EXECUTIVE SUMMARY

1.0 INTRODUCTION

Environmental Impact Assessment (EIA) is a process, used to identify the environmental, social and economic impacts of a project prior to decision-making. It is a decision making tool, which guides the decision makers in taking appropriate decisions for proposed projects. EIA systematically examines both beneficial and adverse consequences of the proposed project and ensure that these impacts are taken into account during the project designing.

1.1 Environmental Clearance

As per the Environmental Impact Assessment (EIA); Notification S.O. 1533, 14-09-2006 issued by MoEFCC, Government of India, the proposed ferroalloys expansion project is categorized as Category – A project, which mandates obtaining prior Environmental Clearance from MoEFCC, GOI, NEW DELHI.

1.2 Terms of Reference

Metarolls Ispat Pvt. Ltd. submitted the application for Environmental Clearance as per the new notification along with prescribed Form 1, proposed Terms of Reference for EIA study and pre-Feasibility report on the project in November 2016. The Expert Appraisal Committee considered the project in the held on October 10, 2018 and prescribed Terms of References is incorporated in the EIA report.

1.3 Brief Description of Project

The proposed project is an expansion project of Modernization Cum Expansion of MS Billets/Alloys Billets Production from 1,58,400 TPA to 7,28,400 TPA, TMT Bars production from 1,58,400 TPA to 7,28,400 TPA and Additional Unit for Production of Ferro Manganese 21500 TPA/ Silico Manganese 18000 TPA. The project is located at Gut No. 48, Daregaon village, Adjacent to MIDC Phase II, Taluka - Jalna, District - Jalna, Maharashtra State. The project location map is given in **Figure 1.1**, and 10 km study area map is given in **Figure 1.2**.

Product Details

Existing Production Capacity	
MS Billets	1,58,400 TPA
TMT Bars	1,58,400 TPA
Proposed Production Capacity	
MS Billets	5,70,000 TPA
TMT Bars	5,70,000 TPA
Ferro Alloys	Ferro Manganese – 21,500 TPA or Silico Manganese – 18,500 TPA
Total Production Capacity after Expansion	

MS Billets	7,28, 400 TPA
TMT Bars	7,28, 400 TPA
Ferro Alloys	Ferro Manganese – 21,500 TPA or Silico Manganese – 18,500 TPA

