EXECUTIVE SUMMARY

Of

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENTAL MANAGEMENT PLAN REPORT

(Submitted for Public Hearing as per the provisions of EIA Notification 2006 & amendments thereof)

FOR

OBTAINING

Environmental Clearance

Schedule Sl. No. 1 (a) (i): Mining Project

(Category B1-Minor Mineral-Cluster-Private Land)

Total Proposed Area – 30.40 (i.e. Individual Lease Areas of 16.40 Ha, 3.63 Ha, 7.12 Ha, 3.25 Ha); Cluster Extent: 59.78 Ha

BASALT STONE/ROCK QUARRY CLUSTER

(4 PROPOSED)

STUDY PERIOD - October 2020 to December 2020

Located at

KHASRA NOS. 86/1,88,89/1,89/3,91/1,91/2,91/3,210-211-212/1, 210-211-212/2, 62,63, 208, 131,132,133,134,135/1, 135/2,137,138,139, 95/2,95/3, VILLAGE- UTI AND HALADGAON, TALUKAA- UMRED, DISTRICT- NAGPUR, MAHARASHTRA

Project Proponent/ Lessee

Name of the Lessee	Kh. Nos.	Area
Black Rock Crusher C/o Shri Ramandeep Singh Bindra	86/1,88,89/1,89/3,91/1,91/2,91/3,210-211-212/1, 210-211-212/2	16.40 Ha
Shri Dilip Madhukar Sambare	62,63, 208	3.63 Ha
Shri Praful Prakash Dewalkar	131,132,133,134,135/1, 135/2,137,138,139	7.12 Ha
Shri Rambhau Gulabrao Musale	95/2,95/3	3.25 Ha
Total Proposed Quarry Area		**30.40.Ha**

ENVIRONMENT CONSULTANT

manu srushti

Environment Service Provider ...Towards Primitive Nature

(NABET Certificate No: NABET/EIA/2023/IA0068)

Reg. Add. 205, Neelkanth Tower CHS,Karnnik Road,Near Shankar Mandir,Kalyan West, Thane, Maharashtra-421301

AUGUST 2022

1. INTRODUCTION

Basalt rock is the major requirements for construction industry. This EIA report is prepared by considering Cumulative load of all proposed & existing quarries of Basalt rock Quarries Cluster consisting of 6 Proposed and 6 Existing Quarry with total extent of Cluster of 59.78.0 Ha in Haladgaon and Uti Village, Umred Taluka, Nagpur District, Maharashtra State, cluster area calculated as per MoEF & CC Notification S.O. 2269(E), Dated 1st July 2016. The proposed project falls under "B1" Category as per Order Dated: 04.09.2018 & 13.09.2018 passed by Hon'ble National Green tribunal, New Delhi in O.A. No. 173 of 2018 & O.A. No, 186 of 2016 and MoEF & CC Office Memorandum F. No. L-11011/175/2018-IA-II (M) Dated: 12.12.2018

This EIA Report is prepared in compliance with ToR obtained vide –

- Letter No. SIA/MH/MIN/59226/2020, dated 23.03.2021.
- Letter No. SIA/MH/MIN/59230/2020, dated 23.03.2021.
- Letter No. SIA/MH/MIN/64749/2021, dated 06.12.2021
- Letter No. SIA/MH/MIN/64729/2021, dated 06.12.2021

The Baseline Monitoring study has been carried out during the period of October 2020 to December 2020 and this EIA and EMP report is prepared for considering cumulative impacts arising out of these projects, the Cumulative Environmental Impact Assessment study is undertaken, which is followed by preparation of a detailed Environmental Management Plan (EMP) individually to minimize those adverse impacts.

"Draft EIA report prepared on the basis of ToR Issued & Standard ToR for carrying out Public Hearing for the Grant of Environmental Clearance from SEIAA, - Maharashtra"

1.1 DETAILS OF PROJECT PROPONENT –

Name of the Project	M/s Black Rock Crusher C/o Shri Ramandeep Singh Bindra, Shri Dilip Madhukar Sambare, Shri Praful Prakash Dewalkar, Shri Rambhau Gulabrao Musale
Kh. No. (P1, P2, P3, P4)	Kh. Nos. 86/1, 88, 89/1, 89/3, 91/1, 91/2, 91/3, 210-211-212/1, 210-211-212/2, 62, 63, 208, 131, 132, 133, 134, 135/1, 135/2, 137, 138, 139, 95/2, 95/3
Extent	30.40 Ha (i.e. individual lease areas of 16.40 Ha, 3.63 Ha, 7.12 Ha, 3.25 Ha)
Land Type	Private Land / Non forest Land / Patta land
Village, Tahukaa and District	Haladgaon And Uti Village, Umred Tahukaa, Nagpur District, Maharashtra

1.2 QUARRY DETAILS WITHIN 500 M RADIUS

CODE	Name of the Owner	KH. Nos	Extent	Status/Lease Status
PROPOSED QUARRY				
P1	Black Rock Crusher	86/1,88,89/1,89/3,91/	16.40	ToR obtained vide

CODE	Name of the Owner	KH. Nos	Extent	Status/Lease Status
	C/o Shri Ramandeep Singh Bindra	1,91/2,91/3,210-211-212/1, 210-211-212/2	Ha	SIA/MH/MIN/59226/2020 dtd. 23/03/2021
P2	Shri Dilip Madhukar Sambare	62,63, 208	3.63 Ha	ToR obtained vide SIA/MH/MIN/59230/2020 dated 23/03/2021
P3	Praful Prakash Dewalkar	131,132,133,134,135/1, 135/2,137,138,139	7.12 Ha	ToR obtained vide SIA/MH/MIN/64749/2021 dated 06/12/2021
P4	Rambhau Gulabrao Musale	95/2,95/3	3.25 Ha	ToR obtained vide SIA/MH/MIN/64729/2021 dated 06/12/2021
P5	Rahul Maniram Yadav	78	1.31 Ha	-
P6	Rahul Jasubhai Patel	97/1, 97/2(Part)	3.00 Ha	-
		TOTAL	**34.71 Ha**	
EXISTING QUARRIES				
E1	Black Rock Crusher C/o Shri RamandeepSingh Bindra	210,211,212	4.95	2.5.2018 to 1.5.2023
E2	Sanjay Raghunath Tidke	30, 57/2	3.97	30.10.2018 to 29.10.2023
E3	Visal Ajay Jaswani	81,83	4.54	3.11.2018 to 2.11.2023
E4	Shri Dilip Madhukar Sambare	60	3.90	14.11.20118 to 13.11.2023
E5	Bestone Mineral and Precast Solution C/o Ulhas Pagariya	142	4.80	10.12.2018 to 09.12.2023
E6	Shri Rahul Maniraam Yadao	77/1	2.91	01.12.2023 to 30.11.2023
TOTAL			**25.07 Ha**	
TOTAL CLUSTER EXTENT			**59.78 Ha**	

1.3 COMMON SALIENT FEATURES OF THE CLUSTER

S. No.	Particulars	Details
1.	Topo sheet Number	55 P/01
2.	Land use at the proposed project site	Non-Forest Land / Private Land Land Cover: Grazing Land
3.	Climatic Conditions	Avg. Ambient air temp – 39° C to 5.5° C Annual rainfall - 1080 mm
4.	Ground water level	The Ground water is about 40-45m depth from ground

