EXECUTIVE SUMMARY

OF

Jaintia Stone Mine

(For Public Consultation)

At

Village – Lumshnong

District – East Jaintia Hills

State – Meghalaya

Lease Area: 4.20 Ha.

Applicant: Jaintia Mining Enterprise

Address: Panaliar, P.O.: Jowai

District: West Jaintia Hills, State: Meghalaya

EIA Consultant Organisation

Novomine India Private Limited
NABET Category 'A' Certified Organisation [Sector 1 (a) (i)]
Vide Certificate No. ***NABET/EIA/2326/IA 0124***

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

FOR JAINTIA STONE MINE LOCATED AT LUMSHNONG VILLAGE, EAST JAINTIA HILLS DISTRICT, STATE-MEGHALAYA

(AREA – 4.20 HA)

PROJECT PROPONENT: JAINTIA MINING ENTERPRISE

EXECUTIVE SUMMARY

1. INTRODUCTION

The applicant **Jaintia Mining Enterprise,** has obtained mining lease for mining of limestone located at Lumshnong village, East Jaintia Hills District, Meghalaya. Letter of Intent (LoI) was granted to the applicant from the Govt. of Meghalaya vide letter No. **JH/Y.P/ML/LS/2022-23/4.20 ha/B/493-94,** dated **27/06/2022** over an area of 4.20 ha (**Refer Annex II**). As per letter vide No. **MFG.39/NLFC/MINING/MMMCR/2016/JH/2622** dated **04/01/2022** issued by the Divisional Forest Officer, Jaintia Hills Territorial Division, Jowai, Department of Forests and Environment, Government of Meghalaya, the proposed project falls under a non-forest land (**Refer Annex III**). Mining Plan with Progressive Mine Closure Plan was approved by the Divisional Mining Officer, Directorate of Mineral Resources, Meghalaya, Jowai vide letter No. **DMO-J/82/MM/Mining Plan/2023-24/01** dated **02/05/2023** (**Refer Annex IV**). Besides the approval of the Mining Plan, the project proponent has obtained a cluster certificate from the Divisional Mining Officer, Directorate of Mineral Resources, Jowai vide letter No. **DMO-J/82/MM/Mining Plan/2023-2024/02** dated **02/05/2023** (**Refer Annex VI**). As per the cluster certificate, 3 (three) projects or mines with a total area of 10.336 ha are lying within 500m from the periphery of the proposed mining lease area.

This particular project is considered to be of 'B2' category due to the size of the mining lease (4.20 Ha). However, O.M. vide **F. No. L-11011/175/2018-IA-II (M) dated 12th December, 2018** states that if a cluster or an individual lease size exceeds 5 ha, EIA/EMP is applicable in the process of grant of prior environmental clearance. Hence, EIA/EMP Report is applicable for this project for obtaining Environmental Clearance (EC).

State Environment Impact Assessment Authority (SEIAA), Meghalaya has issued Terms of Reference (ToR) vide letter no. **ML/SEIAA/MIN/EJH/P-336/2023/757 dated 1st August 2023** to the applicant (**Refer Annex I**).

2. PROJECT NAME AND LOCATION

Jaintia Mining Enterprise is located at Lumshnong village, East Jaintia Hills District, Meghalaya.

Table 1: Brief Description of Project

Particulars	Details		
Sanctioned Mining Lease area coordinate of 4.20 ha	Project Co-ordinates		
	Points	Latitude	Longitude
	1	25°10'35.89" N	92°22'06.95" E
	2	25°10'33.10" N	92°22'03.47" E
	3	25°10'33.30" N	92°22'02.43" E
	4	25°10'31.61" N	92°22'02.04" E
	5	25°10'32.81" N	92°21'56.10" E
	6	25°10'36.33" N	92°21'58.56" E
	7	25°10'38.37" N	92°21'59.90" E
	8	25°10'39.45" N	92°22'02.36" E
	9	25°10'39.38" N	92°22'05.12" E
	10	25°10'37.85" N	92°22'05.31" E

Toposheet No.	83C/8 (Restricted)
Total area	4.20Ha
Total Mineral Reserve	43,18,082 Tonnes
Mineable Proved Reserve	42,03,414 Tonnes
Average Annual Production	3,08,434 Tonnes

3. MINING METHOD

- Opencast semi-mechanized mining will be carried out during the proposed plan period of 5 years in the area as the deposit is massive and compact in nature.
- Jack hammer drill machine will be deployed for drilling of shot holes ranging from 39 mm to 34 mm diameter. Breaking of limestone at the required site will be done manually.
- For blasting of holes with burden and spacing of 0.8m x 1.0 m in a staggered grid pattern would be adopted.
- Muffled blasting will be adopted as a precautionary measure to control fly rocks. Excavation and handling of gritty soil will be done by excavators.
- The benching system 6m x 6m will be practiced in the area in order to comply with the provisions of Metalliferous Mines Regulations, 1961.
- Bench slope angle for stabilization of the benches will be maintained at less than 45°.