Project Proponents

Metarolls Ispat Pvt. Ltd. (MIPL) (Formerly-Meta Rolls & Commodities Pvt. Ltd) is the flagship company of the Steel conglomerate, "Rajuri Group". Metarolls Ispat Pvt. Ltd. (MIPL) is established, in the year 2004, incorporated under Companies Act, 1956, which intends to manufacture Iron and Steel products. MIPL has started its commercial operation in 2005 to manufacture M.S. Billets through Concast technology with capacity of 728400 MTPA & now operating with capacity on 1,58,400 MTPA.
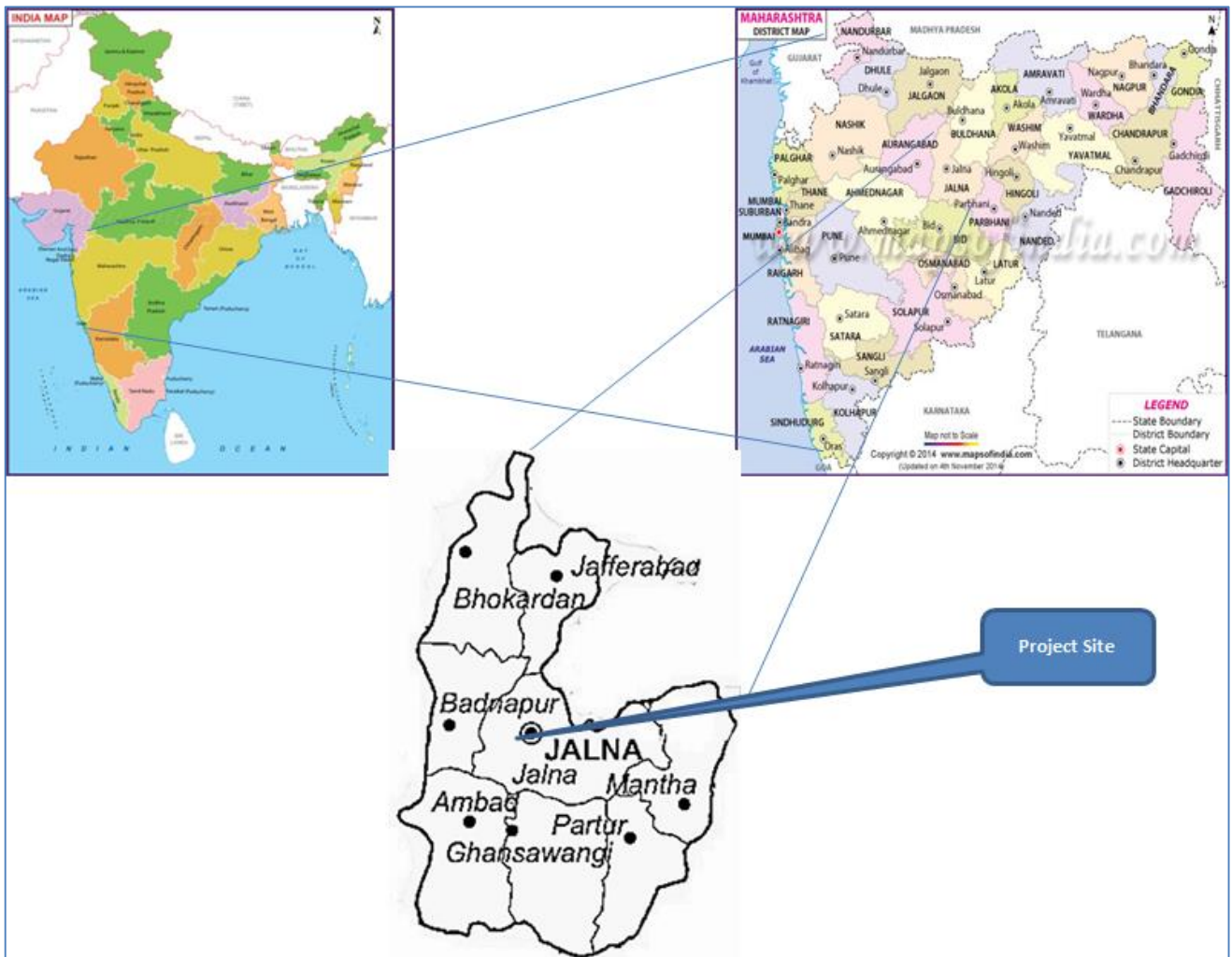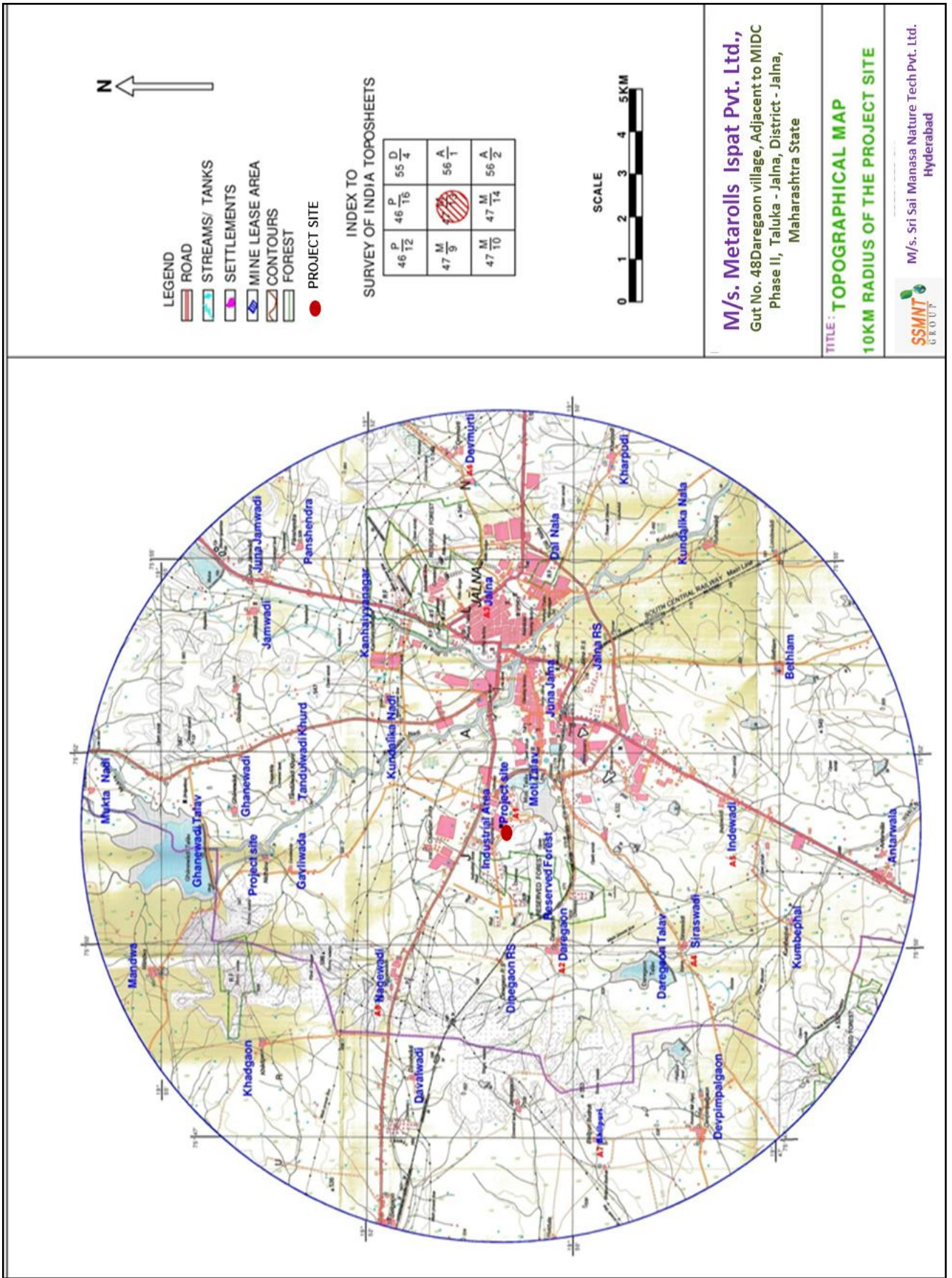