S. No.	Particulars	Details
		level.
5.	Seismic zone	Seismically, this area is categorized under Zone-II as per IS-1893 (Part-1)-2002. Hence, seismically the site is Less Damage Risk Zone. With MSK scale of VII.
6.	Nearest State/National Highway	NH 353D - (Nagpur – Armori Road) at 0.9 Km ,E SH 262- (Butibori – Umred Road) at 9.31 Km, SW
7.	Nearest Railway Station	Umred Railway Station at 16 Km, SE`
8.	Nearest Air Port	Dr. Babasaheb Ambedkar International Airport- 22 Km Nagpur
9.	Nearest village/major town	Uti Village – 1 Km. (NE) Haladgaon Village – 1 Km. (NW) Parsodi Village – 1.40 Km. (SW)
10.	Nearest Town, city, District Headquarters along with distance in kms.	Umred: 14.35 Km, SE Nagpur: 25.18 Km, NW
11.	Nearest Hospital	Swami Vivekanand Medical Mission – 18.6 Km, NW
12.	Ecologically sensitive zone	No wildlife sanctuary, national park or biosphere reserve within 500m radius of mine lease area.
13.	Reserved/Protected forests	No wildlife sanctuary, national park or biosphere reserve within 500m radius of mine lease area.
14.	Historical/tourist places	None within 300m radius of mine lease area
15.	Water bodies within 10 Km Radius	**Water bodies** / **Distance (Km)** / **Direction** Paradgaon Lake / 1.95 / SE Saiki Lake / 4.02 / SW Khapri Lake / 4.29 / NE Ukkarwahi Lake / 4.66 / SE Mangli Lake / 5.06 / NE Pachgaon Lake / 7.56 / NW Wadad Lake / 7.58 / NW Virly Lake / 8.09 / SE Makardhokda Reservoir / 8.47 / SW
16.	Reserve Forest within 10Km Radius	Nil within 10Km Radius
17.	Details of other quarries for a radius of 500m around the quarry site	There are following quarries located within the radius of 500m from the proposed project site. Details:

S. No.	Particulars	Details
		Existing quarry– 6 Nos (34.71 Ha) Proposed quarry– 6 Nos (25.07 Ha) The total extent of the Existing and proposed quarry within the radius of 500m is **59.78 Ha.** The project falls under the cluster situation.
18.	Overburden /Waste	No waste would be generated except top soil. The generated waste would be simultaneously utilized along with production and the soil shall be used for plantation in safety barrier of 7.5 mts

1.4 SALIENT FEATURES OF PROPOSED QUARRIES WITHIN CLUSTER

S. No.	Particulars	Details	
		PROPOSAL (P1)	
1.	Type of Project	Basalt Rock Mine Lessee: M/s Black Rock Crusher C/o Shri Ramandeep Singh Bindra (P1)	
2.	Mine area applied	16.40 Ha	
3.	Project Location	Kh. No. 86/1,88,89/1,89/3,91/1,91/2,91/3,210-211-212/1, 210-211-212/2 Haladgaon Village, Umred Taluka, Nagpur District, Maharashtra	
4.	Location on WGS 1984 datum	**Latitude**	**Longitude**
		20°57'5.34"N to 20°57'8.00"N	79°12'29.36"E to 79°12'20.95"E
5.	Site Topography	The lease applied area is exhibits plain topography. The area has gentle sloping towards Southern side.	
6.	Site elevation	The highest R.L recorded in the lease area is 315 m while the lowest R.L. recorded is 309m.	
7.	Reserves	**Basalt Rock**	
	Production in MT / Annum	16,00,000 Maximum at 3yr.	
	Total Reserves in MT	1,02,69,586 MT	
8.	Lease period	10 years (Life of Mine)	
9.	Proposed depth of Mining	**32m** below ground level	
10.	Ground water level	The Ground water is about **40-45m** depth from ground level.	
11.	Man power	Total Employees proposed for the quarry operation is **25 Nos.**	
12.	Water requirement & source	Total water requirement for **9.5 KLD** from nearby Bore well.	
13.	Cost of the project	5.28 Crore	
		PROPOSAL (P2)	
1.	Type of Project	Basalt rock Mine of Dilip Madhukar Sambare (P2)	

S. No.	Particulars	Details	
2.	Mine area applied	3.63 Ha	
3.	Project Location	Kh. No. 62,63, 208 Haladgaon Village, Umred Taluka, Nagpur District, Maharashtra	
4.	Location on WGS 1984 datum	**Latitude**	**Longitude**
		20°57'24.04"N to 20°57'15.26"N	79°12'11.32"E to 79°12'11.34"E
5.	Site Topography	The lease applied area is exhibits plain topography. The area has gentle sloping towards Southern side.	
6.	Site elevation	The highest R.L recorded in the lease area is 320 m while the lowest R.L. recorded is 318 m.	
7.	Reserves	**Basalt Rock**	
	Production in MT / Annum	2,80,000	
	Total Reserves in MT	22,04,339 MT	
8.	Lease period	10 years (Life of Mine)	
9.	Proposed depth of Mining	**30m** below ground level	
10.	Ground water level	The Ground water is about **40-45m** depth from ground level.	
11.	Man power	Total Employees proposed for the quarry operation is **15 Nos.**	
12.	Water requirement & source	Total water requirement for **5 KLD** from nearby Bore well.	
13.	Cost of the project	0.65 Crore	
		PROPOSAL (P3)	
1.	Type of Project	Basalt rock Mine of Praful Prakash Dewalkar (P3)	
2.	Mine area applied	7.12 Ha	
3.	Project Location	Kh. No. 131,132,133,134,135/1, 135/2,137,138,139 Uti Village, Umred Taluka, Nagpur District, Maharashtra	
4.	Location on WGS 1984 datum	**Latitude**	**Longitude**
		20°56'49.54"N to 20°56'52.84"N	79°12'52.33"E to 79°12'52.99"E
5.	Site Topography	The lease applied area is exhibits plain topography. The area has gentle sloping towards ES side.	
6.	Site elevation	The highest R.L recorded in the lease area is 316 m while the lowest R.L. recorded is 311 m.	
7.	Reserves	**Basalt Rock**	
	Production in MT / Annum	3,77,834	
	Total Reserves in MT	37,78,337 MT	
8.	Lease period	10 years (Life of Mine)	
9.	Proposed depth of Mining	**30m** below ground level	
10.	Ground water level	The Ground water is about **40-45m** depth from ground level.	

S. No.	Particulars	Details	
11.	Man power	Total Employees proposed for the quarry operation is **20 Nos.**	
12.	Water requirement & source	Total water requirement for 7.73 **KLD** from nearby Bore well.	
13.	Cost of the project	0.92 Crores	
		PROPOSAL (P4)	
1.	Type of Project	Basalt rock Mine of Rambhau Gulabrao Musale (P4)	
2.	Mine area applied	3.25 Ha	
3.	Project Location	Kh. No. 95/2,95/3 Uti Village, Umred Tahuka, Nagpur District, Maharashtra	
4.	Location on WGS 1984 datum	**Latitude**	**Longitude**
		20°56'47.47"N to 20°56'57.13"N	79°13'18.50"E to 79°13'18.51"E
5.	Site Topography	The lease applied area is exhibits plain topography. The area has gentle sloping towards Southern side.	
6.	Site elevation	The highest R.L recorded in the lease area is 333 m while the lowest R.L. recorded is 328m.	
7.	Reserves	**Basalt Rock**	
	Production in MT / Annum	1,50,000	
	Total Reserves in MT	49,93,696 MT	
8.	Lease period	5 years (Life of Mine)	
9.	Proposed depth of Mining	**28m** below ground level	
10.	Ground water level	The Ground water is about **40-45m** depth from ground level.	
11.	Man power	Total Employees proposed for the quarry operation is **15 Nos.**	
12.	Water requirement & source	Total water requirement for **9.5 KLD** from nearby Bore well.	
13.	Cost of the project	0.85 Crores	

1.5 STATUTORY DETAILS

PROPOSAL – P1

- The proponent applied for Basalt Rock Quarry Lease Dated: 07.10.2020
- LOI Letter was issued by the District Magistrate, Nagpur district, क.खणी-3/कम-21/कावी-109/ 2020, dated 13.10.2020.
- The Mining Plan was prepared by Recognized Qualified Person and approved by Senior Deputy Director, Department of Geology and Mining, Maharashtra, vide BON/MINING/MMP/215/2020/762 dated: 14.12.2020.
- Proponent applied for ToR for Environmental Clearance vide. online Proposal No. SIA/MH/MIN/59226/2020 and ToR was granted by SEAC with letter no. SIA/MH/MIN/59226/2020, dated 23.03.2021.

