/s Maheshwari Carbons Private Limited, Village : Nawadih, Thana : Saraikela, Thana no. : 292, Distt. : Saraikela-Kharsawan, Jharkhand.**

   (Proposal no.: SIA/JH/IND2/ 503037 /2024)

   Name of the consultant : IND Tech House Consult, Delhi.

   This is a new project which has been taken for appraisal on 20.12.2024.

   Project Sector: 5(ga) Grain Based Distilleries, Category: B1.

   Application for Terms of Reference (ToR) as per EIA Notification, 2006.

   The proposal was considered by the committee to determine the "Terms of Reference (ToR)" for undertaking detailed EIA study for the purpose of obtaining environmental clearance in accordance with the provisions of the EIA Notification, 2006 and amendments thereafter. For this purpose the Project Proponent has submitted the prescribed Form - I & PFR. The proposed project falls under item 5 (ga) **Grain Based Distilleries** as per EIA Notification, 2006.

   M/s Maheshwari Carbons Private Limited has proposed to set up a Greenfield Grain based Distillery of 40 KLPD capacity under 100% EBP program along with 870 KW Cogeneration Power Plant and Zero Liquid Discharge system. The plant will be based on latest technology of Multi Pressure Distillation and MSDH for dehydration process to achieve good quality of fuel grade Ethanol.

   The proposed ethanol plant will be based on grains such as maize, broken rice, surplus FCI rice and damaged grain as basic raw materials. Other inputs will be water, enzymes, antifoam agents, Active Dry Yeast, Urea/DAP, Antibiotics, Sterilant etc. Biomass [rice husk, bagasse etc.] will be used as fuel in boiler.

   The project proposes to implement Zero Liquid Discharge system by decantation, multi-effect evaporation [MEE] plant & ETP with Reverse Osmosis (RO) technology. The solids stream from decanter [Wet Cake] consisting of majority of suspended solids is directly conveyed to the Dryer to form Distiller's Dried Grain with Solubles [DDGS] which is sold as cattle/animal feed.

   The grain-based distillery is proposed by M/s Maheshwari Carbons Private Limited at Mouza– Nawadih, P.S.- Sariakella, Thana No-292, Halka No - 8, Khata No-43, Plot No.-402 (P), Jharkhand – 833 219. Geographical coordinate at the centre of the site is Latitude: 22°41'49.51"N /Longitude: 85°57'23.85"E. Proposed land is almost flat without major undulation with average elevation of 180 m MSL. The site is connected through a kachha road [approx. 550 m] to the main road which is further connected to NH 43 at a distance of approx. 2.2 Km on NW. Nearest Town & District Headquarter Saraikela is situated at an aerial

distance of 1.81 Km on West. Nearest Railway Station: Sini Junction – 10.19 Km on North and Jamshedpur Airport is located at an aerial distance of approx. 25.32 Km on NE of the project site. Estimated cost of the proposed project is INR 44 Crore.

Total plot area of the proposed site is 12,145.58 sqm [3 acre]. Land details are as follows –

Thana No.	Halka No.	Khata No.	Plot No.
292	8	43	402 (P)

Manufacturing & Production Details –

Unit	Product	Production Capacity
Distillery	Ethanol	40 KLPD
Cogeneration power plant	Power	870 KW
No of Days of Operation	340 days	
Distilleries dry grain with soluble DDGS and CO2 will be generated as by-Product		
Byproducts	DDGS	19 TPD
	CO_2	29 TPD
	Fusel Oil	60 Lit/day

Raw materials consumption –

SN	Raw Material	Consumption
1.	Broken Rice [68% starch] or - Maize [60% starch]	90 MT/day 102 MT/day
2.	Chemicals & Additives a) Liquefying Enzyme b) Saccharifying Enzyme c) Anti Foam d) Active Dry Yeast e) Urea/DAP f) Antibiotics g) Sterilant	 25 kg/day 26 kg/day 10 kg/day 20 kg/day 140 kg/day 1.7 kg/day 150 gm/day
3.	Biomass/Coal	48/ 43 TPD

As proposed, number of operating days of the plant is 340 days/Annum.

Pollution Control Measures

The proposed grain-based distillery will implement Zero Liquid Discharge system. Fresh water requirement for the project during operation phase will be sourced through onsite groundwater abstraction. Efforts will be made to conserve fresh water to the extent possible by recycling and reuse. Closed water recirculation system and plan process is designed to achieve minimum fresh water requirement.

Wastewater Generation & Treatment

Spent wash from the distillation section is passed through horizontal high˜speed Decanters, which separate suspended solids from spent wash and split the spent wash feed stream into two streams –

Wet Cake: it is the solids stream from decanter consisting of majority of suspended solids. It has approx. 28 - 30 % solids and 70 - 72 % water.

Thin Slop: liquid stream consisting of mainly water withall dissolved solids and remaining suspended solids. The wet cake is directly conveyed to the DDGS Dryer andthin slop is pumped to Evaporators where it is concentrated to a solids content of about 28 - 30% w/w, in an Multi-effect Evaporator thermally integrated with Multi-pressure Distillation.

The thick slop (concentrated thin slop syrup) from evaporator will be mixed with wet cake from spent wash decanter. The mixture is known as DWGS (Distillers Wet Grains and Solubles). This is is then fed at a constant rate to the DDGS Dryer, via a screw feeder to produce DDGS at 88-90% w/w solids which will be sold as cattle/animal feed.

Process condensate from evaporation section will be partly recycled in the process and balance will be treated in Condensate Polishing Unit [CPU]. Treated water will be used in process and cooling water make up. Rejects from the CPU along with other effluents like cooling tower & boiler blowdown, WTP backwash, DM plant reject etc. will be treated in proposed onsite ETP and entirely recycled for cooling water make up.

Air Pollution Source and Control Measures

- To minimize the stack emission load and to comply with the prescribed stack emission standard due to the operation of proposed cogeneration boiler [8 TPH], dust collector and bag filters followed by stack of adequate height will be provided.
- CO_2 produced during fermentation process will be collected, scrubbed, liquefied and sold to end users.
- Diesel generator set [250 KVA] which will be used as emergency backup will be provided with stack of adequate height as per CPCB standard.
- All the internal roads will be paved.
- Approx. 0.99 acre [33% of the plot area] would be developed as dedicated green area. Plantation around the periphery and within the premises will help in attenuating the pollutants.

Solid Waste Management

Solid waste	Approx. Quantity	Disposal
ETP sludge	300 kg/day	ETP sludge in liquid form will be used in boiler ash quenching.
Boiler ash	17 TPD from coal or 7.5 TPD from biomass	Boiler ash will be local fly to brick manufacturer or cement plant

Raw material required along with estimated quantity, Likely source, Marketing area of Final products, mode of transport of raw material & finished goods

SN	Raw Material	Consumption
1.	Broken Rice [68% starch] or - Maize [60% starch]	90 MT/day 102 MT/day
2.	Chemicals & Additives h) Liquefying Enzyme i) Saccharifying Enzyme j) Anti Foam k) Active Dry Yeast l) Urea/DAP m)Antibiotics n) Sterilant	 25 kg/day 26 kg/day 10 kg/day 20 kg/day 140 kg/day 1.7 kg/day 150 gm/day
3.	Biomass/Coal	48/ 43 TPD
4.	Fresh Water	194 KLD

Water Requirement

Total WATER CONSUMPTION	QUANTITY	UOM
PROCESS WATER	172	KLD
DM WATER-BOILER	40	KLD
COOLING TOWER LOSSES	189.6	KLD
SOFT WATER-SEALING, SCRUBBER	13	KLD
CIP WATER	5	KLD
FO WASHING WATER	3	KLD
WTP BACKWASH	10	KLD
Total	432	KLD

EFFLUENT GENERATION	QUANTITY	UOM
PROCESS CONDENSATE	23	KLD
DRYER CONDENSATE	44	KLD

SPENT LESS + FO WASHING	45	KLD
SEALING WATER	5	KLD
TO ETP (CT & BOILER BLOWDOWN, WTP BACKWASH, CPU REJECT, DM REJECT, CIP WATER)	61	KLD
TOTAL	178	KLD

EFFLUENT RECYCLE	QUANTITY	UOM
PROCESS CONDENSATE	102	KLD
DRYER CONDENSATE		KLD
SPENT LESS + FO WASHING		KLD
FROM ETP	55	KLD
TOTAL	157	KLD

- Total Fresh water demand – 194 KLD [Industrial – 184 KLD + domestic– 4 KLD + green area – 6 KLD].
- Recycled treated effluent from proposed onsite ETP + steam condensate + Spent lees + thin slop returns etc. - 248 KLD.

Power Requirement and Source

Estimated power demand - 870KW
Source-Proposed cogeneration power plant of 870 kW.
Emergency backup - 1 DG set [250 KVA].

Steam Requirement

Steam requirement will be met from biomass/coal based boiler of capacity 8 TPH. AFBC boiler of will be provided with dust collector and bag filters followed by stack of adequate height.

Coal Fired Boiler

S.No	Steam requirement	Kg/L of Total Spirit
1)	Liquefaction, distillation, MSDH (wash to AA mode) , integrated evaporation, DWGS Dryer	2.0 Kg/ Lit of TS

Boiler Details

Steam Requirement will be sourced from 8 TPH boiler

Steam Consumption (Dry and Saturated)	Proposed Scheme
1. Cooking and Liquefaction	1.5 kg/lit of TS
2. Distillation	2.4 kg/lit of TS
3. Ethanol	1.5 kg/lit of TS
4. DWGS Dryer	2.2 kg/lit of TS
Total Steam requirement	7.6 kg/lit of TS

Fuel Consumption -

100% Biomass [rice husk, bagasse etc.] – 48 TPD
or
100% Coal – 43 TPD

Proposed Boiler details
HP boiler of 8 TPH capacity along with Bag filters as air pollution control equipment followed by Adequate stack height will be installed as per CPCB and JSPCB guidelines. Details regarding proposed boiler are mentioned in the table given below.

S. No		Details
1	Type of Fuel	Rice Husk / Biomass/coal
2	Capacity of Boiler	8 TPH
3	Stack height	As per CPCB requirement

Waste Water Generation & Treatment:

The spent wash from proposed grain based distillery will be subjected to decantation to separate out wet cake and6-7% w/w solid thin slop will be fed to evaporator. The thick syrup @ 35-40% solids after the evaporation would then fed to DWGS drier to produce DDGS at 88-90% w/w solids which will be sold as Cattle feed.

The boiler blow down, DM plant, softener regeneration water will be treated in a neutralization tank and after treatment it will be used as cooling water makeup water. Process condensate from evaporation section will be partly recycled and balance will be treated in process condensatetreatment plant, treated water will be used as dilution water in slurry preparation and as cooling water makeup water and steam condensate will be recycled back to the boiler.

STATUTORY CLEARANCES :

1	LOI/Lease docs	:	Land for Maheshwari Carbons Private Limited.
2	CO	:	The CO, Saraikela vide letter no. 1226A, dated 09.10.2024 has mentioned the plot no. of the project is not recorded as "Jungle Jhari" in R.S. Khatiyan.
3	DFO Wild Life	:	DFO, Dalma Elephant Project vide letter no. 4944, dated 02.12.2024 certified that the proposed project site is outside Eco Sensitive Zone of Dalma Wildlife Sanctuary.
4	DFO Territorial	:	DFO, Saraikela Forest Division, Saraikela vide letter no. 1704, dated 21.10.2024 certified that the distance of reserved / protected forest is more than 250 metre from project site.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held

during 17, 18, 19, 20, 21 & 22.12.2024, the Committee recommends for issuing of ToR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure III along with following specific condition :-

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*Ek Ped Ma Ke Naam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. Permission for drawal of ground water will be obtained from CGWA before submitting the final EIA for consideration for EC.

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2. **Chandangaria Stone Deposit of M/s Varun Singh Sisodia Pvt. Ltd., Village : Chandangaria, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.10 Ha).**

(Proposal no.: SIA/JH/MIN/ 503800 /2024)

Name of the consultant : Oceao – Enviro Management Solutions (India) Pvt. Ltd., Ghaziabad, U.P.

This is a new project which has been taken for appraisal on 20.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 57,356.25 Cum Per Annum/191.18 Cum Per Day or 1,54,861.88 Ton Per Annum/ 516.21 Ton per Day.

Project and Location Details:

S. No	Parameter		Details	
1	Project Name	:	ChandangariaStone Deposit of M/s Varun Singh Sisodia Pvt. Ltd	
2	Lessee/ Director	:	Mr. Varun Singh (Managing Director)	
3	Lessee Address	:	Address- 12 Kishore Bhawan, Justice Mandal Path,Rajvanshi Nagar, Patna, Bihar	
4	Lease Area	:	Acres: 5.19	Ha:2.100
5	Type of Land	:	Raiyati Land	
6	Project Cost	:	47.00 Lakhs	
7	EMP Budget	:	Capital: 27.22Lakhs	Recurring: 12.6Lakhs / year
8	New or Expansion	:	New	
9	Mineable Reserves	:	2,78,557.03 Cum	7,52,104Tonnes
10	Mine Life	:	5 Years	
11	Man power	:	24 persons	

12	Water Requirement	:	Total water requirement is about 13.84 KLD 0.84 KLD (Drinking & Domestic Uses) + 5.0 (Plantation) KLD + 8.0 KLD (Dust Suppression).
13	Water Source	:	The drinking water will be available from nearby village by tractor tank manually by labors at the site.
14	DG Set / power	:	125 KVA (Temporary setup for Backup)
15	Crusher	:	Not Proposed
16	Nearest Water Body	:	Chila nala is about 1.45 km in SSE direction. Bramhani River is about 9.25 km in N direction.
17	Nearest Habitation	:	Nearest habitation is about 0.650 km in W direction
18	Nearest Rail Station	:	PakdahaHarinsing Railway station is about 6.9 km in N direction.
19	Nearest Airport	:	Dumka Airport is about 32.0 km in W direction.
20	Nearest Forest	:	NA
21	Road & Highways	:	Unnamed road is about 0.25 km in N direction. Nearest NH –114A is 4.42 KM away from the mine site in N direction.

CO-ORDINATES

P.no	Latitude	Longitude	P.no	Latitude	Longitude
1	24° 10' 42.929" N	87° 34' 40.228" E	11	24° 10' 35.944" N	87° 34' 45.603" E
2	24° 10' 41.636" N	87° 34' 41.507" E	12	24° 10' 35.925" N	87° 34' 44.087" E
3	24° 10' 40.496" N	87° 34' 42.635" E	13	24° 10' 35.903" N	87° 34' 42.361" E
4	24° 10' 39.598" N	87° 34' 43.131" E	14	24° 10' 36.655" N	87° 34' 41.510" E
5	24° 10' 39.011" N	87° 34' 43.336" E	15	24° 10' 37.040" N	87° 34' 39.917" E
6	24° 10' 38.779" N	87° 34' 44.496" E	16	24° 10' 38.150" N	87° 34' 40.977" E
7	24° 10' 37.937" N	87° 34' 44.728" E	17	24° 10' 39.097" N	87° 34' 40.712" E
8	24° 10' 38.757" N	87° 34' 45.146" E	18	24° 10' 39.776" N	87° 34' 38.975" E
9	24° 10' 38.536" N	87° 34' 45.804" E	19	24° 10' 42.243" N	87° 34' 39 372" E
10	24° 10' 37.300" N	87° 34' 45.695" E			

LAND DETAILS

Khata no.	Plot no.
16, 20, 60, 32 & 33	905(P), 908(P), 909(P), 910, 911, 912(P), 918(P), 919, 920(P), 921(P)

2017

	& 922(P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Dumka vide letter no. 946/M, dated 12.08.2024.
2	CO	:	The CO, Shikaripara vide letter no. 433/Ra., dated 30.05.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Dumka vide memo no. 730/M, dated 28.06.2024 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	DFO, Wildlife Division, Hazaribag vide letter no. 779, dated 08.05.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Dumka Forest Division vide letter no. 1000, dated 27.04.2024 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Dumka District (Sl. no. 41, Page no. 157).
7	Gram Sabha	:	Gram Sabha conducted on 03.04.2024.
8	Mine Plan Approval	:	Approved by District Mining Officer, Dumka vide Memo No. 1211/M, dated 24.10.2024.
9	Qualified Person	:	Shri Vidya Bhushan Mishra vide letter no. MPDC/SEAC/136, dated 19.12.2024 affirmed that the mine plan has been prepared by him.

WORKING DETAILS

1	Mining Method	:	OCM &Semi-Mechanised	
2	Lease Area	:	5.19 ACRES / 2.100 HA	Life of Mine – 5 years
3	Waste Generation	:	5 years– 47650.20 Cum	
4	Stripping Ratio(t/m^3)	:	1:0.02	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	

7	Highest Elevation of lease Area	:	114mRL above MSL
8	Lowest Elevation of lease Area		107mRL above MSL
9	Ultimate Working Depth	:	30 m
10	Water Table	:	74 mRL
11	Topography of Mine	:	The mine area is hillocks
12	Explosive Requirement	:	21.26 kg
13	Diesel/Fuel requirement		388 Litres per day

PRODUCTION DETAILS

Year	Production of Stone in Cum	Production of Stone in Tonnes	Overburden in Cum	Intercalated waste in Cum	Total Waste in Cum
1st	53422.30	144240.21	13268.00	2811.70	16079.70
2nd	54777.00	147897.90	0.00	2883.00	**2883.00**
3rd	55860.00	150822.00	19725.00	2940.00	**22665.00**
4th	55860.00	154092.38	0	3003.75	**3003.75**
5th	57356.25	154861.88	0	3018.75	**3018.75**
Total	**278486.80**	**751914.36**	**32993.00**	**14657.20**	**47650.20**

LAND USE

Land Utilization	Existing Land use Hectares	At the end of plan period (Ha	At Conceptual period (Ha)
Excavation	0	1.550 (0.259ha area shall be Backfilled, 0.935ha converted in to water reservoir & 0.356ha shall be left as dead benches)	1.550 (0.259ha area shall be Backfilled, 0.935ha converted in to water reservoir & 0.356ha shall be left as dead benches)
Waste Dump	0	0.00 (waste dump to be removed and backfilled)	Nil (waste dump to be removed and backfilled)
Road	0	0.0 (comes under mining)	0
Infrastructure (Crusher)	0	0	0
Safety Zone Plantation	0	0.550	0.550
Total	0	2.100	2.100
Unused Area	2.100	0	0
Total Lease Area	**2.100**		

ENVIRONMENT MANAGEMENT

Green Belt Development

Year	Place of	Spacing	Total	Area Cover in Square	Total	Species

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	Plantation	b/w plants	No. of Plants	Meters	Area in Ha.	
1st	Safety Zone	2.5 x 2.5	880	5500	0.550	Neem, Peepal, Bargad, Jamun , Sakua **Fruit Bearing Trees** Mango, Jackfruit, Guava.
	Approach Road	3 x 3	308	230M Approach Road 5230/3=76.6 say 77 Plants 2row plantation of both side road 77x 4 =308Plant	0.230	
2nd	Care &Protection	---	---	---	---	
3rd	Care & Protection	---	---	---	---	
4th	Care & Protection	---	---	---	---	
5th	Care & Protection	---	---	---	---	
Total			**1188**	**5500**	**0.780**	

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Environment Management Budget

S. No.	Mitigative measures to protect Environment	Criteria Pollutants	Capital Cost (In Lakh)	Recurring cost (In Lakh)	Implementation Responsibility	Frequency and Method
1.	Water Sprinkling/Air pollution control(Dust Suppression along haulage road and mine) One Water Tanker	Dust (PM 10 & PM 2.5)	20.76	10.0	Mining Mate supervised by Mine Manager	Daily Basis/Requirement Basis Register/Log book
	Solid waste management	Municipal Solid by workers	0.50	0.1		Record maintain & coordination with vendors

2.	Green belt development safety zone 7.5mtr and along the road (for each plant including hedges and fences) @No. of plants 1188 x 500Rs.	No2,So2 & CO reduction Noise reduction	5.94	2.0	Mining Mate supervised by Mine Manager	Care taking@twice a week, Tree Inventory,
3.	Environment Monitoring (Air, Water, Noise& Soil Monitoring)	Deviation in Baseline	Nil	0.50	Outsource to NABL Accredited Lab-Monitored by Mine Manager	Mine Manager Review of base line as per monitoring plan proposed
	TOTAL		**27.22**	**12.6**		

Environment Monitoring Plan (post operation)

Monitoring Parameters and Frequency of Monitoring

S. no	Monitoring Parameters	No. of Locations	Frequency of Monitoring
1	Ambient Air: Ambient Air Quality at appropriate location for PM10, PM2.5, SO2, NOx In the vicinity of the mine area. In the surrounding area covering project site only.	2 Stations	Six Monthly
2	Water: Surface water sample in the vicinity of the Project area.	2 Surface water 2 Ground water	Six Monthly
3	Noise: Day & Night level Noise Monitoring.	4 stations	Six Monthly
4	Soil: Soil Monitoring, Qualitative and quantitative testing/analysis to check the soil fertility, porosity, texture, water holding capacity, etc.	2 station	Six Monthly

Solid Waste Management

The waste encountered during the mining operation is mainly. During Plan period gritty soil removed will be dumped at northern side with suitable precaution. Some quantity of the

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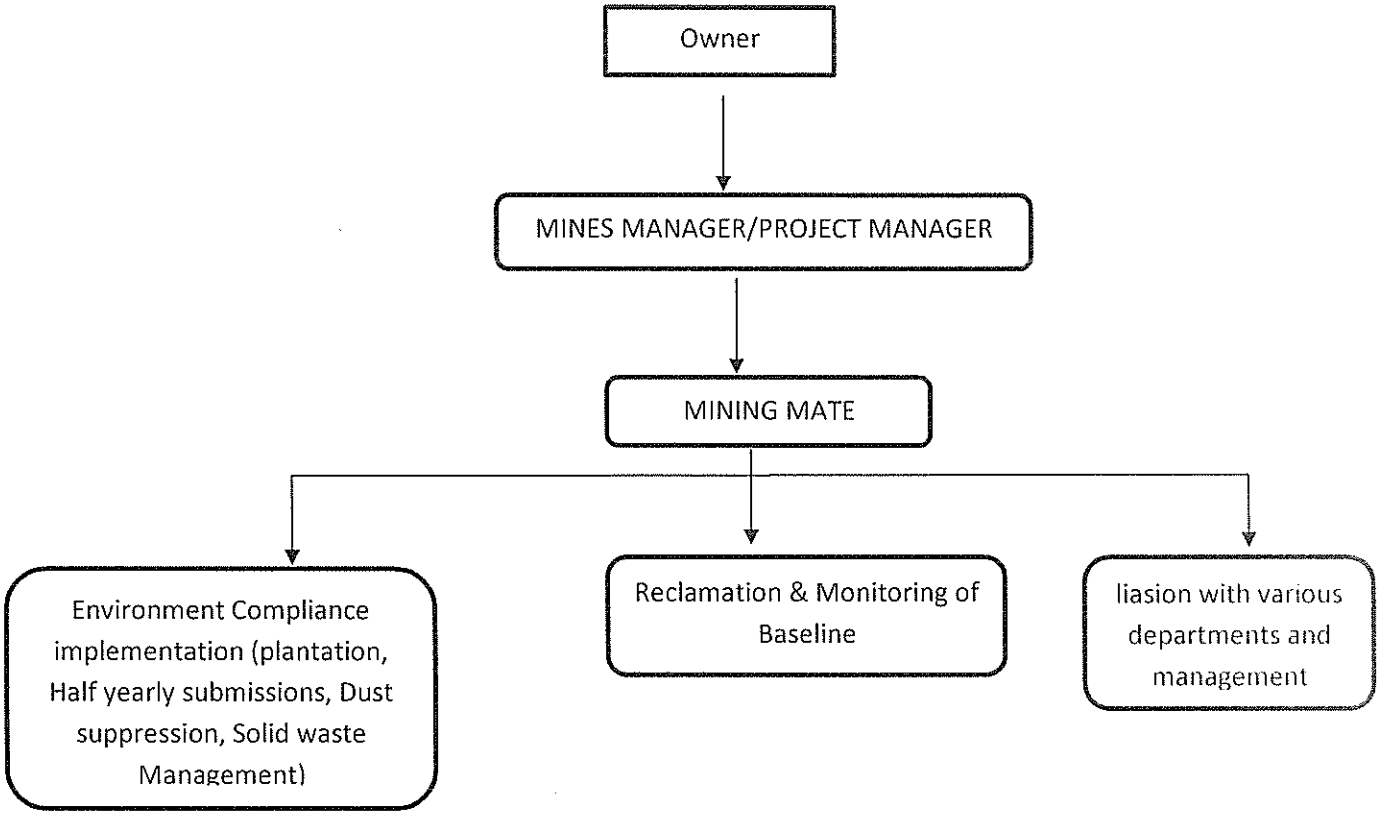
removed gritty soil would also be used for road dressing and plantation. After conceptual period de-stoned area of quarry will be reclaimed to the extent possible.

Organization chart for Environment Management Cell



- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

i. Use of Sharp Drill Bits

ii. Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

iii. Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced.
- Optimum quantity of explosives would be used.
- Blasting to be done during favourable weather conditions.

iv. Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.
v. Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.
vi. Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken:

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road.
- All Trucks carrying stone outside lease area will have PUC certificate

RISK ASSESSMENT

The hazard identification and risk analysis are done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: - *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.
The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to
Low-Risk Rank and hence the risk is "Acceptable"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the Following measures will be taken:

- Overall slope angles of benches will be maintained at 45°.
- Unmanageable heights are not created.

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- Loose sides are properly dressed.
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961).
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them. While others may need to work at or near the edge of a working bench the person most at risk during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

  Dust generation during drilling

  The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator.
- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation.
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement.

- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling. Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to over charging of the shot holes as a result of certain special features of the local ground. Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.

- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine.
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers.
- Explosives and detonators shall not be carried in the same container.
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the work place (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks /tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any in coming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge

of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required).
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Chandangaria Stone Deposit of M/s Varun Singh Sisodia Pvt. Ltd., Village : Chandangaria, Thana : Shikaripara, Distt. : Dumka, Jharkhand (2.10 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*EkPed Ma KeNaam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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3. **Matauli Stone Mine of M/s Om Enterprises (Prop. : Shri Shashikant Gupta), Village : Matauli, Thana : Chainpur, Thana no. : 73, Distt. : Palamau, Jharkhand (2.02 Ha).**

(Proposal no.: SIA/JH/MIN/ 512558 /2024)

Name of the consultant : Oceao – Enviro Management Solutions (India) Pvt. Ltd., Ghaziabad, U.P.

This is a new project which has been taken for appraisal on 20.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for: Proposed Capacity: 42,622 Cum Per Annum/142.07 Cum Per Day or 1,19,342 Ton Per Annum/ 397.80 Ton per Day.

Project and Location Details:

S. No	Parameter		Details	
1	Project Name	:	MatauliStone Mine of M/s Om Enterprises	
2	Proprietor	:	Shri Shashikant Gupta	
3	Lessee Address	:	R/o – Near Namdhari Gurudwara, Ward no – 22, Sai Chowk, Nawatoli, Daltonganj, District- Palamu, Jharkhand.	
4	Lease Area	:	Acres: 5.01	Ha:2.02
5	Type of Land	:	Raiyati Land	
6	Project Cost	:	43.00 Lakhs	
7	EMP Budget	:	Capital: 12.42Lakhs	Recurring: 3.1Lakhs / year
8	New or Expansion	:	New	
9	Mineable Reserves	:	4,69,455 Cum	13,14,474Tonnes
10	Mine Life	:	11 Years	
11	Man power	:	20 persons	
12	Water Requirement	:	Total water requirement is about 6.60 KLD = 0.60 KLD (Drinking & DomesticUses) + 3.0 (Plantation) KLD + 3.0 KLD (Dust Suppression).	
13	Water Source	:	The drinking water will be available from nearby village by tractor tank manually by labors at the site.	
14	DG Set / power	:	125 KVA (Temporary setup for Backup)	
15	Crusher	:	Not Proposed	
16	Nearest Water Body	:	Jhariwa Lake is about 10.08km in E direction. Tantawa Nadi is about 2.43 km in NW direction.	
17	Nearest Habitation	:	Matauliis about 0.53 km in NNE direction	
18	Nearest Rail Station	:	Dalton Ganj Railway station is about 26.31 km in ENE direction.	
19	Nearest Airport	:	Gaya International Airport is about 142.81 km in NE direction.	
20	Nearest Forest	:	Pachlewa P.F. – 7.96 – ENE Mugdah P.F. – 7.39 – WSW Jolanga P.F. – 9.31 – S	

21	Road & Highways	:	Ranka Medininagar Road is about 5.17 km in N direction. Nearest NH –343 is 6.39 KM away from the mine site in WNW direction.

CO-ORDINATES

S.No	Latitude	Longitude	S.No	Latitude	Longitude
1	23° 57' 14.167" N	83° 49' 44.341" E	25	23° 57' 6.937" N	83° 49' 54.329" E
2	23° 57' 14.077" N	83° 49' 44.889" E	26	23° 57' 6.291" N	83° 49' 54.393" E
3	23° 57' 13.615" N	83° 49' 44.902" E	27	23° 57' 6.312" N	83° 49' 53.819" E
4	23° 57' 12.951" N	83° 49' 45.758" E	28	23° 57' 6.209" N	83° 49' 53.130" E
5	23° 57' 12.047" N	83° 49' 47.532" E	29	23° 57' 6.646" N	83° 49' 52.564" E
6	23° 57' 11.585" N	83° 49' 47.866" E	30	23° 57' 7.319" N	83° 49' 51.793" E
7	23° 57' 11.041" N	83° 49' 47.673" E	31	23° 57' 8.318" N	83° 49' 50.775" E
8	23° 57' 11.096" N	83° 49' 48.148" E	32	23° 57' 8.998" N	83° 49' 50.251" E
9	23° 57' 11.889" N	83° 49' 47.870" E	33	23° 57' 9.627" N	83° 49' 49.840" E
10	23° 57' 12.600" N	83° 49' 48.136" E	34	23° 57' 9.370" N	83° 49' 48.530" E
11	23° 57' 12.433" N	83° 49' 49.086" E	35	23° 57' 9.434" N	83° 49' 48.024" E
12	23° 57' 12.180" N	83° 49' 49.635" E	36	23° 57' 9.045" N	83° 49' 47.630" E
13	23° 57' 12.360" N	83° 49' 49.866" E	37	23° 57' 9.383" N	83° 49' 46.469" E
14	23° 57' 12.248" N	83° 49' 50.624" E	38	23° 57' 10.017" N	83° 49' 46.949" E
15	23° 57' 11.670" N	83° 49' 51.296" E	39	23° 57' 10.480" N	83° 49' 46.988" E
16	23° 57' 10.120" N	83° 49' 51.104" E	40	23° 57' 10.475" N	83° 49' 46.649" E
17	23° 57' 9.589" N	83° 49' 52.243" E	41	23° 57' 9.863" N	83° 49' 46.153" E
18	23° 57' 8.522" N	83° 49' 52.076" E	42	23° 57' 10.342" N	83° 49' 45.985" E
19	23° 57' 8.085" N	83° 49' 52.933" E	43	23° 57' 11.229" N	83° 49' 45.189" E
20	23° 57' 7.738" N	83° 49' 52.813" E	44	23° 57' 11.850" N	83° 49' 44.696" E
21	23° 57' 7.841" N	83° 49' 52.384" E	45	23° 57' 11.961" N	83° 49' 44.105" E
22	23° 57' 7.417" N	83° 49' 52.663" E	46	23° 57' 12.771" N	83° 49' 44.272" E
23	23° 57' 7.409" N	83° 49' 53.087" E	47	23° 57' 13.607" N	83° 49' 44.262" E
24	23° 57' 7.391" N	83° 49' 53.344" E			

LAND DETAILS

Khata no.	Plot no.
25	301
39	300 & 561

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Palamau vide letter no. 116/M, dated 17.01.2023.
2	CO	:	The CO, Chainpur, Palamau vide letter no. 895, dated 10.12.2022 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan & Register II.
3	DMO	:	DMO, Palamau vide memo no. 256/M, dated 01.02.2023 certified that no other mining lease area exists within 500 meters radius from proposed project site.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, North Division, Medininagar vide letter no. 285, dated 06.03.2023 certified that the proposed project site is outside Eco Sensitive Zone of Palamau Tiger Project.
5	DFO Territorial	:	Division Forest Officer, Garhwa South Forest Division vide letter no. 2818, dated 07.12.2022 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Palamau District (Sl. no. 03, Page no. 102).
7	Gram Sabha	:	BDO, Chainpur, Palamau vide letter no. 24, dated 07.01.2023 informed that Gram Sabha conducted on 07.01.2023.
8	Mine Plan Approval	:	Approved by Assistant Mining Officer, Garhwa vide Memo No. 872/M, dated 28.06.2023.
9	Qualified Person	:	Md. Tauseef Warsi was present in the meeting and affirmed that the mine plan has been prepared by him.