Basic Requirements for the Project

S. No.	Equipment	Capacity	Motive Power	No. of Machines
1	Excavators	0.6 cu. m	Diesel	4
2	Compressor	120 cfm	Diesel	11
3	Jackhammer Drill	-	Compressed Air	11
4	Tippers	10 MT	Diesel	9
5	Rock Breaker	-	Diesel	2
6	Water Tanker	-	Diesel	2

Raw Material Required:

Inputs	Approx. quantity	Basis
High Speed Diesel Requirement		
Diesel	Small amount for operating mining equipment	
Water Requirement		
Water for Drinking and Domestic Purposes	1.5 KLD	Water requirement for drinking & domestic per person is 20 liters/day. Therefore, requirement is 70x20 = 1400 liter/ day say 1.5 KLPD
Dust Suppression & others	2.5 KLD	Length of Road (m) x Width of Road (m) x 1litre/m2 x 2times per day
Water for green belt development	1.0 KLD	0.5 Liter per plant 2 times a day

4. PRODUCTS AND CAPACITIES

The mining lease will be granted over an area of 4.20 Ha on at Lumshnong Village, Dist – East Jaintia Hills, Meghalaya.

An overview of planning consideration for is presented in **Table 2** and production programme from the mine for the next 5 years is shown in **Table 3**.

Table 2: Programme from Mining Lease Area

Considerations	Details
Total Lease area	4.20 ha
Total Mineable Reserves	4310882 Tonnes
Total Production for first 5 years	1699353 Tonnes

Table 3: Production Programme for the next 5 Years

Year	Proposed Production in Tonnes
1	286859
2	302400
3	315052
4	367978
5	427064
Total	**1699353**

5. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Appropriate site selection for mining operations and strict adherence to guidelines and provisions under MMDR Act-1957, MMR-1961, Mine Act-1952, Mines Rules-1955, MMMCR-2016 can effectively mitigate the potential adverse impacts of mining on the surrounding environment.

A comprehensive assessment has been conducted to identify the potential environmental impacts of the proposed production from the mine on various aspects, including air quality, water use and quality, land-use, ecological considerations, soil quality, and socio-economic factors.

A brief description of impacts by the proposed project is given in **Table 4.**

Table 4: Description of Identifiable Impacts

S. No.	Aspects	Identification of Impacts	Mitigation/Minimizing Measures
A	**Land Environment**		
A.1	Land use & Land Cover	• Effect on productivity of land due to mining by loss of topsoil. • Dust generation due to mining cause dust cover problems on the nearby vegetation.	• To minimize the effect of mining plantation will be in done along the 7.5m boundary of the mine area and after the exhaustion of the pit whole area will be reclaimed into green cover. After the conceptual mining there will be a mine void which will be extensively planted. • Mining operations will be confined strictly within the demarcated area. • During Plan period some quantity of gritty soil will be removed and will be stacked in a specific stack-yard. It will be used for road maintenance and plantation. • The dust generation due to the mining will be minimized by sprinkling of water through water sprinkler.
A-2	Soil Quality	• The frequent movement of trucks on unpaved roads can result in soil compaction, reducing the infiltration rate and impeding the growth of deep-rooted plants to stagnation of succession.	• The movement of vehicles will be restricted to haul roads • The roads that will be used for transportation of mined minerals are already constructed. • The unpaved roads will be strengthened in order to minimizing the impact on soil quality.