PROPOSAL – P2

- The proponent applied for Basalt rock Quarry Lease Dated: 07.10.2020
- LOI Letter was issued by the District Magistrate, Nagpur district, क्र-खणी.3/कय-21/कावी-110/ 2020, dated 13.10.2020.
- The Mining Plan was prepared by Recognized Qualified Person and approved by Senior Deputy Director, Department of Geology and Mining, Maharashtra, vide BON/MINING/MMP/215/2020/761 dated: 14.12.2020.
- Proponent applied for ToR for Environmental Clearance vide. online Proposal No. SIA/MH/MIN/59230/2020 and ToR was granted by SEAC with letter no. SIA/MH/MIN/59230/2020, dated 23.03.2021.

PROPOSAL – P3

- The proponent applied for Basalt Rock Quarry Lease Dated: 17.05.2021
- LOI was issued by the District Magistrate, Nagpur district, क्र.खणी-3/कय-21/कावी-146/ 2020, dated 28.05.2021
- The Mining Plan was prepared by Recognized Qualified Person and approved by Senior Deputy Director, Department of Geology and Mining, Maharashtra, vide BON/MINING/MMP/215/2021/516 dated: 02.07.2021
- Proponent applied for ToR for Environmental Clearance vide. online Proposal No. SIA/MH/MIN/64749/2021 and ToR was granted by SEAC with letter no. SIA/MH/MIN/64749/2021, dated 06.12.2021.

PROPOSAL – P4

- The proponent applied for Basalt Rock Quarry Lease Dated: 05.03.2019
- LOI was issued by the District Magistrate, Nagpur district, क्र-खणी.3/कय-21/कावी-8/ 2018, dated 11.02.2018
- The Mining Plan was prepared by Recognized Qualified Person and approved by Senior Deputy Director, Department of Geology and Mining, Maharashtra, vide BON/MINING/MMP/215/2019/269 dated: 11.03.2019
- Proponent applied for ToR for Environmental Clearance vide. online Proposal No. SIA/MH/MIN/64729/2021 and ToR was granted by SEAC with letter no. SIA/MH/MIN/64729/2021, dated 06.12.2021.

2. PROJECT DESCRIPTION

The proposed projects are site specific and there is no additional area required for this project. There is no effluent generation/discharge from the proposed quarries. Method is mining is common for all the proposed quarries in the cluster. Basalt rock is proposed to be excavated by opencast mechanized method involving splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Basalt rock from pithead to the needy crushers and rock breakers to avoid secondary blasting.

2.1 LAND USE PATTERN OF THE LEASE APPLIED AREA

SL. No.	DESCRIPTION	AREA IN Ha.		
		Present Land Use	End of Plan Period	Conceptual Period
	PROPOSAL P1			
1	Area to be excavated	4.66	7.92	13.58
2	Storage for top soil	0.0	0.0	0.0
3	Overburden/dump	0.01	0.00	0.01
4	Mineral storage	0.45	0.0	0.44
5	Infrastructure (Mine Office, Shelter, Store)	0.01	0.0	0.01
6	Roads	0.01	0.00	0.66
7	Green belt	0.66	1.70	1.70
8	Area Undisturbed	10.62	6.70	0.00
	Total	**16.40**	**16.40**	**16.40**
	PROPOSAL P2			
1	Area to be excavated	0.0	3.06	3.06
2	Storage for top soil	0.0	0.0	0.0
3	Overburden/dump	0.0	0.0	0.0
4	Mineral storage	0.0	0.0	0.0
5	Infrastructure (Mine Office, Shelter, Store)	0.0	0.0	0.0
6	Roads	0.0	0.0	0.0
7	Green belt	0.0	0.57	0.57
8	Area Undisturbed	3.63	0.00	0.00
	Total	**3.63**	**3.63**	**3.63**
	PROPOSAL P3			
1	Area to be excavated	0.0	6.1889	6.1889
2	Storage for top soil	0.0	0.0	0.0
3	Overburden/dump	0.0	0.0	0.0
4	Mineral storage	0.0	0.0	0.0
5	Infrastructure (Mine Office, Shelter, Store)	0.0	0.0	0.0
6	Roads	0.0	0.0	0.0
7	Green belt	0.0	0.9311	0.9311
8	Area Undisturbed	7.12	0.00	0.00
	Total	**7.12**	**7.12**	**7.12**
	PROPOSAL P4			
1	Area to be excavated	0.0	2.6830	2.6830
2	Storage for top soil	0.0	0.0116	0.0116
3	Overburden/dump	0.0	0.0	0.0
4	Mineral storage	0.0	0.0268	0.0268
5	Infrastructure (Mine	0.0	0.0120	0.0120

SL. No.	DESCRIPTION	AREA IN Ha.		
		Present Land Use	End of Plan Period	Conceptual Period
	Office, Shelter, Store)			
6	Roads	0.0	0.050	0.050
7	Green belt	0.0	0.0332	0.0332
8	Area Undisturbed	3.25	0.4334	0.4334
	Total	**3.25**	**3.25**	**3.25**

2.2 METHOD OF MINING

Proposed Method of Mining is common for all the Proposed Projects – The method of mining is Opencast Mechanized Mining Method is being proposed by formation of 6 meter height bench with a 3.5m bench width. The Basalt Stone is a batholith formation and the splitting of rock mass of considerable volume from the parent rock mass will be carried out by deploying jackhammer drilling Explosives will be used for blasting. Hydraulic Excavators attached with Rock Breakers unit will be deployed for breaking large boulders to required fragmented sizes to avoid secondary blasting and hydraulic excavators attached with bucket unit will be deployed for loading the Rough Stone into the tippers and then the stone is transported from pithead to the nearby crushers.