Figure 1: Project Location Map

Figure 2: 10 KM Study Area Map of the Project Site

2.0 PROJECT DESCRIPTION

2.1 Raw Material Requirement

The major raw materials for the proposed expansion are sponge iron, scrap, manganese ore, coke, coal, dolomite and other minerals. The raw material requirement per day is given in **Table 1.**

Table 1 (A): Raw Material Characteristics (Billets Manufacturing)

Sr. No.	Particular	Quantity (TPA)	Source	Mode of Transportation
1	Scrap	438480	Sister Industry/Open Market	By road
2	Sponge Iron	310800	Open Market	By road
3	Other Minerals	15120	Open Market	By road
Total		**764400**		

Table 1 (B): Raw Material Characteristics (TMT Bar Manufacturing)

Sr. No.	Particular	Quantity (TPA)	Source
1	Billets	728400	In-house

Table 1 (C): Raw Material Characteristics (Ferro Manganese Manufacturing)

S. No.	Raw Materials	Quantity (MT)
1	Manganese Ore (with Average Mn 44%)	2.1 – 2.4
2	Coke (with average Fixed Carbon 80%)	0.30
3	Coal (with average Fixed Carbon 60%)	0.3
4	Dolomite	0.2

Table1 (D): Raw Material Characteristics (Silico Manganese Manufacturing)

S. No.	Raw Materials	Quantity (MT)
1	Manganese Ore (with Average Mn 44%)	2.5 – 2.8
2	Coke (with average Fixed Carbon 80%)	0.40
3	Coal (with average Fixed Carbon 60%)	0.40
4	Dolomite	0.2

Material Balance

The material balance is given in **Table 2 and Table 3.**

Table 2: Material Balance for Billets

Input	TPA	Out Put	TPA
Sponge Iron	438480	Billets	728400
Scrap	310800	Slag	22680
Additives	15120	Burning Losses	13320
Total	**764400**		**764400**

Table 3: Material Balance for TMT Bars

Input	TPA	Out Put	TPA
Billets	728400	TMT bar	728400
Total	**7,28,400**		**7,28,400**

Source of Raw Materials

Open Market and Sister Industries

2.2 Water Requirement

The manufacturing process of proposed project does not require water at any stage. The water requirement in the project will be for cooling purpose, domestic consumption and green belt development. Total initial water requirement for the project will be 415 KLD. This requirement will be met from Own reservoir. The details of water requirement for different purposes are presented in **Table 4.**

Table 4: Water Requirement

All values in KLD

Item	Existing Water Requirement	Proposed Water Requirement	Total Water Requirement
Cooling Purpose	185	180	365
Domestic Purpose	20	20	40
Dust Suppression	10	-	15
Total	**215**	**200**	**415**

Water Balance

Domestic waste will be treated in STP.