B	**Air Environment**		
B-1	Air Quality	• Exhaust from vehicle engines used for excavation and transporting. • Fugitive dust generation during mining	• Dust screens and water sprinklers are to be employed in mining operations to effectively mitigate the gusting dust. • Regular water sprinkling in the mining area, haul roads and dumping site of gritty soil will be done to prevent dust emissions. Use of dust masks for workers in dust prone areas. • Plantation will be carried out on approach roads and nearby villages. • Transportation of mineral will be done in trucks covered with Tarpaulin to avoid fugitive dust emissions. • Regular preventive maintenance of vehicles is conducted, and all transportation vehicles are required to carry a valid Pollution Under Control (PUC) certificate. • No overloading of vehicles to be allowed to avoid any spillages. • Periodic air quality monitoring will be carried out.
B-2	Noise Level	• Noise is generated by trucks /loaders in the mine lease area and the route of transportation. • Blasting is another factor that increases noise levels momentarily.	• Proper care and maintenance of the equipment will be carried out. The well-tuned vehicles will be used, • Plantation will be taken up along the approach roads and nearby villages. The plantation minimizes propagation of noise and also arrests dust, • Efficient traffic management will be done with speed limits and minimal use of horns, • Ambient noise monitoring will be conducted regularly at the designated monitoring points • Values of peak particle velocity will be maintained within the prescribed limit by DGMS, • Sound- proof cabins to be used to negate adverse effects to the operator. All worker will be provided PPE. The maintenance of the excavators will be carried out as per manual & schedule, • Proper free face will be maintained to

			reduce noise and vibration.

S. No.	Aspects	Identification of Impacts	Mitigation/Minimizing Measures
C	**Water Environment**		
C-1	Water Quality	• Surface & ground water are two separate entities, so they must be regarded as such. However, there is an ever- increasing need for management of the two as they are part of an interrelated system. • Impact on surface water bodies through indiscrete disposal of liquid waste and suspended solids carried by rainwater.	• Mining will be done well above the ground water level. Water stored in the mined-out area will act as a water recharging source in the area (Positive impact on ground water). • During the course of mining, rainwater in the form of surface runoff will be there during monsoon only. The accumulated rain water will partly be used for dust suppression, afforestation. • The non-working pits/ excavated pits will be used as reservoir at the end of mine after securing the side walls. • Conventional toilets will be provided for the workers.
D	**Ecological Environment**		
D-1	Flora	• Fugitive emission from vehicle movement will form a layer in leaves thus reducing the gaseous exchange process. This ultimately affects the growth of plants. • The construction of a new linear surface, such as a road, can create a new microclimate and alter physical conditions in the surrounding area. This change can impact plant mortality and the biological community, extending from the road edge to varying distances.	• Use of dust screens and water sprinklers to minimise the effect of gusting dust. • Plantation will be carried out on approach roads and nearby villages. • Mineral transportation will be done in trucks covered with Tarpaulin to avoid fugitive dust emissions. • Annual bio-monitoring will be conducted on plants to assess their exposure to vehicular pollution. This monitoring will involve evaluating the dust load accumulated on plant surfaces and determining the Air Pollution Tolerance Index (APTI) of the plants.
D-2	Fauna	• The operational activities such as population influx, transportation and noise generation may have an adverse impact on fauna. • The presence of suitable roadside habitats for animals that rely on acoustic signals, like birds, presents a trade-off between habitat availability and	• Efforts will be made to minimize the impact of mining activities on residential areas and crucial wildlife habitats by carefully planning the right-of-way (ROW). • This involves avoiding the direct route through residential areas and important wildlife habitats such as rookeries, raptor nesting areas, and calving areas, to the extent possible.

		the potential negative impacts of traffic noise and passing vehicles on their survival and breeding success	• All equipment used in the mining operations will be equipped with sound-control devices that are as effective as the original equipment. Motorized equipment will be properly muffled and

S. No.	Aspects	Identification of Impacts	Mitigation/Minimizing Measures
			maintained to ensure optimal noise control measures are in place. • No mining will be carried out during the rainy season to minimize impact on aquatic life.
E	**Solid Waste Generation**		
E-1	Domestic Waste	• Waste management is an important facet of environment management. Thus, solid waste management is important from both aesthetics & environmental viewpoints.	• Food waste or any domestic waste will be collected in dustbins and will be properly disposed. • Required no. of toilets will be provided on site
E-2	OB and Hazardous Waste	• OB generated due to mining is not hazardous. • Hazardous waste generated will mainly be i) used Lub oil, ii) used batteries, iii) Used tires, etc.	• The trucks will be tarpaulin covered so that there is minimal spillage. • During the plan period 42797 MT soil will be removed dumped at South-Eastern side with suitable precaution. Few quantities of generated gritty soil would also be used for road maintenance and plantation. After exhaustion of mineable reserve quarry will be reclaimed to the extent possible. Inorganic waste such as wrappers, plastic waste, foils, etc. will be stored in blue bins and will be sold to recycler authorized by CPCB.
F	**Social Environment**		
F-1	Health	• For improving the socio-economic environment, proper CSR activities will be taken up in vicinity to uplift the condition of people. • All workers will be subjected to medical examination as per Mines Rule 1955.	• Awareness program will be conducted about likely occupational health hazards so as to have preventive action in place, • Occupational Health and Safety (OHS) within the organization will be promoted and develop safer and healthier ways of working will be developed, • Training of supervisors and workers on health and safety practices and legislation will be conducted.