FIGURE 1 GOOGLE IMAGE SHOWING APPLIED QUARRY LEASE AREA P1

FIGURE 2 GOOGLE IMAGE SHOWING APPLIED QUARRY LEASE AREA P2

FIGURE 3 GOOGLE IMAGE SHOWING APPLIED QUARRY LEASE AREA P3

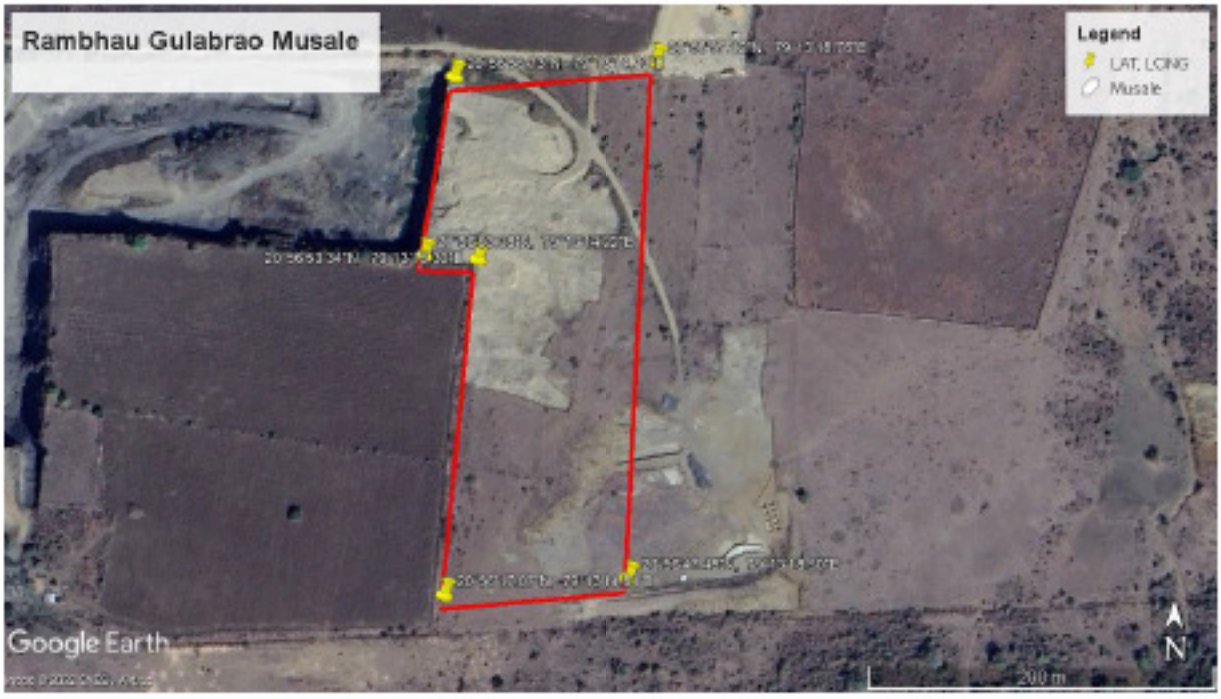


FIGURE 4 GOOGLE IMAGE SHOWING APPLIED QUARRY LEASE AREA P4

2.3 PROPOSED MACHINERY DEPLOYMENT

S. No	Particulars	Size capacity	Motive Power
1.	Jack hammer (30-35mm dia hole)	1.2m to 2.0m	Compressed air
2.	Compressor	400 psi	Diesel drive
3.	Excavator with Bucket and Rock Bre	300	Diesel drive
4.	Tippers	20 tonnes	Diesel drive

2.4 DESCRIPTION OF THE ENVIRONMENT

Field monitoring studies to evaluate the base line status of the project site were carried out during October 2020 to December 2020 as per CPCB guidelines. Environmental Monitoring data has been collected with reference to proposed quarry by M/s. **Excellent Enviro Laboratory & Research Center, Aurangabad** an NABL Certified & MoEF Notified Laboratory

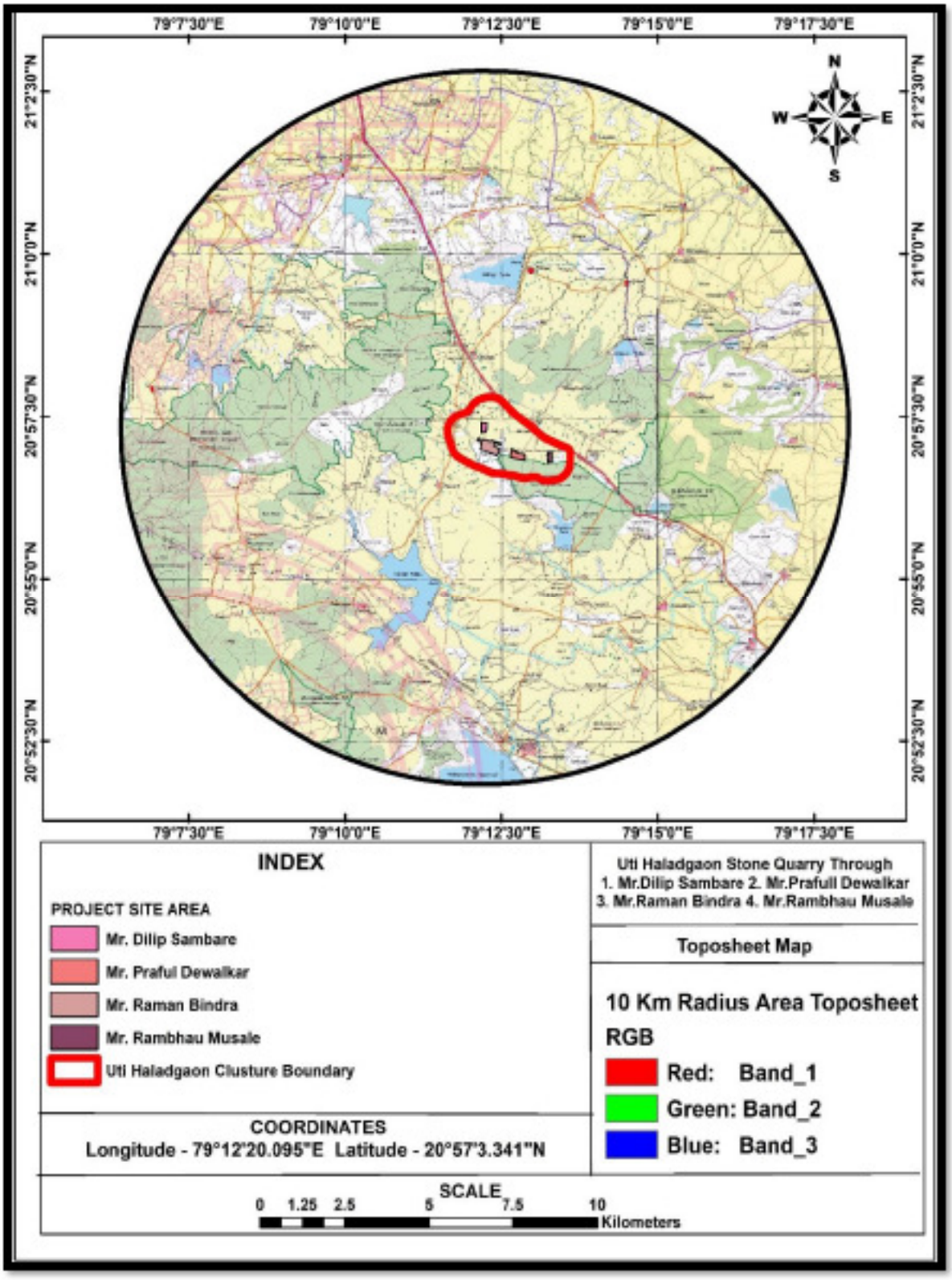


FIGURE – 2: TOPOSHEET MAP COVERING 10 KM RADIUS

3.1 ENVIRONMENT MONITORING ATTRIBUTES

S. No.	Attributes	Parameters	Frequency
1	Ambient Air Quality	PM_{10}, SO_2, NO_X & mineralogical composition of PM_{10}, particularly for free silica	24 hourly samples, twice a week for three months at 8 locations.
2	Meteorology	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall	Continuous hourly recording (one season) at project site. Secondary data from the nearest IMD station.
3	Water quality	Physical and Chemical parameters.	Grab samples collected once during study period from 13 ground water and 6 surface water locations.
4	Soil Quality	Physical and Chemical parameters.	Grab samples collected once during study period from 13 locations.
5	Ecology	Existing terrestrial flora and fauna covering Core Zone (1.00.0 Ha) & Buffer Zone (10-Km radius). Existing aquatic ecological status in Buffer Zone (10-Km radius).	Through field studies once during study period. Secondary data also collected.
6	Noise levels	Noise levels in dB (A) Day and Night.	Hourly Noise levels in and around the project area for 24 hours at each location once during study period at 13 locations.
7	Land use	Current land use scenario	Once during study period based on recent satellite imagery and ground-truthing at site.
8	Geology	Geological details	Once during study period. Data collected from secondary sources
9	Hydrogeology	Drainage area and pattern, nature of streams, aquifer characteristics, recharge and discharge areas, etc.	Based on primary and secondary sources, once during study period.
10	Socio-Economic aspects	Socio-economic aspects like demography, population dynamics, infrastructure resources, health status,	From primary and secondary sources (like census abstracts of census of India 2011) once during the study period.

