Executive Summary

Environmental Impact Assessment

for

Proposed Production of MS Billets /Alloys Billets -6,00,000 TPA, TMT Bars/MS Structural Steel/Gutter/Angles/Channels- 6,00,000 TPA and Ferro Manganese 12,800 TPA /Silico Manganese 9,500 TPA

at

Gut No. 59 to 63, Village-Daregaon, Adjacent to MIDC Phase II, Taluka - Jalna, District – Jalna, Maharashtra.

Project Proponent:

M/s. SRJ Peety Steel Pvt. Ltd.,

Gut No. 59 to 63, Daregaon Village, Adjacent to MIDC Phase II, Taluka - Jalna, District - Jalna, Maharashtra

Environment Consultant:

M/s. Paramarsh (Servicing Environment & Development)

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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 MoEF &CC, Government of India, the MS Ingots/MS Billets Manufacturing Unit and Ferro Alloys project is categorized as Category – A project, which mandates obtaining prior Environmental Clearance from Ministry of Environment, Forest and Climate Change.

1.2   Terms of Reference

M/s. SRJ Peety Steel 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. The Expert Appraisal Committee considered the project and issue the Terms of Reference 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 MS Billets/Alloys Billets production (6,00,000 TPA), TMT Bars/MS Structural Steel/Gutter/Angles/Channels/Pipes (6,00,000 TPA) and Ferro Alloys (Ferro Manganese – 12,800 TPA or Silico Manganese – 9,500 TPA) at Gut No. 59 to 63, Daregaon village, Adjacent to MIDC Phase II, Taluka - Jalna, District - Jalna, Maharashtra State. Total available Land with SPSPL is 11.14 ha. The project location map is given in **Figure 1**, and 10 km study area map is given in **Figure 2.**

Product Details

Proposed Production Capacity	
MS Billets/Alloys Billets	6,00,000 TPA
TMT Bars/MS Structural Steel/Gutter/Angles/Channels/Pipes	6,00,000 TPA
Ferro Alloys	Ferro Manganese – 12,800 TPA or Silico Manganese – 9,500 TPA

Project Proponents

The SRJ Peety group enter into steel manufacturing began in 1971 in Jalna and M/s. Shree Om Rolling Mills Pvt. Ltd. was established in 1994. Shree Om started its unit with mere 3 MT capacity, Shree Om is the first company to start billet manufacturing unit in Jalna. The only manufacturing unit with in-house production capacity has adopted various technologies with great success. The only company innovated the Ready to use concept of cut n bent in Maharashtra. Also supplies billets to various other plant in Maharashtra, Over the years have introduced various concept in the revolution of steel industry with the latest of Shree Om Torkari which is the best replacement of 6mm. Company started it's manufacturing with Tor steel Technology

As the industry upgrade company also practices with newest technology like Thermax, Quenching &self tempering technology, Latest introduction is the Con–COST Technology and Hot Roll Process For the better quality product. Company is going through various tests like Spectrometer etc.
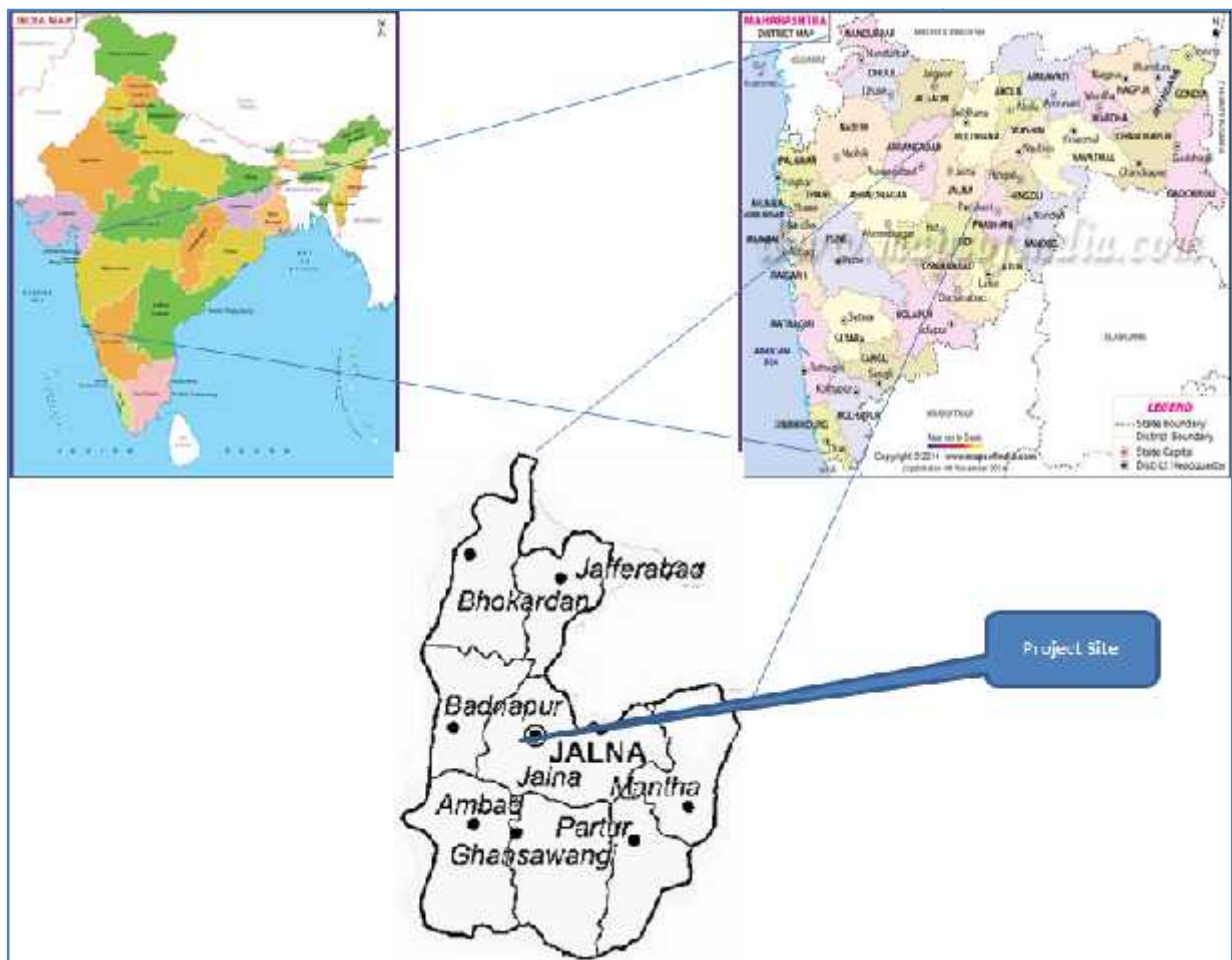