Treated water will be used for Gardening Purposes.

Zero Discharge norms will be followed.

2.3 Land Requirement

MIPL has acquired 19.05 acres of land. The proposed expansion activity will be established within the existing plant area only. The land breakup details are presented in **Table 5.**

Table 5: Land Break-up Details

Area	Existing Area (Acres)	Proposed Area (Acres)	Total Area (Acres)
Plant Area	6.0	4.6	10.6
Road Area and open Area	2.2	-	2.2
Area for Future Expansion Area	4.6	-	-
Greenbelt Area	6.25	-	6.25
Total	**19.05**		**19.25**

Power Requirement

The existing power requirement is 29.0 MW and additional 26.0 MW will be required for proposed expansion. The power will be sourced from the Maharashtra State Electricity Board.

Man Power Requirement

The Details of employment is given in **Table 6.**

Table 6: Man Power Requirement

S No	Particular	Numbers
1	Existing Manpower (Staff + Worker)	450
2	Proposed Manpower(Staff + Worker)	400
	Total	**800s.**

2.4   Technology and Process Description

2.4.1   Induction furnace

The induction furnace operates as a batch melting process producing batches of molten steel known "heats".

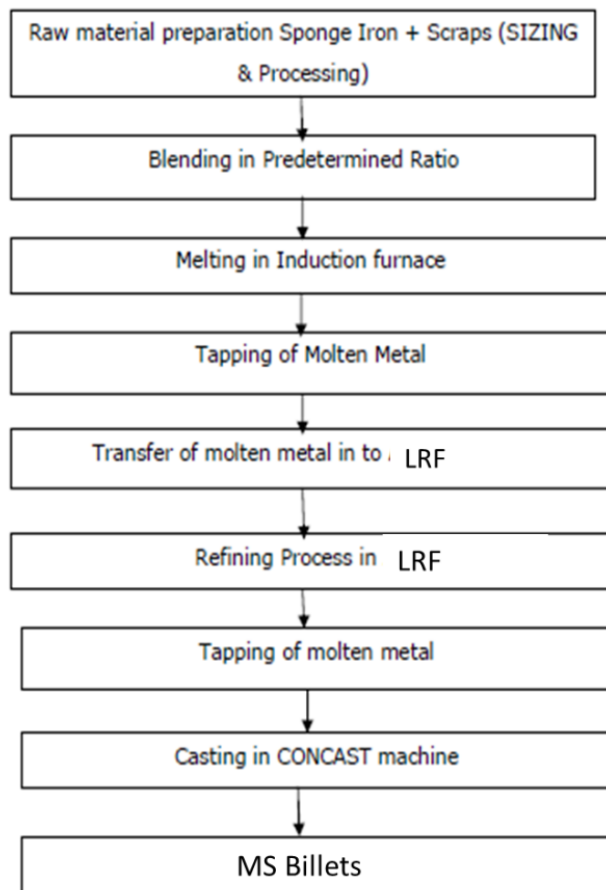The process flow diagram is **Figure 3.**