S. No.	Attributes	Parameters	Frequency
		economic resources, etc.	

3.2 LAND ENVIRONMENT

Sr. No.	Level-I	Level-II	Area (Sq. Km²)	Percentage (%)
1	Built-up land	Settlement	3.47	1.07
		Industrial Settlement	0.45	0.14
		Road Infrastructure	1.81	0.56
		Railway Line	0.40	0.12
2	Agricultural Land/ Crop Land	Double Crop	48.40	14.97
		Single Crop	135.99	42.06
3	Forest Area	Reserve Forest	42.89	13.27
		Protected Forest	0.51	0.16
		Open Mixed Jungle	13.81	4.27
		Open Jungle	11.02	3.41
		Fairly Dense Jungle	2.86	0.88
4	Scrubs/Wastelands	Fairly Dense Scrub	1.11	0.34
		Dense Scrub	1.82	0.56
		Open Scrub	36.84	11.39
5	Waterbodies	River/Nala/Stream	1.47	0.45
		Reservoir	2.95	0.91
		Pond/Lake	10.36	3.20
6	Mines Area	Stone Quarry	7.17	2.22
		Total	**323.33**	**100**

The mining area contributes only about 2.22% of the total mining area within the study area. This small percentage of Mining Activities shall not have any significant impact on the environment

3.3 SOIL ENVIRONMENT

Physical Characteristics –

The physical properties of the soil samples were examined for texture, bulk density, porosity and water holding capacity. The soil texture found in the study area is Clay Loam Soil and Bulk Density of Soils in the study area varied between 1.2 to 1.6 g/cm^3. The Water Holding Capacity and Porosity of the soil samples is found to be medium i.e. ranging from 24.7 to 33.2%.

Chemical Characteristics –

1. The nature of soil is slightly alkaline to strongly alkaline with pH range 7.32 to 7.42
2. The available Total Nitrogen content range between 14.6 to 19.1 mg/kg
3. The available Phosphorus content range between 2.1 to 3.0 mg/kg
4. The available Potassium range between 52.4 to 78.4 mg/kg

3.4 WATER ENVIRONMENT

The pH limit fixed for drinking water samples as per IS: 10500 is 6.5 to 8.5 beyond this range the water will affect the mucus membrane and or water supply system. During the study period, the pH was varying for ground waters from 7.26-7.45 and in surface water the pH was varying between 8.12-8.7. The pH values for all the samples collected in the study area during study period were found to be within the limits.
The desirable limit for total dissolved solids as per IS: 10500 are 500 mg/l whereas the permissible limits in absence of alternate source is 2000 mg/l, beyond this palatability decreases and may cause gastro intestinal irritation. In ground water samples collected from the study area, the total dissolved solids are varying from 454-556.3 mg/l. The TDS within the permissible limit of 2000 mg/l. In surface waters the total dissolved solids were in the range of 520.5-690 mg/l which were within the desirable limit.

The desirable limit for chloride is 250 mg/l as per IS: 10500 whereas the permissible limit of the same is 1000 mg/l beyond this limit taste, corrosion and palatability are affected. The Chloride levels in the ground water samples collected in the study area were ranging from 50.2-84.3 mg/l. All are within the desirable limits. In surface waters the chlorides were in the range of 88.5-127 mg/l, which are within the desirable limits.

The desirable limit as per IS: 10500 for hardness is 300 mg/l whereas the permissible limit for the same is 600 mg/l beyond this limit encrustation in water supply structure and adverse effects on domestic use will be observed. In the ground water samples collected from the study area, the hardness is varying from 187-233 mg/l. In surface waters the hardness is varying between 311-341.5 mg/l.

Fluoride is the other important parameter, which has the desirable limit of 1 mg/l and permissible limit of 1.5 mg/l. However, the optimum content of fluoride in the drinking water is 0.6 to 1.5 mg/l. If the fluoride content is less than 0.6 mg/l it causes dental carries, above 1.5 mg/l it causes staining of tooth enamel, higher concentration in range of 3 - 10 mg/l causes fluorosis. In the ground water samples of study area the fluoride value were in the range of 0.1-0.21 mg/l. where as in the surface waters the fluoride was in range of 0.24-0.37 mg/l.

Dissolved oxygen (DO) refers to the amount of oxygen (O2) dissolved in water. Because in surface water fish and other aquatic organisms cannot survive without oxygen, DO is one of the most important water quality parameters. In surface water the reported value of range of 4.5-6.0 mg/lt. Phosphorus (as PO4) is an important nutrient for plants and algae. Because phosphorus is in short supply in most fresh waters, even a modest increase in phosphorus can cause excessive growth of plants and algae that deplete dissolved oxygen (DO) as they decompose. The range of Phosphorus (as PO4) was found to be below detectable limit or absent.

3.5 AIR ENVIRONMENT

The baseline studies on air environment include identification of specific air pollution parameters and their existing levels in ambient air. The ambient air quality with respect to the study zone of 10 km radius around the proposed quarry forms the baseline information.

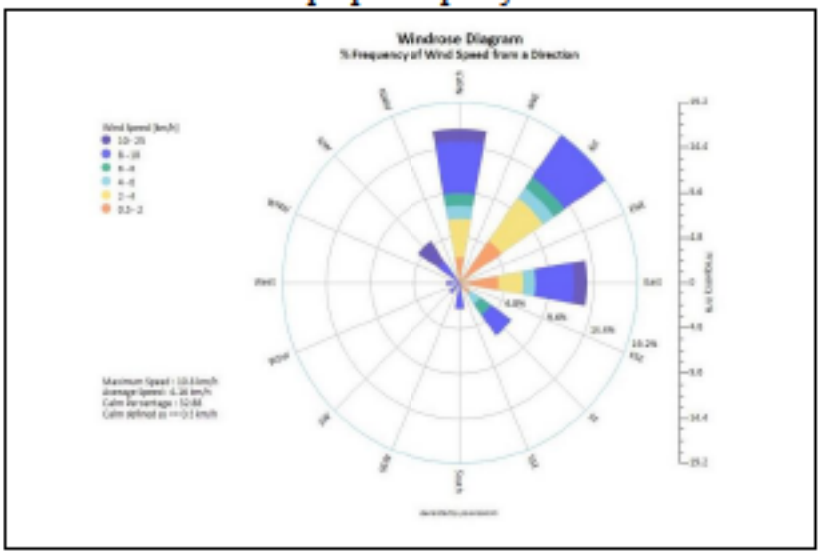


FIGURE – 3: WIND ROSE DIAGRAM

The results of ambient air quality monitoring for the period (October 2020 to December 2020) are presented in the report. Data has been complied for three months. As per monitoring data, PM10 ranges from 62.4 to 76.9 µg/m3, PM2.5 data ranges from 30.4 to 55.7 µg/m3, SO2 ranges from 8 to 19.2 µg/m3 and NO2 data ranges from 18.5 to 39.8 µg/m3. The concentration levels of the above criteria pollutants were observed to be well within the limits of NAAQS prescribed by CPCB.

3.6 NOISE ENVIRONMENT

Ambient noise levels were measured at 13 (Thirteen) locations around the proposed project area. it is observed that the ambient noise levels at all the monitoring locations and villages as the permissible limits of 55 dB(A) for day time and 45 dB(A) for night time observed within permissible limit

3.7 ECOLOGICAL ENVIRONMENT

The study involved in the collection of primary data by conducting a survey in the field, examination of floral and faunal records in previously published reports and records. Analysis of the information is the view of the possible alteration in the environment of the project site. For the survey of fauna, both direct and indirect observation methods were used. There is no schedule I species of animals observed within study area as per Wildlife Protection Act 1972 as well as no species is in vulnerable, endangered or threatened category as per IUCN. There is no endangered red list species found in the study area. Hence this small operation over short period of time will not have any significant impact on the surrounding flora and fauna.

3.8 SOCIO ECONOMIC ENVIRONMENT

It includes demographic structure of the area, provision of basic amenities viz., housing, education, health and medical services, occupation, water supply, sanitation, communication, transportation, prevailing diseases pattern as well as feature like temples, historical monuments etc., at the baseline level. This will help in visualizing and predicting the possible impact depending upon the nature and magnitude of the project. The socio-economic study of surveyed villages gives a clear picture of its population, average household size, literacy rate and sex ratio etc. It is also found that a part of population is suffering from lack of permanent job to run their day-to-day life. Their expectation is to earn some income for their sustainability on a long-term basis. The proposed projects will aim to provide preferential employment to the local people there by improving the employment opportunity in the area and in turn the social standards will improve.