WORKING DETAILS

1	Mining Method	:	OCM &Semi-Mechanised

2	Lease Area	:	5.01 ACRES / 2.02 HA	Life of Mine – 11 years
3	Waste Generation	:	5 years– 2215 Cum	
4	Stripping Ratio(t/m^3)	:	1:0.01	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Highest Elevation of lease Area	:	321MSL	
8	Lowest Elevation of lease Area		320 MSL	
9	Ultimate Working Depth	:	297 MSL	
10	Water Table	:	285 MSL	
11	Topography of Mine	:	almost flat land with hillocks	
12	Explosive Requirement	:	150 kg	
13	Diesel/Fuel requirement		388 Litres per day	

PRODUCTION DETAILS

Year	Generation of Waste/O. B in cum	Production of Stone in Cum	Production of Stone in Tonnes	Grade/Uses
1st	821	42408	118742	Crusher
2nd	680	42560	119168	Crusher
3rd	410	42593	119260	Crusher
4th	304	42525	119070	Crusher
5th	00	42622	119342	Crusher
Total	**2215**	**212708**	**595582**	
Maximum production proposed in- 2215 Cum/595582Ton				
Stripping Ration in (t/m3)- 1:0.003				

LAND USE

LAND USE PATTERN			
	Existing	First to Fifth Years	After Life of Mine
Category	Area in Hectares	Area in Hectares	Area in Hectares
Quarry	0.00	1.24	1.25 (Rain water Harvesting)
Haul Road	0.00	0.01	0.00
Proposed Crusher	0.00	0.00	0.00
Over Burden	0.00	Over Burden will be used for plantation and road dressing	Over Burden will be used for plantation and road dressing
Green belt in Safety Zone	0.00	0.77	0.77
Total area in use	**0.00**	**2.02**	**2.02**

Balance unused area	0.00	0.00	0.00
Balance used area	0.00	0.00	0.00
Total Applied Lease Area	**2.02**	**2.02**	**2.02**

ENVIRONMENT MANAGEMENT

Green Belt Development

Year	Place of Plantation	Spacing b/w plants	Total No. of Plants	Area Cover in Square Meters	Total Area in Ha.	Species
1st	Safety Zone	2.5 x 2.5	1232	7700	0.77	Pipal Bargad Palash Fruit Bearing Trees Mango, Jackfruit, Guava, Jamun
	Haul Road	2.5 x 2.5	712	445M Approach Road 445/2.5 = 178Plants 178 x 4 = 712Plant		
2nd	Care & Protection	---	---	---	---	
3rd	Care & Protection	---	---	---	---	
4th	Care & Protection	---	---	---	---	
5th	Care & Protection	---	---	---	---	
Total			**1944**	**7700**	**0.77**	

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Environment Management Budget

PROPOSED FOR ENVIRONMENT MANAGEMENT COST						
S. No.	Mitigative measures to protect Environment	Criteria Pollutants	Capital Cost (In Lakh)	Recurring cost (In Lakh)	Implementation Responsibility	Frequency and Method
1.	Water Sprinkling/Air pollution control (Dust Suppression along haulage road and mine) One Water Tanker	Dust (PM 10 & PM 2.5)	2.2	1.5	Mining Mate supervised by Mine Manager	Daily Basis/Requirement Basis Register/Log book

	Solid waste management	Municipal Solid by workers	0.5	0.1		Record maintain & coordination with vendors
2.	Green belt development safety zone 7.5mtr and along the road (for each plant including hedges and fences) @No. of plants 1944 x 500Rs.	No2,So2 & CO reduction Noise reduction	9.72	1.0	Mining Mate supervised by Mine Manager	Care taking@twice a week, Tree Inventory,
3.	Environment Monitoring (Air, Water, Noise& Soil Monitoring)	Deviation in Baseline	Nil	0.50	Out source to NABL Accredited Lab-Monitored by Mine Manager	Mine Manager Review of base line as per monitoring plan proposed
	TOTAL		**12.42**	**3.1**		

Responsibility of Environment Management cell

- Supervision: Managed by Mines Manager with a qualified technical team.
- Personnel: Includes skilled, semi-skilled, unskilled, and other third parties.
- Responsibilities:
  - ✓ Implement environmental control measures.
  - ✓ Oversee reclamation planning and management.
  - ✓ Manage air and water pollution control.
  - ✓ Liaise with state and central statutory agencies.
  - ✓ Develop greenbelt areas.
- Performance Review: Assess corporate environmental performance and report non-compliances.
- Remedial Actions: Suggest and implement actions for exceeding pollution limits.
- Coordination:

Collect health statistics for workers and local population.

Act as a bridge for project implementation and Project Authorities

Facilitate afforestation efforts.

Environment Monitoring Plan (post operation)

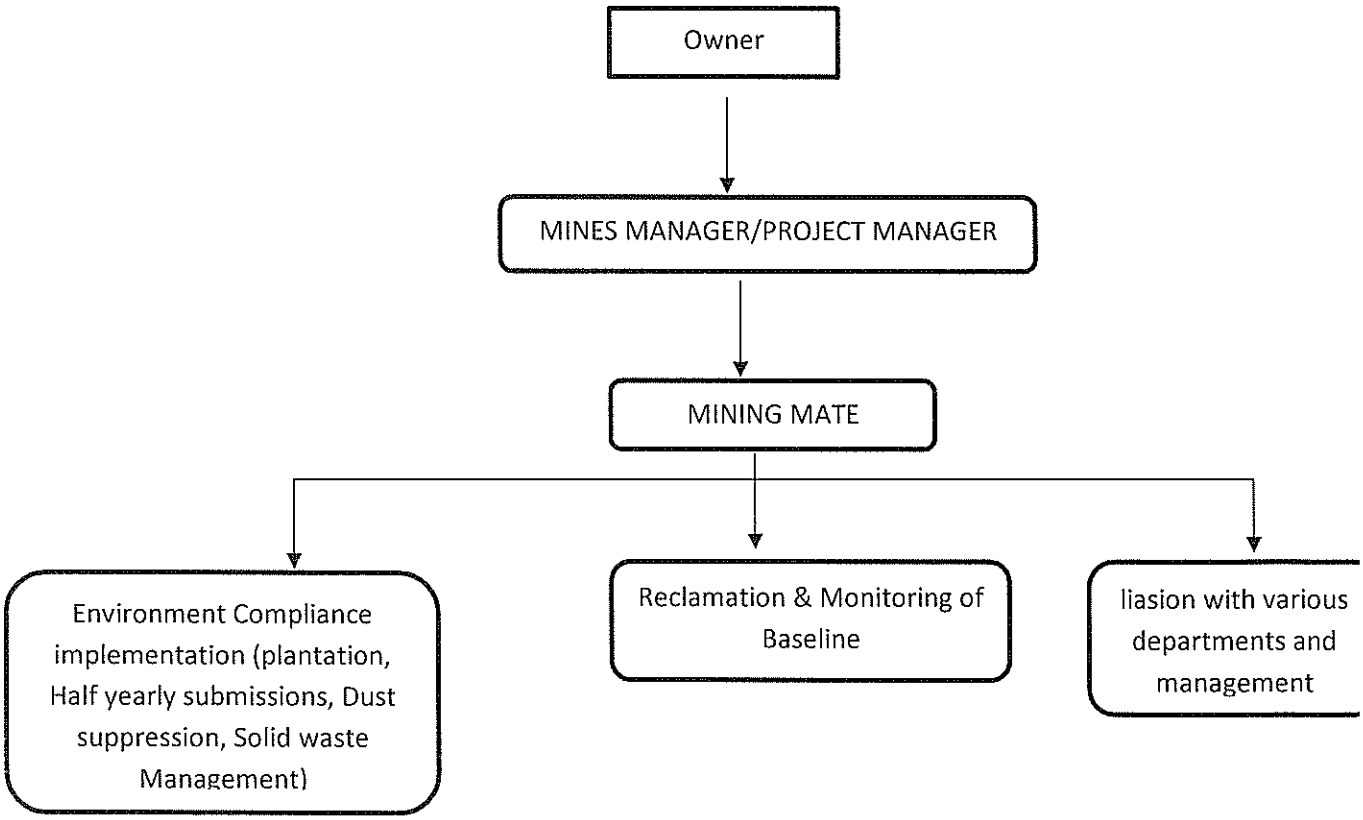
Monitoring Parameters and Frequency of Monitoring

S. no	Monitoring Parameters	No. of Locations	Frequency of Monitoring
1	Ambient Air: Ambient Air Quality at appropriate location for PM10, PM2.5, SO2, NOx In the vicinity of the mine area. In the surrounding area covering project site only.	2 Stations	Six Monthly
2	Water: Surface water sample in the vicinity of the Project area.	2 Surface water 2 Ground water	Six Monthly
3	Noise: Day & Night level Noise Monitoring.	4 stations	Six Monthly
4	Soil: Soil Monitoring, Qualitative and quantitative testing/analysis to check the soil fertility, porosity, texture, water holding capacity, etc.	2 station	Six Monthly

Solid Waste Management

The waste encountered during the mining operation is mainly. During Plan period gritty soil removed will be dumped at northern side with suitable precaution. Some quantity of the removed gritty soil would also be used for road dressing and plantation. After conceptual period de-stoned area of quarry will be reclaimed to the extent possible.

Organization chart for Environment Management Cell



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

i. Use of Sharp Drill Bits

ii. Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

iii. Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced.
- Optimum quantity of explosives would be used.
- Blasting to be done during favourable weather conditions.

iv. Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

v. Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

vi. Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken:

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road.
- All Trucks carrying stone outside lease area will have PUC certificate

RISK ASSESSMENT

The hazard identification and risk analysis are done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6

4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: - *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.
The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to
Low-Risk Rank and hence the risk is "Acceptable"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the Following measures will be taken:

- Overall slope angles of benches will be maintained at 45°.
- Unmanageable heights are not created.
- Loose sides are properly dressed.
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961).
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them. While others may need to work at or near the edge of a working bench the person most at risk during the drilling operation is the driller. Others such as the manager of the mine or

maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

  Dust generation during drilling

  The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator.
- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation.
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement.
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling. Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to over charging of the shot holes as a result of certain special features of the local ground. Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine.
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers.
- Explosives and detonators shall not be carried in the same container.
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the work place (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks /tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any in coming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required).
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Matauli Stone Mine of M/s Om Enterprises (Prop. : Shri Shashikant Gupta), Village : Matauli, Thana : Chainpur, Thana no. : 73, Distt. : Palamau, Jharkhand (2.02 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*EkPed Ma KeNaam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.
III. Suitable plant species of not less than 2 M height to be planted equal to twice the

area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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4. **Bindua Stone Mine of M/s Jay Baba Bholenath (Partner : Shri Sanjay Singh), Village : Bindua, Thana : Utari Road, Thana no. : 04, Distt. : Palamau, Jharkhand (2.15 Ha).**

(Proposal no.: SIA/JH/MIN/ 514219 /2024)

Name of the consultant : Oceao – Enviro Management Solutions (India) Pvt. Ltd., Ghaziabad, U.P.

This is a new project which has been taken for appraisal on 20.12.2024.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC).

EC Application for Proposed Capacity: 42419 Cum Per Annum or 118773 Ton Per Annum and Daily Production 141.39 Cum Per Day or 395.91 Ton Per Day

Project and Location Details:

S. No	Parameter		Details
1	Project Name	:	Bindua Stone Mine
2	Applicant	:	M/s Jay Baba Bholenath, Partner- Shri Sanjay Singh and Ajit Kumar Singh
3	Lessee Address	:	R/o- Village- Karmakala, Thana-Chhatarpur, District-

			Palamu, Jharkhand-822113.	
4	Lease Area	:	Ha: 2.15	Acres: 5.30
5	Type of Land	:	Raiyati Land	
6	Project Cost	:	36 Lakhs	
7	EMP Budget	:	Capital: 9.3 Lakhs	Recurring: 3.3 Lakhs / year
8	New or Expansion	:	New	
9	Mineable Reserves	:	4,44,856Cum	12,45,597 Tonnes
10	Mine Life	:	10.5 Years	
11	Man power	:	20 persons	
12	Water Requirement	:	Total water requirement is about 6.60 KLD=0.60 KLD (Drinking & Domestic Uses) + 3.0 (Plantation) KLD + 3.0 KLD (Dust Suppression).	
13	Water Source	:	The drinking water will be available from nearby village by tractor tank manually by labors at the site.	
14	DG Set / power	:	125 KVA (Temporary setup for Backup)	
15	Crusher	:	Not Proposed	
16	Nearest Water Body	:	Banki Nadi is about 0.54 km in N direction.	
17	Nearest Habitation	:	Bindua is about 0.74 km in SW direction.	
18	Nearest Rail Station	:	Karkatta Railway Station is about 3.74 km in WSW direction.	
19	Nearest Airport	:	Gaya International Airport is about 118.37 km in NE direction.	
20	Nearest Forest	:	Gaurletwa PF — 4.98 — N Chhipadohar PF — 12.46 — ESE Siho PF — 13.62 — SW Kothalapahad PF — 12.21 — SE Khaira PF — 7.26 — ENE	
21	Road & Highways	:	Bisrampur Pandu Road is about 6.75 km in ESE direction. Haidarnagar Road is about 6.47 km in WNW direction.	

CO-ORDINATES

PILLARS	LATITUDE	LONGITUDE
1	24°18'52.36"N	83°52'17.87"E
2	24°18'53.36"N	83°52'17.94"E
3	24°18'53.57"N	83°52'18.87"E
4	24°18'54.50"N	83°52'19.03"E
5	24°18'54.73"N	83°52'20.23"E
6	24°18'53.00"N	83°52'21.00"E

7	24°18'52.3"N	83°52'22.03"E
8	24°18'51.81"N	83°52'22.34"E
9	24°18'51.04"N	83°52'23.36"E
10	24°18'50.17"N	83°52'24.37"E
11	24°18'48.98"N	83°52'23.90"E
12	24°18'49.76"N	83°52'22.44"E
13	24°18'49.34"N	83°52'22.09"E
14	24°18'48.79"N	83°52'21.49"E
15	24°18'47.16"N	83°52'20.41"E
16	24°18'47.21"N	83°52'18.91"E
17	24°18'47.31"N	83°52'18.20"E
18	24°18'48.74"N	83°52'18.66"E
19	24°18'49.99"N	83°52'19.12"E
20	24°18'50.09"N	83°52'18.52"E
21	24°18'51.33"N	83°52'18.81"E
22	24°18'52.00"N	83°52'19.00"E

LAND DETAILS

Khata no.	Plot no.
187	12 (P) & 14 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	The Letter of Intent (LoI) has been issued by District Mining Officer, Palamau vide letter no. 1509/M, dated 05.07.2023.
2	CO	:	The CO, Utari Road vide letter no. 143, dated 19.05.2023 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan.
3	DMO	:	DMO, Palamau vide memo no. 186/M, dated 05.02.2024 certified that no other mining lease area exists within 500 meters radius

			from proposed project site.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, North Division, Medininagar vide letter no. 994, dated 15.09.2023 certified that the proposed project site is outside Eco Sensitive Zone of Palamau Tiger Project.
5	DFO Territorial	:	Division Forest Officer, Medininagar Forest Division vide letter no. 1995, dated 23.06.2023 certified that the distance of reserved / protected forest is more than 250 meters from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Palamau District (Sl. no. 07, Page no. 103).
7	Gram Sabha	:	BDO, Utari Road, Palamau vide letter no. 512, dated 19.05.2023 informed that Gram Sabha conducted on 17.05.2023.
8	Mine Plan Approval	:	Approved by District Mining Officer, Palamau vide Letter No. 1592/M, dated 20.07.2023.
9	Qualified Person	:	Md. Tauseef Warsi was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	OCM &Semi-Mechanised	
2	Lease Area	:	5.30 ACRES /2.15 HA	Life of Mine – 10.5 years
3	Waste Generation	:	5 years– 16831 Cum	
4	Stripping Ratio(t/m^3)	:	1:0.01	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Highest Elevation of lease Area	:	201Amsl	
8	Lowest Elevation of lease Area		200Amsl	
9	Ultimate Working Depth	:	176 Amsl	
10	Water Table	:	165 Amsl (35 BGL)	
11	Topography of Mine	:	Almost flat land with two hillocks	
12	Explosive Requirement	:	50kg/Day	
13	Diesel/Fuel requirement		548Litres per day	

Production Details

Year	Generation of Waste/O. B in cum	Production of Stone in Cum	Production of Stone in Tonnes	Grade/Uses
1st	11711	42363	118616	Construction & Road

2nd	5120	42346	118569	Construction &Road
3rd	00	42328	118518	Construction & Road
4th	00	42419	118773	Construction & Road
5th	00	42360	118608	Construction & Road
(A)	**16831**	**211816**	**593084**	

Land Use

LAND USE PATTERN			
	Existing	First to Fifth Years	After Life of Mine
Category	Area in Hectares	Area in Hectares	Area in Hectares
Quarry	0.00	0.78	1.60 (rain water harvesting)
Haul Road	0.00	0.02	0.00
Proposed Crusher	0.00	0.00	0.00
Green belt in Safety Zone	0.00	0.55	0.55
Total area in use	0.00	1.35	2.15
Balance unused area	2.15	0.80	0.00
Balance used area	0.00	0.00	0.00
Total Applied Lease Area	2.15	2.15	2.15

ENVIRONMENT MANAGEMENT

Green Belt

Development

Year	Place of Plantation	Spacing b/w plants	Total No. of Plants	Area Cover in Square Meters	Total Area in Ha.	Species
1st	Safety Zone	2.5 x 2.5	880	5500	0.55	Neem, Peepal, Bargad, Jamun ,Sakua Fruit Bearing Trees Mango, Jackfruit, Amrud.
	Haul Road	2.5 x 2.5	240	150 M Approach Road 150/2.5 = 60 Two row Plantation both side 60 x 4 =240 Plant		
2nd	Care &Protection	---	---	---	---	
3rd	Care & Protection	---	---	---	---	
4th	Care & Protection	---	---	---	---	
5th	Care & Protection	---	---	---	---	
Total			**1120**	**5500**	**0.55**	

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development,

Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Environment Management Budget

PROPOSED FOR ENVIRONMENT MANAGEMENT COST						
S. No.	Mitigative measures to protect Environment	Criteria Pollutants	Capital Cost (In Lakh)	Recurring cost (In Lakh)	Implementation Responsibility	Frequency and Method
1.	Water Sprinkling/Air pollution control (Dust Suppression along haulage road and mine) One Water Tanker	Dust (PM 10 & PM 2.5)	2.1	1.4	Mining Mate supervised by Mine Manager	Daily Basis/Requirement Basis Register/Log book
	Solid waste management	Municipal Solid by workers	0.1	0.1		Record maintain & coordination with vendors
2.	Green belt development safety zone 7.5mtr and along the road (for each plant including hedges and fences) @No. of plants 1120 x 500Rs.	No2,So2 & CO reduction Noise reduction	5.60	1.0	Mining Mate supervised by Mine Manager	Care taking@twice a week, Tree Inventory,
3.	Environment Monitoring (Air, Water, Noise& Soil Monitoring)	Deviation in Baseline	Nil	0.30	Out source to NABL Accredited Lab-Monitored by Mine Manager	Mine Manager Review of base line as per monitoring plan proposed
4.	Solar light installed in Village Bindua 10 Pcs @ 15000		1.5	0.30		
	TOTAL		**9.3**	**3.3**		

Environment Monitoring Plan (post operation)

Monitoring Parameters and Frequency of Monitoring

S. no	Monitoring Parameters	No. of Locations	Frequency of Monitoring
1	Ambient Air: Ambient Air Quality at appropriate location for PM10, PM2.5, SO2, NOx In the vicinity of the mine area. In the surrounding area covering project site only.	2 Stations	Six Monthly
2	Water: Surface water sample in the vicinity of the Project area.	2 Surface water 2 Ground water	Six Monthly
3	Noise: Day & Night level Noise Monitoring.	4 stations	Six Monthly
4	Soil: Soil Monitoring, Qualitative and quantitative testing/analysis to check the soil fertility, porosity, texture, water holding capacity, etc.	2 station	Six Monthly

Function of Environment Management Cell

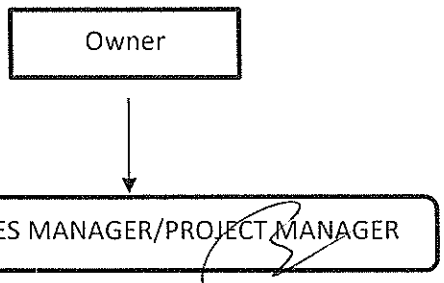
- ❑ Supervision: Managed by Mines Manager with a qualified technical team.
- ❑ Personnel: Includes skilled, semi-skilled, unskilled, and other third parties.
- ❑ Responsibilities:
  - ✓ Implement environmental control measures.
  - ✓ Oversee reclamation planning and management.
  - ✓ Manage air and water pollution control.
  - ✓ Liaise with state and central statutory agencies.
  - ✓ Develop greenbelt areas.
- ❑ Performance Review: Assess corporate environmental performance and report non-compliances.
- ❑ Remedial Actions: Suggest and implement actions for exceeding pollution limits.
- ❑ Coordination:

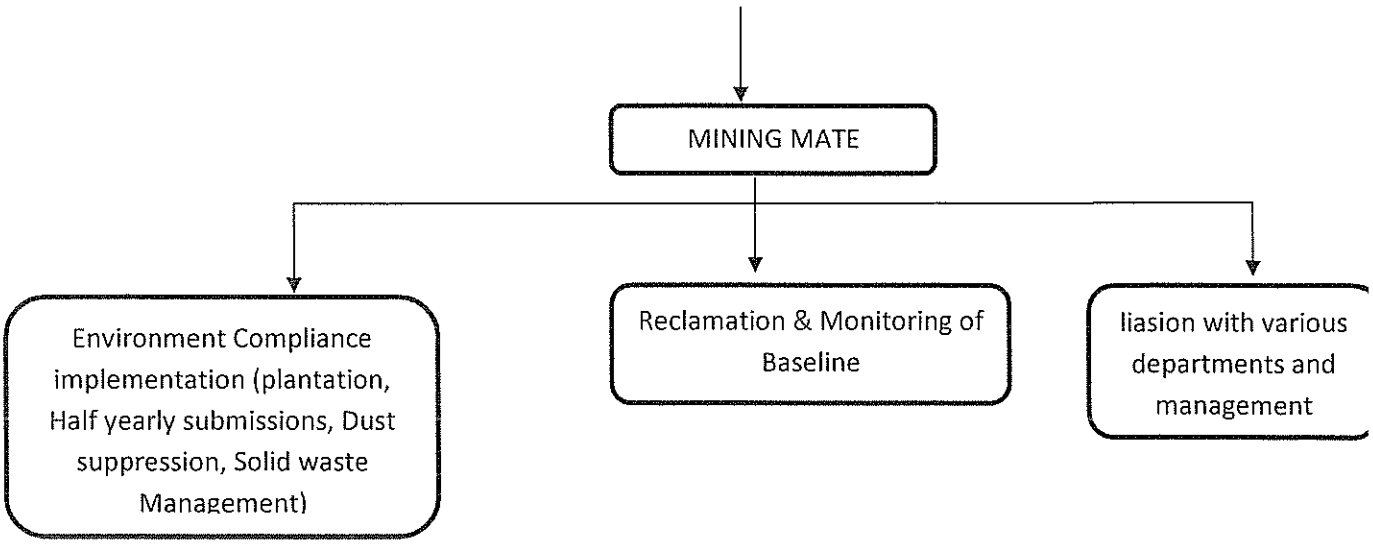
Collect health statistics for workers and local population.

Act as a bridge for project implementation and Project Authorities

Facilitate afforestation efforts.

Organization chart for Environment Management Cell





Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

i. Use of Sharp Drill Bits

ii. Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

iii. Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced.
- Optimum quantity of explosives would be used.
- Blasting to be done during favourable weather conditions.

iv. Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

v. Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

vi. Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken:

- Regular water sprinkling on Gaul road by using water Tankers.

- Regular repair of Haul road.
- All Trucks carrying stone outside lease area will have PUC certificate

RISK ASSESSMENT

The hazard identification and risk analysis are done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: - *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.

The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to

Low-Risk Rank and hence the risk is "Acceptable"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the Following measures will be taken:

- Overall slope angles of benches will be maintained at 45°.
- Unmanageable heights are not created.
- Loose sides are properly dressed.
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961).
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them. While others may need to work at or near the edge of a working bench the person most at risk during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

  Dust generation during drilling

  The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator.
- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation.
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement.
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling. Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to over charging of the shot holes as a result of certain special features of the local ground. Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.

- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine.
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers.
- Explosives and detonators shall not be carried in the same container.
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the work place (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks /tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any in coming

vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required).
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.

k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Bindua Stone Mine of M/s Jay Baba Bholenath (Partner : Shri Sanjay Singh), Village : Bindua, Thana : Utari Road, Thana no. : 04, Distt. : Palamau, Jharkhand (2.15 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"EkPed Ma KeNaam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

II. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

III. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

IV. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

V. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VI. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

VIII. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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5. **Nawadih Stone Mine of Shri Bishwanath Prasad, Village : Nawadih, Thana : Nawadih Bazar, Distt. : Palamau, Jharkhand (4.65 Ha).**

(Proposal no.: SIA/JH/MIN/ 503579 /2024)

Name of the consultant : Oceao – Enviro Management Solutions (India) Pvt. Ltd., Ghaziabad, U.P.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC) (re-appraisal of Environment Clearance issued by DEIAA, Palamau).

The project has been granted EC by DEIAA, Palamau vide letter no. EC/DEIAA/2016-17/22, dated 29.05.2017.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Palamau which has been taken up for consideration on 20.12.2024. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B2.

Existing baseline condition as per monitoring report submitted by PP is as follows PM10 -96 $\mu g/m^3$PM 2.5-567 $\mu g/m^3$ SO2-18.2 NO2- 19.0 $\mu g/m^3$ · All the data are within the permissible limit.

Dust suppression is being carried out on regular basis.

Greenbelt Developed.

As per compliance report of JSPCB regarding previous EC, plantation has been done in safety zone.

Production detail as per memo no. 2687, dated 02.12.2024 by DMO, Palamau is within the permissible limit of EC.

The compliance report of previous EC has been issued by JSPCB, Regional Office, Dhurwa vide letter no. 1543, dated 09.12.2024.

The SEAC has found that the certification of the compliance of the conditions of previous EC is not appropriate with respect to the following :-

i. There is no clarity on the status of execution of compliance and no details have been provided.
ii. The word "AGREED" has been mentioned as compliance status of many of the conditions.This has been written without the consent of the project authorities.
iii. The date of inspection has not been specified in the CCR.

Hence, the Committee decided to obtain a self certified compliance report along with the supporting details as evidence of execution.

The self certified compliance report was presented before the Committee 21.12.2024.

EC Application for: Proposed Capacity: 118800 cum Per Annum/396 cum Per Day or 356400 Ton per Annum/ 1188 Ton per Day.

Project and Location Details:

S. No	Parameter		Details	
1	Project Name	:	Nawadih Stone Mine	
2	Proprietor	:	Shri Bishwanath Prasad	
3	Lessee Address	:	R/O-98 Charai-N, Chhattarpur, P.O-Charai Distt-Palamu, Jharkhand pin code-822113	
4	Lease Area	:	Ha: 4.65	Acres: 11.50
5	Type of Land	:	Raiyati Land	
6	Project Cost	:	55 Lakhs	
7	EMP Budget	:	Capital: 32.41 Lakhs	Recurring: 8.5 Lakhs / year
8	New or Expansion	:	New (Re-appraisal of DEIAA EC)	
9	Mineable Reserves	:	11,79,109.7 Cum	35,37,329 Tonnes
10	Mine Life	:	Upto Lease period: 04/09/2017 to 03/09/2027	
11	Man power	:	32 persons	
12	Water Requirement	:	Total water requirement is about 13.0 KLD=0.96 KLD (Drinking & Domestic Uses) + 5 (Plantation) KLD + 7.04 KLD (Dust Suppression).	
13	Water Source	:	The drinking water will be available from nearby village by tractor tank manually by labors at the site.	
14	DG Set / power	:	125 KVA (Temporary setup for Backup)	
15	Crusher	:	Not Proposed	
16	Nearest Water Body	:	Manandohar Pond is about 0.83 km in NNE direction.	
17	Nearest Habitation	:	Nawadih is about 0.19 km in S direction	
18	Nearest Rail Station	:	Japla Railway Station is about 36.7 km in WNW direction.	
19	Nearest Airport	:	Gaya International Airport is about 74.8 km in NE direction.	
20	Nearest Forest	:	Kekrahi Forest: 11.21 SE; Chhatarpur East PF: 12.06 S; Chhuchhia Jungle: 13.46 N	
21	Road & Highways	:	SH-69 is about 7.37 km in NNE direction. Chhatarpur Road is about 2.49 km in WSW direction.	