Figure: 3 - Process Flow Chart of Induction Furnace

2.4.2   Rolling Mill

Hot Billet received from Steel Melt Shop are inspected and cut to length as per the size of TMT to be rolled. These hot billets are directly sent to rolling mill via hot charging conveyor without any preheating. The process of rolling mill is given in **Figure 4.**
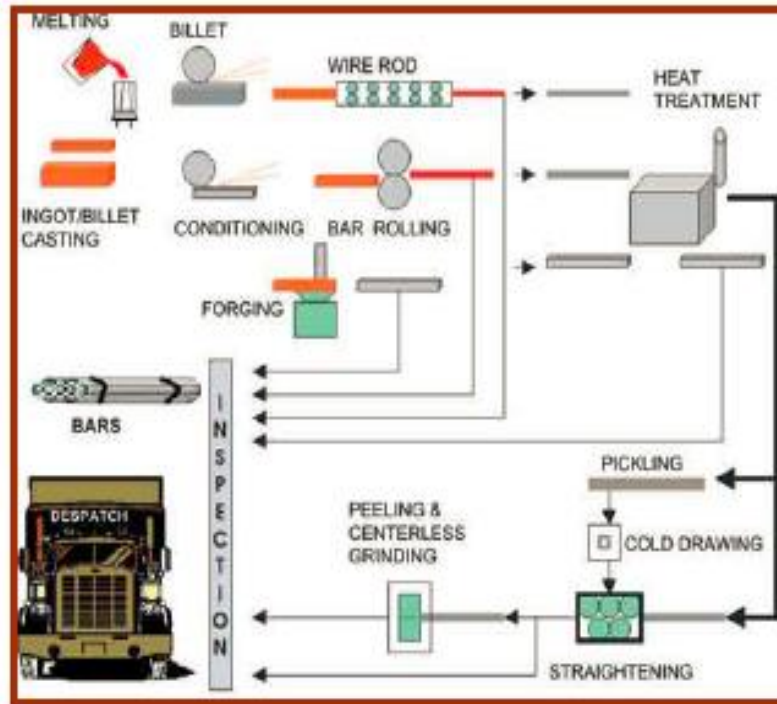
Figure: 4 - Process Flow Chart of TMT Bar Manufacturing

2.4.3 Ferro Alloys

Ferro-alloys are produced by reducing metals from their oxides contained in ores by using a suitable reduction under conditions created to ensure a high recovery of the valuable elements from the starting materials. The Manufacturing process of the Ferro alloys is given in **Figure 5.**
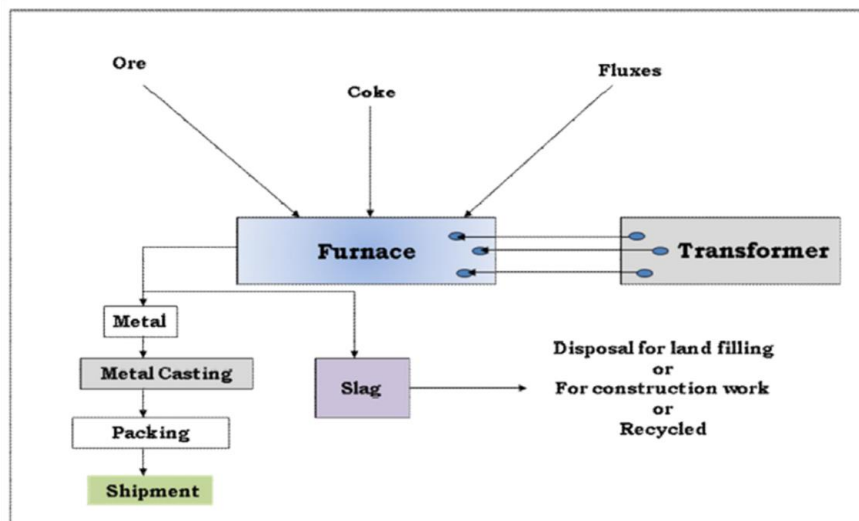

Figure: 5 - Process Flow Chart of Ferro Alloys Manufacturing

## 3.0 BASELINE ENVIRONMENTAL STUDIES

Baseline environmental studies were conducted in the area within 10 km radius from the proposed expansion project area to assess the existing environmental scenario in the area. The baseline environmental quality data for various components of environment, viz. Air, Noise,

Water, Land were monitored during October 2018 to December 2018 in the study area covering 10 km around the Plant area.

3.1 Meteorology & Ambient Air Quality

Summary of the Meteorological Data Generated at Site

Summary of Site Specific Wind Pattern
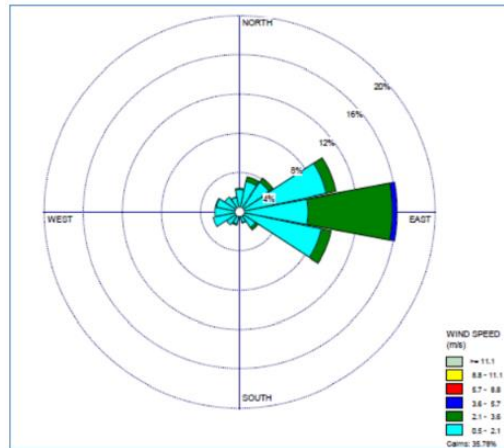
3.2 Ambient Air Quality Status