4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES – IN COMMON FOR ALL PROPOSED QUARRIES

To maintain the environmental commensuration with the mining operation, it is essential to undertake studies on the existing environmental scenario and assess the impact on different environmental components. This would help in formulating suitable management plans sustainable resource extraction.

4.1 LAND ENVIRONMENT:

ANTICIPATED IMPACT

- Permanent or temporary change on land use and land cover.
- Change in Topography: Topography of the ML area will change at the end of the life of the mine.
- Movement of heavy vehicles sometimes cause problems to agricultural land, human habitations due to dust, noise and it also causes traffic hazards.
- Due to degradation of land by pitting the aesthetic environment of the core zone may be affected.
- Earthworks during the rainy season increase the potential for soil erosion and sediment laden water entering the water ways.

If no due care is taken wash off from the exposed working area may choke the water course & can also causes the siltation of water course

MITIGATION MEASURES

- The mining activity will be gradual confined in blocks and excavation will be undertaken progressively along with other mitigative measures like phase wise development of greenbelt etc.
- Construction of garland drains all around the quarry pits and construction of check dam at strategic location in lower elevations to prevent soil erosion due to surface runoff during rainfall and also to collect the storm water for various uses within the proposed area
- Green belt development along the boundary within safety zone. The small quantity of water stored in the mined-out pit will be used for greenbelt

- Thick plantation will be carried out on unutilized area, top benches of mined out pits, on safety barrier, etc.,
- At conceptual stage, the land use pattern of the quarry will be changed into Greenbelt area and temporary reservoir
- In terms of aesthetics, natural vegetation surrounding the quarry will be retained (such as in a buffer area i.e., 10 m safety barrier and other safety provided) so as to help minimise dust emissions.
- Proper fencing will be carried out at the conceptual stage, Security will be posted round the clock, to prevent inherent entry of the public and cattle.

4.2 WATER ENVIRONMENT

ANTICIPATED IMPACT

- The major sources of water pollution normally associated due to mining and allied operations are:
  - Generation of waste water from vehicle washing.
  - Washouts from surface exposure or working areas
  - Domestic sewage
  - Disturbance to drainage course in the project area
  - Mine Pit water discharge
- Increase in sediment load during monsoon in downstream of lease area
- This being a mining project, there will be no process effluent. Waste from washing of machinery may result in discharge of Oil & grease, suspended solids.
- The sewage from soak pit may percolate to the ground water table and contaminate it.
- Surface drainage may be affected due to Mining
- Abstraction of water may lead to depletion of water table

MITIGATION MEASURES

- Garland drains, settling tank will be constructed along the individual mining leases. The Garland drains of the individual leases will be connected to settling tank and after settling the water will be discharged out to the natural drainage
- Rainwater will be collected in sump in the mining pits and will be allowed to store and pumped out to surface setting tank of 15 m x 10m x 3m to remove suspended solids if any. This collected water will be judiciously used for dust suppression onwards and such sites where dust likely to be generated and for developing green belt. The proponent will collect and judicially utilize the rainwater as part of rainwater harvesting
- Providing benches with inner slopes and through a system of drains and channels, allowing rain water to descent into surrounding drains, so as to minimize the effects of erosion & water logging arising out of uncontrolled descent of water.
- Reuse the water collected during storm for dust suppression and greenbelt development within the mines
- Installing interceptor traps/oil separators to remove oils and greases. Water from the tipper wash-down facility and machinery maintenance yard will pass through interceptor traps/oil separators prior to its reuse;

- Using flocculating or coagulating agents to assist in the settling of suspended solids during monsoon seasons;
- Periodic analysis of quarry pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in ML is discharged in septic tank followed by soak pits.
- Waste water discharge from mine will be treated in settling tanks before using for dust suppression and tree plantation purposes.
- De-silting will be carried out before and immediately after the monsoon season.
- Regular monitoring and analysing the quality of water in open well, bore wells and surface water

4.3 AIR ENVIRONMENT

ANTICIPATED IMPACT

- During mining, at various stages activities such as excavation, drilling, blasting, and transportation of materials, particular matter (PM), gases such as Sulphur dioxide, oxides of Nitrogen from vehicular exhaust are the main air pollutants.
- Emissions of noxious gases due to incomplete detonation of explosive may sometimes pollute the air.
- The fugitive dust released from the mining operations may cause effect on the mine workers who are directly exposed to the fugitive dust.
- Simultaneously, the air-borne dust may travel to longer distances and settle in the villages located near the mine lease area.

MITIGATION MEASURES

DRILLING – To control dust at source, wet drilling will be practiced. Where there is a scarcity of water, suitably designed dust extractor will be provided for dry drilling along with dust hood at the mouth of the drill-hole collar.

ADVANTAGES OF WET DRILLING: -

- In this system dust gets suppressed close to its formation. Dust suppression become very effective and the work environment will be improved from the point of occupational comfort and health.
- Due to dust free atmosphere, the life of engine, compressor etc., will be increased.
- The life of drill bit will be increased.
- The rate of penetration of drill will be increased.
- Due to the dust free atmosphere visibility will be improved resulting in safer working conditions.

BLASTING –

- Establish time of blasting to suit the local conditions and water sprinkling on blasting face
- Avoid blasting i.e., when temperature inversion is likely to occur and strong wind blows towards residential areas

- Controlled blasting includes Adoption of suitable explosive charge and short delay detonators, adequate stemming of holes at collar zone and restricting blasting to a particular time of the day i.e. at the time lunch hours, controlled charge per hole as well as charge per round of hole
- Before loading of material water will be sprayed on blasted material
- Dust mask will be provided to the workers and their use will be strictly monitored

HAUL ROAD & TRANSPORTATION –

- Water will be sprinkled on haul roads twice a day to avoid dust generation during transportation
- Transportation of material will be carried out during day time and material will be covered with tarpaulin
- The speed of tippers plying on the haul road will be limited below 20 km/hr to avoid generation of dust.
- Water sprinkling on haul roads & loading points will be carried out twice a day
- Main source of gaseous pollution will be from vehicle used for transportation of mineral; therefore, weekly maintenance of machines improves combustion process & makes reduction in the pollution.
- The un-metalled haul roads will be compacted weekly before being put into use.
- Over loading of tippers will be avoided to prevent spillage.
- It will be ensured that all transportation vehicles carry a valid PUC certificate
- Grading of haul roads and service roads to clear accumulation of loose materials

GREEN BELT –

- Planting of trees all along main mine haul roads and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of dumpers/trucks
- Green belt of adequate width will be developed around the project areas

OCCUPATIONAL HEALTH –

- Dust mask will be provided to the workers and their use will be strictly monitored
- Annual medical check-ups, trainings and campaigns will be arranged to ensure awareness about importance of wearing dust masks among all mine workers & tipper drivers
- Ambient Air Quality Monitoring will be conducted six month once to assess effectiveness of mitigation measures proposed

4.4 NOISE ENVIRONMENT

ANTICIPATED IMPACT

- Noise pollution poses a major health risk to the mine workers. Following are the sources of noise in the existing open cast mine project are being observed such as Drilling, & Blasting, Loading and during movement of vehicles.

MITIGATION MEASURES

- Usage of sharp drill bits while drilling which will help in reducing noise;
- Secondary blasting will be totally avoided and hydraulic rock breaker will be used for breaking boulders;
- Controlled blasting with proper spacing, burden, stemming and optimum charge/delay will be maintained;
- The blasting will be carried out during favourable atmospheric condition and less human activity timings by using nonelectrical initiation system;
- Proper maintenance, oiling and greasing of machines will be done every week to reduce generation of noise;
- Provision of sound insulated chambers for the workers working on machines (HEMM) producing higher levels of noise;
- Silencers / mufflers will be installed in all machineries;
- Green Belt/Plantation will be developed around the project area and along the haul roads. The plantation minimizes propagation of noise;
- Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators of HEMM and persons working near HEMM and their use will be ensured though training and awareness.
- Regular medical check–up and proper training to personnel to create awareness about adverse noise level effects.