Greenbelt development:

Table 5: Year Wise Proposed Plantation Programme

Sl. No.	Year of Plantation	Area for greenbelt in m²	No. of plants	Location of Plantation
1	1st	500	80	Safety Barrier Zone
2	2nd	500	80	Safety Barrier Zone
3	3rd	500	80	Safety Barrier Zone
4	4th	500	80	Safety Barrier Zone
5	5th	500	80	Safety Barrier Zone

6. ESTIMATED COST OF THE PROJECT:

Estimated EMP cost for the proposed project is as follows.

Table 6: EMP Cost

S. No.	Particulars	Capital Cost	Annual Recurring Cost
1.	Air pollution control (Dust Suppression along road, water sprinklers)	1,50,000	70,00
2.	Plantation & Maintenance	40,000	25,200
3.	Environmental Monitoring and Reclamation		1,00,000
4.	Maintenance of Settling Tank, Garland Drains etc.		80,000
5.	Personal Protective Equipment	50,000	40,000
6.	CER activity		1,20,000
	Total	**2,40,000**	**4,35,200**

Table 7: CER Budget

S. No.	Activity	Total Cost (Rs.)
1	Quarterly medical checkup camp will be organized for the villagers of the nearby villages of the applied area by a qualified Doctor (M.B.B.S.) for minimum 60 villagers @ Rs 10,000/- per quarter. Total 4 x 10,000/- = Rs 40,000/-	40,000
2	To promote education by providing Books, Copies, School dresses to the nearby village school's needy students.	30,000
3	Water supply & purification arrangement & Sanitation for local villagers.	22,500
4	Maintenance & Construction of Village roads.	30,000
Total		**1,22,500**

The project cost is Rs. 24.5 Lakhs. Corporate Environment Responsibility (CER) budget is Rs. 0.735 lakhs more than 2% of the project cost i.e. Rs 0.49 lakhs.

7. BASELINE ENVIRONMENTAL DATA:

The baseline data has been collected from September 2023 to November 2023. The details area given below:

Ambient Air Quality Results: Samples were collected from 5 sampling locations during the baseline data collection The results are given below:

Particulate Matter 10 (PM_{10})

The results of PM10 of all locations are showing variations from 21.38 µg/m^3 to 28.52 µg/m^3.

Particulate Matter 2.5 (PM2.5)

The results of $PM_{2.5}$ of all locations are showing variations from 27.38.5µg/m^3 to 38.78 µg/m^3.

Gaseous Pollutants

The results of SO2 of all locations are showing variations from 14.35 µg/m^3 to 16.12 µg/m^3.
The results of NO2 of all locations are showing variations from 16.58 µg/m^3 to 19.05 µg/m^3.

Noise Quality Results: Samples were collected from 5 locations.

The ambient noise level at day time varies from 45.8 dB (A) to 58.3 dB(A) and at night time noise levels vary from 35.3 dB (A) to 42.6 dB (A)

Water Quality Results: The samples were collected from 4 ground water locations and 4 surface water sources:

Ground Water results: All results comply with the standard drinking water standards (IS: 10500).

Surface Water results**:** The surface water quality of the upstream and downstream points of two different rivers namely Seshympha and Wah Lukha is within the prescribed CPCB Water Quality Criteria Class of water.

Soil Quality Results: The samples were collected from 5 locations.

Based on the provided data, it can be inferred that the soil in the study area has moderate fertility, indicated by sufficient levels of phosphorus and organic Carbon for plant growth and foliage development.

Ecology and Biodiversity Results:

In the core zone, the land is barren.
There

A comprehensive biological study was conducted within a 10km radius of the proposed project site to analyze the floral and faunal composition. Data from the district forest department was obtained to facilitate these assessments.