CO-ORDINATES

S. No.	Latitude	Longitude
1	24°22'44.880"N	84°19'14.390"E
2	24°22'44.860"N	84°19'16.310"E
3	24°22'44.820"N	84°19'18.250"E
4	24°22'44.790"N	84°19'19.820"E
5	24°22'43.380"N	84°19'19.830"E
6	24°22'41.170"N	84°19'19.770"E

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7	24°22'38.960"N	84°19'19.770"E
8	24°22'37.060"N	84°19'19.810"E
9	24°22'36.960"N	84°19'16.580"E
10	24°22'36.880"N	84°19'13.090"E
11	24°22'39.070"N	84°19'13.020"E
12	24°22'42.290"N	84°19'13.030"E
13	24°22'44.890"N	84°19'13.040"E

LAND DETAILS

Khata no.	Plot no.
21	194 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	i. The Letter of Intent (LoI) has been issued by District Mining Officer, Palamau vide letter no. 963/M, dated 04.09.2017. ii. Lease Deed- 14.11.2017 to 13.11.2027.
2	CO	:	The CO, Naudiha Bazar, Palamau vide letter no. 186, dated 14.08.2015 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan.
3	DMO	:	DMO, Palamau vide memo no. 1460/M, dated 08.07.2024 certified that no other mining lease area exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, South Division, Medininagar vide letter no. 558, dated 13.07.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palamau Tiger Reserve.
5	DFO Forest Distance	:	Division Forest Officer, Medininagar Forest Divisioin vide memo no. 864, dated 17.03.2016 certified that the distance of forest land is more than 250 meter from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Palamau District (Sl. no. 23, Page no. 69).
7	Gram Sabha	:	Gram Sabha conducted on 26.10.2016.
8	Mine Plan	:	Mining scheme approved by Additional Director, Geology,

	Approval		Hazaribag vide Memo No. 95/G, dated 31.03.2022.
9	Previous Environmental Clearance (EC)	:	Previous EC granted by DEIAA, Palamau vide letter no. EC/DEIAA/2016-17/22, dated 29.05.2017.
10	Compliance report of EC	:	EC compliance report issued by JSPCB, Regional Office, Dhurwa vide letter no. 1543, dated 09.12.2024.
11	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. JSPCB/HO/RNC/CTE-2072042 /2018 /187, dated 14.02.2018.
12	Consent to Operate (CTO)	:	CTO issued by JSPCB vide ref. no. : JSPCB/RO/RNC/CTO-18722256 /2024/44, dated 07.04.2024.
13	Production Report	:	Production report issued by DMO, Palamau vide memo no. 2687, dated 02.12.2024.
9	Qualified Person	:	Md. Tauseef Warsi was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	OCM & Semi-Mechanised	
2	Lease Area	:	11.50 ACRES /4.65 HA	Life of Mine – Upto Lease period: 04/09/2017 to 03/09/2027
3	Waste Generation	:	5 years– 66,000	
4	Stripping Ratio(t/m^3)	:	1:16.	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Highest Elevation of lease Area	:	274mRL	
8	Lowest Elevation of lease Area		270 mRL	
9	Ultimate Working Depth	:	240m	
10	Water Table	:	234mRL	
11	Topography of Mine	:	elliptically isolated hills with gentle to sudden steep slope.	
12	Explosive Requirement	:	14 kg slurry explosives (1 hole)	
13	Diesel/Fuel requirement		440 Litres per day	

Production Details

Year Wise	Weathered rock	Exploitation of Mineral	Saleable Quantities	Soil (Cum)	Mineral reject	Grade

	(cum)		of stone			
2022-23	00	1,18,800	3,56,400	00	Nil	Construction, Road
2023-24	00	1,18,800	3,56,400	00	Nil	Construction, Road
2024-25	00	1,18,800	3,56,400	00	Nil	Construction, Road
2025-26	00	1,18,800	3,56,400	00	Nil	Construction, Road
2026-27	00	1,18,800	3,56,400	00	Nil	Construction, Road
Total	**00**	**5,94,000**	**17,82,000**	**00**		

Land Use

The mined out area and reclamation / rehabilitation as on date, at the end of plan period and at the end of conceptual period is as below.

Existing Land Use Pattern	
Category	**Area in Ha.**
Quarry	2.35
Crusher	Nil
Safety Zone	0.62
Road	0.03
Total Area in Used	3.0
Balance Area Unused	1.65
Total Area	**4.65**

Land Use pattern after first to fifth years plan period	
Category	**Area in Ha.**
Quarry	4.0
Crusher	0.00
Haul Road	0.03
Dump	0.00
Parapet Wall	0.00
Garland Drain	0.00
Green Belt on Safety Zone	0.62
Total Area in Used	**4.65**
Balance Area Unused	0.00
Total Area	**4.65**

Post Mining Land use:

Land Use pattern after life of the mine	
Category	**Area in Ha.**

Quarry will be used rain water harvesting	4.03
Green Belt in safety zone	0.62
Total Area in Used	4.62
Balance Area Unused	0.00
Total Area	**4.65**

ENVIRONMENT MANAGEMENT

Green Belt

Development

Year	Place of Plantation	Spacing b/w plants	Total No. of Plants	Area Cover in Square Meters	Total Area in Ha.	Species
1st	Safety Zone	2.5 x 2.5	991	6200	0.62	Neem, Peepal, Bargad, Jamun Fruit Bearing Trees Mango, Jackfruit, Amrud.
	Haul Road	3 x 3	1600	1200 M Approach Road 1260/3=400Plants 400x4row=1600Plant		
2nd	Care & Protection	---	---	---	---	
3rd	Care & Protection	---	---	---	---	
4th	Care & Protection	---	---	---	---	
5th	Care & Protection	---	---	---	---	
Total			**2591**	**6200**	**0.62**	

Note: A total of 2591 saplings were proposed to be planted. Out of which 1000 plant in Safety Zone area have been planted during previous year of mining rest will be done in upcoming months.

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Environment Management Budget

PROPOSED FOR ENVIRONMENT MANAGEMENT COST

S. No.	Mitigative measures to protect Environment	Criteria Pollutants	Capital Cost (In Lakh)	Recurring cost (In Lakh)	Implementation Responsibility	Frequency and Method
1.	Water Sprinkling/Air pollution control (Dust Suppression along haulage road and mine) One Water Tanker	Dust (PM 10 & PM 2.5)	6.0	1.9	Mining Mate supervised by Mine Manager	Daily Basis/Requirement Basis Register/Log book
	Solid waste management	Municipal Solid by workers	0.50	0.1		Record maintain & coordination with vendors
2.	Green belt development safety zone 7.5mtr and along the road (for each plant including hedges and fences) @No. of plants 2591 x 1000Rs.	No2,So2 & CO reduction Noise reduction	25.91	5.0	Mining Mate supervised by Mine Manager	Care taking@twice a week, Tree Inventory,
3.	Environment Monitoring (Air, Water, Noise& Soil Monitoring)	Deviation in Baseline	Nil	1.50	Out source to NABL Accredited Lab-Monitored by Mine Manager	Mine Manager Review of base line as per monitoring plan proposed
	TOTAL		**32.41**	**8.5**		

Environment Monitoring Plan (post operation)

Monitoring Parameters and Frequency of Monitoring

S. no	Monitoring Parameters	No. of Locations	Frequency of Monitoring
1	Ambient Air: Ambient Air Quality at appropriate location for PM10, PM2.5, SO2, NOx In the vicinity of the mine area. In the surrounding area covering project	2 Stations	Six Monthly

	site only.		
2	Water: Surface water sample in the vicinity of the Project area.	2 Surface water 2 Ground water	Six Monthly
3	Noise: Day & Night level Noise Monitoring.	4 stations	Six Monthly
4	Soil: Soil Monitoring, Qualitative and quantitative testing/analysis to check the soil fertility, porosity, texture, water holding capacity, etc.	2 station	Six Monthly

Function of Environment Management Cell

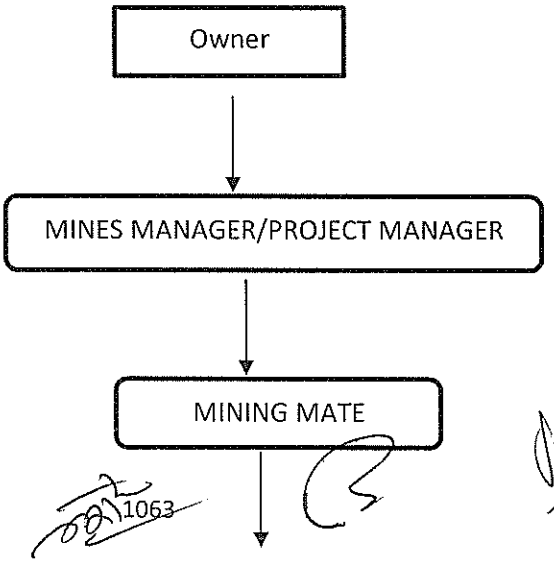
- ❑ Supervision: Managed by Mines Manager with a qualified technical team.
- ❑ Personnel: Includes skilled, semi-skilled, unskilled, and other third parties.
- ❑ Responsibilities:
  - ✓ Implement environmental control measures.
  - ✓ Oversee reclamation planning and management.
  - ✓ Manage air and water pollution control.
  - ✓ Liaise with state and central statutory agencies.
  - ✓ Develop greenbelt areas.
- ❑ Performance Review: Assess corporate environmental performance and report non-compliances.
- ❑ Remedial Actions: Suggest and implement actions for exceeding pollution limits.
- ❑ Coordination:

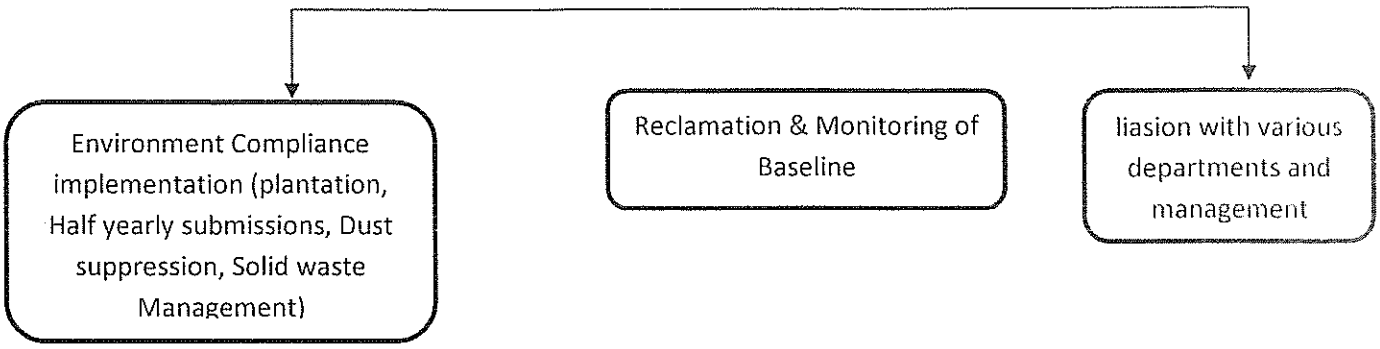
Collect health statistics for workers and local population.
Act as a bridge for project implementation and Project Authorities
Facilitate afforestation efforts

Solid Waste Management

The waste encountered during the mining operation is mainly. During Plan period gritty soil removed will be dumped at northern side with suitable precaution. Some quantity of the removed gritty soil would also be used for road dressing and plantation. After conceptual period de-stoned area of quarry will be reclaimed to the extent possible.

Organization chart for Environment Management Cell





Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

i. Use of Sharp Drill Bits

ii. Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

iii. Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced.
- Optimum quantity of explosives would be used.
- Blasting to be done during favourable weather conditions.

iv. Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

v. Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

vi. Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken:

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road.
- All Trucks carrying stone outside lease area will have PUC certificate

RISK ASSESSMENT

The hazard identification and risk analysis are done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: - *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.
The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to
Low-Risk Rank and hence the risk is "Acceptable"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the Following measures will be taken:

- Overall slope angles of benches will be maintained at 45°.
- Unmanageable heights are not created.
- Loose sides are properly dressed.
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961).
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling

- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them. While others may need to work at or near the edge of a working bench the person most at risk during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

  Dust generation during drilling

  The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator.
- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation.
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement.
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling. Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to over charging of the shot holes as a result of certain special features of the local ground. Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine.

- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers.
- Explosives and detonators shall not be carried in the same container.
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

. Identifying the hazards that come along with the presence of vehicles at the work place (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks /tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any in coming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.

- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required).
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Nawadih Stone Mine of Shri Bishwanath Prasad, Village : Nawadih, Thana : Nawadih Bazar, Distt. : Palamau, Jharkhand (4.65 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. The production shall be restricted as per approved mining scheme or the approved mine plan at the time of EC, which ever is less.

II. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*EkPed Ma KeNaam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

III. During appraisal of the project it is seen that the project authority have not fully complied the condition of green belt development as per the previous EC. Hence, the project authorities are required to plant twice the number of trees as was required in the previous EC. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

IV. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

V. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

VI. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VII. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VIII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

IX. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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6. **Mandar Stone Mine of M/s Raja Stone Works (Prop. : Shri Chandan), Village : Mandar, Thana : Naudiha Bazar, Thana no. : 181, Distt. : Palamau, Jharkhand (1.32 Ha).**

(Proposal no.: SIA/JH/MIN/ 503614 /2024)

Name of the consultant : Oceao – Enviro Management Solutions (India) Pvt. Ltd., Ghaziabad, U.P.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC) (re-appraisal of Environment Clearance issued by DEIAA, Palamau).

The project has been granted EC by DEIAA, Palamau vide letter no. EC/DEIAA/2016-17/06, dated 21.02.2017.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Palamau which has been taken up for consideration on 20.12.2024. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B2.

Existing baseline condition as per monitoring report submitted by PP is as follows PM10 -96 $\mu g/m^3$PM 2.5-567 $\mu g/m^3$ SO2-18.2 NO2- 19.0 $\mu g/m^3$ · All the data are within the permissible limit.

Dust suppression is being carried out on regular basis.

Greenbelt Developed.

As per compliance report of JSPCB regarding previous EC, plantation has been done in safety zone.

Production detail as per memo no. 2466/M, dated 30.10.2024 by DMO, Palamau is within the permissible limit of EC.

The compliance report of previous EC has been issued by JSPCB, Regional Office, Dhurwa vide letter no. 1560, dated 11.12.2024.

The SEAC has found that the certification of the compliance of the conditions of previous EC is not appropriate with respect to the following :-

i. There is no clarity on the status of execution of compliance and no details have been provided.
ii. The word "AGREED" has been mentioned as compliance status of many of the conditions.This has been written without the consent of the project authorities.
iii. The date of inspection has not been specified in the CCR.

Hence, the Committee decided to obtain a self certified compliance report along with the supporting details as evidence of execution.

The self certified compliance report was presented before the Committee 21.12.2024.

Proposed Capacity: 1,20,166.67 Ton Per Annum of Stone and 15,898 Ton per Annum of Murum

Project and Location Details:

S. No	Parameter		Details		
1	Project Name	:	M/s Raja Stone Works		
2	Lessee/Director	:	Shri Chandan (Proprietor)		
3	Lessee Address	:	Village - Mandar, PS- Naudiha Bazar, Thana No-181, District - Palamu, Jharkhand		
4	Lease Area	:	1.32 Ha.	3.26 Acres	
5	Type of Land	:	Govt. Land		
6	Project Cost	:	35.0 Lakhs		
7	EMP Budget	:	Capital: 16.78 Lakhs	Recurring: 7.6 Lakhs per year	
8	New or Expansion	:	New (Re-appraisal of DEIAA EC)		
9	Mineable Reserves	:	6,42,375 Tons of stone and79,490 Tons of Murum		
10	Mine Life	:	Upto Lease period: 14/09/2016 to 13/09/2026		
11	Man power	:	21 persons		
12	Water Requirement	:	Total water requirement is about 6.63 KLD. 0.63 KLD (Drinking & Domestic Uses) + 2.0 (Plantation) KLD + 4.0 KLD (Dust Suppression).		
13	Water Source	:	by Authorised hired water tankers		
14	DG Set / power	:	125 KVA (Temporary setup for Backup)		
15	Crusher	:	No		
16	Nearest Water Body	:	Batane Dam;1.4km in W Batane River; 1.04km km NW Banki Nadi;3.42 at ESE		
17	Nearest Habitation	:	Village Gulabjhari is at 0.8Km in SSW		
18	Nearest Rail Station	:	Haidar Nagar Railway Station is about 33.75 km in W direction.		
19	Nearest Airport	:	Gaya International Airport is about 76.21 km in NE direction.		
20	Nearest Forest	:	Burhi Bakhar	1.49km	N
			Mahjari Forest	10.93km	NNE
21	Road & Highways	:	SH-69 is about 4.14 km in NNE direction. NH-139 is about 5.47 km in WNW direction.		

CO-ORDINATES

PILLARS	LATITUDE	LONGITUDE
1	24° 25' 37.236" N	84° 16' 29.193" E
2	24° 25' 37.058" N	84° 16' 28.466" E
3	24° 25' 36.614" N	84° 16' 27.963" E
4	24° 25' 36.626" N	84° 16' 27.490" E
5	24° 25' 35.708" N	84° 16' 27.322" E
6	24° 25' 34.820" N	84° 16' 27.243" E

1072

7	24° 25' 34.367" N	84° 16' 27.711" E
8	24° 25' 34.300" N	84° 16' 28.569" E
9	24° 25' 34.172" N	84° 16' 29.082" E
10	24° 25' 33.637" N	84° 16' 30.137" E
11	24° 25' 33.374" N	84° 16' 30.587" E
12	24° 25' 33.462" N	84° 16' 31.396" E
13	24° 25' 33.483" N	84° 16' 32.064" E
14	24° 25' 34.354" N	84° 16' 32.714" E
15	24° 25' 34.868" N	84° 16' 32.791" E
16	24° 25' 35.781" N	84° 16' 32.488" E
17	24° 25' 36.288" N	84° 16' 32.019" E
18	24° 25' 36.693" N	84° 16' 31.222" E

LAND DETAILS

Khata no.	Plot no.
42	58

STATUTORY CLEARANCES

1	LOI / Lease docs	:	i. The Letter of Intent (LoI) has been issued by District Mining Officer, Palamau vide letter no. 1935/M, dated 14.09.2016. ii. Lease Deed- 14.11.2017 to 13.11.2027.
2	CO	:	The CO, Naudiha Bazar, Palamau vide letter no. 135, dated 10.05.2016 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan.
3	DMO	:	DMO, Palamau vide memo no. 1465/M, dated 10.07.2024 certified that 01 other mining lease area (5.58 Acre) exists within 500 m radius from proposed project site and total area is 8.84 Acre.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, South Division, Medininagar vide letter no. 278, dated 22.03.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palamau Tiger Reserve.
5	DFO Forest Distance	:	Division Forest Officer, Medininagar Forest Divisioin vide memo no. 2151, dated 23.06.2016 certified that the distance of forest land is more than 250 meter from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Palamau District (Sl. no. 24, Page no. 70).

7	Gram Sabha	:	Gram Sabha conducted on 04.02.2016.
8	Mine Plan Approval	:	Mining scheme approved by Additional Director, Geology, Hazaribag vide Letter No. 713/G, dated 11.10.2021.
9	Previous Environmental Clearance (EC)	:	Previous EC granted by DEIAA, Palamau vide letter no. EC/DEIAA/2016-17/06, dated 21.02.2017.
10	Compliance report of EC	:	EC compliance report issued by JSPCB, Regional Office, Dhurwa vide letter no. 1560, dated 11.12.2024.
11	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. JSPCB/HO/RNC/CTE-2014726 /2018 /611, dated 07.06.2018.
12	Consent to Operate (CTO)	:	**CTO issued by JSPCB vide ref. no. :** i. JSPCB/RO/RNC/CTO-5345536 /2019/142, dated 11.06.2019. ii. JSPCB/RO/RNC/CTO-16792213 /2023/162, dated 17.08.2023.
13	Production Report	:	Production report issued by DMO, Palamau vide memo no. 2466/M, dated 30.10.2024.
9	Qualified Person	:	Md. Tauseef Warsi was present in the meeting and affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	OCM & Semi-Mechanised	
2	Lease Area	:	3.26 Acres / 1.32 Ha.	Life of Mine – Upto Lease period: 14/09/2016 to 13/09/2026.
3	Waste Generation	:	0.00 Cum	
4	Stripping Ratio(t/m^3)	:	1:0.1	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Highest Elevation of lease Area	:	250mRL	
8	Lowest Elevation of lease Area		249 mRL	
9	Ultimate Working Depth	:	225 mRL	
10	Water Table	:	219 mRL	
11	Topography of Mine	:	Topography of site is highly ruggedlandscape.	
12	Explosive Requirement	:	66 kg per day	
13	Diesel/Fuel requirement		388 Litres per day	

Year wise Production Details

Year	Production of stone in Ton	Production of Murum in Ton	Grade
1st	120166	15897	Construction and Road
2nd	120166	15897	
3rd	120166	15897	
4th	120166	15897	
5th	120166	15897	
Total	**600830**	**79485**	

Existing Land Use

Category	Area in Ha.
Quarry	0.53
Road	0.03
Safety Barrier	0.31
Total	0.87
Balance Unused area	0.45
Total	**1.32**

During Plan period

Category	Area in Ha,
Quarry including road	0.98
Green belt in safety barriers	0.31
Haul Rd.	0.03
Portable crusher	0.00
Total are in use	1.32
Balance	0.00
Total existing lease area	**1.32**

After life of mine

Category	Area in Ha.
Mined out quarry	1.01
Green belt	0.31
Total	**1.32**
Balance	0.00
Total	**1.32**

ENVIRONMENT MANAGEMENT

Green Belt Development

Year	Place of Plantation	Spacing b/w plants	Total No. of Plants	Area Cover in Square Meters	Total Area in Ha.	Species
1st	Safety Zone	2.5 x 2.5	496	3100	0.31	Neem Pipal Bargad Palash Fruit Bearing Trees Mango, Jackfruit, Guava Jamun
	Haul Road	3 x 3	132	100M Approach Road 100/3= 33Plants 33x4row= 132Plant		
2nd	Care & Protection	---	---	---	---	
3rd	Care & Protection	---	---	---	---	
4th	Care & Protection	---	---	---	---	
5th	Care & Protection	---	---	---	---	
Total			**628**	**3100**	**0.31**	

Note: A total of 628 saplings were proposed to be planted. Out of which 1000 plant in Safety Zone area have been planted during previous year of mining rest will be done in upcoming months.

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Proposed Environment Management Budget

S. No.	Mitigative measures to protect Environment	Criteria Pollutants	Capital Cost (In Lakh)	Recurring cost (In Lakh)	Implementation Responsibility	Frequency and Method
1.	Water Sprinkling/Air pollution control (Dust Suppression along haulage road and mine) One Water	Dust (PM 10 & PM 2.5)	10.0	4.0	Mining Mate supervised by Mine Manager	Daily Basis/Requirement Basis Register/Log book

	Tanker					
	Solid waste management	Municipal Solid by workers	0.50	0.1		Record maintain & coordination with vendors
2.	Green belt development safety zone 7.5mtr and along the road (for each plant including hedges and fences) @No. of plants 628 x 1000Rs.	No2,So2 & CO reduction Noise reduction	6.28	2.0	Mining Mate supervised by Mine Manager	Care taking@twice a week, Tree Inventory,
3.	Environment Monitoring (Air, Water, Noise& Soil Monitoring)	Deviation in Baseline	Nil	1.5	Outsource to NABL Accredited Lab-Monitored by Mine Manager	Mine Manager Review of base line as per monitoring plan proposed
	TOTAL		16.78	7.6		

Monitoring Parameters and Frequency of Monitoring

S. no	Monitoring Parameters	No. of Locations	Frequency of Monitoring
1	**Ambient Air:** Ambient Air Quality at appropriate location for PM10, PM2.5, SO2, NOx in the vicinity of the mine area. In the surrounding area covering project site only.	2 Stations	Six Monthly
2	**Water:** Surface water sample in the vicinity of the Project area.	2 Surface water 2 Ground water	Six Monthly
3	**Noise:** Day & Night level Noise Monitoring.	4 stations	Six Monthly
4	**Soil:** Soil Monitoring, Qualitative and quantitative testing/analysis to check the soil fertility, porosity, texture, water holding capacity, etc.	2 stations	Six Monthly

Solid Waste Management

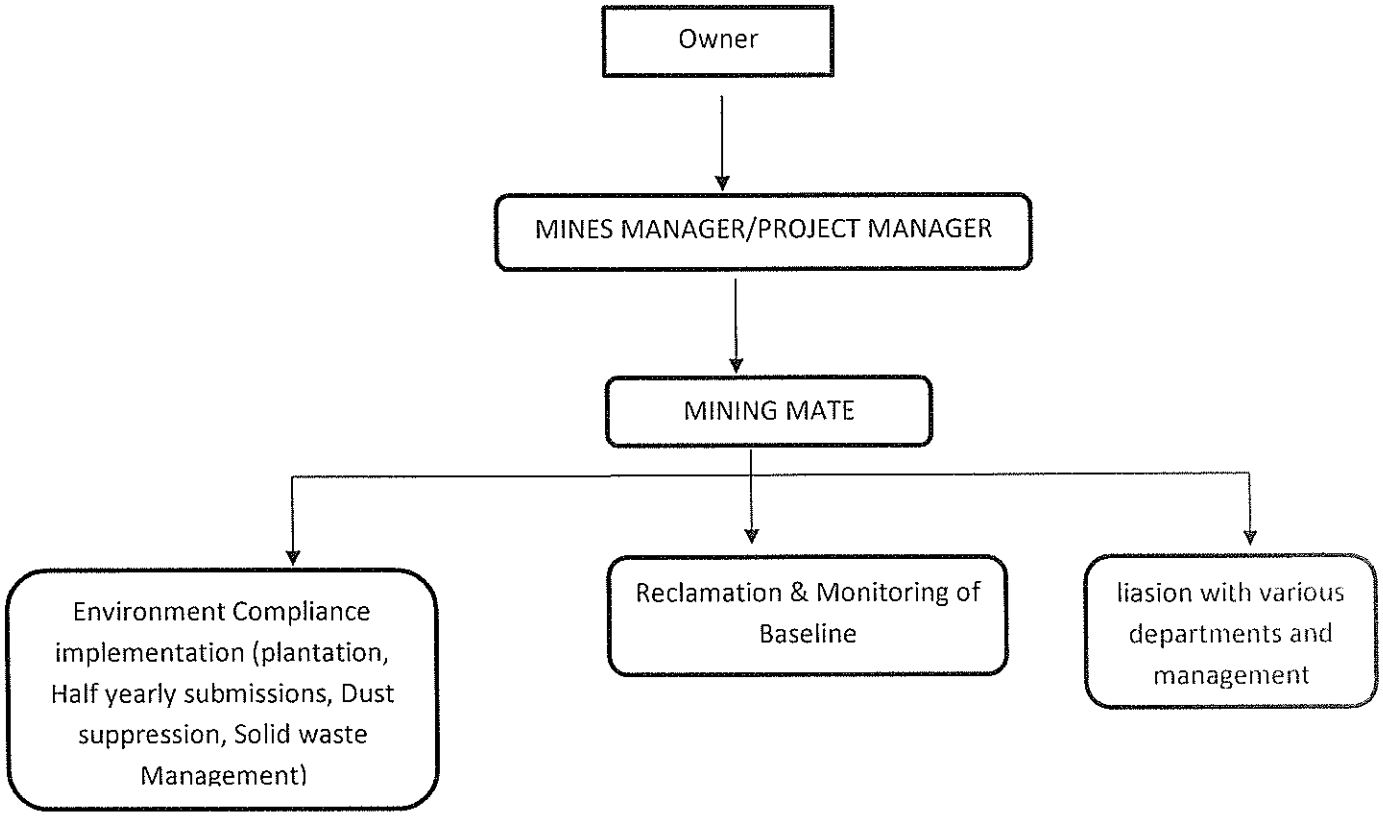
The waste encountered during the mining operation is mainly. During Plan period gritty soil removed will be dumped at northern side with suitable precaution. Some quantity of the removed gritty soil would also be used for road dressing and plantation. After conceptual period de-stoned area of quarry will be reclaimed to the extent possible.

Responsibility of Environment Management cell

- Supervision: Managed by Mines Manager with a qualified technical team.
- Personnel: Includes skilled, semi-skilled, unskilled, and other third parties.
- Responsibilities:
  - ✓ Implement environmental control measures.
  - ✓ Oversee reclamation planning and management.
  - ✓ Manage air and water pollution control.
  - ✓ Liaise with state and central statutory agencies.
  - ✓ Develop greenbelt areas.
- Performance Review: Assess corporate environmental performance and report non-compliances.
- Remedial Actions: Suggest and implement actions for exceeding pollution limits.
- Coordination:

Collect health statistics for workers and local population.
Act as a bridge for project implementation and Project Authorities
Facilitate afforestation efforts.

Organization chart for Environment Management Cell



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

i. Use of Sharp Drill Bits

ii. Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

iii. Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced.
- Optimum quantity of explosives would be used.
- Blasting to be done during favourable weather conditions.

iv. Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

v. Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

vi. Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken:

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road.
- All Trucks carrying stone outside lease area will have PUC certificate

RISK ASSESSMENT

The hazard identification and risk analysis are done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5

5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: - *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.
The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to
Low-Risk Rank and hence the risk is "Acceptable"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the Following measures will be taken:

- Overall slope angles of benches will be maintained at 45°.
- Unmanageable heights are not created.
- Loose sides are properly dressed.
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961).
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them. While others may need to work at or near the edge of a working bench the person most at risk during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

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- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

  Dust generation during drilling

  The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator.
- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation.
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement.
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling. Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to over charging of the shot holes as a result of certain special features of the local ground. Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.

- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine.
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers.
- Explosives and detonators shall not be carried in the same container.
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only

affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the work place (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks /tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any in coming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required).
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Mandar Stone Mine of M/s Raja Stone Works (Prop. : Shri Chandan), Village : Mandar, Thana : Naudiha Bazar, Thana no. : 181, Distt. : Palamau, Jharkhand (1.32 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. The production shall be restricted as per approved mining scheme or the approved mine plan at the time of EC, which ever is less.
II. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*EkPed Ma KeNaam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
III. During appraisal of the project it is seen that the project authority have not fully complied the condition of green belt development as per the previous EC. Hence, the project authorities are required to plant twice the number of trees as was required in the previous EC. The Deputy Commissioner through District Mining

Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

IV. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

V. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

VI. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VII. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VIII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

IX. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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7. **Barasloya Stone Mine of Shri Sunil Kumar Singh & Shri Nitesh Kumar Sahu, Village : Barasloya, Thana : Kolebira, Thana no. : 109, Distt. : Simdega, Jharkhand (2.02 Ha).**

(Proposal no.: SIA/JH/MIN/ 502008 /2024)

Name of the consultant : Oceao – Enviro Management Solutions (India) Pvt. Ltd., Ghaziabad, U.P.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC) (re-appraisal of Environment Clearance issued by DEIAA, Simdega).

The project has been granted EC by DEIAA, Simdega vide letter no. EC/DEIAA /2016-17/49 dated 26.12.2016.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Simdega which has been taken up for consideration on 20.12.2024. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B2.