4.5 BIOLOGICAL ENVIRONMENT

ANTICIPATED IMPACT

There are no National Park and Archaeological monuments within project area. There are no migratory corridors, migratory avian-fauna, rare endemic and endangered species. There are no wild animals in the area. No breeding and nesting site were identified in project site. No National Park and Wildlife Sanctuary found within 10km radius. The dumps / bunds around the mine itself act as a good barrier for entry of stray animals. In the post mining stage, barbed wire fencing is proposed all around the mined-out void to prevent fall of animals in the mine pits.

MITIGATION MEASURES

To reduce the adverse effects on natural flora/fauna status of the area due to deposition of dust generated from mining operations, water sprinkling and water spraying systems will be ensured in all dust prone areas to arrest dust generation. Methodical and well-planned plantation scheme will be carried out.

4.5.1 GREENBELT DEVELOPMENT PLAN

Code	No of Trees proposed to be planted	Survival %	Name of the Species	No. of Trees expected to be grown
P1	2690	80%	Neem, Pipal, Wad Imli, Bel, Babool Palas Etc. As Per Soil Condition	2152
P2	995	80%		796
P3	1555	80%		1244
P4	875	80%		700
Total	**6115**	80%		**4892**

4.6 SOCIO ECONOMIC ENVIRONMENT

ANTICIPATED IMPACT

- Employment generation due to the project will provide direct employment for about 75 persons (P1,P2,P3,P4).

MITIGATION MEASURES

- Good maintenance practices will be adopted for plant machinery and equipment, which will help to avert potential noise problems.
- Green belt will be developed in and around the project site as per Central Pollution Control Board (CPCB) guidelines.
- Appropriate air pollution control measure will be taken to minimize the environmental impact within the core zone.
- For the safety of workers, personal protective appliances like hand gloves, helmets, safety shoes, goggles, aprons, nose masks and ear protecting devices will be provided as per mines act and rules.
- Benefit to the State and the Central governments through financial revenues by way of royalty, tax, DMF, NMET etc, from this project directly and indirectly.

5. ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

- The site has been selected based on geological investigation and exploration as below:
- Occurrence of minerals at the specific site.
- Transportation facility for materials & manpower.
- Overall impact on environment and mitigation feasibility
- Socio – economic background.
- The mineral deposits are site specific in nature; hence question of seeking alternate site does not arise for this project.

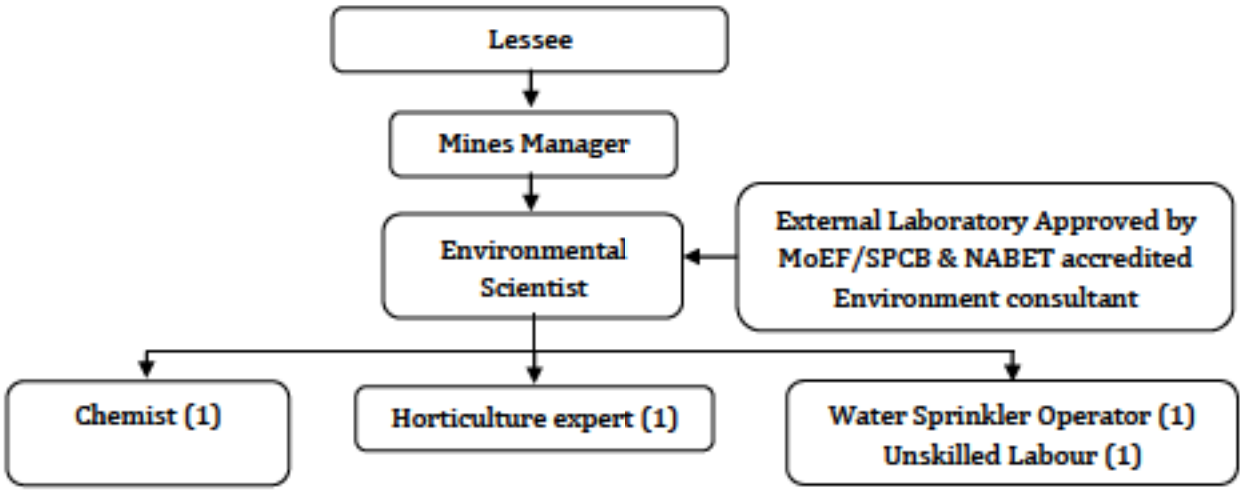
6. ENVIRONMENT MONITORING PROGRAM

Usually, an impact assessment study is carried over short period of time and the data cannot bring out all variations induced by natural or human activities. Hence regular monitoring program of Environmental parameters is essential to consider the changes in the Environment.

The Objective of Monitoring -

- To check or assess the efficiency of the controlling measures;
- To establish a data base for future impact assessment studies.

6.1 ENVIRONMENTAL MONITORING CELL



6.2 POST ENVIRONMENTAL CLEARANCE MONITORING SCHEDULE IN COMMON

S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
1	Air Quality	2 Locations (1 Core & 1 Buffer)	24 hours	Once in 6 months	Fugitive Dust, $PM_{2.5}$, PM_{10}, SO_2 and NO_x.
2	Meteorology	At mine site before start of Air Quality Monitoring & IMD Secondary Data	Hourly / Daily	Continuous online monitoring	Wind speed, Wind direction, Temperature, Relative humidity and Rainfall
3	Water Quality Monitoring	1 Locations (1 GW)	-	Once in 6 months	Parameters specified under IS:10500, 1993 & CPCB Norms
4	Hydrology	Water level in open wells in buffer zone around 1 km at specific wells	-	Once in 6 months	Depth in bgl
5	Noise	2 Locations (1 Core & 1 Buffer)	Hourly – 1 Day	Once in 6 months	Leq, Lmax, Lmin, Leq Day & Leq Night
6	Vibration	At the nearest habitation (in case of reporting)	–	During blasting Operation	Peak Particle Velocity

S. No.	Environment Attributes	Location	Monitoring		Parameters
			Duration	Frequency	
7	Soil	2 Locations (1 Core & 1 Buffer)	–	Once in six months	Physical and Chemical Characteristics
8	Greenbelt	Within the Project Area	Daily	Monthly	Maintenance

7. ADDITIONAL STUDIES

7.1 RISK ASSESSMENT

The methodology for the risk assessment has been based on the specific risk assessment guidance issued by the Directorate General of Mine Safety (DGMS), Dhanbad, vide Circular No.13 of 2002, dated 31st December, 2002. The DGMS risk assessment process is intended to identify existing and probable hazards in the work environment and all operations and assess the risk levels of those hazards in order to prioritize those that need immediate attention. Further, mechanisms responsible for these hazards are identified and their control measures, set to timetable are recorded along with pinpointed responsibilities. The whole quarry operation will be carried out under the direction of a Qualified Competent Mine Manager holding certificate of competency to manage a metalliferous mine granted by the DGMS, Dhanbad. Risk Assessment is all about prevention of accidents and to take necessary steps to prevent it from happening.

7.2 DISASTER MANAGEMENT PLAN

The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.

The objective of the Disaster Management Plan is to make use of the combined resources of the mine and the outside services to achieve the following:

- Rescue and medical treatment of casualties;
- Safeguard other people;
- Minimize damage to property and the environment;
- Initially contain and ultimately bring the incident under control;
- Secure the safe rehabilitation of affected area; and
- Preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of the emergency

7.3 CUMULATIVE IMPACT STUDY

The Cumulative Impact is anticipated due to drilling & blasting and excavation and transportation activities from proposed mines within the 500 meter radius from the proposed mines and major impact anticipated is on Air & Noise Environment and Ground Vibrations due to blasting. The current monitoring was done as existing quarry are working which gives the ambient or present condition of air quality as well as noise.