For a detailed description of the area's ecology and biodiversity, **Chapter 3** of this report may be referred.

Socio Economic Condition:

There is no habitation in the core zone; the study area encompasses 22 villages within the buffer zone. The study area has a total population of 8757 residing in 1854 households. On average, each household consists of 5.5 members. The gender ratio in the study area was 978 in 2011.In the study area, the Scheduled Tribes (ST) population accounts for 98.13% of the total population, while the Scheduled Caste (SC) make up 0.14% of the total population. Within the study area, the overall literacy rate is 49.6% of the total population. Among the literate population, male literacy stands at 50.5%, while female literacy is recorded at 49.5%. In the villages around the study area, people mainly earn from agriculture and allied activities.

The study was conducted using a combination of primary surveys and secondary data sourced from the Census of India 2011 report.

9. IDENTIFICATION OF HAZARDS AND MITIGATION MEASURES:

All types of developmental activities face certain types of hazards which can disrupt normal activities abruptly. Assessment of risks involved during mining and mitigation measures are given in **Table 8.**

Table 8: Possible risks during mining and mitigation measures

Risks	Mitigation Measures
Risks of inundation due to flash floods due to heavy rains during the rainy season	Limited mining will be done during the rainy season.
Risks due to landslide	Avoid working near unstable high walls during rainy seasons.
Risks due to slope failure	• Bench height and width will be maintained as per the approved Mine Plan so that slope of individual benches and overall safe pit slope be maintained. • For determining factor of safety, the bench slopes will be monitored regularly by sensitive instruments at precise level at regular intervals to check for any possible ground movement. • A well-developed drainage system over the lease hold area is to be ensured to check the water flow out of the lease area during rainy season. • Adequate competent persons for carrying out statutory inspections will be deployed. • Monitoring and supervision of active mine benches and also exhausted benches will be made mandatory. • Inspection report of the benches with suggested corrective measures to be place before the higher management from time to time.
Risks of accident due to vehicular movement	• All transportation within the mining lease working will be carried out directly under the supervision and control of the management. • The vehicles will be maintained in good condition and checked thoroughly at least once a month by the competent person. • Road signs will be provided at each and every turning point up to the main road (wherever required). • To avoid danger while reversing the equipment/ vehicles especially at the working place/loading points, stopper should be posted to properly guide reversing/spotting operating, otherwise no person should be there within 10m radius of machine. • The maximum permissible speed limit shall be prescribed and ensured. • Overloading of material will be avoided.

	• Unauthorized persons will not be allowed to ride on vehicles • Strict code of conduct will be put in place to avoid driving in intoxicated condition by drivers

Risks due to mineral loading, unloading and transportation/Use of machinery	• All the equipment deployed at the mine will be of highest standard • All the loading and operating machines will have horns and proper maintenance of mining machinery shall be done • Height of the bench will be maintained as per approved mining plan to avoid over hanging of rocks. • The mineral will be loaded in trucks mechanically and in safe manner to avoid fly rocks • Fencing of the mining area to prevent inadvertent entry of human and livestock. • The complete mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS. • All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, RMMCR 1986 and other laws applicable to mine will strictly be complied with. • During heavy rainfall the mining activities will be discontinue. • Strict code of conduct will be put in place so that no one goes near the moving part of machines for maintenance. • Secured cabin will be provided to all operators to shield them from any fly rocks.
Risks due to drilling and blasting	• Drilling manual will be put in place which will have detailed procedure for shifting of drill machines and its operation • Explosives will be stored in the Magazine approved by Controller of Explosives • Burden and spacing will be kept as per the study conducted by the expert agency for designing the blasting parameters • Misfires during blasting will be handled as per procedures laid down by DGMS • Firing of the charged shot holes shall be done from proper blasting shelter. • All the persons working in the mine will be provided safety shoes and helmet to prevent them from fly rock. • Explosives will be used and handled under strict supervision of competent persons.
Risks of respiratory disorder due to fugitive emissions	• Regular water sprinkling will be done at dust generation points and on the haul road to control dust. • Drilling and blasting shall be done with proper blast hole pattern to

	minimise dust generation. • Secondary drilling and blasting will be kept bare minimum. • During loading and unloading workers involved in the activity will wear dust masks. • Load operator will have closed cabins. • Transportation of stones will be done in covered dumpers.