Existing baseline condition as per monitoring report submitted by PP is as follows PM10 -96 $\mu g/m^3$PM 2.5-567 $\mu g/m^3$ SO2-18.2 NO2- 19.0 $\mu g/m^3$ · All the data are within the permissible limit.

Dust suppression is being carried out on regular basis.

Greenbelt Developed.

As per compliance report of JSPCB regarding previous EC, plantation has been done in safety zone.

Production detail as per letter no. 820/Khanan, dated 06.11.2024 by DMO, Simdega is within the permissible limit of EC.

The compliance report of previous EC has been issued by JSPCB, Regional Office, Dhurwa vide memo no. 813, dated 11.07.2024.

The SEAC has found that the certification of the compliance of the conditions of previous EC is not appropriate with respect to the following :-

i. There is no clarity on the status of execution of compliance and no details have been provided.
ii. The word "AGREED" has been mentioned as compliance status of many of the conditions.This has been written without the consent of the project authorities.
iii. The date of inspection has not been specified in the CCR.

Hence, the Committee decided to obtain a self certified compliance report along with the supporting details as evidence of execution.

The self certified compliance report was presented before the Committee 21.12.2024.

Proposed Capacity: 48,000 Cum/Annum or 1,44,000 Tonnes Per Annum of Stone

Project and Location Details:

S. No	Parameter		Details	
1	Project Name	:	Barasloya Stone Mine	
2	Partner's	:	Shri Sunil Kumar Singh and Nitesh Kumar Sahu	
3	Lessee Address	:	R/o - Thakur Toli, P.O. & District - Simdega, State Jharkhand - 835223	
4	Lease Area	:	2.02 Ha.	5.0 Acres
5	Type of Land	:	Govt. Land	
6	Project Cost	:	51 Lakhs	
7	EMP Budget	:	Capital: 23.82 Lakhs	Recurring: 7.6 Lakhs per year
8	New or Expansion	:	New (Re-appraisal of DEIAA EC)	
9	Mineable Reserves	:	14,44,790.44 tons	
10	Mine Life	:	Up to Lease period: 20/01/2018 to 19/01/2028	

11	Man power	:	20 persons		
12	Water Requirement	:	Total water requirement is about 7.54 KLD, 0.9 KLD (Drinking & Domestic Uses) + 2.64 (Plantation) KLD + 4.0 KLD (Dust Suppression).		
13	Water Source	:	by Authorized hired water tankers		
14	DG Set / power	:	20 KVA (Temporary setup for Backup)		
15	Crusher	:	No		
16	Nearest Water Body	:	Irrigation Canal at a distance of about 0.83 km in NE direction.		
17	Nearest Habitation	:	Barasloya, Approx. 0.32 km towards ENE direction		
18	Nearest Rail Station	:	Bano Railway station, approx. 8.33 km towards SE direction.		
19	Nearest Airport	:	Birsa Munda Airport, approx. 82.46 km towards NNE direction		
20	Nearest Forest	:	PROTECTED FOREST	1.01	N
			PROTECTED FOREST	2.18	E
21	Road & Highways	:	NH-320G, at a distance of about 7.3 km in SSW direction.		

CO-ORDINATES

S. No.	Latitude	Longitude
1	22°42'59.67"N	84°50'30.92"E
2	22°42'58.91"N	84°50'34.34"E
3	22°42'52.67"N	84°50'32.73"E
4	22°42'53.45"N	84°50'29.10"E

LAND DETAILS

Khata no.	Plot no.
373	10072 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	Lease Deed- 09.02.2018 to 08.02.2028.
2	CO	:	The CO, Kolebira vide letter no. 535 (ii)/Ra., dated 08.10.2024 has mentioned the plot no. of the project is not recorded as "Jungle-Jhari" in R.S. Khatiyan or Register II.
3	DMO	:	DMO, Simdega vide memo no. 560/M, dated 05.08.2024 certified that no other mining lease area exists within 500 m radius from proposed project site.

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4	DFO Wild Life	:	DFO, Wildlife Division, Ranchi vide letter no. 770, dated 12.09.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palkot Wildlife Sanctuary.
5	DFO Territorial	:	Division Forest Officer, Simdega Forest Divisioin vide letter no. 1832, dated 10.09.2016 certified that the distance of forest land is more than 250 meter from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Simdega District (Sl. no. 09, Page no. 70).
7	Gram Sabha	:	Gram Sabha conducted on 01.06.2016.
8	Mine Plan Approval	:	Mining scheme approved by DMO, Simdega vide memo no. 474/M, dated 13.09.2021.
9	Previous Environmental Clearance (EC)	:	Previous EC granted by DEIAA, Simdega vide letter no. EC/DEIAA /2016-17/49 dated 26.12.2016.
10	Compliance report of EC	:	EC compliance report issued by JSPCB, Regional Office, Dhurwa vide memo no. 813, dated 11.07.2024.
11	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. JSPCB/HO/RNC/CTE-2160800 /2018 /744, dated 16.07.2018.
12	Consent to Operate (CTO)	:	CTO issued by JSPCB/RO/RNC/CTO-15512587/2023 /28, dated 09.02.2023.
13	Production Report	:	Production report issued by DMO, Simdega vide letter no. 820/Khanan, dated 06.11.2024.
9	Qualified Person	:	Dr. Amarjeet Kumar Singh was confirm through email dated 21.12.2024 that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	OCM & Mechanised	
2	Lease Area	:	5.0 Acres / 2.02 Ha.	Life of Mine – Up to Lease period: 20/01/2018 to 19/01/2028
3	Waste Generation	:	0	
4	Stripping Ratio(t/m^3)	:	1:0.01	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	

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7	Highest Elevation of lease Area	:	529 Amsl
8	Lowest Elevation of lease Area		520 Amsl
9	Ultimate Working Depth	:	490 Amsl (30m depth)
10	Water Table	:	450 mRL
11	Topography of Mine	:	The stone mine lease area situated in hilly Slop area.
12	Explosive Requirement	:	480 kg per day
13	Diesel/Fuel requirement		364 Litres per day

Year wise Production Details

Year	Tonnage factor (t/m^3)	Top Soil	Volume Stone (m^3)	Year wise excavation in tonne
2021 – 22	3.0	Nil	48000.00	144000.00
2022 – 23	3.0	Nil	48000.00	144000.00
2023 – 24	3.0	Nil	48000.00	144000.00
2024 – 25	3.0	Nil	48000.00	144000.00
2025 – 26	3.0	Nil	48000.00	144000.00
Total			**2,40,000**	**7,20,000.00**

Existing Land Use Pattern

Category	Area in Acre
Mining area as reclaimed	1.00
Overburden dump	Nil
Mineral Storage	Nil
Infrastructure	0.02
Garland Drain	0.06
Settling Tank	0.08
Approach roads	Nil
Green Belt	1.65
Area which will remain untouched	2.19
Total	**5.00**

Conceptual Land Use Pattern

Type of land use	Area (Acre)
Mining Quarry	3.35
Overburden dump	Nil
Mineral storage	Nil
Infrastructure	0.00
Garland Drain	0.00
Settling Tank	0.00

Approach roads	Nil
Green Belt	1.65
Area which will remain untouched	Nil
Total	5.00

ENVIRONMENT MANAGEMENT

Green Belt Development

Year	Place of Plantation	Spacing b/w plants	Total No. of Plants	Area Cover in Square Meters	Total Area in Ha.	Species
1st	Safety Zone	2.5 x 2.5	1040	6500	0.65	Neem, Peepal, Bargad, Jamun Fruit Bearing Trees Mango, Jackfruit, Guava.
	Haul Road	3 x 3	160	120M Approach Road 120/3= 40Plants 40x4row=160Plant		
2nd	Care & Protection	---	---	---	---	
3rd	Care & Protection	---	---	---	---	
4th	Care & Protection	---	---	---	---	
5th	Care & Protection	---	---	---	---	
Total			**1200**	**6500**	**0.65**	

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Proposed Environment Management Budget

S. No.	Mitigative measures to protect Environment	Criteria Pollutants	Capital Cost (In Lakh)	Recurring cost (In Lakh)	Implementation Responsibility	Frequency and Method
1.	Water Sprinkling/Air pollution control (Dust Suppression along haulage road and mine) One Water	Dust (PM 10 & PM 2.5)	11.32	4.0	Mining Mate supervised by Mine Manager	Daily Basis/Requirement Basis Register/Log book

	Tanker					
	Solid waste management	Municipal Solid by workers	0.50	0.1		Record maintain & coordination with vendors
2.	Green belt development safety zone 7.5mtr and along the road (for each plant including hedges and fences) @No. of plants 1200 x 1000Rs.	No2,So2 & CO reduction Noise reduction	12.0	2.0	Mining Mate supervised by Mine Manager	Care taking@twice a week, Tree Inventory,
3.	Environment Monitoring (Air, Water, Noise& Soil Monitoring)	Deviation in Baseline	Nil	1.5	Outsource to NABL Accredited Lab-Monitored by Mine Manager	Mine Manager Review of base line as per monitoring plan proposed
	TOTAL		23.82	7.6		

Monitoring Parameters and Frequency of Monitoring

S. no	Monitoring Parameters	No. of Locations	Frequency of Monitoring
1	Ambient Air: Ambient Air Quality at appropriate location for PM10, PM2.5, SO2, NOx in the vicinity of the mine area. In the surrounding area covering project site only.	2 Stations	Six Monthly
2	Water: Surface water sample in the vicinity of the Project area.	2 Surface water 2 Ground water	Six Monthly
3	Noise: Day & Night level Noise Monitoring.	4 stations	Six Monthly
4	Soil: Soil Monitoring, Qualitative and quantitative testing/analysis to check the soil fertility, porosity, texture, water holding capacity, etc.	2 station	Six Monthly

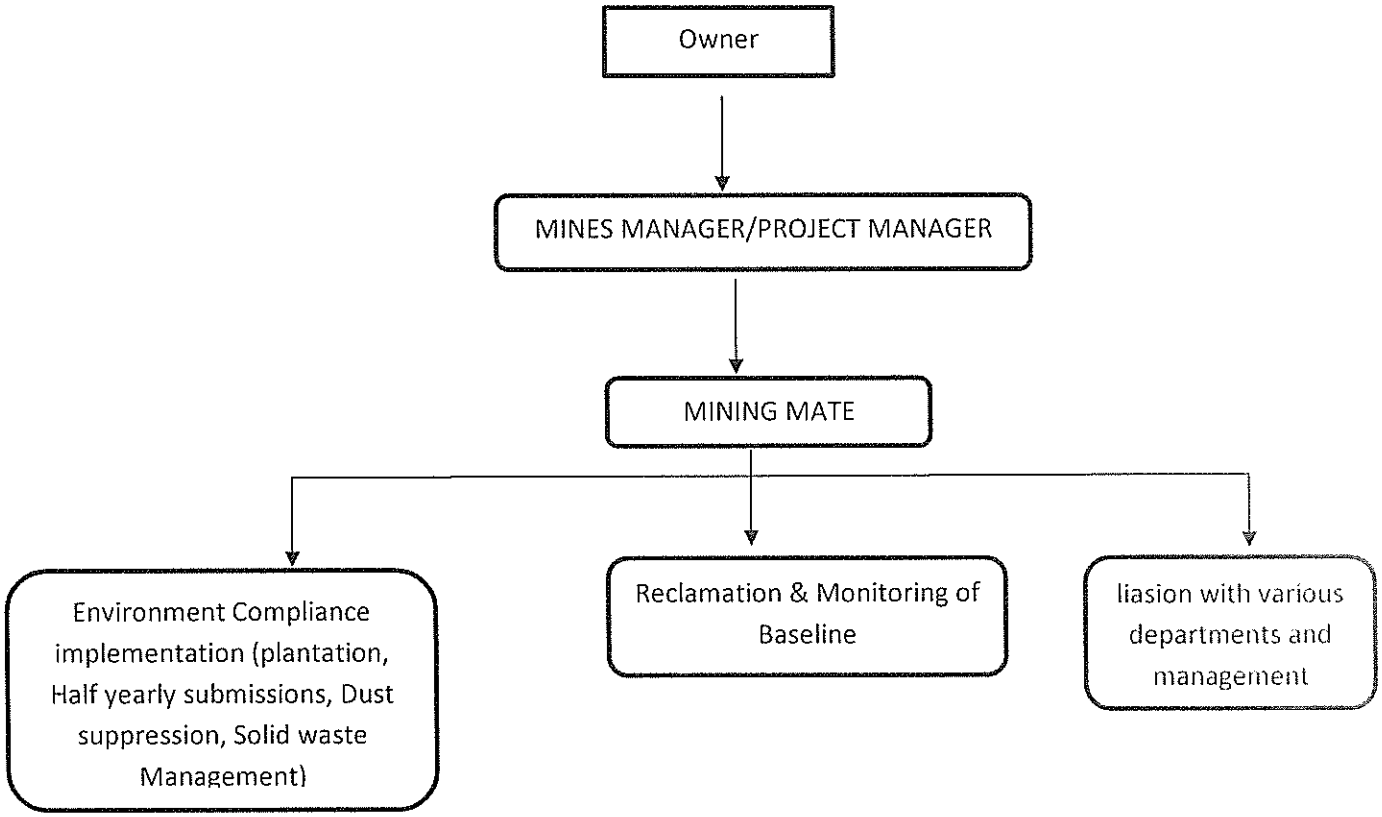
Responsibility of Environment Management cell

- Supervision: Managed by Mines Manager with a qualified technical team.
- Personnel: Includes skilled, semi-skilled, unskilled, and other third parties.
- Responsibilities:
  - ✓ Implement environmental control measures.
  - ✓ Oversee reclamation planning and management.
  - ✓ Manage air and water pollution control.
  - ✓ Liaise with state and central statutory agencies.
  - ✓ Develop greenbelt areas.
- Performance Review: Assess corporate environmental performance and report non-compliances.
- Remedial Actions: Suggest and implement actions for exceeding pollution limits.
- Coordination:

Collect health statistics for workers and local population.
Act as a bridge for project implementation and Project Authorities

Facilitate afforestation efforts.

Organization chart for Environment Management Cell



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.

- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

i. Use of Sharp Drill Bits

ii. Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

iii. Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced.
- Optimum quantity of explosives would be used.
- Blasting to be done during favourable weather conditions.

iv. Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

v. Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

vi. Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken:

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road.
- All Trucks carrying stone outside lease area will have PUC certificate

RISK ASSESSMENT

The hazard identification and risk analysis are done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading	Very Unlikely	Minor	20

		material, Exposure to Dust			
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: - *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.
The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to
Low-Risk Rank and hence the risk is "Acceptable"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the Following measures will be taken:

- Overall slope angles of benches will be maintained at 45°.
- Unmanageable heights are not created.
- Loose sides are properly dressed.
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961).
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them. While others may need to work at or near the edge of a working bench the person most at risk during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.

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- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator.

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation.
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement.
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling. Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to over charging of the shot holes as a result of certain special features of the local ground. Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.

- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine.
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers.
- Explosives and detonators shall not be carried in the same container.
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the work place (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks /tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any in coming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required).
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.

c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for Barasloya Stone Mine of Shri Sunil Kumar Singh & Shri Nitesh Kumar Sahu, Village : Barasloya, Thana : Kolebira, Thana no. : 109, Distt. : Simdega, Jharkhand (2.02 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. The production shall be restricted as per approved mining scheme or the approved mine plan at the time of EC, which ever is less.
II. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*EkPed Ma KeNaam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
III. During appraisal of the project it is seen that the project authority have not fully complied the condition of green belt development as per the previous EC. Hence, the project authorities are required to plant twice the number of trees as was required in the previous EC. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.
IV. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near

mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

V. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

VI. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VII. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VIII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

IX. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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8. **M/s UPS Stone & Chips Mine of Shri Upendra Kumar Singh, Village : Ghujuwa,, Thana : Naudiha Bazar, Thana no. : 386, Distt. : Palamau, Jharkhand (1.81 Ha).**

(Proposal no.: SIA/JH/MIN/ 503706 /2024)

Name of the consultant : Oceao – Enviro Management Solutions (India) Pvt. Ltd., Ghaziabad, U.P.

Project Sector: 1(a) Mining of Minerals, Category: B2.

Application for Environmental Clearance (EC) (re-appraisal of Environment Clearance issued by DEIAA, Palamau).

The project has been granted EC by DEIAA, Palamau vide letter no. EC/DEIAA/2016-17/20, dated 29.05.2017.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Palamau which has been taken up for consideration on 20.12.2024. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B2.

Existing baseline condition as per monitoring report submitted by PP is as follows PM10 -96 $\mu g/m^3$PM 2.5-567 $\mu g/m^3$ SO2-18.2 NO2- 19.0 $\mu g/m^3$ · All the data are within the permissible limit.

Dust suppression is being carried out on regular basis.

Greenbelt Developed.

As per compliance report of JSPCB regarding previous EC, plantation has been done in safety zone.

Production detail as per memo no. 2652/M, dated 28.11.2024 by DMO, Palamau is within the permissible limit of EC.

The compliance report of previous EC has been issued by JSPCB, Regional Office, Dhurwa vide letter no. 1546, dated 09.12.2024.

The SEAC has found that the certification of the compliance of the conditions of previous EC is not appropriate with respect to the following :-

i. There is no clarity on the status of execution of compliance and no details have been provided.
ii. The word "AGREED" has been mentioned as compliance status of many of the conditions.This has been written without the consent of the project authorities.
iii. The date of inspection has not been specified in the CCR.

Hence, the Committee decided to obtain a self certified compliance report along with the supporting details as evidence of execution.

The self certified compliance report was presented before the Committee 21.12.2024.

Proposed Capacity: 25005 Cum/Annum /75015 Ton/Annum or 83.35 Cum/Day 250.05 Ton per Day.

Project and Location Details:

S. No	Parameter		Details	
1	Project Name	:	M/s UPS Stone & Chips Mine	
2	Partner's	:	Sri Upendra Kumar Singh, Sri Rakesh Kumar Singh & Sri Pradip Kumar Singh	
3	Lessee Address	:	Village - Khardiha PO- Saraidih, PS- Naudiha Bazar, District - Palamu, Jharkhand	
4	Lease Area	:	1.81 Ha.	4.47 Acres
5	Type of Land	:	Govt. Land	
6	Project Cost	:	41 Lakhs	
7	EMP Budget	:	Capital: 15.6 Lakhs	Recurring: 7.0 Lakhs per year
8	New or Expansion	:	New (Re-appraisal of DEIAA EC)	
9	Mineable Reserves	:	218243.56 Cum	654730.68 Tonnes
10	Mine Life	:	Upto Lease period: 14/09/2016 to 13/09/2026	
11	Man power	:	15 persons	

12	Water Requirement	:	Total water requirement is about 6.61 KLD. 0.67 KLD (Drinking & Domestic Uses) + 4.0 (Plantation) KLD + 2.0 KLD (Dust Suppression).		
13	Water Source	:	by Authorised hired water tankers		
14	DG Set / power	:	125 KVA (Temporary setup for Backup)		
15	Crusher	:	No		
16	Nearest Water Body	:	Irrigation Canal at 0.91km in NE direction. Batane River is about 13.64 km in N direction.		
17	Nearest Habitation	:	Khariradohar village is about 1.07 km in WSW direction.		
18	Nearest Rail Station	:	Kajri Railway Station is about 30.43 km in SW direction.		
19	Nearest Airport	:	Gaya International Airport is about 82.21 km in NE direction.		
20	Nearest Forest	:	Kekrahi Forest	10.15	E
			Bhuthi Forest	7.26	SSE
			Sahi PF	13.7	WSW
			Hulsam PF	6.38	WSW
21	Road & Highways	:	Manatu- Chhatarpur Road is about 1.36 km in S direction.		

CO-ORDINATES

PILLARS	LATITUDE	LONGITUDE
1	24° 17' 57.618" N	84° 17' 41.196" E
2	24° 17' 55.498" N	84° 17' 40.238" E
3	24° 17' 53.848" N	84° 17' 39.493" E
4	24° 17' 52.609" N	84° 17' 38.723" E
5	24° 17' 52.085" N	84° 17' 40.633" E
6	24° 17' 51.933" N	84° 17' 41.762" E
7	24° 17' 52.641" N	84° 17' 45.311" E
8	24° 17' 54.745" N	84° 17' 48.807" E
9	24° 17' 56.208" N	84° 17' 48.917" E
10	24° 17' 56.868" N	84° 17' 46.159" E
11	24° 17' 55.718" N	84° 17' 44.613" E
12	24° 17' 53.683" N	84° 17' 45.304" E
13	24° 17' 53.641" N	84° 17' 43.419" E
14	24° 17' 54.259" N	84° 17' 40.940" E
15	24° 17' 55.652" N	84° 17' 41.923" E
16	24° 17' 56.456" N	84° 17' 42.635" E
17	24° 17' 56.832" N	84° 17' 41.218" E
18	24° 17' 55.965" N	84° 17' 46.503" E
19	24° 17' 55.397" N	84° 17' 48.391" E
20	24° 17' 54.987" N	84° 17' 46.952" E
21	24° 17' 55.226" N	84° 17' 45.803" E

LAND DETAILS

Khata no.	Plot no.
11	13, 15 & 30 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	i. The Letter of Intent (LoI) has been issued by District Mining Officer, Palamau vide letter no. 1934/M, dated 14.09.2016. ii. Lease Deed- 14.11.2017 to 13.11.2027.
2	CO	:	The CO, Naudiha Bazar, Palamau vide letter no. 155, dated 24.05.2016 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan.
3	DMO	:	DMO, Palamau vide memo no. 1218/M, dated 08.06.2024 certified that no other mining lease area exists within 500 m radius from proposed project site.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, South Division, Medininagar vide letter no. 515, dated 28.06.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palamau Tiger Reserve.
5	DFO Forest Distance	:	Division Forest Officer, Medininagar Forest Divisioin vide letter no. 2142, dated 23.06.2016 certified that the distance of forest land is more than 250 meter from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Palamau District (Sl. no. 28, Page no. 70).
7	Gram Sabha	:	Gram Sabha conducted on 17.05.2016.
8	Mine Plan Approval	:	Mining scheme approved by Additional Director, Geology, Hazaribag vide Letter No. G/2022-23-66, dated 04.06.2022.
9	Previous Environmental Clearance (EC)	:	Previous EC granted by DEIAA, Palamau vide letter no. EC/DEIAA/2016-17/20, dated 29.05.2017.
10	Compliance report of EC	:	EC compliance report issued by JSPCB, Regional Office, Dhurwa vide letter no. 1546, dated 09.12.2024.
11	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. JSPCB/HO/RNC/CTE-2032963 /2018 /109, dated 23.01.2018.

12	Consent to Operate (CTO)	:	CTO issued by JSPCB vide ref. no. : JSPCB/RO/RNC/CTO-14655172 /2022/231, dated 14.11.2022.
13	Production Report	:	Production report issued by DMO, Palamau vide memo no. 2652/M, dated 28.11.2024.
9	Qualified Person	:	Dr. Amarjeet Kumar Singh was confirm through email dated 21.12.2024 that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	OCM & Mechanised	
2	Lease Area	:	4.47 ACRES / 1.81 HA	Life of Mine – Upto Lease period: 14/09/2016 to 13/09/2026
3	Waste Generation	:	5 years– 0.0	
4	Stripping Ratio(t/m^3)	:	0.0:0.0	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Highest Elevation of lease Area	:	284 mRL	
8	Lowest Elevation of lease Area		278 mRL	
9	Ultimate Working Depth	:	260 mRL	
10	Water Table	:	230 mRL	
11	Topography of Mine	:	The stone mine lease area situated in small hilly.	
12	Explosive Requirement	:	96 kg per day	
13	Diesel/Fuel requirement		440 Litres per day	

Year wise Production Details

Year	Volume stone (m3)	Tonnage factor (t/m3)	Year wise excavation in (Tonne)
2022 – 23	25005.00	3.00	75015.00
2023 – 24	25005.00	3.00	75015.00
2024 – 25	25005.00	3.00	75015.00
2025 – 26	25005.00	3.00	75015.00
2026 - 27	25005.00	3.00	75015.00
		Total	**3,75075.00**

Land Use

Category	Existing in	During Scheme Period of	During Conceptual

	Acres	Mines Acre	Period/after closure of mines in acre
Quarry	0.13	0.43	2.06 (Entire area converted into water body)
Road	0.01	0.01	0.00
Overburden Dump	0.00	0.00	0.00
Blocked Area	0.57	0.57	0.57
Garland Drain	0.00	0.20	0.00
Infrastructure	0.00	0.01	0.00
Green Belt	0.00	1.84	1.84
Total	**0.71**	**3.06**	**4.47**
Area which will remain untouched	3.76	1.72	0.00
Lease hold area	**4.47**	**4.47**	**4.47**

ENVIRONMENT MANAGEMENT

Green Belt Development

Year	Place of Plantation	Spacing b/w plants	Total No. of Plants	Area Cover in Square Meters	Total Area in Ha.	Species
1st	Safety Zone	2.5 x 2.5	800	7400	0.74	Neem Pipal Bargad Palash Fruit Bearing Trees Mango, Jackfruit, Guava Blackberry
	Haul Road	3 x 3	336	250M Approach Road 250/3= 84Plants 84x4row=336Plant		
2nd	Care & Protection	---	---	---	---	
3rd	Care & Protection	---	---	---	---	
4th	Care & Protection	---	---	---	---	
5th	Care & Protection	---	---	---	---	
Total			**1136**	**7400**	**0.74**	

Note: A total of 1136 saplings were proposed to be planted. Out of which 1000 plant in Safety Zone area have been planted during previous year of mining rest will be done in upcoming months.

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Environment Management Budget

S.NO	Mitigative measures to protect Environment	Capital Cost (n Lakh)	Recurring cost (In Lakh)
01.	Water Sprinkling/Air pollution control (Dust Suppression along haulage road and mine)	10.0	4.0
02.	Green belt development safety zone 7.5mtr and along the road (for each plants including hedges and fences) @ No. of plants 1136 x 500Rs.	5.6	2.0
03.	Environment Monitoring (Air, Water, Noise & Soil Monitoring)	Nil	1.0
TOTAL		**15.6**	**7.0**

Additional Blasting cost

In consonance with NGT guidelines dated 21.07.2020, when blasting is involved a setback of a minimum of 200 meters should be left from the habitation area towards mine site. As per the letter issued by the CO, Nauidiha Bazar vide letter no. 155 Dated 24/05/2016, there is no habitation within 500m radius form the mining site.

<u>Responsibility of Environment Management cell</u>

- Supervision: Managed by Mines Manager with a qualified technical team.
- Personnel: Includes skilled, semi-skilled, unskilled, and other third parties.
- Responsibilities:
  - ✓ Implement environmental control measures.
  - ✓ Oversee reclamation planning and management.
  - ✓ Manage air and water pollution control.
  - ✓ Liaise with state and central statutory agencies.
  - ✓ Develop greenbelt areas.

- Performance Review: Assess corporate environmental performance and report non-compliances.
- Remedial Actions: Suggest and implement actions for exceeding pollution limits.
- Coordination:

Collect health statistics for workers and local population.

Act as a bridge for project implementation and Project Authorities

Facilitate afforestation efforts.

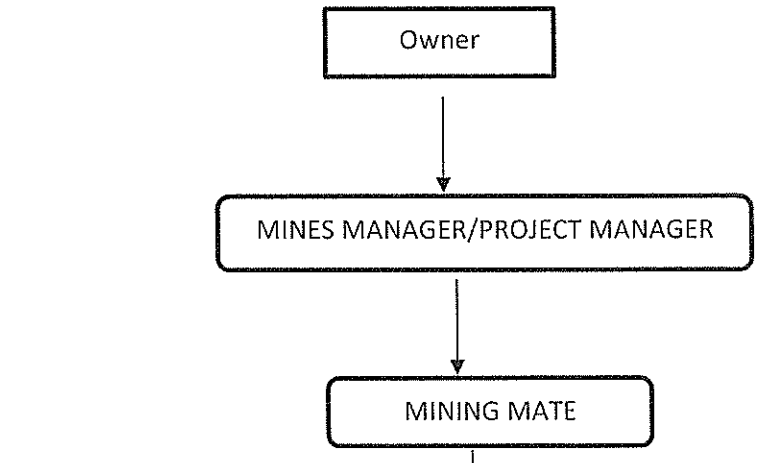
Monitoring Parameters and Frequency of Monitoring

S. no	Monitoring Parameters	No. of Locations	Frequency of Monitoring
1	Ambient Air: Ambient Air Quality at appropriate location for PM10, PM2.5, SO2, NOx In the vicinity of the mine area. In the surrounding area covering project site only.	2 Stations	Six Monthly
2	Water: Surface water sample in the vicinity of the Project area.	2 Surface water 2 Ground water	Six Monthly
3	Noise: Day & Night level Noise Monitoring.	4 stations	Six Monthly
4	Soil: Soil Monitoring, Qualitative and quantitative testing/analysis to check the soil fertility, porosity, texture, water holding capacity, etc.	2 station	Six Monthly

Solid Waste Management

The waste encountered during the mining operation is mainly. During Plan period gritty soil removed will be dumped at northern side with suitable precaution. Some quantity of the removed gritty soil would also be used for road dressing and plantation. After conceptual period de-stoned area of quarry will be reclaimed to the extent possible.

Organization chart for Environment Management Cell



Environment Compliance implementation (plantation, Half yearly submissions, Dust suppression, Solid waste Management)

Reclamation & Monitoring of Baseline

liasion with various departments and management

Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

i. Use of Sharp Drill Bits

ii. Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

iii. Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced.
- Optimum quantity of explosives would be used.
- Blasting to be done during favourable weather conditions.

iv. Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

v. Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

vi. Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken:

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road.
- All Trucks carrying stone outside lease area will have PUC certificate

RISK ASSESSMENT

The hazard identification and risk analysis are done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*

1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: - *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.
The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to
Low-Risk Rank and hence the risk is "Acceptable"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the Following measures will be taken:

- Overall slope angles of benches will be maintained at 45°.
- Unmanageable heights are not created.
- Loose sides are properly dressed.
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961).
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling

- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them. While others may need to work at or near the edge of a working bench the person most at risk during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

  Dust generation during drilling

  The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator.
- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation.
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement.
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable

levels. Hence, it will be ensured that newly updated machines will be used for drilling. Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to over charging of the shot holes as a result of certain special features of the local ground. Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine.
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers.

- Explosives and detonators shall not be carried in the same container.
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the work place (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks /tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any in coming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.

- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required).
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.

I. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the presentation made and information provided, the Committee in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 decided that the proposal for M/s UPS Stone & Chips Mine of Shri Upendra Kumar Singh, Village : Ghujuwa,, Thana : Naudiha Bazar, Thana no. : 386, Distt. : Palamau, Jharkhand (1.81 Ha) is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – I along with following specific conditions :

I. The production shall be restricted as per approved mining scheme or the approved mine plan at the time of EC, which ever is less.

II. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*EkPed Ma KeNaam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

III. During appraisal of the project it is seen that the project authority have not fully complied the condition of green belt development as per the previous EC. Hence, the project authorities are required to plant twice the number of trees as was required in the previous EC. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

IV. Suitable plant species of not less than 2 M height to be planted equal to twice the area of saplings proposed in Safety zone. This is to be planted in land available near mines and outside safety zone. This will be in addition to plantation in safety zone.Newly planted saplings to be maintained for minimum 3 years with Geo-Tagged photographs.

V. Dedicated water tanker to be provided for mine. The tanker to be used for spraying water on haul road and for irrigating newly planted saplings only.Sprinkling to be done such that the haul road is kept moistened all the time with Geo-Tagged photographs.

VI. Pre employment Occupational health check up for employees to be done and thereafter at annual interval for PLFT, Audiometry and other required tests . Summary findings of same to submitted along with 6 monthly compliance.

VII. Ensure use of Quality PPEs equivalent not less than 3M make. Records of same to be maintained and submitted with 6 monthly compliance report with Geo-Tagged photographs.

VIII. Keep vulnerable areas unmanned. Ensure rotation of duties. Records to be maintained and submitted with 6 monthly compliance report.

IX. Failing of any of terms & conditions mentioned in EC can lead to revocation / cancellation of EC.

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9. M/s UPS Stone & Chips of Shri Upendra Kumar Singh, Village : Khardiha, Thana : Naudiha Bazar, Thana no. : 368, Distt. : Palamau, Jharkhand (4.75 Ha).

(Proposal no.: SIA/JH/MIN/ 510131 /2024)

Name of the consultant : Oceao – Enviro Management Solutions (India) Pvt. Ltd., Ghaziabad, U.P.

Project Sector: 1(a) Mining of Minerals, Category: B1.

Application for Terms of Reference (ToR) (re-appraisal of Environment Clearance issued by DEIAA, Palamau).

The project has been granted EC by DEIAA, Palamau vide letter no. EC/DEIAA/2016-17/32, dated 17.08.2017.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Palamau which has been taken up for consideration on 20.12.2024. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B1.

Existing baseline condition as per monitoring report submitted by PP is as follows PM10 -96 $\mu g/m^3$PM 2.5-567 $\mu g/m^3$ SO2-18.2 NO2- 19.0 $\mu g/m^3$ · All the data are within the permissible limit.

Dust suppression is being carried out on regular basis.

Greenbelt Developed.

As per compliance report of JSPCB regarding previous EC, plantation has been done in safety zone.

Production detail as per memo no. 2654/M, dated 28.11.2024 by DMO, Palamau is within the permissible limit of EC.

The compliance report of previous EC has been issued by JSPCB, Regional Office, Dhurwa vide letter no. 1547, dated 09.12.2024.

The SEAC has found that the certification of the compliance of the conditions of previous EC is not appropriate with respect to the following :-

i. There is no clarity on the status of execution of compliance and no details have been provided.
ii. The word "AGREED" has been mentioned as compliance status of many of the conditions.This has been written without the consent of the project authorities.
iii. The date of inspection has not been specified in the CCR.

Hence, the Committee decided to obtain a self certified compliance report along with the supporting details as evidence of execution.

The self certified compliance report was presented before the Committee 21.12.2024.

ToR Application for: Proposed Capacity: 1,05,000 Cum Per Annum/350 Cum Per Day or 3,15,000 Ton Per Annum/ 1050.00 Ton per Day

Project and Location Details:

S. No	Parameter		Details	
1	Project Name	:	M/s UPS Stone & Chips	
2	Partner's	:	Sri Upendra Kumar Singh, Sri Rakesh Kumar Singh & Sri Anup Kumar	
3	Lessee Address	:	Village - Khardiha PO- Saraidih, PS- Naudiha Bazar, District - Palamu, Jharkhand - 822113	
4	Lease Area	:	Ha: 4.75 Ha	Acres: 11.75 Acres
5	Type of Land	:	Govt. Land	
6	Project Cost	:	58 Lakhs	
7	EMP Budget	:	Capital: 22.50 Lakhs	Recurring: 7.96 Lakhs per year
8	New or Expansion	:	New (Re-appraisal of DEIAA EC)	
9	Mineable Reserves	:	1045497.83Cum	3136493.51 Tones
10	Mine Life	:	Upto lease period 24/11/16 to 23/11/26.	
11	Man power	:	18 persons	
12	Water Requirement	:	Total water requirement is about 8.36 KLD 0.81 KLD (Drinking & Domestic Uses) + 5.55 (Plantation) KLD + 2.0 KLD (Dust Suppression).	
13	Water Source	:	by Authorised hired water tankers	
14	DG Set / power	:	125 KVA (Temporary setup for Backup)	
15	Crusher	:	No	
16	Nearest Water Body	:	Unnamed irrigation Canal at 0.33km in N direction. Batane River is about 12.8 km in N direction. Batane Dam is about 13.64 km in N direction.	
17	Nearest Habitation	:	Khardiha Village is about 0.68 km in NE direction	
18	Nearest Rail Station	:	Kajri Railway Station is about 30.38 Km in SW direction.	
19	Nearest Airport	:	Gaya Airport is about 81.81 Km in NE direction.	
20	Nearest Forest	:	Hulsam PF is about 6.38 km in WSW direction. Bhuthi Forest is about 7.26 km in SSE direction.	
21	Road & Highways	:	Manatu- Chhatarpur Road is about 1.36 km in S direction. Chhatarpur Road is about 4.72 km in N direction.	

CO-ORDINATES

S.No	LATITUDE	LONGITUDE
1	24° 18' 50.528" N	84° 17' 10.475" E
2	24° 18' 50.007" N	84° 17' 8.521" E
3	24° 18' 47.760" N	84° 17' 5.461" E
4	24° 18' 45.185" N	84° 17' 5.475" E
5	24° 18' 42.558" N	84° 17' 5.459" E

6	24° 18' 42.533" N	84° 17' 9.793" E
7	24° 18' 41.712" N	84° 17' 15.833" E
8	24° 18' 44.975" N	84° 17' 16.159" E
9	24° 18' 46.075" N	84° 17' 13.359" E
10	24° 18' 46.466" N	84° 17' 9.599" E

LAND DETAILS

Khata no.	Plot no.
01	45 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	i. The Letter of Intent (LoI) has been issued by District Mining Officer, Palamau vide letter no. 2211/M, dated 24.11.2016. ii. Lease Deed- 14.11.2017 to 13.11.2027.
2	CO	:	The CO, Naudiha Bazar, Palamau vide letter no. 221, dated 13.07.2016 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan.
3	DMO	:	DMO, Palamau vide memo no. 1219/M, dated 08.06.2024 certified that 01 other mining lease area (11.50 Acre) exists within 500 m radius from proposed project site and total area is 23.25 Acre or 9.41 Ha.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, South Division, Medininagar vide letter no. 514, dated 28.06.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palamau Tiger Reserve.
5	DFO Forest Distance	:	Division Forest Officer, Medininagar Forest Divisioin vide letter no. 3964, dated 03.01.2016 certified that the distance of forest land is more than 250 meter from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Palamau District (Sl. no. 25, Page no. 70).
7	Gram Sabha	:	Gram Sabha conducted on 08.11.2016.
8	Mine Plan Approval	:	Mining scheme approved by Additional Director, Geology, Hazaribag vide Letter No. G/2022-23-67, dated 04.06.2022.
9	Previous Environmental	:	Previous EC granted by DEIAA, Palamau vide letter no. EC/DEIAA/ 2016-17/32, dated 17.08.2017.

	Clearance (EC)		
10	Compliance report of EC	:	EC compliance report issued by JSPCB, Regional Office, Dhurwa vide letter no. 1547, dated 09.12.2024.
11	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. JSPCB/HO/RNC/CTE-2026947 /2018 /97, dated 23.01.2018.
12	Consent to Operate (CTO)	:	CTO issued by JSPCB vide ref. no. : JSPCB/RO/RNC/CTO-9201777 /2022/1844, dated 28.12.2022.
13	Production Report	:	Production report issued by DMO, Palamau vide memo no. 2654/M, dated 28.11.2024.
9	Qualified Person	:	Dr. Amarjeet Kumar Singh vide email dated 21.12.2024 affirmed that the mine plan has been prepared by him.

Working Details

1	Mining Method	:	OCM & Mechanised	
2	Lease Area	:	11.75 ACRES / 4.75 HA	Life of Mine – Upto lease period 24/11/16 to 23/11/26.
3	Waste Generation	:	5 years– 0.0	
4	Stripping Ratio(t/m^3)	:	0.0:0.0	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Highest Elevation of lease Area	:	293 mRL	
8	Lowest Elevation of lease Area		281 mRL	
9	Ultimate Working Depth	:	245 mRL	
10	Water Table	:	238 mRL	
11	Topography of Mine	:	The stone mine lease area situated in small hilly.	
12	Explosive Requirement	:	156 kg per day	
13	Diesel/Fuel requirement		440 Litres per day	

Year wise Production Details

Year	Tonnage factor (t/m3)	Top Soil	Volume Stone (m3)	Year wise excavation in tonne
2022 – 23	3.0	Nil	1,05,000.00	3,15000.00

2023 – 24	3.0	Nil	1,05,000.00	3,15000.00
2024 – 25	3.0	Nil	1,05,000.00	3,15000.00
2025 – 26	3.0	Nil	1,05,000.00	3,15000.00
2026 – 27	3.0	Nil	1,05,000.00	3,15000.00
Total			**5,25,000.00**	**15,75,000.00**

Land Use

LAND USE PATTERN			
	Existing	During scheme period of mine	After Life of Mine/ conceptual period
Category	Area in Acre	Area in Acre	Area in Acre
Quarry	1.97	9.66	9.90 (Entire area converted into water body)
Haul Road	0.01	0.01	0.00
Overburden dump	0.00	0.00	0.00
Garland drain	0.00	0.22	0.00
Infrastructure	0.00	0.01	0.00
Green belt	0.00	1.85	1.85
Total	**1.98**	**11.75**	**11.75**
Area which will remain untouched	9.77	0.00	0.00
Total	**11.75**	**11.75**	**11.75**

ENVIRONMENT MANAGEMENT

Green Belt Development

Year	Place of Plantation	Spacing b/w plants	Total No. of Plants	Area Cover in Square Meters	Total Area in Ha.	Species
1st	Safety Zone	2.5 x 2.5	1184	7400	0.74	Neem Pipal Bargad Palash Fruit Bearing Trees Mango, Jackfruit,
	Haul Road	3 x 3	668	500M Approach Road 500/3= 167Plants 167x4row=668Plant		
2nd	Care & Protection	---	---	---	---	

3rd	Care & Protection	---	---	---	---	Guava Jamun
4th	Care & Protection	---	---	---	---	
5th	Care & Protection	---	---	---	---	
Total			1852	7400	0.74	

Note: A total of 1852 saplings were proposed to be planted. Out of which 850 plant in Safety Zone area have been planted during previous year of mining rest will be done in upcoming months.

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Environment Management Budget

S. NO.	Particulars	Budget Provisions (Rs.)	
		Capital	Recurring per year
Water Demand			
1(a)	Fixed Overhead water sprinkling system with solar pump for outgoing and incoming transportation vehicles for haul road and green belt Cost for 300 days for 7.55 KLD @5 KL tanker capacity, Rupees 500/- per tanker	1,00,000	2,26,500
	& One dedicated tanker of 5.0 KL for Greenbelt Management	10,00,000	50,000
1(b)	Discharge of waste water 300 days for 0.65 KLD @5 KL tanker capacity, Rupees 2000/per tanker	0	78,000
2	Maintenance of approach road (Max. Road length 507 m, Width 4.0 m) @ 100Rs. /Meter.	0	50,700
3	Monitoring (Air, Water, Soil & Noise)	Nil	1,00,000
4	Settling tank 2 in no's (LBH 12 m* 7 m* 4 m) & Garland drains	2,00,000	30,000
5	Wire Fence 1065 m x 300 /– meter	3,19,500	31,950
Plantation Scheme			
Plantation in consultation with DFO & Gram Panchayat and conversion to Grazing land as far as possible.			

6	Green belt development safety zone 7.5mtr and along the road (for each plants including hedges and fences) 1852 No. of plants x 500 Rs.	9,26,000	2,00,000
Solid Waste Management			
7	Bins 2 Nos.	1,500	4,000
8	Transport of Dry Waste	5,000	0
9	Vehicle Maintenance +PUC Certification	Nil	25,000
Total EMP Budget		**22,52,000**	**7,96,150**

Additional Blasting cost

In consonance with NGT guidelines dated 21.07.2020, when blasting is involved a setback of a minimum of 200 meters should be left from the habitation area towards mine site. As per the letter issued by the CO, Pamalu vide letter no.221 Dated 13/07/2016, there is no habitation within 500m radius form the mining site.

Responsibility of Environment Management cell

- Supervision: Managed by Mines Manager with a qualified technical team.
- Personnel: Includes skilled, semi-skilled, unskilled, and other third parties.
- Responsibilities:
  - ✓ Implement environmental control measures.
  - ✓ Oversee reclamation planning and management.
  - ✓ Manage air and water pollution control.
  - ✓ Liaise with state and central statutory agencies.
  - ✓ Develop greenbelt areas.
- Performance Review: Assess corporate environmental performance and report non-compliances.
- Remedial Actions: Suggest and implement actions for exceeding pollution limits.
- Coordination:

Collect health statistics for workers and local population.
Act as a bridge for project implementation and Project Authorities
Facilitate afforestation efforts.

Environmental Monitoring period: 15 Oct 2024 to 15 Jan 2025

Baseline Monitoring Location

S. No.	Particulars	Distance (KM)	Direction	Land use	Latitude	Longitude
AAQ1	Project Site	0			24°18'44.03"N	84°17'8.25"E
AAQ2	Khairadohar Village	1.08	SSW	Residential Area	24°18'9.85"N	84°16'40.09" E
AAQ3	Balra Village	1.43	NW	Residential	24°19'20.95"N	

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				Area		84°16'30.75" E
AAQ4	Primary School, Balra	0.88	NNE	Silent Zone	24°19'15.20"N	84°17'25.47" E
AAQ5	Jamalpur school	1.8	ESE	Silent Zone	24°18'24.09"N	84°18'16.43" E
AAQ6	Dantuta Village	3.18	NW	Residential Area	24°19'40.99"N	84°15'29.37" E
AAQ7	Primary School, Balratola, Pindrahi	2.35	NNW	Silent Zone	24°19'56.47"N	84°16'31.73" E
AAQ8	Utkramit Primary School Shivpur	2.36	N	Silent Zone	24°20'0.63"N	84°17'26.74" E

NOISE MONITORING LOCATIONS

S. No.	Particulars	Distance (KM)	Direction	Landuse	Latitude	Longitude
NQ1	Project Site	0			24°18'44.03"N	84°17'8.25"E
NQ2	Khairadohar Village	1.08	SSW	Residential Area	24°18'9.85"N	84°16'40.09" E
NQ3	Balra Village	1.43	NW	Residential Area	24°19'20.95"N	84°16'30.75" E
NQ4	Primary School, Balra	0.88	NNE	Silent Zone	24°19'15.20"N	84°17'25.47" E
NQ5	Jamalpur school	1.8	ESE	Silent Zone	24°18'24.09"N	84°18'16.43" E

SOIL MONITORING LOCATIONS

S. No.	Particulars	Distance (KM)	Direction	Landuse	Latitude	Longitude
SQ1	Project Site	0			24°18'44.03"N	84°17'8.25"E
SQ2	Khairadohar Village	1.08	SSW	Residential Area	24°18'9.85"N	84°16'40.09" E
SQ3	Balra Village	1.43	NW	Residential Area	24°19'20.95"N	84°16'30.75" E
SQ4	Primary School, Balra	0.88	NNE	Silent Zone	24°19'15.20"N	84°17'25.47" E
SQ5	Jamalpur school	1.8	ESE	Silent Zone	24°18'24.09"N	84°18'16.43" E

GROUND WATER MONITORING LOCATIONS

S. No.	Particulars	Distance (KM)	Direction	Landuse	Latitude	Longitude
GWQ1	Primary School, Balra	0.88	NNE	Silent Zone	24°19'15.20"N	84°17'25.47" E
GWQ2	Jamalpur school	1.8	ESE	Silent Zone	24°18'24.09"N	84°18'16.43" E
GWQ3	Primary School, Balratola, Pindrahi	2.35	NNW	Silent Zone	24°19'56.47"N	84°16'31.73" E

SURFACE WATER MONITORING LOCATIONS

S. No.	Particulars	Distance (KM)	Direction	Landuse	Latitude	Longitude
SWQ1	Batani River (Upstream)	0.78	E		24°19'45.31"N	84°16'30.13" E
SWQ2	Batani River (Downstream)	2.04	NNW		24°18'48.64"N	84°17'42.35" E

Environment Monitoring Plan (Operation Phase)

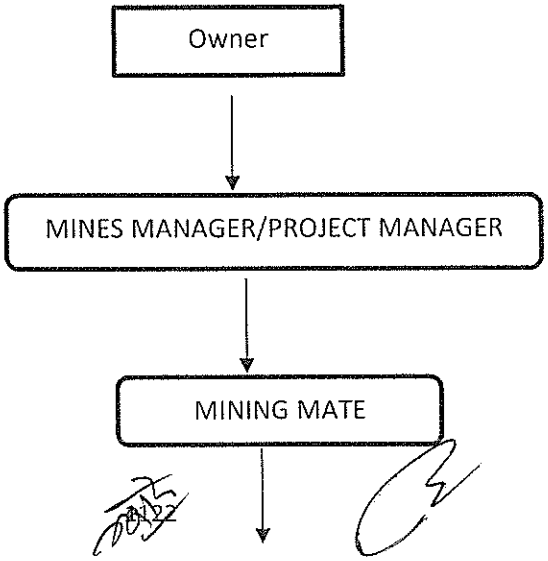
Monitoring Parameters and Frequency of Monitoring

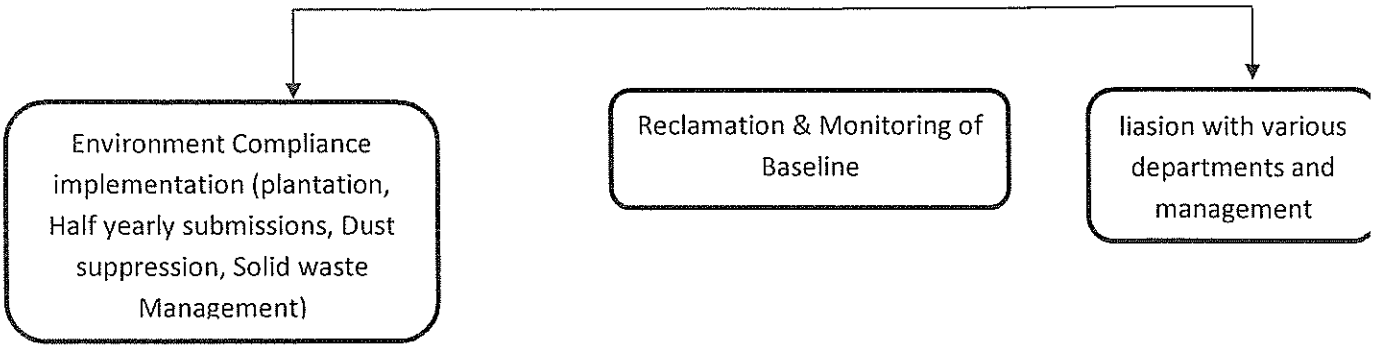
S. no	Monitoring Parameters	No. of Locations	Frequency of Monitoring
1	Ambient Air: Ambient Air Quality at appropriate location for PM10, PM2.5, SO2, NOx In the vicinity of the mine area. In the surrounding area covering project site only.	2 Stations	Six Monthly
2	Water: Surface water sample in the vicinity of the Project area.	2 Surface water 2 Ground water	Six Monthly
3	Noise: Day & Night level Noise Monitoring.	4 stations	Six Monthly
4	Soil: Soil Monitoring, Qualitative and quantitative testing/analysis to check the soil fertility, porosity, texture, water holding capacity, etc.	2 station	Six Monthly

Solid Waste Management

The waste encountered during the mining operation is mainly. During Plan period gritty soil removed will be dumped at northern side with suitable precaution. Some quantity of the removed gritty soil would also be used for road dressing and plantation. After conceptual period de-stoned area of quarry will be reclaimed to the extent possible.

Organization chart for Environment Management Cell





Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.
- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

i. Use of Sharp Drill Bits

ii. Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

iii. Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced.
- Optimum quantity of explosives would be used.
- Blasting to be done during favourable weather conditions.

iv. Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

v. Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

vi. Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken:

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road.
- All Trucks carrying stone outside lease area will have PUC certificate

RISK ASSESSMENT

The hazard identification and risk analysis are done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

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S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20
7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: - *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.
The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to
Low-Risk Rank and hence the risk is "Acceptable"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the Following measures will be taken:

- Overall slope angles of benches will be maintained at 45°.
- Unmanageable heights are not created.
- Loose sides are properly dressed.
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961).
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them. While others may need to work at or near the edge of a working bench the person most at risk during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench
- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

  Dust generation during drilling

  The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator.
- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation.
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement.
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling. Other control measures will include training operators and providing them with ear protection,

although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to over charging of the shot holes as a result of certain special features of the local ground. Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people become aware of the blasting activities being undertaken in the area and take appropriate precautions.
- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine.
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers.
- Explosives and detonators shall not be carried in the same container.

- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the work place (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks /tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any in coming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.

- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required).
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.
e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 17, 18, 19, 20, 21 &22.12.2024,the Committee recommends in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 for issuing of ToR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure II alongwith following specific condition :-

I. The production shall be restricted as per approved mining scheme or the approved mine plan at the time of EC, which ever is less.

II. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*EkPed Ma KeNaam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

III. During appraisal of the project, it is seen that the project authority have not fully complied the condition of green belt development as per the previous EC. Hence, the project authorities are required to plant twice the number of trees as was required in the previous EC. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

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10. M/s UPS Stone & Chips of Shri Pradeep Kumar Singh, Village : Khardiha, Thana : Naudiha Bazar, Thana no. : 368, Distt. : Palamau, Jharkhand (4.65 Ha).

(Proposal no.: SIA/JH/MIN/ 510154 /2024)

Name of the consultant : Oceao – Enviro Management Solutions (India) Pvt. Ltd., Ghaziabad, U.P.

Project Sector: 1(a) Mining of Minerals, Category: B1.

Application for Terms of Reference (ToR) (re-appraisal of Environment Clearance issued by DEIAA, Palamau).

The project has been granted EC by DEIAA, Palamau vide letter no. EC/DEIAA/2016-17/33, dated 17.08.2017.

As per O.M. dated 28th April 2023 issued by MOEF & CC projects which have been granted EC by DEIAA are to be reappraised by SEIAA / SEAC.

This is re-appraisal of the EC issued by DEIAA, Palamau which has been taken up for consideration on 20.12.2024. As per O.M. dated 12.12.18 issued by MOEF & CC projects fall in category B1.

Existing baseline condition as per monitoring report submitted by PP is as follows PM10 -96 $\mu g/m^3$PM 2.5-567 $\mu g/m^3$ SO2-18.2 NO2- 19.0 $\mu g/m^3$ · All the data are within the permissible limit.

Dust suppression is being carried out on regular basis.

Greenbelt Developed.

As per compliance report of JSPCB regarding previous EC, plantation has been done in safety zone.

Production detail as per memo no. 2653/M, dated 28.11.2024 by DMO, Palamau is within the permissible limit of EC.

The compliance report of previous EC has been issued by JSPCB, Regional Office, Dhurwa vide letter no. 1544, dated 09.12.2024.

The SEAC has found that the certification of the compliance of the conditions of previous EC is not appropriate with respect to the following :-

i. There is no clarity on the status of execution of compliance and no details have been provided.
ii. The word "AGREED" has been mentioned as compliance status of many of the conditions.This has been written without the consent of the project authorities.
iii. The date of inspection has not been specified in the CCR.

Hence, the Committee decided to obtain a self certified compliance report along with the supporting details as evidence of execution.

The self certified compliance report was presented before the Committee 21.12.2024.

ToR Application for: Proposed Capacity: 1,00,020 Cum Per Annum/333.4 Cum Per Day or 3,00,060 Ton Per Annum/ 1000.20 Ton per Day.

Project and Location Details:

S. No	Parameter		Details	
1	Project Name	:	M/s UPS Stone & Chips	
2	Partner's	:	Mr. Pradip Kumar Singh and Smt. Mamta Kumari	
3	Lessee Address	:	Village - Khardiha PO- Saraidih, PS- Naudiha Bazar, District - Palamu, Jharkhand	
4	Lease Area	:	Ha: 4.65 Ha.	Acres: 11.50 Acres
5	Type of Land	:	Govt. Land	
6	Project Cost	:	58 Lakhs	
7	EMP Budget	:	Capital: 25.64 Lakhs	Recurring: 7.27 Lakhs per year
8	New or Expansion	:	New (Re-appraisal of DEIAA EC)	
9	Mineable Reserves	:	8440618.26 Cum	2980776.21 Tones
10	Mine Life	:	Upto lease period: 30-11-2016 to 29-11-2026.	
11	Man power	:	18 persons	
12	Water Requirement	:	Total water requirement is about 6.41 KLD. 0.81 KLD (Drinking & Domestic Uses) + 4.0 (Plantation) KLD + 1.6 KLD (Dust Suppression).	
13	Water Source	:	by Authorized hired water tankers	
14	DG Set / power	:	125 KVA (Temporary setup for Backup)	
15	Crusher	:	No	

16	Nearest Water Body	:	Unnamed Irrigation Canal at 0.24Km in NE direction. Batane River is about 13.1 km in N direction.		
17	Nearest Habitation	:	Khardiha Village is about 0.76 km in ENE direction		
18	Nearest Rail Station	:	Haidar Nagar Railway Station is about 39.21 km in NW direction.		
19	Nearest Airport	:	Gaya International Airport is about 82.24 km in NE direction.		
20	Nearest Forest	:	Kekrahi Forest	13.25	E
			Bhuthi Forest	5.4	SSE
			Sahi PF	13.97	WSW
			Hulsam PF	6.78	WSW
21	Road & Highways	:	Patan Chhatarpur Road is about 9.39 km in W direction. Manatu- Chhatarpur Road is about 1.67 km in S direction.		

CO-ORDINATES

S. No	LATITUDE	LONGITUDE
1	24° 18' 57.803" N	84°16' 57.443"E
2	24° 18' 57.608" N	84°16' 59.151"E
3	24° 18' 58.574" N	84°17' 0.408"E
4	24° 18' 58.665" N	84°17' 2.839"E
5	24° 18' 57.855" N	84°17' 2.253" E
6	24° 18' 57.806" N	84°17' 2.483" E
7	24° 18' 56.580" N	84°17' 2.355" E
8	24° 18' 56.803" N	84°17' 4.547" E
9	24° 18' 56.487" N	84°17' 6.291" E
10	24° 18' 54.010" N	84°17' 5.695" E
11	24° 18' 54.305" N	84°17' 2.241" E
12	24° 18' 53.049" N	84°17' 0.645" E
13	24° 18' 52.546" N	84°16' 59.242"E
14	24° 18' 51.882" N	84°16' 57.310"E
15	24° 18' 50.724" N	84°16' 56.190"E
16	24° 18' 50.670" N	84°16' 55.467"E
17	24° 18' 54.347" N	84°16' 55.564"E
18	24° 18' 56.399" N	84° 16' 56.117" E

LAND DETAILS

Khata no.	Plot no.
01	44 (P) & 45 (P)

STATUTORY CLEARANCES

1	LOI / Lease docs	:	i. The Letter of Intent (LoI) has been issued by District Mining Officer, Palamau vide letter no. 2221/M, dated 30.11.2016.

			ii. Lease Deed- 14.11.2017 to 13.11.2027.
2	CO	:	The CO, Naudiha Bazar, Palamau vide letter no. 222, dated 13.07.2016 has mentioned the plot no. of the project is not recorded as "Jungle- Jhari" in R.S. Khatiyan.
3	DMO	:	DMO, Palamau vide memo no. 1220/M, dated 08.06.2024 certified that 01 other mining lease area (11.75 Acre) exists within 500 m radius from proposed project site and total area is 23.25 Acre or 9.41 Ha.
4	DFO Wild Life	:	Deputy Director, Palamau Tiger Project, South Division, Medininagar vide letter no. 513, dated 28.06.2024 certified that the proposed project site is outside Eco Sensitive Zone of Palamau Tiger Reserve.
5	DFO Forest Distance	:	Division Forest Officer, Medininagar Forest Divisioin vide letter no. 5533, dated 03.01.2016 certified that the distance of forest land is more than 250 meter from proposed project site.
6	DSR	:	This project is mentioned in approved DSR of Palamau District (Sl. no. 26, Page no. 70).
7	Gram Sabha	:	Gram Sabha conducted on 05.11.2016.
8	Mine Plan Approval	:	Mining scheme approved by Additional Director, Geology, Hazaribag vide Letter No. G/2022-23-65, dated 04.06.2022.
9	Previous Environmental Clearance (EC)	:	Previous EC granted by DEIAA, Palamau vide letter no. EC/DEIAA/ 2016-17/33, dated 17.08.2017.
10	Compliance report of EC	:	EC compliance report issued by JSPCB, Regional Office, Dhurwa vide letter no. 1544, dated 09.12.2024.
11	Consent to Establish (CTE)	:	CTE issued by JSPCB vide Ref. no. JSPCB/HO/RNC/CTE-2026451 /2018 /100, dated 23.01.2018.
12	Consent to Operate (CTO)	:	CTO issued by JSPCB vide ref. no. : JSPCB/RO/RNC/CTO-13306820 /2022/1842, dated 28.12.2022.
13	Production Report	:	Production report issued by DMO, Palamau vide memo no. 2653/M, dated 28.11.2024.
9	Qualified Person	:	Dr. Amarjeet Kumar Singh vide email dated 21.12.2024 affirmed that the mine plan has been prepared by him.s

Working Details

1	Mining Method	:	OCM & Semi-Mechanised	
2	Lease Area	:	11.50 ACRES / 4.65 HA	Life of Mine – Upto lease period: 30-11-2016 to 29-11-2026.
3	Waste Generation	:	5 years– 0.0	
4	Stripping Ratio(t/m^3)	:	1:16	
5	Working Days	:	300	
6	Benches: size & No	:	6m x 6m	
7	Highest Elevation of lease Area	:	292 mRL	
8	Lowest Elevation of lease Area		280 mRL	
9	Ultimate Working Depth	:	250 mRL	
10	Water Table	:	242 mRL	
11	Topography of Mine	:	The stone mine lease area situated in small hilly.	
12	Explosive Requirement	:	108 kg per day	
13	Diesel/Fuel requirement		440 Litres per day	

Year wise Production Details

Year	Tonnage factor (t/m3)	Top Soil	Volume Stone (m3)	Year wise excavation in tonne
2022 – 23	3.0	Nil	1,00,020.00	3,00060.00
2023 – 24	3.0	Nil	1,000,20.00	3,00060.00
2024 – 25	3.0	Nil	1,000,20.00	3,00060.00
2025 – 26	3.0	Nil	1,000,20.00	3,00060.00
2026 – 27	3.0	Nil	1,000,20.00	3,00060.00
Total			**5,00,100.00**	**1,5003,00.00**

Land Use

Category	Existing in Acres	During Scheme Period of Mines Acre	During Conceptual Period/after closure of mines in acre

Quarry	2.63	9.12	9.40 (Entire area converted into water body)
Road	0.01	0.01	0.00
Overburden Dump	0.00	0.00	0.00
Garland Drain	0.00	0.26	0.00
Infrastructure	0.00	0.01	0.00
Green Belt	0.00	2.10	2.10
Total	**2.64**	**11.50**	**4.47**
Area which will remain untouched	8.86	0.00	0.00
Lease hold area	**11.50**	**11.50**	**11.50**

ENVIRONMENT MANAGEMENT

Green Belt Development

Year	Place of Plantation	Spacing b/w plants	Total No. of Plants	Area Cover in Square Meters	Total Area in Ha.	Species
1st	Safety Zone	2.5 x 2.5	1344	8400	0.84	Neem Pipal Bargad Palash Fruit Bearing Trees Mango, Jackfruit, Guava Jamun
	Haul Road	3 x 3	532	400M Approach Road 400/3= 133 Plants 133x4 row=532 Plant		
2nd	Care & Protection	---	---	---	---	
3rd	Care & Protection	---	---	---	---	
4th	Care & Protection	---	---	---	---	
5th	Care &	---	---	---	---	

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	Protection					
Total			1876	8400	0.84	

Note: A total of 1876 saplings were proposed to be planted. Out of which 850 plant in Safety Zone area have been planted during previous year of mining rest will be done in upcoming months.