PREDICTED AIR INCREMENTAL VALUE

S. No.	Locations	PM10 (µg/m^3)			PM2.5 (µg/m^3)			SO2 (µg/m^3)			NO2 (µg/m^3)		
		Inc	Max	Total	Inc	Max	Total	Inc	Max	Total	Inc	Max	Total
1.	AAQ-1	1.2	76.9	78.1	0.2	55.7	55.9	0.3	17.2	17.5	0.2	34.8	35
2.	AAQ-2	1.8	74.8	76.6	0.4	51.3	51.7	0.5	17.6	18.1	0.3	34.7	35
3.	AAQ-3	3.7	75.2	78.9	0.1	49.7	49.8	0.1	18.2	18.3	0.1	38.5	38.6
4.	AAQ-4	0	75.9	75.9	0	51.2	51.2	0	17.5	17.5	0.1	34.3	34.4
5.	AAQ-5	0.2	75.1	75.3	0.1	49.5	49.6	0.1	19.2	19.3	0.2	35.8	36
6.	AAQ-6	1.2	75.2	76.4	0.5	49.4	49.9	0.3	19.2	19.5	0.2	37.6	37.8
7.	AAQ-7	1.2	75.3	76.5	0.7	48.5	49.2	0.2	17.6	17.8	0.1	37.2	37.3
8.	AAQ-8	3.7	75.9	79.6	1	49.7	50.7	0.4	18.9	19.3	0.2	35.7	35.9
9.	AAQ-9	4.1	75.4	79.5	1.2	42.7	43.9	0.3	15.7	16	0.1	27.3	27.4
10.	AAQ-10	1.2	75.8	77	0.2	49.3	49.5	0	17.9	17.9	0	35.6	35.6
11.	AAQ-11	1	75.9	76.9	0.1	48.6	48.7	0.1	17.5	17.6	0.1	38.6	38.7
12.	AAQ-12	1	75.4	76.4	0.1	49.2	49.3	0.1	18.5	18.6	0	39.8	39.8
	AAQ-13	1.2	75.4	76.6	0.2	48.9	49.1	0	17.6	17.6	0.1	35.4	35.5
NAAQS (µg/m3)		**100**			**60**			**80**			**80**		

MAXIMUM GROUND LEVEL CONCENTRATION

Pollutants	Max. GLC observed, (µg/m3)	Distance and Direction
PM_{10}	12.3	1000, SW
$PM_{2.5}$	7.2	1000, SW
SO_2	5.7	1000, SW
NO_2	6.0	1000, SW

PREDICTED NOISE INCREMENTAL VALUE

Equipment with Highest Noise Level	Location ID	Background Value (Day) dB(A)	Incremental Value dB(A)	Total Predicted dB(A)	Residential Area Standards dB(A)
Drilling 90 dB(A)	Haldagaon N11	49.3	29.3	49.3	55
Shovel 85 dB(A)		49.3	24.3	49.3	
Tipper 75 dB(A)		49.3	14.3	49.3	
Compressor 85 dB(A)		49.3	24.3	49.3	
Excavator 102 dB(A)		49.3	41.3	49.9	

ESTIMATED PEAK PARTICLE VELOCITY FOR EXPLOSIVE CHARGE FOR EXISTING AND PROPOSED MINES

Distance from blasting site, m	Quantity of Explosive/Blast, Kg For different proposed project				PPV, mm/s For different proposed project			
	P1	P2	P3	P4	P1	P2	P3	P4
50	36	25	34	13	28.6	22.7	27.6	15.0
100	36	25	34	13	11.9	9.4	11.5	6.2
150	36	25	34	13	7.1	5.7	6.9	3.7
200	36	25	34	13	4.9	3.9	4.8	2.6
250	36	25	34	13	3.7	3.0	3.6	2.0
300	36	25	34	13	3.0	2.4	2.9	1.6
350	36	25	34	13	2.4	1.9	2.4	1.3
400	36	25	34	13	2.1	1.6	2.0	1.1
450	36	25	34	13	1.8	1.4	1.7	0.9
500	36	25	34	13	1.6	1.2	1.5	0.8
550	36	25	34	13	1.4	1.1	1.3	0.7
600	36	25	34	13	1.2	1.0	1.2	0.6
650	36	25	34	13	1.1	0.9	1.1	0.6
700	36	25	34	13	1.0	0.8	1.0	0.5
750	36	25	34	13	0.9	0.7	0.9	0.5

Note: The empirical formula does not consider the delay factor in blasting due to use of Delay Detonators.

The nearest habitation from cluster is Uti Village at 1 Km in NE direction. From the above table, the blasting will not cause any significant ground vibrations in the area. The ground vibrations at nearest habitation will be well within the permissible limits recommended by DGMS.

8. PROJECT BENEFITS

Proposed Project for Quarrying Basalt Stone at Uti Haladgaon Village aims to produce 34,42,560 m3 Stone over a period of 5 Years. This will enhance the socio-economic activities in the adjoining areas and will result in the following benefits

- Increase in Employment Potential
- Improvement in Socio-Economic Welfare
- Improvement in Physical Infrastructure
- Improvement in Social infrastructure

SOCIO ECONOMIC BENEFITS FROM PROPOSED 4 MINES

Project	Project Cost in Rs.	CER in Rs.
P1	52800000	1056000
P2	6500000	130000
P3	9200000	184000
P4	8500000	170000
Total	77000000	1540000

Considering this case greenfield project. As per Memorandum No:F NO 22-65/2017-IA-III dated 01/05/2018 the applicable CER is 2% in greenfield of project cost.

9. ENVIRONMENT MANAGEMENT PLAN

The Environment Monitoring Cell discussed formed by the mine management will ensure effective implementation of environment management plan and to ensure compliance of environmental statutory guidelines through Mine Management Level.

The said team will be responsible for:

1. Implementation of pollution control measures as suggested in Environmental Management Plan and recommended in EC
2. Conducting environmental monitoring as per EMP and EC stipulation through external laboratories approved by MoEF/SPCB and NABL
3. Ensuring compliance with other conditions stipulated in Environmental Clearance for the project.
4. Ensuring compliance with the conditions stipulated in 'Consent to Operate' for the project.
5. Timely submission of compliance status to MoEF/ SPCB
6. Seeking experts' guidance, as and when required.
7. Conducting CSR activities in nearby villages.
8. Co-ordination of the environment related activities within the project as well as with outside agencies
9. Collection of health statistics of the workers and population of the surrounding villages
10. Green belt development
11. Monitoring the progress of implementation of the environmental monitoring programme
12. Monitoring of the water/ waste water quality, air quality and solid waste generated
13. Analysis of the water and air samples collected through external laboratory
14. Implementation and monitoring of the pollution control and protective measures/ devices which shall include financial estimation, ordering, installation of air pollution control equipment, waste water treatment plant, etc
15. Compliance to statutory provisions, norms of State Pollution Control Board, Ministry of Environment and Forests and the conditions of the environmental clearance as well as the consents to establish and consents to operate.

BUDGET FOR IMPLEMENTATION OF EMP

Project	Capital Cost	Recurring Cost
P1	28,02,800	4,89,225
P2	18,93,820	3,77,275
P3	22,11,060	4,20,000
P4	18,81,980	3,72,075
Total	**87,89,660**	**16,58,575**

10. CONCLUSION

It can be concluded from overall assessment of the impacts, in terms of positive and negative effects on various environmental components, that the mining activities will not have any adverse effect on the surrounding environment.

To mitigate any impacts due to the mining activities, a well-planned EMP and a detailed post project monitoring system is provided for regular monitoring and immediate rectification at site. Due to the cluster quarrying activities, socio economic conditions in and around the project site will be improved substantially. Hence, the Prior Environmental Clearance shall be granted at the earliest.