EMERGENCY PREPAREDNESS PLAN:

Safety of the mine and all its workers can be taken care of by the mining rules & regulations as per the Metalliferous Mines Regulations of 1961, which are well-defined procedures for safety, which when scrupulously followed, safety is ensured not only to manpower but also to machines & working environment. Disaster Management Plans are prepared as proactive measures which help reduce effect of the accident/disaster and enable quicker recovery.

Plans for Disaster Management Onsite emergency planning:

An onsite emergency is caused by an accident or hazard that takes place within the plan area and the effects are confined to the plant area.

The onsite emergency plan consists of the following key elements:

- Planning as per hazard analysis
- Preventive measures
- Emergency response procedure
- Recovery procedure

An on-site plan shall be in place which includes the following:

a. Regular safety audit/inspection
b. Emergency Response team, its role and responsibility will be clearly defined to each team member
c. Procedures for taking care of incidents/emergencies
d. Mock drills are conducted at regular interval
e. Assembly point will be clearly demarked
f. Communication system/arrangement with administrative and regulatory agencies, media and public etc.
g. Siren for declaring/closing emergency.
h. Regular training on first aid and evacuation etc.

11. PUBLIC CONSULTATION:

Public Consultation will be done after submission and acceptance of the Draft EIA to the concerned authority.

12. Occupational Health Hazards and Mitigation:

Possible physical hazards and mitigation measures are mentioned below:

- Noise induced hearing losses
- Health impact due to diesel particulates from emission of diesel operated vehicles and equipment
- Hand-arm vibration, whole body vibration due to use of drills, HEMM etc
- Presence of snakes and other reptiles in the mining area
- Polluted drinking water
- Excess working load and overtime
- Presence of mosquitoes in the lease area
- Sudden accident in the mining area causing personal injury.

Mitigation Measures:

To minimize the health impacts, PPE will be provided for use by the workers. All workers will be subjected to Initial Medical Examination as per The Mines Rules of 1955 at the time of appointment. Medical camps will be organized for the workers every year. At the end of mining operations, medical tests will be conducted to assess health of workers.

Table 9: Budget for Occupational Health

S. No.	Description	Amount (In Lakhs)
1	Workers will be subjected to primary health check-up before they are employed to ascertain their health conditions. Thereafter, Regular Medical check-up will be organized for workers & villagers to evaluate the adverse impact if any on these persons due to proposed mining activity.	0.40
2	Workers will be provided with PPE	0.90
3	First Aid facility and training to workers.	0.40
4	Insurance for workers	0.80
	Total	**2.50**

13. ENVIRONMENT MANAGEMENT PLAN:

An EMP is a site-specific plan developed to ensure that the project is implemented in an environmentally sustainable manner. An effective EMP should ensure the application of best practices for environmental management of a project. The purpose of an EMP is to:

i. Assist Management to perform mining operations in an environment friendly way;
ii. Improve the contribution of Management so that an EMP can be used effectively;
iii. Ensure a minimum standard and consistent approach to the implementation of EMP;
iv. Ensure that the commitments made as part of the project's EIA are implemented throughout the project life, and
v. Ensure that environment management detail is captured and documented at all stages of a project.

14. POST PROJECT MONITORING PLAN:

Table 10: Location, Monitoring Schedule and Parameters

Sl. No.	Description of Parameters	Location	Schedule and Duration of Monitoring
A	**Air Quality (PM_{10}, $PM_{2.5}$, SO_2, NO_2) monitoring**		
A-1	Five monitoring station	One within and four outside the project area covering upwind and downwind directions.	Will be monitored on a quarterly basis as per CPCB/ MoEF&CC Guidelines/ Notifications.
B	**Quality of surface and ground water monitoring**		
B-1	Four Surface Water Samples will be collected as per EIA Report and in consultation with SPCB.	Up-stream (Two locations) Down-stream (Two locations)	Will be collected on a quarterly basis in accordance with the guidelines and notifications provided by the CPCB and MoEF&CC
B-2	Four Ground Water Samples will be collected as per EIA Report and in consultation with SPCB.	One should be taken near the active working area and four within the study area.	
C	**Ambient Noise Level monitoring**		
C-1	Five monitoring station	One is at onsite and four within the study area covering approach road connected with main road.	Will be monitored on a monthly/quarterly basis as per CPCB/ MoEF&CC Guidelines/ Notifications.
D	**Soil Quality monitoring**		
D-1	Soil Samples will be collected from five locations.	Within the study area	Will be collected half-yearly as per CPCB/MoEF&CC Guidelines/ Notifications