The status of ambient air quality within the study area was monitored for the period of Post-monsoon 2017 at 8 locations including the Plant area and in nearby villages. Total 8 sampling locations were selected based on the meteorological conditions considering upwind and downwind directions. The levels of Respirable Particulate Matter (PM_{10}), Fine Particulates ($PM_{2.5}$), Sulphur Dioxide (SO_2,) and Oxides of Nitrogen (NO_X) were monitored. The minimum and maximum values of monitoring results are summarized in **Table 6.**

Table 6: Summary of Ambient Air Quality Results

	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)
A-1: Project Site				
Minimum	63.4	43.5	27.9	24.9
Maximum	82.7	52.3	31.3	29.1
Average	78.4	47.4	29.6	27.3
A-2: Jalna Village				
Minimum	74.5	42.9	22.7	23.2
Maximum	83.8	53.2	29.2	29.0
Average	79.8	47.4	28.5	26.6
A-3:Dargaon Village				
Minimum	59	40.8	25.4	27.6
Maximum	79.5	48.4	33.6	33
Average	70.2	44.2	31.0	30.6
A4: Bethlam Village				
Minimum	70.2	41	24.5	27.1
Maximum	79.7	52.2	30.3	30.6
Average	74.8	46.5	27.8	29.3
A5: Siraswadi Village				
Minimum	73.2	45.2	28.6	19.9
Maximum	82.7	53.9	38.5	39.7
Average	79.1	49.2	30.1	29.7
A-6: Selgaon Village				
Minimum	72.1	43.1	26.7	27.2
Maximum	81.6	50.6	30.7	31.2
Average	78.7	48.3	29.3	29.7
A-7: Nagewadi Village				
Minimum	70.7	44.1	26.8	27.2
Maximum	79.6	49.6	28.8	28
Average	74.7	45.8	27.6	28.0
A -8: Devmurti Village				
Minimum	70.1	44.1	25.3	25.4
Maximum	79.1	47.3	29.8	29.2
Average	73.5	45.8	28.4	26.8

From the above results, it is observed that the ambient air quality with respect to PM_{10}, $PM_{2.5}$, SO_2 and NOx at all the monitoring locations was within the permissible limits specified by CPCB.

3.3 Ambient Noise Levels

Ambient noise level monitoring was carried out at the 8 monitoring locations, those were selected for ambient air quality monitoring. The monitoring results are summarized in **Table 7.**

Table 7: Summary of Ambient Noise Level Monitoring Results [Leq in dB(A)]

Equivalent Noise levels	Project Site	Jalna	Dargaon	Bethlam	Siraswadi	Selgaon	Nagewadi	Devmurti
L_d	56.6	44.7	54.1	42.7	44.08	44.3	41.7	45.5
L_n	46.04	36.1	41.2	34.8	36.7	36.6	33.6	36.9
CPCB	**75**	**55**	**55**	**55**	**55**	**55**	**55**	**55**
Ld Ln	**70**	**45**	**45**	**45**	**45**	**45**	**45**	**45**

3.4 Surface and Ground Water Resources & Quality

Groundwater

- pH of the ground water samples collected was in the range of 7.2 – 8.1.

- Total Dissolved Solids in the samples was in the range of 278 - 481 mg/l.

- Total Hardness was found to vary between 112 – 235 mg/l.

- Chlorides concentration was found to vary between 27.0 – 34.7 mg/l.

- Heavy metal concentrations in all the samples were found to be well within the limits.

Surface Water

- Water samples from 8 surface water bodies have been collected and analyzed as per IS standards

- pH of the surface water samples collected was in the range of 7.2 – 8.1.

- Total dissolved solids in the samples were in the range of 189 - 408 mg/l.

- Total Hardness was found to vary between 126 – 292.3 mg/l.

- Chlorides concentration was found to vary between 28.0 – 39.8 mg/l.

- Heavy metal concentrations in all the samples were found to be well within the limits.

3.5 Land use Land Cover classification

The Land Cover classes and their coverage are summarized in **Table 8**.