- Gabion Plantation work in the safety zone (7.5 m width around the proposed lease boundary) and on either side of approach road in two rows with the spacing of 3x3 m with suitable species such as timber & fruit bearing etc. will be done in first year of operation. Maintenance work such as h/w, mortality replacement, protection and watering shall be undertaken for the life of mine as per norms and schedule issued by PCCF, Development, Department of Forest, Environment & Climate Change, Govt. of Jharkhand. Records of same to be maintained and will be submitted with compliance report.

Environment Management Budget

S .NO.	Particulars	Budget Provisions (Rs)	
		Capital	Recurring per year
Water Demand			
1(a)	Fixed Overhead water sprinkling system with solar pump for outgoing and incoming transportation vehicles for haul road and green belt Cost for 300 days for 5.6 KLD @5 KL tanker capacity, Rupees 500/- per tanker	1,00,000	1,68,000
	& One dedicated tanker of 5.0 KL for Greenbelt Management	10,00,000	50,000
1(b)	Discharge of waste water 300 days for 0.65 KLD @5 KL tanker capacity, Rupees 2000/per tanker	0	78,000
2	Maintenance of approach road (Max. Road length 400 m, Width 4.0 m) @ 100Rs. /Meter.	0	40000
3	Monitoring (Air, Water, Soil & Noise)	Nil	1,00,000
4	Settling tank 2 in no's (LBH 12 m* 7 m* 4 m) & Garland drains	2,00,000	30,000
5	Wire Fence 1065 m x 300 /– meter	3,19,500	31,950
Plantation Scheme			
Plantation in consultation with DFO & Gram Panchayat and conversion to Grazing land as far as possible			
6	Green belt development safety zone 7.5mtr and along the road (for each plants including hedges and fences) 1876 No. of plants x 500 Rs.	9,38,000	2,00,000
Solid Waste Management			
7	Bins 2 Nos.	1,500	4,000
8	Transport of Dry Waste	5,000	0
9	Vehicle Maintenance +PUC Certification	Nil	25,000
Total EMP Budget		**25,64,000**	**7,26,950**

Additional Blasting cost

In consonance with NGT guidelines dated 21.07.2020, when blasting is involved a setback of a minimum of 200 meters should be left from the habitation area towards mine site. As per the letter issued by the CO, Naudiha Bazar vide letter no. 222/Ra. Dated 13/07/2016, there is no habitation within 500m radius form the mining site.

Responsibility of Environment Management cell

- Supervision: Managed by Mines Manager with a qualified technical team.
- Personnel: Includes skilled, semi-skilled, unskilled, and other third parties.
- Responsibilities:
  - ✓ Implement environmental control measures.
  - ✓ Oversee reclamation planning and management.
  - ✓ Manage air and water pollution control.
  - ✓ Liaise with state and central statutory agencies.
  - ✓ Develop greenbelt areas.
- Performance Review: Assess corporate environmental performance and report non-compliances.
- Remedial Actions: Suggest and implement actions for exceeding pollution limits.
- Coordination:

Collect health statistics for workers and local population.
Act as a bridge for project implementation and Project Authorities
Facilitate afforestation efforts.

Environmental Monitoring period: 15 Oct 2024 to 15 Jan 2025

Baseline Monitoring Location

S. No.	Particulars	Distance (KM)	Direction	Land use	Latitude	Longitude
AAQ1	Project Site	0	--	Lease Area	24°18'51.88"N	84°16'58.64"E
AAQ2	Khairadohar Village	1.34	SSW	Residential Area	24°18'9.85"N	84°16'40.09"E
AAQ3	Balra Village	1.01	NW	Residential Area	24°19'20.95"N	84°16'30.75"E
AAQ4	Primary School, Balra	0.84	NE	Silent Zone	24°19'15.20"N	84°17'25.47"E
AAQ5	Jamalpur school	2.17	ESE	Silent Zone	24°18'24.09"N	84°18'16.43"E
AAQ6	Dantuta Village	2.8	NW	Residential Area	24°19'40.99"N	84°15'29.37"E
AAQ7	Primary School, Balratola, Pindrahi	1.97	NNW	Silent Zone	24°19'56.47"N	84°16'31.73"E
AAQ8	Utkramit Primary School Shivpur	2.05	NNE	Silent Zone	24°20'0.63"N	84°17'26.74"E

NOISE MONITORING LOCATIONS

S. No.	Particulars	Distance (KM)	Direction	Landuse	Latitude	Longitude
NQ1	Project Site	0				84°16'58.64"E

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					24°18'51.88"N	
NQ2	Khairadohar Village	1.34	SSW	Residential Area	24°18'9.85"N	84°16'40.09"E
NQ3	Balra Village	1.01	NW	Residential Area	24°19'20.95"N	84°16'30.75"E
NQ4	Primary School, Balra	0.84	NE	Silent Zone	24°19'15.20"N	84°17'25.47"E
NQ5	Jamalpur school	2.17	ESE	Silent Zone	24°18'24.09"N	84°18'16.43"E

SOIL MONITORING LOCATIONS

S. No.	Particulars	Distance (KM)	Direction	Landuse	Latitude	Longitude
SQ1	Project Site	0			24°18'51.88"N	84°16'58.64"E
SQ2	Khairadohar Village	1.34	SSW	Residential Area	24°18'9.85"N	84°16'40.09"E
SQ3	Balra Village	1.01	NW	Residential Area	24°19'20.95"N	84°16'30.75"E
SQ4	Primary School, Balra	0.84	NE	Silent Zone	24°19'15.20"N	84°17'25.47"E
SQ5	Jamalpur school	2.17	ESE	Silent Zone	24°18'24.09"N	84°18'16.43"E

GROUND WATER MONITORING LOCATIONS

S. No.	Particulars	Distance (KM)	Direction	Landuse	Latitude	Longitude
GWQ1	Primary School, Balra	0.84	NE	Silent Zone	24°19'15.20"N	84°17'25.47"E
GWQ2	Jamalpur school	2.17	ESE	Silent Zone	24°18'24.09"N	84°18'16.43"E
GWQ3	Primary School, Balratola, Pindrahi	1.97	NNW	Silent Zone	24°19'56.47"N	84°16'31.73"E

SURFACE WATER MONITORING LOCATIONS

S. No.	Particulars	Distance (KM)	Direction	Landuse	Latitude	Longitude
SWQ1	Batani River (Upstream)	1.05	E	Water Body	24°19'45.31"N	84°16'30.13"E
SWQ2	Batani River (Downstream)	1.64	NNW	Water Body	24°18'48.64"N	84°17'42.35"E

Environment Monitoring Plan (Operation Phase)

Monitoring Parameters and Frequency of Monitoring

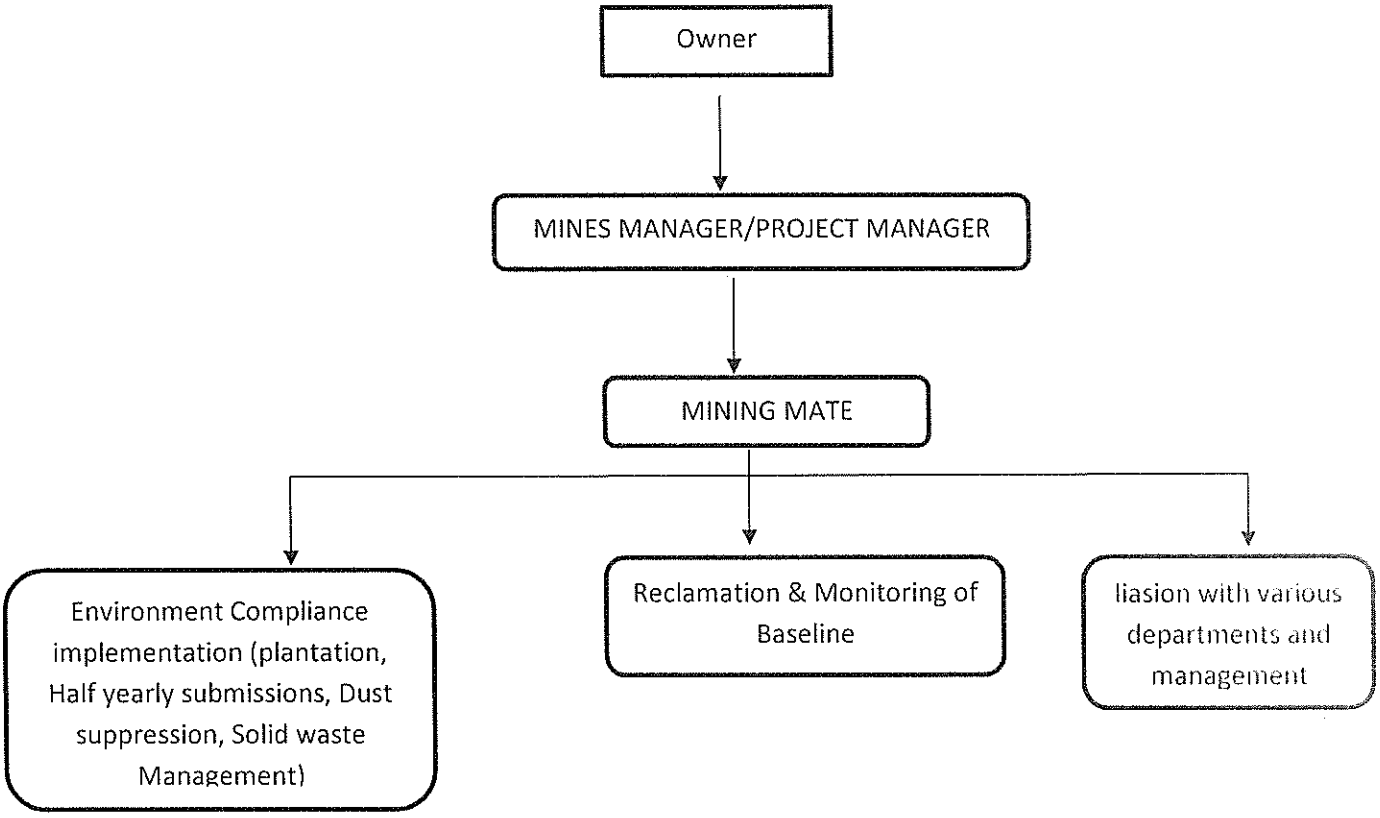
S. no	Monitoring Parameters	No. of Locations	Frequency of Monitoring
1	Ambient Air: Ambient Air Quality at appropriate location for PM10, PM2.5, SO2, NOx in the vicinity of the mine area. In the surrounding area covering project site only.	2 Stations	Six Monthly

2	Water: Surface water sample in the vicinity of the Project area.	2 Surface water 2 Ground water	Six Monthly
3	Noise: Day & Night level Noise Monitoring.	4 stations	Six Monthly
4	Soil: Soil Monitoring, Qualitative and quantitative testing/analysis to check the soil fertility, porosity, texture, water holding capacity, etc.	2 station	Six Monthly

Solid Waste Management

The waste encountered during the mining operation is mainly. During Plan period gritty soil removed will be dumped at northern side with suitable precaution. Some quantity of the removed gritty soil would also be used for road dressing and plantation. After conceptual period de-stoned area of quarry will be reclaimed to the extent possible.

Organization chart for Environment Management Cell



Water Quality Management

- Mining will be confined to above Ground Water Table (GWT). No mining will be done below GWT.
- Rainwater in quarry will be collected in a collection pit at mine floor. Arrangements would be made for pumping out this water regularly during rainy season.
- Water pumped out from quarry would be collected in a settling sump to be located within lease area. Desilted water will be allowed to flow into natural drainage.

- Garland drain would be provided on upper contour around the quarry. Water collected in Garland drain would be diverted to natural drainage system.
- Foot wall & Drain would be provided at edge of external dump water collected in foot drain would be diverted to settling sump for desilting.
- Sewage from rest shelter would be treated in Septic Tank soak pit.

Air Quality Management

Drilling – Drilling is a major source for emission of dust & Noxious Gases.

Mitigation measures:

i. Use of Sharp Drill Bits

ii. Wet Drilling – Water will be sprinkled on the site where drilling has to be done.

iii. Blasting – Blasting generate gases & dust. This effect would be mitigated by following measures.

- Controlled blasting would be practiced.
- Optimum quantity of explosives would be used.
- Blasting to be done during favourable weather conditions.

iv. Operation of Diesel Equipment's – They generate Noxious gases. It will be ensured that all mining machineries & transport vehicles would be repaired & maintained regularly.

v. Loading of Product on Truck – Water will be sprinkled on blasted stone mass before they are loaded to trucks for transport.

vi. Movement of Trucks on Road – Movement of Trucks on Road generate dust for mitigation of this pollution following measures will be taken:

- Regular water sprinkling on Gaul road by using water Tankers.
- Regular repair of Haul road.
- All Trucks carrying stone outside lease area will have PUC certificate

RISK ASSESSMENT

The hazard identification and risk analysis are done using qualitative method:

Hazard identification & Risk Analysis in Stone Mining operation

S.No.	Activity	Hazard	Probability	Severity	Score*
1	Temporary Storage of Explosives	Unintended Explosion	Very Unlikely	Catastrophic	5
2	Charging of Explosives	Unwanted Explosion	Very Unlikely	Catastrophic	5
3	Blasting	Hit by fly rock (Bodily Injury)	Occasional	Major	6
4	Drilling	Exposure to Dust	Frequent	Insignificant	5
5	Bench Formation	Fall/Slide/Tripping (Bodily Injury)	Probable	Moderate	6
6	Loading/Unloading	Bodily injury by hitting by loading material, Exposure to Dust	Very Unlikely	Minor	20

7	Transportation	Vehicle Accident, Exposure to Dust	Remote	Minor	16

NOTE: - *Score 1 to 4 High Risk, 5 to 12 Medium Risk & 13 to 25 is low risk.
The risk score lies between 5 to 20. Hence, the risk in stone quarry ranges from Medium to
Low-Risk Rank and hence the risk is "Acceptable"

Preventive Measures:

Slope Failure

Face instability gives rise to rock falls or slides. Face instability can arise because of adverse geological faulting or poor work methods. Those at greatest risk will be workers engaged in loading material and driving vehicles. To manage the face stability, the Following measures will be taken:

- Overall slope angles of benches will be maintained at 45°.
- Unmanageable heights are not created.
- Loose sides are properly dressed.
- No loose stone or debris will be permitted to remain on the top of the bench or side of any excavation (Regulation 106(4) of MMR 1961).
- No undercutting of any face or sides will be permitted so as to cause any overhanging (Regulation 106(5) of MMR 1961)

Drilling Operations

Drilling is common to the mining of stones. The main hazards linked to the drilling operations are:

- Falls from the edge of a bench
- Dust generation during drilling
- Noise Generation due to drilling
- Entrapment in by moving part of the drilling equipment

Falls from the edge of a bench

While the primary hazard is that of the driller falling over the edge of a working or abandoned bench, the risk of minerals or materials falling onto workers at the foot of the face should not be overlooked. A face and bench are a necessary part of a working quarry and therefore it is not possible to remove the hazards associated with them. While others may need to work at or near the edge of a working bench the person most at risk during the drilling operation is the driller. Others such as the manager of the mine or maintenance personnel, may approach the bench edge during the drilling operation in the event of a breakdown of the drilling equipment.

Control Measures

- It will be ensured that the drilling equipment is suitable for the job.
- The person in charge of the drilling machine is competent to carry out the drilling operation; part of the training includes instructions to always face towards the open edge of the bench so that any inadvertent backward step is away from the edge.
- Provision of portable rail fencing between the drilling operations and the edge of the bench

- Provision to attach a safety line to the drilling rig and provide a harness for the driller to wear.
- Restricted access to the area to all persons except those necessary for the drilling operation.

Dust generation during drilling

The hazard is the inhalation of dust which is created during the drilling operation. Properly applied control measures can substantially reduce the risk to the drill operator.

- Wet drilling will be carried out by constantly injecting a jet of water at the drill bit inside the hole, which prevents dust generation.
- In case due to any reason, wet drilling is not possible (due to non-availability of water), exhaust/ vacuum system will be provided which removes the dust from the drill hole continuously and discharges the same in a dust collector specially provided for the purpose.
- Drilling machine shall be fitted with dust suppression, collection and disposal arrangement.
- Deep wetting of drilling zones will be done by water sprinkling before starting drilling.

Noise Generation during drilling

Drilling operations give rise to harmful levels of noise. It is created by both drilling the hole and the operation of the drill rig itself.

The noise levels around drilling equipment will be continuously measured and the risk will be assessed. Unless control measures are in place no-one, except those necessary for the work in hand, will be allowed inside the designated noisy area. In most cases this will be the drill operator.

The risk is highest at older machines. Newer large drilling machines are provided with sound insulated operating cabins which control the noise level within the cabins to acceptable levels. Hence, it will be ensured that newly updated machines will be used for drilling. Other control measures will include training operators and providing them with ear protection, although the latter should only be seen as an interim precaution until a permanent solution can be found.

Blasting Operations

Most of the accidents from blasting occur due to the projectiles and mainly due to over charging of the shot holes as a result of certain special features of the local ground. Flying rocks are encountered during initial and final blasting operations. Noise and dust also generated during blasting. Following control measures should be taken:

- Blast hole geometry shall be properly designed.
- Blast site shall be wetted before and after blasting operations are completed.
- Only optimum quantity of permissible explosives shall be used so that the vibrations do not damage the structures/houses if the quarrying operations are close to human habitation.
- Blasting shall be conducted only during favourable weather conditions and only during the day time and permissible hours.
- While carrying out blasting operations near habitations, wide publicity will be given in the local area through announcement and other available media so that local people

become aware of the blasting activities being undertaken in the area and take appropriate precautions.

- The vibrations should be monitored periodically in consultation with the local Mining authorities.

Handling of Explosives

Explosives by virtue of their nature have the potential for the most serious and catastrophic accidents in the mining operations yet the way they are used is an excellent example of how risk assessment is properly applied. For example, persons holding blasters certificate granted by DGMS with proper training in explosive handling and use will be allowed for blasting operations.

- Use of explosives is specialist work. Planning for a round of shots is necessary to ensure that the face is properly surveyed, holes correctly drilled, direction logged, the weight of explosive suitable for good fragmentation and the continuity of the initiator are but a few of the steps necessary to ensure its safe use.
- Poorly designed shots can result in misfires, early ignition and flying rock.

The storage of the explosives and its transfer to and from the quarry area shall be strictly in accordance with the conditions listed in the permission granted by Explosives Department. Few conditions are listed below:

- Proper and safe storage of explosives in approved and Licensed Magazine.
- Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette or Bidi etc. will be put in place.
- Explosives shall be conveyed in special containers.
- Explosives and detonators shall not be carried in the same container.
- The holes which have been charged with explosives will not be left unattended till blasting is completed.

Health Hazards

Health hazards should be interpreted as being harmful dust and noise which is emitted during surface mining operations. All suitable steps and precautions will be undertaken to ensure minimum health hazard. Provision of use of Personal Protective Equipment (PPE) will be kept.

The PPE shall be of good make and quality, wherever possible ISI certified, suitable for the hazard e.g. a dust respirator fitted with the correct filter to capture the particulate hazardous dust and maintained to recommended standards. As personal protective equipment only affords limited protection it will only be used as a last resort and as an interim arrangement until other steps are taken to reduce the risk of personal injury to an acceptable level.

Accident at Site

Identifying the hazards that come along with the presence of vehicles at the work place (e.g. reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads

- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (e.g. being parked on a slope without being adequately secured)
- Untrained drivers
- Overturning vehicles

To avoid such instances, it will be ensured that workers shall be trained and involved in the risk management process and tell them to share their experience regarding what to do, to reduce risk.

Transportation

The usual method of transporting minerals from the working face is by trucks /tippers/dumpers. Large earth moving equipment's are used for loading /transporting large quantity of mineral from a mine. During transportation of minerals in the mining area, utmost care will be taken by the vehicle operator to avoid any accident with any in coming vehicle by keeping sufficient gap between the two vehicles, keep safe distance from the edge of the mine face, avoid any accident to a worker crossing the haul road and shall maintain low speed. The vehicle operator shall not try to overtake another vehicle.

- Mine road shall be made smooth regularly with a road roller.
- Mine road will be cleaned daily to remove fallen rock/stones for smooth transportation.
- Mine road will be made sufficiently wide to keep two-way traffic.
- Mine roads will be designed as per the specifications given under MMR 1961.
- Regular water sprinkling will be done on mine road and haul road to avoid suspension of dust.
- All transportation within the mine lease area should be carried out directly under the supervision and control of management.
- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Navigation signs will be provided at each and every turning point up to the main road (wherever required).
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

Undertaking submitted affirming:

a. Ground water will be used only for domestic purpose and not be used for any mining activities or any other use.
b. The District Survey Report has been prepared by a competent authority. Project Authorities will abide by any directives issued by any court of law in future.
c. If any changes are noticed in future regarding the contiguous / cluster area report issued by the mines department, then the applicable laws / rules will be binding on the Project Authorities and all necessary steps will be taken in this regard
d. The Boundary Pillars of the proposed mine lease area will be maintained properly.

e. One day post monsoon baseline data related to environment monitoring will be submitted with the first compliance report.
f. The plantation work will be completed within the first year of operation. Thereafter the same will be maintained up to the Conceptual stage of the Mine.
g. Sufficient water spray using water tankers will be done for effective dust suppression within the mine lease area and on haul roads.
h. All the mining machineries / equipment and transport vehicles should be maintained in good condition and annually tested for fitness and PUC and records to be maintained.
i. If any tree felling than necessary permission shall be taken from the competent authority.
j. Slope of the Water bodies to be stabilized using gabion plantation created at the end of life of the mine.
k. Suitable safety protection measures shall be taken around the water bodies to prevent any human or animals falling in to the water bodies created at the end of life of the mine.
l. Personal protective equipments such as clothing, helmet, goggles or other garments or equipments designed to protect from injury or infection will be provided to working personnel.

Based on the information contained in the documents submitted and the presentation made before the State Level Expert Appraisal Committee (SEAC) during its meetings held during 17, 18, 19, 20, 21 & 22.12.2024, the Committee recommends in the light of Hon'ble NGT, Principal Bench, New Delhi order dated 13.09.18 and MoEF& CC O.M dated 12.12.18 for issuing of ToR to SEIAA for undertaking detailed EIA / EMP study as mentioned in Annexure II alongwith following specific condition :-

I. The production shall be restricted as per approved mining scheme or the approved mine plan at the time of EC, which ever is less.
II. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign "*EkPed Ma KeNaam*" and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).
III. During appraisal of the project, it is seen that the project authority have not fully complied the condition of green belt development as per the previous EC. Hence, the project authorities are required to plant twice the number of trees as was required in the previous EC. The Deputy Commissioner through District Mining Officer will ensure that the mines owner of the respective leases to complete the plantation and maintenance in a time bound manner.

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11. **Patsi & Darmi Sand Deposit in North Koel River of M/s Jharkhand State Mineral Development Corporation Ltd. (JSMDC Ltd.), Village : Patsi & Damri, Distt. : Garhwa, Jharkhand (16.80 Ha).**

(Proposal no.: SIA/JH/MIN/ 503946 /2024)

The Environmental consultant at the time of obtaining ToR was P & M Solution, Noida, U.P.

The EIA is prepared and submitted for environmental clearance has been done by Ecomen Mining Pvt. Ltd. (Formerly known as Ecomen Laboratories Pvt. Ltd.), Lucknow, U.P.

At the time of consideration of the proposal the Committee observed that :

i. Copy of EIA submitted is a draft EIA whereas the final EIA is to be submitted for consideration of EC.
ii. The EIA does not anywhere mention, at what stage the change of consultant took place.
iii. No information was given to SEIAA / SEAC regarding change of consultant.
iv. During appraisal of the proposal, the project authority (Sand Incharge-I, JSMDC) vide letter no. 2469, dated 20.12.2024 informed the Committee that the change of consultant from P & M Solution, Noida, U.P. to Ecomen Mining Pvt. Ltd., Lucknow, U.P. was placed after obtaining ToR from SEIAA.

Hence, the Committee is of the view that additional one month baseline study for all the parameters and include the same in the final EIA for submission to SEAC for consideration of EC.

Accordingly, the project is deferred for submission of final EIA as mentioned above.

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Day 5 : December 21st, 2024 [Saturday]

A. Consideration of Proposals

1. **Expansion of Sponge Iron Plant Production From 30,000 TPA to 57000 TPA By Enhancement of Kiln 100 TPD to 190 TPD by M/s Niranjan Metallic Limited at Village : Gadi Srirampur, Tehsil : Giridih, Distt. : Giridih, Jharkhand.**

(Proposal No : SIA/JH/IND1/ 513292/2024)

Name of the consultant : Rian Enviro Private Limited, Patna, Bihar.

This is an expansion project which has been taken for appraisal on 21.12.2024.

Project Sector: 3 (a) Metallurgical Industries (secondary metallurgical processing) as per EIA

Notification, 2006, Category: B1.

Application for Environmental Clearance (EC) after ToR.

The State Expert Appraisal Committee, Jharkhand deliberated the project during its 113th meeting held on 30.05.2024 - 03.06.2024 and SEIAA, Jharkhand has approved the ToRs in 113th meeting held on 07th & 08th June, 2024. TOR for the project was issued by SEIAA, Jharkhand vide letter no. EC/SEIAA/2024-25/3123/2024/120, dated 14.06.2024. The final EIA / EMP submitted by PP to SEAC on 12.12.2024.

Project details :

S.N.	Parameters	Description					
1	Identification of project	Project falls under Metallurgical Industries (secondary metallurgical processing) Item 3(a) of the schedule of EIA notification of Sept 14, 2006 issued by MOEF & CC.					
2	Project Proponent	M/s. Niranjan Metallic Limited					
3	Brief description of nature of the project	Expansion of Sponge iron plant production from 30,000 TPA to 57000 TPA by enhancement of Kiln 100 TPD to 190 TPD					
4	**Salient Features of the Project**						
4.1	Proposed production capacity	Expansion of Sponge iron plant production from 30,000 TPA to 57,000 TPA by enhancement of Kiln 100 TPD to 190 TPD.					
4.2	Existing Capacity	Sponge Iron~100 TPD or 30,000 TPA					
4.3	Capacity after proposed expansion	Sponge iron~ 190 TPD or 57,000 TPA					
4.4	Total Plot Area	38.23 Acre					
	Khata	111	168	125	63	171	1
	Plot	2464, 2491	2483	2465, 2463	2494	2463,2466,2467, 2469,2472,2487, 2495,2484, 2490	2490
4.5	Location	Village-Gadi Srirampur, Mauza-Panchkurhi, Dist: Giridih – 815301, Jharkhand.					
4.6	Geo-Coordinate	Latitude-24°7'0.060"N to 24°7'12.620"N, Longitude-86°20'25.647"E to 86°20'54.762"E					
4.7	Water requirement	Overall water requirement for the proposed expansion project will be approx. 169 KLD out of which 79.0 KLD will be used as makeup water including domestic purpose. Total water requirement for the existing					

S.N.	Parameters	Description
		project was 82 KLD.
4.8	Source of water	Borewell
4.9	Wastewater	The domestic water consumption will result in generation of ~7.2 KLD of domestic wastewater. The wastewaters will be managed through septic tank & soak pits.
4.10	Man Power	Construction phase: Around 150 persons Operation phase: Around 195 persons
4.11	Electricity/Power requirement	Existing Power requirement was 500 KVA. Proposed requirement will be 1000 KVA. Total power requirement after expansion will be 1500 KVA or 1.5 MW. For emergency power requirement 1x600 KVA DG Set has been installed. Additionally, 1x600 KVA. DG set shall be installed under the proposed expansion.
4.12	Alternative site	The proposed addition will be established in the existing plant premises only.
4.13	Project Cost	35.69 Crs.

Land Details :

Khata no.	111	168	125	63
Plot no.	2464, 2491	2483	2465, 2463	2494

Plant obtained CTE from Jharkhand State Pollution Control Board (JSPCB) videApplication.No. N-342 dated 21-05-2005 for production capacity of Sponge Iron-100 MT/day. The unit has obtained CTO for the same production though vides Ref No. JSPCB/HO/RNC/CTO-18573366/2024/1148 dated 12/07/2024 valid upto 31/03/2025.

SALIENT FEATURES OF THE PROJECT EXISTING & PROPOSED

S.No.	Particulars	Existing	Proposed	Total Production (After expansion final)
Unit processes/ machinery				
1.	Sponge Iron Plant	1x100 TPD Sponge Iron (30,000 TPA)	Installed additional 1x 90 TPD 27,000 TPA	(1X100 TPD+1X90 TPD) 57,000 TPA
2.	Fixed capital investment (Rs)	~ 20.47 Crore	~15.22 Crore	~35.69 Crore

3.	Electrical power requirement	~500 KVA	~300 KVA	~800KVA
4.	Manpower requirement	~45	~40 (Direct) ~110 (Indirect)	~195
5.	Makeup water requirement	35 KLD	42 KLD	79 KLD
6.	Domestic water requirement	2.0 KLD	7.0 KLD	9.0 KLD
7.	Domestic wastewater generation	1.6 KLD	5.6 KLD	7.2 KLD
8.	Raw Material	Pellets: 58090 TPA Non-Coking Coal: 32858 TPA Dolomite/Limestone: 1810 TPA	Pellets: 47528 TPA Non-Coking Coal: 25818 TPA Dolomite/Limestone: 1543 TPA	Pellets: 105618 TPA Non-Coking Coal: 58676 TPA Dolomite/Limestone: 3353 TPA
9.	Fuel	HSD- DG sets		

Mass balance of pellets based proposed sponge iron of 190 TPD Niranjan Metallics Limited, Giridih

S.N.	INPUT	Quantity TPD	Per annum	OUTPUT	Quantity TPD	Per annum
1	Pellets/ Iron Ore	275.5	82,650.0	Sponge Iron	190.0	57000
2	Coal	237.5	71,250.0	Wet scrapper sludge	5.1	1539
3	Dolomite	7.6	2,280.0	Dolochar	47.5	14250
4		0.0	0.0	ESP, Bag Filter Dust	15.4	4617
5				Accretion	12.8	3847.5
6		0.0	0.0	Volatile losses	249.8	74926.5
	Total	**521**	**1,56,180**		**521**	156180

Total Water Requirement for the Existing Plant (KL)

S.No.	Unit	Purpose	Existing (100 TPD)	Proposed (90 TPD)	

			Recirculating water (KLD)	Make up water (KLD)	Recirculating water (KLD)	Makeup water (KLD)	Total water requirement after proposed expansion (KL)	Waste water generation (KLD)
1.	DRI Plant	Cooling	45	35	45	35	160	0
2.	Domestic	Drinking & Sanitation	0	2	0	7.0	9	7.2
3	Plantation	Green belt development	03	00	04	00	07	0
Total			**48**	**37**	**49**	**42**	**176**	**7.2**

Total waste water generation is 7.2 KLD which will be used for green belt development

Make-up Water (Fresh) Requirement for the Existing & Proposed Plant (KLD)

Unit	Makeup water Existing (KLD)	Makeup water for Proposed Units	Makeup water Total after expansion
DRI Plant	35	35	70
Drinking & Sanitation	2	7	9
Total	**37**	**42**	**79**

Total waste water generation is 7.2 KLD which will be used for green belt development

The capacity of the rain water pond is around 5500 sqm with an average depth 4 m, water holding capacity is 22,000 Cum. Source of water ground water and rainwater harvesting. The water from RWH tank can meet approximately 60 days of industrial demand.

Raw Material details for sponge iron unit

Unit	Annual Requirement (TPA)	Mode of Transportation	Distance covered	Source as e.g. #
Pellets/ Iron Ore	82,650.0	Railway/Truck	Approx. 250 km	Rungta Mines Ltd.Jharkhand Amalgam Jharkhand Rashmi Metallic, Kharaghpur, W.B. and

				other sources
Non-Coking Coal	71,250.0	Truck	Approx. 300 km	Adani Enterprises Haldia (Bengal) Madhya Pradesh and other sources
Dolomite/Limestone	2,280.0	Truck	Approx. 370 km	Bhutan, Banaras and other sources

This is an indicative source of material while materials can be sourced from open market as per availability

Solid Waste Generation & Management

Unit	Solid Waste Generated	Quantity in (TPD)	Mode of Disposal	Recycle & Reused Unit
Sponge Iron Plant (190 TPD)	Char	47.5	Char will be sold to Power plant. Will be supplied to vendors - use as construction & low-lying areas filling.	Will be sold to Ankit Metal Power Limited; BISCO Metal Power Pvt. Ltd. etc.Shyam Metal
	Wet Scrapper	5.1		
	Accretion	12.8		
ESP & Bag Filter	Dust	15.4	Brick making plants.	ESP & Bag Filter dust sold to authorized recycler. For proposed expansion the generated dust will be sold to Mongia Bricks.
Domestic	MSW	10237kg/annum	The Municipal waste generated during the project will be segregated and handed over to local municipal	--
Cooling Tower	Sludge/Salt	192kg/annum	Used as earthing	--

Public Hearing Details

S.N.	Particulars	Date and Description
1.	**Date of Advertisement**	6th October, 2024
2.	**Date of Public Hearing**	8th October, 2024.
3.	**Place of Public Hearing**	Utkramit Prathmik Vidyalaya Kalhamanjho, Panchayat-Gadi Srirampur, District- Giridih (Jharkhand).
4.	**Officials in Public Hearing**	1. Shri Jitendra Prasad Singh, Regional Officer, Regional Office, Jharkhand State Pollution Control Board, Hazaribagh. 2. Shri Sumit Kumar Jha, Assistant Environmental Engineer, Jharkhand State Pollution Control Board Headquarters.
5.	**Public attained Public Hearing**	More than 25
6	**Main issue discussed during the Public Hearing**	Pollution Control Measures (for Air pollution, Dust emission). Employment for local people, Water Crises and its management, Greenbelt developed, Street Lighting, Road Development,

Budgetary Provision for Action Plan based on Public Hearing

Action Plan	Budgetary Provision	Time Frame (Year)		
		1st	2nd	3rd
Pollution Control Measures(Air Pollution) at plant site	Covered under EMP Budget	-	-	-
Road militance fund at Village Purani Pateria	5.00	2.5	2.5	-
Educational support for Local People at village Kalahmajhi	10.00	5	5	-
Plantation along village pond at	5.00	-	-	5
Safety cover to employees	Covered under EMP Budget	-	-	-

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Health checkup/facilities to local people at village Purani Pateria	4	2	2	-
Drinking Water facility at village Gadishrirampur	6	3	3	-
Marriage Fund to Poor Families at village Kalahmajhi	9	3	3	3
Total	39.00 lakhs	15.5 lakhs	15.5 lakhs	8 Lakhs

Budget for Environmental Monitoring and management Plan
(OPERATION PHASE)

Sl No	Description		Capital Cost (Lakh)	Recurring Cost/annum (Lakhs)
1	Air Pollution Management	Lime wet scrubber + Bag filter + stack	450	112.5
2	Effluent Treatment (Water Pollution Management)	Effluent and sewage treatment plant	200	25
3	Environment Monitoring	Online monitoring of air and water	50	12.5
		Third party investment for monitoring	10	2.5
4	Noise Pollution Control	(Including cost of Landscaping, Equipment's/, Road side plantation, etc.)	12	3
5	Solid waste management	Slag and ash handling & management	50	12.5
		Others.	10	2.5
6	Greenbelt & plantation development	Plantation & Greenbelt (Core and Buffer Zone)	28	7
7	RWH (Rain water collection tank and Ground water Recharge).	Required Infrastructure,	24	6
8	Safety and OHSAS	Safety Audits in the industry,	12	3

	(Occupational Health & Safety including PPEs etc.)	Primary Health Center and Emergency System,	12	3
9	PH commitment	Action plan budgetry provision	39 (the amount will be used for 3 years)	-
		Total	878	189.5

Details of Solid waste and Mode of disposal

Description of the Plant	Plant Capacity	By-product/Waste Product	Mode of Disposal	Authorized Persons e.g.
Sponge Iron Plant	190 TPDX300 Days	Char -47.5 TPD Wet scrapper sludge 5.1 TPD Accretion 12.8TPD	Char will be sold to Power plant Will be supplied to vendors - use as construction & low-lying areas filling.	Will be sold to Ankit Metal Power Limited; BISCO Metal Power Pvt. Ltd. etc. Shyam Metal& others
	ESP Bag Filter units-7 Nos.	Approximately 15.4 TPD of ESP dust + from bag filter unit generated during the plant operation	Brick making plants.	ESP & Bag Filter dust sold to authorized recycler. For proposed expansion the generated dust will be sold to Mongia Bricks and others
Domestic	195 Persons	10237 kg/annum	The Municipal waste generated during the project will be segregated and handed over to local municipal	--
Sludge/Salt from cooling towers	--	192 kg/annum	Used as earthing	Inhouse and nearby factory

Expected Budget of the CSR activities based on the need-based assessment of Socio Economic survey

S.No.	Activities	Expected Budget (in Lakh)	Time Frame		
			1st Yr	2nd Yr	3rd Yr
1.	Infrastructure support to the schools in villagesKalahmajhi	6	3	2	1
2.	Distribution of sports kits to the Middle schools and books to the High Schools in villagesHatemahari,	4	2	1	1
3.	Distribution of 25 Water purifiers @ Rs. 8000 to the Public Health Centers (PHCs) and schools of the nearby villagesGadishrirampur and Purani Pateria.	2	2	0	0
4.	**Total Budget**	**12**	**7**	**3**	**2**

Conservation Plan

As per the Wildlife (Protection) Act, 1972 and its recent amendment in December, 2022, a total of five (5) number of schedule-I species were have been receded from the different parts of the study area.

A detailed site-specific conservation plan for these faunal species has been prepared. However, care will be taken during the developmental activities if any other wildlife species will be found. Although, all the activities of the steel plant will be limited to its premises only, hence there is no direct impact on the any wildlife fauna of the present study area.

An amount of 1.58 Cr has been allocated for the Conservation Plan and the allocated amount will be used for a period of 9 years for different purposes.

The amount of conservation plan may change as per the approval from CWW/PCCF Jharkhand

STATUTORY CLEARANCES :

1	LOI/Lease docs	:	Private land, owned by M/s. Niranjan Metallic Limited
2	CO	:	The CO, Giridih vide letter no. 912, dated 15.09.2022 has mentioned the plot no. of the project is not recorded as "Jungle Jhari" in R.S. Khatiyan.
3	DFO Wild Life	:	DFO, Wildlife Hazaribagh vide letter no. 236, dated 10.02.2024 certified that the proposed project site is outside Eco Sensitive

			Zone of Parasnath & Topchanchi Wildlife Sanctuary.
4	DFO Forest Distance	:	DFO, Giridih East Forest Division vide letter no. 1350, dated 20.04.2024 certified that the distance of notified forest is **18 meters** from project site. This being an expansion in a existing project and no addition of new land, siting criteria is not applicable.
5	Consent to Establish (CTE)	:	**CTE** issued by JSPCB vide Ref. no. N-342, dated 21.05.2005.
6	Consent to Operate (CTO)	:	**CTO** granted by JSPCB vide Ref. no. i. JSPCB/HO/RNC/CTO-15553178/2023/1232, dated 16.07.2023. ii. JSPCB/HO/RNC/CTO-18573366/2024/1148 dated 12/07/2024 valid upto 31/03/2025.
7	Public Hearing	:	JSPCB, Regional Office –cum- Laboratory, Hazaribag vide letter no. 1818, dated 15.10.2024 informed that Public Hearing conducted on 08.10.2024.
8	Baseline data collection	:	1st March, 2024 to 31st May, 2024.

Based on the presentation made and information provided, the Committee decided that the proposal for Expansion of Sponge Iron Plant Production From 30,000 TPA to 57000 TPA By Enhancement of Kiln 100 TPD to 190 TPD by M/s Niranjan Metallic Limited at Village : Gadi Srirampur, Tehsil : Giridih, Distt. : Giridih, Jharkhand is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – IV along with following specific conditions :

I. The Wildlife Conservation Plan prepared is to be submitted to the competent authority for approval and evidence of the same is to be submitted to SEIAA prior to issuance of the EC. The Approved copy of Wildlife Conservation Plan shall be submitted to SEIAA/SEAC within 06 months of the grant of EC.

II. Maximum quantity of Rain Water Harvested shall be used within the plant permises and only surplus RWH water shall be recharged to ground.

III. No effluent to be discharged out side the plant premises.

IV. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

V. Ground water to be drawn for use in the project only after obtaining permission from the Competent Authority.

VI. Environment management system including organization structure to be drawn to ensure compliance of EC conditions stipulated based on principles of Continual Improvement and periodical management review.

VII. All raw material to be stored only under covered shed.

VIII. Trees should be developed & maintained not less than 33% of project area.

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2. **Expansion of Sponge Iron Plant from 30,000 TPA to 57,000 TPA by addition of 90 TPD Kiln & existing 100 TPD Kiln along with proposed Captive Power Plant 8 MW (2x2 MW WHRB & 1x4 MW AFBC), MS Billets Production 1,40,000 TPA by installing 2x20 Ton Induction furnaces with CCM (3x6/11), Re-Rolling Mill for production of 1,40,000 TPA rolled products and Slag crusher unit (10 TPH) by M/s Venkateshwara Sponge & Iron Co. Pvt. Ltd. at Village : Mahuatand, Tehsil : Giridih, Distt. : Giridih, Jharkhand.**

(Proposal No : SIA/JH/IND1/ 514125 /2024)

Name of the consultant : Rian Enviro Private Limited, Patna, Bihar.

This is an expansion project which has been taken for appraisal on 21.12.2024.

Project Sector: 3 (a) Metallurgical Industries (secondary metallurgical processing) as per EIA Notification, 2006, Category: B1.

Application for Environmental Clearance (EC) after ToR.

The State Expert Appraisal Committee, Jharkhand deliberated the project during its 113th meeting held on 30.05.2024 - 03.06.2024 and SEIAA, Jharkhand has approved the ToRs in 113th meeting held on 07th & 08th June, 2024. TOR for the project was issued by SEIAA, Jharkhand vide letter no. EC/SEIAA/2024-25/3128/2024/118, dated 14.06.2024. The final EIA / EMP submitted by PP to SEAC on 12.12.2024.

Project details :

S. No	Parameters	Description
1	Identification of project	Project falls under Metallurgical Industries (secondary metallurgical processing) Item 3(a) of the schedule of EIA notification of Sept 14, 2006 issued by MOEF & CC.
2	Project Proponent	**M/s. Venkateswara Sponge & Iron Company Private Limited**
3	Brief description of	Expansion of Sponge iron plant production from 30,000 TPA to 57,000 TPA by enhancement of Kiln 100 TPD to 190 TPD

S. No	Parameters	Description					
	nature of the project						
4	**Salient Features of the Project**						
4.1	Proposed production capacity	Expansion of Sponge iron plant production from 30,000 TPA to 57,000 TPA by enhancement of Kiln 100 TPD to 190 TPD.					
4.2	Existing Capacity	Sponge Iron~100 TPD or 30,000 TPA					
4.3	Capacity after proposed expansion	Sponge iron~ 190 TPD or 57,000 TPA					
4.4	Total Plot Area	27.53 Acre					
	Khata no	2	4	5	6	7	9
	Plot No	4,14	10	12,	7,16	3,5,9,11,15	8
4.5	Location	Village: Mahuatand, Tundi Road, P.O: Gadi Srirampur, Dist: Giridih – 815301, Jharkhand					
4.6	Geo-Coordinate	Latitude-24°6'56.157"N to 24°7'7.150"N Longitude-86°20'54.242"E to 86°21'16.823"E					
4.7	Water requirement	Overall water requirement for the proposed expansion project will be approx. 457 KLD out of which 108 KLD will be used as makeup water including domestic purpose. Total water requirement for the existing project was 82 KLD.					
4.8	Source of water	Borewell					
4.9	Wastewater	The domestic water consumption will result in generation of ~7.2 KLD of domestic wastewater. The wastewaters will be managed through septic tank & soak pits.					
4.10	Man Power	Construction phase: Around 150 persons Operation phase: Around 195 persons					
4.11	Electricity/Power requirement	Existing Power requirement was 1.0 MW. Proposed requirement will be 7.0 MW. Total power requirement after expansion will be 8.0 MW. For emergency power requirement 1x600 KVA DG Set has been installed. Additionally, 1x600 KVA. DG set shall be installed under the					

S. No	Parameters	Description
		proposed expansion.
4.12	Alternative site	The proposed addition will be established in the existing plant premises only.
4.13	Project Cost	31.57 Crore

Land Details :

Khata no.	2	4	5	6	7	9
Plot No.	4, 14	10	12,	7, 16	3, 5, 9, 11, 15	8

Plant obtained CTE from Jharkhand State Pollution Control Board (JSPCB) videApplication.No. 4247 dated 18-08-2005 for production capacity of Sponge Iron-100 MT/day. The unit has obtained CTO for the same production though vides Ref No. JSPCB/HO/RNC/CTO-9029328/2021/227 Dated: 09/02/2021 valid upto31/12/2025.

S.No.	**Particulars**	**Existing**	**Proposed**	**Total Production (After expansion final)**
Unit processes/ machinery				
1.	Sponge Iron Plant	1x100 TPD Sponge Iron (30,000 TPA)	Installed additional 1x 90 TPD 27,000 TPA	(1X100 TPD+1X90 TPD) 57,000 TPA considering 300 working days
	Induction Furnace	--	2X 20 Ton with 1,40,000 TPA Production	1,40,000 TPA Production
	Rolling Mill	--	20 TPH with 1,40,000 TPA Production	1,40,000 TPA (considering 350 working days)
	CPP	--	(2x2 MW WHRB + 1x4MW AFBC)	8 MW
	Slag Crusher Unit	--	10 TPH	10 TPH
2.	Fixed capital investment (Rs)	~ 15.73 Crore	~15.84 Crore	~31.57 Crore
3.	Electrical	~1.0 MW	~7.0 MW	~8.0 MW

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	power requirement			
4.	Manpower requirement	~45	~150	~195
5.	Makeup water requirement	35 KLD	71 KLD	108 KLD
6.	Domestic water requirement	2.0 KLD	7.0 KLD	9.0 KLD
7.	Domestic wastewater generation	1.6 KLD	5.6 KLD	7.2 KLD
8.	Fuel	HSD- DG sets		

Mass balance of Sponge iron production

Sl.No	INPUT	Quantity TPD	Per annum	OUTPUT	Quantity TPD	Per annum
1	Pallets /Iron Ore	307.8	92,340.0	Sponge Iron	190.0	57000
2	Coal	247.0	74,100.0	Wet scrapper sludge	5.5	1664.4
3	Dolomite	7.6	2,280.0	Dolochar	61.8	18525
4		0.0	0.0	ESP, Bag Filter Dust	16.6	4993.2
5		0.0	0.0	Accretion	13.9	4161
6				Volatile losses	274.6	82376.4
	Total	**562**	**1,68,720**		**562**	**168720**

Raw Materials Requirements

Unit	Annual Production	Mode of Transportation	Distance covered	Source (e.g.) #	Address
Iron Ore/Pallets	92,340.0	Truck	Approx. 250 km	Rungta Mines Ltd and others	Chaliyama, Saraikela Kharsawan
				Amalgam Steel and others	Kandra, Saraikela Kharsawan
				Rashmi Metaliks Ltd. and others	Nandarchak, Kharagpur, West Bengal

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Non-Coking Coal	74,100.0	Truck	300 km	Adani Enterprises and others	Salt Lake, Kolkata
Dolomite/Limestone	2,280.0	Truck	100 km	Ganapati Enterprises and others	Kharkabad, Govindpur, Dhanbad

#This is an indicative source of material while materials can be sourced from open market as per availability

Total Water Requirement for the Existing DRI Plant (KL)

Unit	Purpose	Recirculating water (KLD)	Makeup water (KLD)	Total water requirement (KL)	Waste water generation (KLD)
DRI Plant	Cooling	45	35	80	0
Drinking & Sanitation	Domestic	0	2	2.0	1.6
Total		**45**	**37**	**82**	**1.6**

Total Water Requirement for the Proposed expansion Plant (KLD)

Unit	Purpose	Recirculating water (KLD)	Makeup water (KLD)	Total water requirement (KL)	Waste water generation (KLD)
DRI Plant (100+90 TPD)	Cooling	90	70	160	0
Power Plant		115	13	128	0
SMS		108	12	120	0
Rolling Mill		36	4	40	
Drinking & Sanitation	Domestic	0	9	9	5.6
Plantation	Green belt	0	0	5	0
Total		**349**	**108**	**462**	**5.6**

#Water used for green belt development will source form waste water generated from domestic source and after treatment in STP.

Table Make-up Water (Fresh) Requirement for the Existing & Proposed Plant (KLD)

Unit	Makeup water Existing (KLD)	Makeup water for Proposed Units	Makeup water Total after expansion
DRI Plant	35	35	70
Power Plant (8 MW)	0	13	13
SMS (IF & CCM)	0	12	12
Rolling Mill	0	4	4
Drinking & Sanitation	2	7	9
Total	**37**	**71**	**108**

The capacity of the is around 150 sqm with an average depth 4 m, water holding capacity is 600 Cum. Source of water ground water and rainwater harvesting. The water from RWH tank can approximately meet 10 days of industrial demand.

Power requirement for Existing & Proposed Plant

Unit	Power requirement for Existing Units(MW)	Power requirement for Proposed Units (MW)	Total after Expansion (MW)
DRI Sponge	1.00	1.00	2.00
Steel Melting Shop	0	4.00	4.0
Rolling Mill	0	1.00	1.00
CPP Auxiliary	0	1	0.8
TOTAL	**1.00**	**7**	**8**
Total Power required		**7**	**8**

Public Hearing Details:

S.No.	Particulars	Date and Description
1.	Date of advertisement	03rdSeptember2024
2.	Date of public hearing	04th October, 2024
3.	Place of public hearing	Tarve Marriage Hall, Near DPS School, Harsinghraidhi, District Giridih
4.	Officials in Public Hearing	Supply Officer, Giridih Regional Officer, Regional Office, JSPCB, Hazaribagh, Assistant Environmental Engineer, JSPCB.
5.	Public Attended public hearing	49
6	Main issue discussed in public hearing	Regarding Air pollution controlled measures, Road maintenance, Pond Renovation, Employment to local villagers, Water Sprinking on nearby roads, Medical

		Facility, Plantation near the site

BUGETRY ALOCATION &ACTION PLAN FOR ADDRESSING THE PUBLIC HEARING COMMITMENTS

Area of Concern	Particulars	Total Budget (Lakhs)	Time Frame (Year)		
			1st	2nd	3rd
Air Pollution Control Measures	ESP	Covered under EMP	--	--	--
	Bag Filter Unit		--	--	--
	Coal Fid Optimization		--	--	--
	Stack Emission Monitoring		--	--	--
	AAQ Monitoring		--	-	--
	Fugitive Emission Control		--	--	--
	Water Sprinkling System		--	--	--
	Internal Roads		--	--	--
	Tree Plantation		--	--	--
	Maintenance & Control		--	--	--
Waste Water Treatment	Waste Water Management	Covered under EMP	--	--	--
Dust and Road militance	Village GadiShrirampurRoads	10 Lakhs	7.0	3.0	--
	Street Lights at village GadiShrirampur	05 Lakhs	3.0	2.0	--
Employment	Willing and employable youths will be identified in consultation with Gram Panchayat of Mahuatand, Giridih They will be provided training for trades namely electrician, fitters, weilders, painters, and civil construction work, etc. After successful completion of training, the youths will be offered employment in the company in suitable grade.	12.0 Stipend – 4.5 Lakh (Rs. 15000/- stipend per year to 30 persons for 1 year) ITI Fee – 7.5 Lakhs (Rs. 25000/- yearly fee for 30 persons for 1 year)	6.0	6.0	--
Village Pond renovation	Pond near Middle School GadiSrirampur	20.0	--	--	20 lakh

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Safety for Employ		Covered under EMP	--	--	--
Local Health Issues	Health checkup camp/ Health facilities	05	2.5	2.5	--
Drinking Water System	At village Gadishri Rampur, Giridih.	14	7.0	7.0	--
Total		**66.0 lakhs**	**25.5 lakhs**	**20.5 lakhs**	**20 Lakhs**

EMP Budget:

S.No	Title	Capital Cost Rs. (Crs).	Recurring Cost (Crs/Annum)
1	Air Pollution Control	12.0	0.50
2.	Waste Water management	0.10	0.02
3.	Noise Pollution Control (Including cost of Landscaping, Green Belt)	0.15	0.02
4.	Solid Waste Management	0.20	0.05
5.	Environment Monitoring AAQMS, CEMS, Third party Monitoring	0.81	0.15
6.	RWH Pond	0.15	0.02
	Occupational Health & Safety including PPEs etc	0.11	0.065
7.	Miscellaneous (Appointment of Consultants, occupational health & safety measure)	0.05	0.01
8.	Public Hearing Commitments	66.0	0.0
	Total	**79.57**	**0.835**

Details of Solid waste and Mode of disposal

Unit	Solid Waste Generated	Quantity in (TPD)	Mode of Disposal	Recycle & Reused Unit
Sponge Iron Plant (190 TPD)	Char	61.8	Will be used in AFBC Boiler (in-house)	CPP
	Wet Scrapper	5.5	--	Brick manufacturing unit
	Accretion	13.9	--	Sell out, brick manufacturing unit

ESP & Bag Filter	Dust	16.6	Brick making plants.	In existing plant ESP & Bag Filter dust sold to authorized recycler (Prakash Jalan). For proposed expansion the generated dust will be sold to Mongia Bricks, Manjhladih, Giridih
Power	Waste Water from DM Plant	There will be waste water from DM Plant and it will be utilized after neutralizing for dust suppression at raw material yards and for green belt.	--	Mongia Bricks, Tundi Road, Manjhladih, Giridih
	Ash		The ash generated will be sold for Brick making Units	--
SMS	Slag	97	Land filling and brick manufacturing	Mongia Bricks, Tundi Road, Manjhladih, Giridih
	Broken Refractory	0.256	--	--
Rolling	Mill Scale	4.0	The waste has commercial worth and will be sold	Used in Lowlying areas
	Trimming Reject	8.0	--	reused
Slag Crusher	Recovered Scrap	10	In-house Used and for filling low line areas	--
	Dust	87	--	Brick manufacturing
Domestic	MSW	10237kg/annum	Will be sent to local municipal corporation	--
Cooling Tower	Sludge/Salt	192kg/annum	Used as earthing	--

Hazardous waste: Generation of „Used Oil", after the proposed expansion shall be approx. 10 kiloliters per annum and will be sold to the registered recyclers. Used oil will be collected in dedicated drums and stored on impervious concrete floor for maximum 90 days before disposal.

Expected Budget of the CSR activities based on the need-based assessment

S.No.	Activities	Expected Budget (in Lakh)	Time Frame		
			1st Yr	2nd Yr	3rd Yr
1.	Infrastructure support to the Public Health Centers (PHCs) in the nearby villages Majhiladihand Block Hospital	5	3	1	1
2.	Distribution of books, bags, stationery and sports items to the schoolchildren of class I to V in the Government primary schools of the nearby villagesGadiShrirampur.	3	1	1	1
3.	Distribution of 25 Water purifiers @ Rs. 8000 to the Aganwadi Centers (AWCs) of the nearby villagesPurni Petaria.	2	2	0	0
4.	**Total Budget**	**10**	**6**	**2**	**2**

Conservation Plan budget

As per the Wildlife (Protection) Act, 1972 and its recent amendment in December, 2022, a total of five (5) number of schedule-I species were have been receded from the different parts of the study area.

A detailed site-specific conservation plan for these faunal species has been prepared. However, care will be taken during the developmental activities if any other wildlife species will be found. Although, all the activities of the steel plant will be limited to its premises only, hence there is no direct impact on the any wildlife fauna of the present study area.

An amount of 1.78 Cr has been allocated for the Conservation Plan and the allocated amount will be used for a period of 9 years for different purposes.

The amount of conservation plan may change as per the CWW/PCCF Jharkhand approval.

STATUTORY CLEARANCES :

1	LOI/Lease docs	:	Private land, owned by M/s. Venkateswara Sponge & Iron Company Private Limited
2	CO	:	The CO, Giridih Sadar vide letter no. 589, dated 17.05.2024 has

			mentioned the plot no. of the project is not recorded as "Jungle Jhari" in R.S. Khatiyan.
3	DFO Wild Life	:	DFO, Wildlife Hazaribagh vide letter no. 234, dated 10.02.2024 certified that the proposed project site is outside Eco Sensitive Zone of Parasnath & Topchanchi Wildlife Sanctuary.
4	DFO Forest Distance	:	DFO, Giridih East Forest Division vide letter no. 1351, dated 20.04.2024 certified that the distance of notified forest is **11 meters** from project site. This being an expansion in a existing project and no addition of new land, siting criteria is not applicable.
5	Consent to Establish (CTE)	:	**CTE** issued by JSPCB vide Ref. no. N-69, dated 29.03.2006.
6	Consent to Operate (CTO)	:	**CTO** granted by JSPCB vide Ref. no. i. JSPCB/HO/RNC/CTO-9029328/2021/227, dated 09.02.2021. ii. JSPCB/HO/RNC/CTO-9029328/2021/227 Dated: 09/02/2021 valid upto 31/12/2025.
7	CGWA	:	No Objection Certificate (NOC) for Ground Water Abstraction vide NOC No. CGWA/NOC/IND/ORIG/2022/17216, dated 28.10.2022 valid up to 27.10.2025.
8	Public Hearing	:	Public Hearing conducted on 04.10.2024.
9	Baseline data collection	:	1st March, 2024 to 31st May, 2024.

Based on the presentation made and information provided, the Committee decided that the proposal for Expansion of Sponge Iron Plant from 30,000 TPA to 57,000 TPA by addition of 90 TPD Kiln & existing 100 TPD Kiln along with proposed Captive Power Plant 8 MW (2x2 MW WHRB & 1x4 MW AFBC), MS Billets Production 1,40,000 TPA by installing 2x20 Ton Induction furnaces with CCM (3x6/11), Re-Rolling Mill for production of 1,40,000 TPA rolled products and Slag crusher unit (10 TPH) by M/s Venkateshwara Sponge & Iron Co. Pvt. Ltd. at Village : Mahuatand, Tehsil : Giridih, Distt. : Giridih, Jharkhand is recommended for grant of EC. The various conditions for grant of EC is enclosed as Annexure – IV along with following specific conditions :

I. The Wildlife Conservation Plan prepared is to be submitted to the competent authority for approval and evidence of the same is to be submitted to SEIAA prior to issuance of the EC. The Approved copy of Wildlife Conservation Plan shall be submitted to SEIAA/SEAC within 06 months of the grant of EC.

II. The reheating furnace shall be used only in emergency situation.

III. Maximum quantity of Rain Water Harvested shall be used within the plant permises and only surplus RWH water shall be recharged to ground.

IV. No effluent to be discharged out side the plant premises.

V. In compliance of OM no.F.No. IA3-22/3/2024-IA.III (E-241594) dated 24.07.2024 of MoEF&CC, Govt. of India plantation of saplings shall be carried out in the earmarked green belt area as the part of tree plantation campaign *"Ek Ped Ma Ke Naam"* and the details of the same shall be uploaded in the MeriLiFE Portal (https://merilife.nic.in).

VI. Ground water to be drawn for use in the project only after obtaining permission from the Competent Authority.

VII. Environment management system including organization structure to be drawn to ensure compliance of EC conditions stipulated based on principles of Continual Improvement and periodical management review.

VIII. All raw material to be stored only under covered shed.

IX. Trees should be developed & maintained not less than 33% of project area.

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B. Matter referred by SEIAA regarding inspection and monitoring of Remediation Plan and submit the report to SEIAA for release of Bank Guarantee submitted by Project Proponent to Jharkhand State Pollution Control Board (JSPCB).

i. "Proposed Multistoried Apartment" of M/s Oceanic Buildtech & Construction Pvt. Ltd., Village : Argora, Thana : Argora, Thana no. : 207, Tehsil : Argora, Dist. : Ranchi, Jharkhand.