Table 8: LU/LC Classes and their Coverage in SQ. km of 10 km Radius)

S. No.	Particular	Area (ha.)	PGA *** (%)
1	Agriculture Land	27244.03	67.66
2	Builtup Area	2701.03	6.71
3	Quarrying	352.89	0.88
4	River	199.35	0.50
5	Waste Land	8770.12	21.78
6	Water Body	996.93	2.48
	Total	**40264.35**	**100**

3.6 Soil Quality

The following are the highlights of soil quality in the study area are as follows Soil Samples within 10 km Radius

- PH of the soil samples were found to be in the range of 7.2 – 8.1

- Organic content of the soil samples was found to be medium exhibiting in the range of 0.4 % - 1.9 % and average fertility

- The available nitrogen was found in the range of 117 to 992.9 kg/ha

3.7 Biological Environment

Rare and Endangered Flora in the Study Area

The IUCN Red List is the world's most comprehensive inventory of the global conservation status of plant and animal species. It uses a set of criteria to evaluate the extinction risk of thousands of species and subspecies. These criteria are relevant to all species and all regions of the world. With its strong scientific base, the IUCN Red List is recognized as the most authoritative guide to the status of biological diversity. **Among the enumerated flora in the study area, none of them were assigned any threat category, by RED data book of Indian Plants.** (Nayar and Sastry, 1990) and Red list of threatened Vascular plants (IUCN, 2010; BSI, 2003).

3.8 Socio-economic Environment

Information on socio-demographic status and the trends of the communities in the 10 km radius, was collected through primary social survey and secondary data from census 2011 & village directory 2011. Summary of the socio-economic status of the study area is given in **Table 9.**

Table 9: Population Details

Particulars	0-10 km
Total Population	357659
No. of Household	67739
Male Population	184902
Female Population	172757
SC	48837
ST	5477
Total Literates	245843
Male Literate	136801
Female Literate	109042

4.0   MITIGATION MEASURES

4.1   AIR Pollution Control Measures

Following measures will be taken to control air/fugitive pollution during mining operation:

i.   Stack height would be approx 30 m (3 nos.) for gaseous emission confirming to the CPCB norms. D. G. Sets, stack height of 3.0 m above the roof level will be maintained.

ii.   Stack emission level will be kept within permissible limit by installation of bag filter and online stack emission monitoring will be done.

iii.   Ambient air quality and stack emission would be regularly monitored and effective control exercised, so as to keep limits on stack emission loads would be met honestly at all the time.

iv.   In order to avoid fugitive emissions from different sources, water will be sprayed. Also the roads within the premises will be concreted to prevent dust emission.

v.   The ambient air monitoring will be carried out regularly in the work zone and surrounding areas, to check that ambient air levels of the contaminants, are well below the stipulated norms.

vi.   Green belt around the periphery and within premises will be developed which will help in attenuating the pollutants emitted by the plant.

4.2   Water Quality Management

The proposed project would be based on "Zero Liquid Discharge" (ZLD)

4.3   Noise Pollution Control

Various components of industrial operations will cause some amount of noise, which will be controlled by proper maintenance and compact technology.

i.   Time to time oiling and servicing of machineries will be done.

ii.   Acoustic enclosure for Turbine and D.G. sets will be provided.

iii.   Green belt development (plantation of dense trees across the boundary) will help in reducing noise levels in the plant as a result of attenuation of noise generated due to plant operations, and transportation.

4.4   Greenbelt Development and Plantation

About 33% of the plant site will be developed as green belt.

4.5   Environmental Management Plan

Details of environment management plan cost are given in **Table 10.**

Table 10: EMP Budget

S. No	Item	Capital Cost (Crores)	Recurring Cost per annum (Lac)
1	Air Pollution Control	5.5	20.0
2	Water Pollution Control	0.75	15.0
3	Noise Pollution Control	1.5	5.0
4	Environment Monitoring and Management	0.5	15.0
5	Occupational Health	0.5	15.0
6	Greenbelt	0.5	5.0
7	Safety management	0.75	5.0
8	Laboratory and chemicals	-	5.0
	Total	**10.0**	**85.0**

4.6 Corporate Environmental Responsibility

MIPL earmarked INR 1.5 crores towards CER. CER is Calculated (@0.75% of Additional Capital Cost) as per MOEFCC OM. dated 1st May 2018. The following needs have been requested by surrounding villagers during the public hearing and the same will be fulfilled by the project Proponent. These activities will be completed within 10 months from the zero date.

5.0 CONCLUSION

As discussed, it is safe to say that the project is not likely to cause any significant impact on the ecology of the area, as adequate preventive measures will be adopted to contain the various pollutants within permissible limits. Green belt development around the area will also be taken up as an effective pollution mitigative technique, as well as to control the pollutants released from the premises of the project.