The EC to this project was granted under violation category vide letter no. EC/SEIAA /2022-23/ 2561 /2022/257, dated 09.09.2022.

Remediation Plan and Natural & Community Resource Augmentation Plan of Rs. 32.50 Lakh was to be utilized under five different categories.

The Project Authorities vide letter dated 20.05.2024 have claimed having incurred expenditure to the tune of Rs. 32.50 Lakh under five heads.

During consideration of the above request the Project Authorities could not provide sufficient evidence of the expenditure incurred as claimed in their letter dated 20.05.2024.

Hence, it will be reconsidered after complete details are provided.

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The meeting concluded with thanks to all present.

Ashok Kumar Dubey, IFS (Retd.)
Member

Dr. Ajay Govind Bhatt
Member

Niranjan Lal Agarwalla
Member

Dr. Raju Kumar
Member

Srikant Verma, IFS
Member Secretary

Ashok Kumar Singh, IFS (Retd.)
Chairman

I. Statutory compliance

i. This Environmental Clearance (EC) is subject to orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.

ii. In the writ petition (Civil) no. 202/1995, T.N. GodavermanThirumulpadvs union of India and ors. theHon'ble Supreme Court passed an order dated 03.06.2022 " National Park or Wildlife Sanctuary must have an ESZ of minimum 01 km in which the activities prescribed and prescribed in the guidelines of 09th February, 2011 shall be strictly adhered to ".

iii. The Project proponent complies with all the statutory requirements and judgement of Hon'ble Supreme Court dated 2nd August,2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India &Ors before commencing the mining operations.

iv. The Hon'ble Supreme Court vide order dated 08.01.2020 in W.P. (Civil) No.114/2014 in the matter of Common Cause vs. Union of India has directed that the area which has been mined should be restored so that grass and other vegetation including trees can grow in the mining area for the benefit of animals.

> *"The mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.*

v. The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgement of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India &Ors.

vi. This Environmental Clearance shall become operational only after receiving formal NBWL Clearance from MoEF&CC subsequent to the recommendations of the Standing Committee of National Board for Wildlife, if applicable to the Project.

vii. This Environmental Clearance shall become operational only after receiving formal Forest Clearance (FC) under the provision of Forest Conservation Act, 1980, if applicable to the Project.

viii. Project Proponent (PP) shall obtain Consent to Operate after grant of EC and effectively implement all the conditions stipulated therein. The mining activity shall not commence prior to obtaining Consent to Establish / Consent to Operate from the concerned State Pollution Control Board/Committee.

ix. The PP shall adhere to the provision of the Mines Act, 1952, Mines and Mineral (Development & Regulation), Act, 2015 and rules & regulations made there under. PP shall adhere to various circulars issued by Directorate General Mines Safety (DGMS) and Indian Bureau of Mines from time to time.

x. The Project Proponent shall obtain consents from all the concerned land owners, before start of mining operations, as per the provisions of MMDR Act, 1957 and rules made there under in respect of lands which are not owned by it.

xi. The Project Proponent shall follow the mitigation measures provided in MoEF&CC's Office Memorandum No. Z-11013/57/2014-IAJI (M), dated 29th October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".

xii. The Project Proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water and from CGWA for withdrawal of ground water for the project.

xiii. A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any, from whom suggestion / representation has been received while processing the proposal.

xiv. State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tehsildar's Office for 30 days.

xv. The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and web site of the Ministry of Environment, Forest and Climate Change (www. Environment clearance.nic.in). A copy of the advertisement may be forwarded to the concerned MoEF& CC Regional Office for compliance and record.

xvi. The Project Proponent shall inform the MoEF&CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred than mining operation shall only be carried out after transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.

II. Air quality monitoring and preservation

i. The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical

parameters, relevant for mining operations, of air pollution viz. PM10, PM2.5, NO2; CO and SO2 etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCUI, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.

ii. Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from ail sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance: Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEF&CC/ Central Pollution Control Board.

III. Water quality monitoring and preservation

i. In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEF&CC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.

ii. Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintain. The natural water bodies and or streams which are flowing in an around the village, should not be disturbed. The Water Table should be nurtured so as not to go down below the pre-mining period. In case of any water scarcity in the area, the Project Proponent has to provide water to the villagers for their use. A provision for regular monitoring of water table in open dug wall located in village should be incorporated to ascertain the impact of mining over ground water table. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.

iii. Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be

submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.

iv. The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease and maintain its records. The project proponent shall undertake regular monitoring of water quality upstream and downstream of water bodies passing within and nearby/ adjacent to the mine lease and maintain its records. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. PP shall carryout regular monitoring w.r.t. pH and included the same in monitoring plan. The parameters to be monitored shall include their water quality vis-à-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEF&CC. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly basis.

v. Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off; acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J- 20012/1/2006-IAJI (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.

vi. Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEF&CC annually.

vii. Industrial waste water (workshop and waste water from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.

viii. The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF&CC and State Pollution Control Board/Committee.

IV. Noise and vibration monitoring and prevention

i. The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.

ii. The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.

iii. The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PPshall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.

V. Mining Plan

i. The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of mineral, waste, over burden, inter burden and top soil etc.. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management, O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of EC or granted by State Govt. in the form to Short Term Permit (STP), Query license or any other name.

ii. The Project Proponent shall get the Final Mine Closure Plan along with Financial Assurance approved from Indian Bureau of Mines/Department of Mining & Geology as required under the Provision of the MMDR Act, 1957 and Rules/ Guidelines made there under. A copy of approved final mine closure plan shall be submitted within 2 months of the approval of the same from the competent authority to the concerned Regional Office of the Ministry of Environment, Forest and Climate Change for record and verification.

iii. The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-à-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self sustaining. The compliance status shall be submitted half-yearly to the MoEF&CC and its concerned Regional Office.

VI. Land reclamation

i. The Overburden (O.B.) generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by D.G.M.S w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of top soil/OB dumps. The topsoil shall be used for land reclamation and plantation.

ii. The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.

iii. The reclamation of waste dump sites shall be done in scientific manner as per the Approved Mining Plan cum Progressive Mine Closure Plan.

iv. The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas, use of geo textiles/ geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.

v. The Project Proponent shall carry out slope stability study in case the dump height is more than 30 meters. The slope stability report shall be submitted to concerned regional office of MoEF&CC.

vi. Catch drains, settling tanks and ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.

vii. Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.

viii. The top soil, if any, shall temporarily be stored at earmarked site(s) within the mine lease only and should not be kept unutilized for long. The physical parameters of the top soil dumps like height, width and angle of slope shall be governed as per the approved Mining Plan and as per the guidelines framed by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of dumps. The topsoil shall be used for land reclamation and plantation purpose.

VII. Transportation

i. No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a 'bypass' road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers.

ii. The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.

VIII. Green Belt

i. The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.

ii. The Project Proponent shall carryout plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of trees.

iii. The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.

iv. The Project Proponent shall undertake all precautionary measures for conservation and protection of endangered flora and fauna and Schedule-I species during mining operation. A Wildlife Conservation Plan shall be prepared for the same clearly delineating action to be taken for conservation of flora and fauna. The Plan shall be approved by Chief Wild Life Warden of the State Govt.

v. And implemented in consultation with the State Forest and Wildlife Department. A copy of Wildlife Conservation Plan and its implementation status (annual) shall be submitted to the Regional Office of the Ministry.

IX. Public hearing and human health issues

i. The Project Proponent shall appoint an Occupational Health Specialist for Regular as well as Periodical medical examination of the workers engaged in the mining activities, as per the DGMS guidelines. The records shall be maintained properly. PP shall also carryout Occupational health check-ups in respect of workers which are having ailments like BP, diabetes, habitual smoking, etc. The check-ups shall be undertaken once in six months and necessary remedial/ preventive measures

be taken. A status report on the same may be sent to MoEF&CC Regional Office and DGMS on half-yearly basis.

ii. The Project Proponent must demonstrate commitment to work towards 'Zero Harm' from their mining activities and carry out Health Risk Assessment (HRA) for identification workplace hazards and assess their potential risks to health and determine appropriate control measures to protect the health and wellbeing of workers and nearby community. The proponent shall maintain accurate and systematic records of the HRA. The HRA for neighborhood has to focus on Public Health Problems like Malaria, Tuberculosis, HIV, Anaemia, Diarrhoea in children under five, respiratory infections due to bio mass cooking. The proponent shall also create awareness and educate the nearby community and workers for Sanitation, Personal Hygiene, Hand washing, not to defecate in open, Women Health and Hygiene (Providing Sanitary Napkins), hazard of tobacco and alcohol use. The Proponent shall carryout base line HRA for all the category of workers and thereafter every five years.

iii. The Proponent shall carry out Occupational health surveillance which be a part of HRA and include Biological Monitoring where practical and feasible, and the tests and investigations relevant to the exposure (e.g. for Dust a X-Ray chest; For Noise Audiometric; for Lead Exposure Blood Lead, For Welders Full Ophthalmologic Assessment; for Manganese Miners a complete Neurological Assessment by a Certified Neurologist, and Manganese (Mn) Estimation in Blood; For Inorganic Chromium- Fortnightly skin inspection of hands and forearms by a responsible person. Except routine tests all tests would be carried out in a Lab accredited by NABH. Records of Health Surveillance must be kept for 30 years, including the results of and the records of Physical examination and tests. The record of exposure due to materials like Asbestos, Hard Rock Mining, Silica, Gold, Kaolin, Aluminium, Iron, Manganese, Chromium, Lead, Uranium need to be handed over to the Mining Department of the State in case the life of the mine is less than 30 years. It would be obligatory for the State Mines Departments to make arrangements for the safe and secure storage of the records including X-Ray. Only conventional X-Ray will be accepted for record purposes and not the digital one). X-Ray must meet ILO criteria (17 x14 inches and of good quality).

iv. The Proponent shall maintained a record of performance indicators for workers which includes (a) there should not be a significant decline in their Body Mass Index and it should stay between 18.5 -24.9, (b) the Final Chest X-Ray compared with the base line X-Ray should not show any capacities ,(c) At the end of their leaving job there should be no Diminution in their Lung Functions Forced Expiratory Volume in one second (FEV1),Forced Vital Capacity (FVC), and the ratio) unless they are smokers which has to be adjusted, and the effect of age, (d) their hearing should not be affected. As a proof an Audiogram (first and last need to be presented), (e) they should not have developed any Persistent Back Pain, Neck Pain, and the movement of their Hip, Knee and other joints should have normal

range of movement, (f) they should not have suffered loss of any body part. The record of the same should be submitted to the Regional Office, MoEF&CC annually along with details of the relief and compensation paid to workers having above indications.

v. The Project Proponent shall ensure that Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.

vi. Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.

vii. The activities proposed in Action plan prepared for addressing the issues raised during the Public Hearing shall be completed as per the budgetary provisions mentioned in the Action Plan and within the stipulated time frame. The Status Report on implementation of Action Plan shall be submitted to the concerned Regional Office of the Ministry along with District Administration.

X. Corporate Environment Responsibility (CER)

i. The activities and budget earmarked for Corporate Environmental Responsibility (CER) as per Ministry's O.M No 22-65/2017-IA. II (M) dated 01.05.2018 or as proposed by EAC should be kept in a separate bank account. The activities proposed for CER shall be implemented in a time bound manner and annual report of implementation of the same along with documentary proof viz. photographs, purchase documents, latitude & longitude of infrastructure developed & road constructed needs to be submitted to Regional Office MoEF&CC annually along with audited statement.

ii. Project Proponent shall keep the funds earmarked for environmental protection measures in a separate account and refrain from diverting the same for other purposes. The Year wise expenditure of such funds should be reported to the MoEF&CC and its concerned Regional Office.

XI. Miscellaneous

i. The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF&CC.

ii. The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.

iii. It shall be mandatory for the project management to submit six (06) monthly compliance report in respect of the stipulated prior environmental clearance terms and conditions in hard copies and soft copies to the regulatory authority concerned Regional Office of MoEF& CC at Ranchi and Jharkhand State Pollution Control Board (J.S.P.C.B.), Ranchi / CPCB / SEIAA.

iv. A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC.

v. The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data / information / monitoring reports.

vi. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.

vii. The Ministry / SEIAA / SEAC may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

viii. The Ministry / SEIAA / SEAC reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.

ix. The Environmental Clearance accorded shall be valid for the period of lease of the mine. The PP shall not increase production rate and alter lease area during the validity of Environmental Clearance

x. Any appeal against this Environmental Clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under section 16 of the National Green Tribunal Act, 2010.

The TORs prescribed for undertaking detailed EIA study are as follows:

i. Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.

ii. A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.

iii. All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.

iv. All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).

v. Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.

vi. Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.

vii. It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.

viii. Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.

ix. The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.

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x. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.

xi. Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.

xii. A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.

xiii. Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.

xiv. Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.

xv. The vegetation in the RF / PF areas in the study area, with necessary details, should be given.

xvi. A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.

xvii. Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.

xviii. A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and

buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled- I fauna found in the study area, the necessary plan alongwith budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.

xix. Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.

xx. Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

xxi. R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.

xxii. One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.

xxiii. Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be

shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

xxiv. The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.

xxv. Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

xxvi. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.

xxvii. Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.

xxviii. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.

xxix. Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.

xxx. Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.

xxxi. A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.

xxxii. Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving

the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.

xxxiii. Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.

xxxiv. Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.

xxxv. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.

xxxvi. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.

xxxvii. Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.

xxxviii. Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.

xxxix. Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.

xl. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.

xli. The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.

xlii. A Disaster management Plan shall be prepared and included in the EIA/EMP Report.

xliii. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.

xliv. Besides the above, the below mentioned general points are also to be followed :-

a) Executive Summary of the EIA/EMP Report

b) All documents to be properly referenced with index and continuous page numbering.

c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.

d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF & CC / NABL accredited laboratories. All the original analysis / testing reports should be available during appraisal of the Project.

e) Where the documents provided are in a language other than English, an English translation should be provided.

f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.

g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF& CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.

h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF & CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.

i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.

j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

xlv. After preparing the draft EIA (as per the generic structure prescribed in Appendix- III of the EIA Notification, 2006) covering the above mentioned issues, the proponent will get the public hearing conducted and take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.

xlvi. The Prescribed ToRs is valid as per O.M. F. No. IA3-22/10/2022-IA.III[E177258], dated 08.06.2022 of MoEF&CC, Govt. of India.

The TORs prescribed for undertaking detailed EIA study are as follows:

A. Standard Terms of Reference :

1. Executive Summary
2. Introduction

   i. Details of the EIA Consultant including NABET accreditation.
   ii. Information about the project proponent.
   iii. Importance and benefits of the project.

3. Project Description

   i. Cost of project and time of completion.
   ii. Products with capacities for the proposed project.
   iii. If expansion project, details of existing products with capacities and whether adequate land is available for expansion, reference of earlier EC if any.
   iv. List of raw materials required and their source along with mode of transportation.
   v. Other chemicals and materials required with quantities and storage capacities
   vi. Details of Emission, effluents, hazardous waste generation and their management.
   vii. Requirement of water, power, with source of supply, status of approval, water balance diagram, man-power requirement (regular and contract)
   viii. Process description along with major equipments and machineries, process flow sheet (quantative) from raw material to products to be provided
   ix. Hazard identification and details of proposed safety systems.
   x. Expansion/modernization proposals:
      a. Copy of all the Environmental Clearance(s) including Amendments thereto obtained for the project from MOEF/SEIAA shall be attached as an Annexure. A certified copy of the latest Monitoring Report of the Regional Office of the Ministry of Environment and Forests as per circular dated 30th May, 2012 on the status of compliance of conditions stipulated in all the existing environmental clearances including Amendments shall be provided. In addition, status of compliance of Consent to Operate for the ongoing lexisting operation of the project from SPCB shall be attached with the EIA-EMP report.
      b. In case the existing project has not obtained environmental clearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and/or EIA Notification 2006 shall be provided. Copies of Consent to Establish/No Objection Certificate and Consent to Operate (in case of units operating prior to EIA Notification 2006, CTE and CTO of FY 2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of consents from the SPCB shall be submitted.

4. **Site Details**

i. Location of the project site covering village, Taluka/Tehsil, District and State, Justification for selecting the site, whether other sites were considered.

ii. A toposheet of the study area of radius of 10km and site location on 1:50,000/1:25,000 scale on an A3/A2 sheet. (including all eco-sensitive areas and environmentally sensitive places)

iii. Details w.r.t. option analysis for selection of site

iv. Co-ordinates (lat-long) of all four corners of the site.

v. Google map-Earth downloaded of the project site.

vi. Layout maps indicating existing unit as well as proposed unit indicating storage area, plant area, greenbelt area, utilities etc. If located within an Industrial area/Estate/Complex, layout of Industrial Area indicating location of unit within the Industrial area/Estate.

vii. Photographs of the proposed and existing (if applicable) plant site. If existing, show photographs of plantation/greenbelt, in particular.

viii. Landuse break-up of total land of the project site (identified and acquired), government/ private - agricultural, forest, wasteland, water bodies, settlements, etc shall be included. (not required for industrial area)

ix. A list of major industries with name and type within study area (10km radius) shall be incorporated. Land use details of the study area

x. Geological features and Geo-hydrological status of the study area shall be included.

xi. Details of Drainage of the project upto 5km radius of study area. If the site is within 1 km radius of any major river, peak and lean season river discharge as well as flood occurrence frequency based on peak rainfall data of the past 30 years. Details of Flood Level of the project site and maximum Flood Level of the river shall also be provided. (mega green field projects)

xii. Status of acquisition of land. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land.

xiii. R&R details in respect of land in line with state Government policy

5. **Forest and wildlife related issues (if applicable) :**

i. Permission and approval for the use of forest land (forestry clearance), if any, and recommendations of the State Forest Department. (if applicable).

ii. Landuse map based on High resolution satellite imagery (GPS) of the proposed site delineating the forestland (in case of projects involving forest land more than 40 ha).

iii. Status of Application submitted for obtaining the stage I forestry clearance along with latest status shall be submitted.

iv. The projects to be located within 10 km of the National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals, the project proponent shall submit the map duly authenticated by Chief Wildlife Warden

showing these features vis-à-vis the project location and the recommendations or comments of the Chief Wildlife Warden-thereon.

v. Wildlife Conservation Plan duly authenticated by the Chief Wildlife Warden of the State Government for conservation of Schedule I fauna, if any exists in the study area.

vi. Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972, to the Standing Committee of the National Board for Wildlife.

6. Environmental Status :

i. Determination of atmospheric inversion level at the project site and site-specific micro- meteorological data using temperature, relative humidity, hourly wind speed and direction and rainfall.

ii. AAQ data (except monsoon) at 8 locations for PM10, PM2.5, SO2, NOX, CO and other parameters relevant to the project shall be collected. The monitoring stations shall be based CPCB guidelines and take into account the pre-dominant wind direction, population zone and sensitive receptors including reserved forests.

iii. Raw data of all AAQ measurement for 12 weeks of all stations as per frequency given in the NAQQM Notification of Nov. 2009 along with - min., max., average and 98% values for each of the AAQ parameters from data of all AAQ stations should be provided as an annexure to the EIA Report.

iv. Surface water quality of nearby River (100m upstream and downstream of discharge point) and other surface drains at eight locations as per CPCB/ MoEF&CC guidelines.

v. Whether the site falls near to polluted stretch of river identified by the CPCB/MoEF&CC, if yes give details.

vi. Ground water monitoring at minimum at 8 locations shall be included.

vii. Noise levels monitoring at 8 locations within the study area.

viii. Soil Characteristic as per CPCB guidelines.

ix. Traffic study of the area, type of vehicles, frequency of vehicles for transportation of materials, additional traffic due to proposed project, parking arrangement etc.

x. Detailed description of flora and fauna (terrestrial and aquatic) existing in the study area shall be given with special reference to rare, endemic and endangered species. If Schedule-I fauna are found within the study area, a Wildlife Conservation Plan shall be prepared and furnished.

xi. Socio-economic status of the study area.

7. Impact and Environment Management Plan :

i. Assessment of ground level concentration of pollutants from the stack emission based on site- specific meteorological features. In case the project is located on a hilly terrain, the AQIP Modelling shall be done using inputs of the specific terrain characteristics for determining the potential impacts of the project on the AAQ. Cumulative impact of all sources of emissions (including

transportation) on the AAQ of the area shall be assessed. Details of the model used and the input data used for modelling shall also be provided. The air quality contours shall be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any.

ii. Water Quality modelling - in case of discharge in water body

iii. Impact of the transport of the raw materials and end products on the surrounding environment shall be assessed and provided. In this regard, options for transport of raw materials and finished products and wastes (large quantities) by rail or rail-cum road transport or conveyor- cum-rail transport shall be examined.

iv. A note on treatment of wastewater from different plant operations, extent recycled and reused for different purposes shall be included. Complete scheme of effluent treatment. Characteristics of untreated and treated effluent to meet the prescribed standards of discharge under E(P) Rules.

v. Details of stack emission and action plan for control of emissions to meet standards.

vi. Measures for fugitive emission control

vii. Details of hazardous waste generation and their storage, utilization and management. Copies of MOU regarding utilization of solid and hazardous waste in cement plant shall also be included. EMP shall include the concept of waste-minimization, recycle/reuse/recover techniques, Energy conservation, and natural resource conservation.

viii. Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 2009. A detailed plan of action shall be provided.

ix. Action plan for the green belt development plan in 33 % area i.e. land with not less than 1,500 trees per ha. Giving details of species, width of plantation, planning schedule etc. shall be included. The green belt shall be around the project boundary and a scheme for greening of the roads used for the project shall also be incorporated.

x. Action plan for rainwater harvesting measures at plant site shall be submitted to harvest rainwater from the roof tops and storm water drains to recharge the ground water and also to use for the various activities at the project site to conserve fresh water and reduce the water requirement from other sources.

xi. Total capital cost and recurring cost/annum for environmental pollution control measures shall be included.

xii. Action plan for post-project environmental monitoring shall be submitted.

xiii. Onsite and Offsite Disaster (natural and Man-made) Preparedness and Emergency Management Plan including Risk Assessment and damage control. Disaster management plan should be linked with District Disaster Management Plan.

8. **Occupational health :**

i. Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers.

ii. Details of exposure specific health status evaluation of worker. If the workers' health is being evaluated by pre designed format, chest x rays, Audiometry, Spirometry, Vision testing (Far & Near vision, colour vision and any other ocular defect) ECG, during pre-placement and periodical examinations give the details of the same. Details regarding last month analyzed data of above mentioned parameters as per age, sex, duration of exposure and department wise.

iii. Details of existing Occupational & Safety Hazards. What are the exposure levels of hazards and whether they are within Permissible Exposure level (PEL). If these are not within PEL, what measures the company has adopted to keep them within PEL so that health of the workers can be preserved.

iv. Annual report of health status of workers with special reference to Occupational Health and Safety.

9. Corporate Environment Policy :

i. Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.

ii. Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.

iii. What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions? Details of this system may be given.

iv. Does the company have system of reporting of non compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism shall be detailed in the EIA report.

10. Details regarding infrastructure facilities such as sanitation, fuel, restroom etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase.

11. Enterprise Social Commitment (ESC) :

i. Adequate funds (at least 2.5 % of the project cost) shall be earmarked towards the Enterprise Social Commitment based on Public Hearing issues and item-wise details along with time bound action plan shall be included. Socio-economic development activities need to be elaborated upon.

12. Any litigation pending against the project and/or any direction/order passed by any Court of Law against the project, if so, details thereof shall also be included. Has the unit received any notice under the Section 5 of Environment (Protection) Act, 1986 or

relevant Sections of Air and Water Acts? If so, details thereof and compliance/ATR to the notice(s) and present status of the case.

13. A tabular chart with index for point wise compliance of above TOR.

B. Specific Terms of Reference For EIA Studies For Distilleries :

1. List of existing distillery units in the study area along with their capacity and sourcing of raw material.
2. Number of working days of the distillery unit.
3. Details of raw materials such as molasses/grains, their source with availability.
4. Details of the use of steam from the boiler.
5. Surface and Ground water quality around proposed spent wash storage lagoon, and compost yard.
6. Plan to reduce spent wash generation within 6-8 KL/KL of alcohol produced.
7. Proposed effluent treatment system for molasses/grain based distillery (spent wash, spent lees, condensate and utilities) as well as domestic sewage and scheme for achieving zero effluent discharge (ZLD).
8. Proposed action to restrict fresh water consumption within 10 KL/KL of alcohol production.
9. Details about capacity of spent wash holding tank, material used, design consideration. No. of peizometers to be proposed around spent wash holding tank.
10. Action plan to control ground water pollution.
11. Details of solid waste management including management of boiler ash, yeast, etc. Details of incinerated spent wash ash generation and its disposal.
12. Details of bio-composting yard (if applicable).
13. Action plan to control odour pollution.
14. Arrangements for installation of continuous online monitoring system (24x7 monitoring device).
15. The Prescribed ToRs is valid as per O.M. F. No. IA3-22/10/2022-IA.III[E177258], dated 08.06.2022 of MoEF&CC, Govt. of India.

I. Statutory compliance:

i. The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1980, in case of the diversion of forest land for non-forest purpose involved in the project.

ii. The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.

iii. The project proponent shall prepare a Site-Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (incase of the presence of schedule-I species in the study area)

iv. In the writ petition (Civil) no. 202/1995, T.N. Godaverman Thirumulpad vs union of India and ors. the Hon'ble Supreme Court passed an order dated 03.06.2022 " National Park or Wildlife Sanctuary must have an ESZ of minimum 01 km in which the activities prescribed and prescribed in the guidelines of 09th February, 2011 shall be strictly adhered to ".

v. The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State pollution Control Board/ Committee.

vi. The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of drawl of ground water / from the competent authority concerned in case of drawl of surface water required for the project.

vii. The project proponent shall obtain authorization under the Hazardous and other Waste Management Rules, 2016 as amended from time to time.

II. Air quality monitoring and preservation

i. The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission with respect to standards prescribed in Environment (Protection) Rules 1986 vide G.S.R 277 (E) dated 31st March 2012 (applicable to IF/EAF) as amended from time to time; S.O. 3305 (E) dated 7th December 2015(Thermal Power Plants) as amended from time to time) and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.

ii. The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through laboratories recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.

iii. The project proponent shall install system carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g. PMIO and PM25 in reference to PM emission, and S02 and NOx in reference to S02 and NOx emissions) within and outside the plant area (at least at four locations one within and three outside the plant area at an angle of 120° each), covering upwind and downwind directions. (case to case basis small plants: Manual; Large plants: Continuous)

iv. The project proponent shall submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality / fugitive emissions to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.

v. Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources.

vi. The project proponent shall provide leakage detection and mechanised bag cleaning facilities for better maintenance of bags.

vii. Sufficient number of mobile or stationery vacuum cleaners shall be provided to clean plant roads, shop floors, roofs, regularly.

viii. Recycle and reuse iron ore fines, coal and coke fines, lime fines and such other fines collected in the pollution control devices and vacuum cleaning devices in the process after *briquettingl* agglomeration.

ix. The project proponent shall use leak proof trucks/dumpers carrying coal and other raw materials and cover them with tarpaulin.

x. The project proponent shall provide covered sheds for raw materials like scrap and sponge iron, lump ore, coke, coal, etc.

xi. The project proponent shall provide primary and secondary fume extraction system at all melting furnaces.

xii. Design the ventilation system for adequate air changes as per ACGIH document for all tunnels, motor houses, Oil Cellars.

III. Water quality monitoring and preservation

i. The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 vide G.S.R 277 (E) dated 31st March 20 12 (applicable to IF / EAF) as amended from time to time; S.O. 3305 (E) dated 7th December 2015 (Thermal Power Plants) as amended from time to time) and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories. (case to case basis small plants: Manual; Large plants: Continuous)

ii. The project proponent shall monitor regularly ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/ sampling wells in the plant and adjacent areas through labs recognised under Environment (Protection) Act, 1986 and NABL accredited laboratories.

iii. The project proponent shall submit monthly summary report of continuous effluent monitoring and results of manual effluent testing and manual monitoring of ground water quality to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.

iv. Adhere to 'Zero Liquid Discharge'.

v. Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.

vi. The project proponent shall provide the ETP for effluents of rolling mills to meet the standards prescribed in G.S.R 277 (E) 31st March 2012 (applicable to IF/EAF) as amended from time to time.

vii. Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off

viii. The project proponent shall practice rainwater harvesting to maximum possible extent.

ix. The project proponent shall make efforts to minimise water consumption in the steel plant complex by segregation of used water, practicing cascade use and by recycling treated water.

IV. Noise monitoring and prevention

i. Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.

ii. The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB (A) during day time and 70 dB(A) during night time.

V. Energy Conservation measures

i. The project proponent shall provide waste heat recovery system (pre-heating of combustion air) at the flue gases of reheating furnaces.

ii. Practice hot charging of slabs and billets/blooms as far as possible.

iii. Ensure installation of regenerative type burners on all reheating furnaces.

iv. Provide solar power generation on rooftops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly.

v. Provide the project proponent for LED lights in their offices and residential areas.

VI. Waste management

i. Used refractories shall be recycled as far as possible.

ii. Oily scum and metallic sludge recovered from rolling mills ETP shall be mixed, dried, and briquetted and reused melting Furnaces

iii. 100% utilization of fly ash shall be ensured. All the fly ash shall be provided to cement and brick manufacturers for further utilization and Memorandum of Understanding in this regard shall be submitted to the Ministry's Regional Office.

iv. The waste oil, grease and other hazardous waste shall be disposed of as per the

v. Hazardous & Other waste (Management & Transboundary Movement) Rules, 2016.

vi. Kitchen waste shall be composted or converted to biogas for further use.(to be decided on case to case basis depending on type and size of plant)

VII. Green Belt

i. Green belt shall be developed in an area equal to 33% of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant

ii. The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation.

VIII. Public hearing and Human health issues

i. Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.

ii. The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act.

iii. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

IX. Corporate Environment Responsibility

i. The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 1st May 2018, as applicable, regarding Corporate Environment Responsibility.

ii. The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental/forest / wildlife norms / conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.

iii. A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.

iv. Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry / Regional Office along with the Six Monthly Compliance Report.

v. Self environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.

vi. All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the plants shall be implemented.

vii. Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.

X. Miscellaneous

i. The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.

ii. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.

iii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.

iv. The project proponent shall monitor the criteria pollutants level namely; PMIO, S02, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.

v. The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.

vi. The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.

vii. The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.

viii. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.

ix. The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.

x. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).

xi. Concealing factual data or submission of false ./ fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.

xii. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

xiii. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.

xiv. The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.

xv. The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.

xvi. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

C. <u>Other Conditions:</u>

i. The Authority reserves the right to add any new condition or modify the above conditions or to revoke the clearance if conditions stipulated above are not implemented to the satisfaction of Authority or for that matter for any other Administrative reason.

ii. The Prescribed EC is valid as per Notification no. S.O. 1807(E) dated 12.04.2022 of MoEF&CC, Govt. of India.

iii. In case of any deviation or alteration in the project proposed from those submitted to SEIAA, Jharkhand for clearance, a fresh reference should be made to SEIAA to assess the adequacy of the conditions imposed and to incorporate any new conditions if required.