Figure 1: Project Location Map

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

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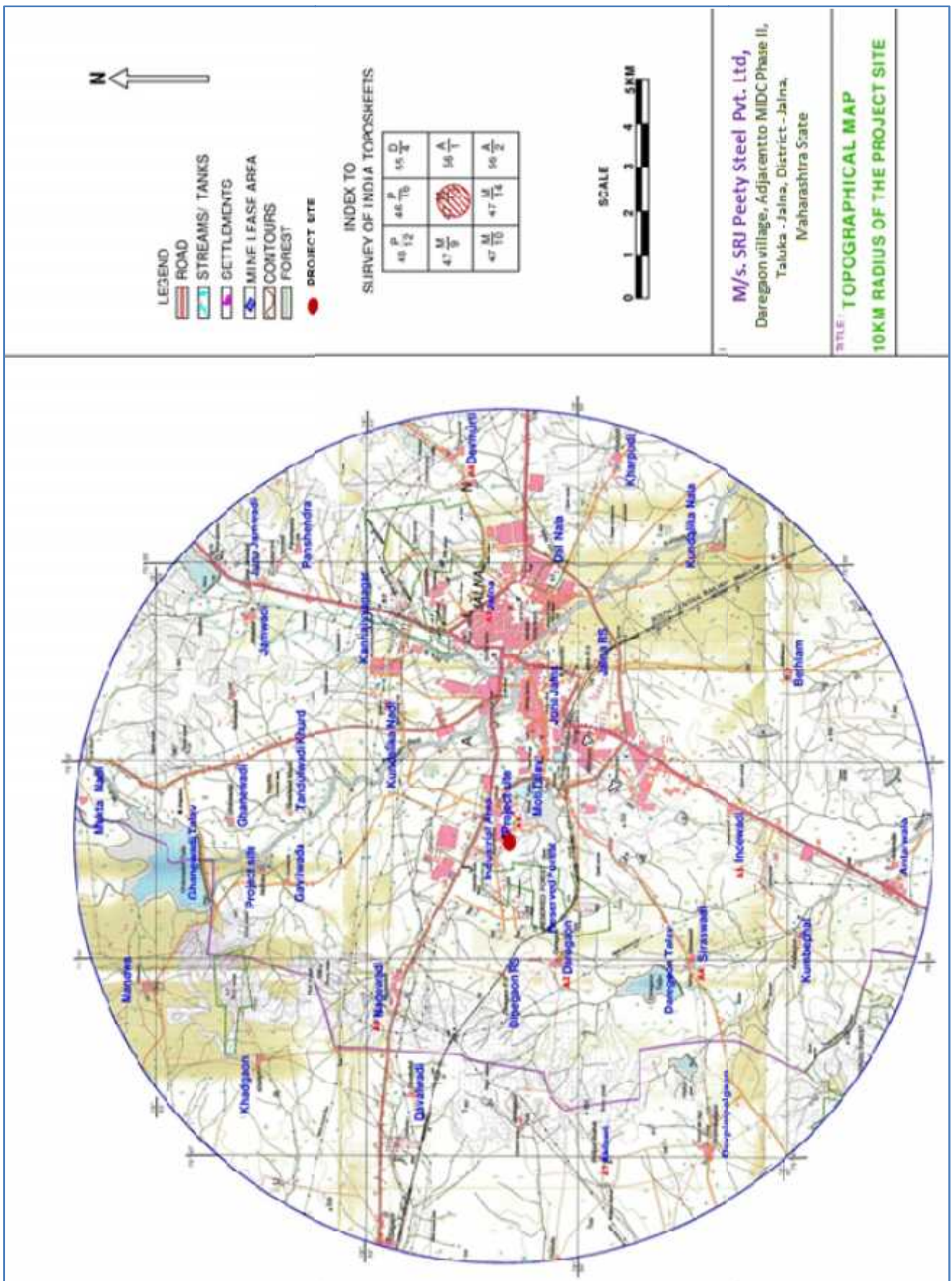
2.0 PROJECT DESCRIPTION

2.1 Raw Material Requirement

The major raw materials for the proposed expansion are Sponge Iron, Scrap and Other minerals. The raw material requirement for the production of billets is formulated based on the working days of the plant. The working days of the plant are 360 days per year. 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	380550	Sister Industry/Open Market	By road
2	Sponge Iron	245100	Open Market	By road
3	Other Minerals	19350	Open Market	By road
Total		**6,45,000**		

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

Sr. No.	Particular	Quantity (TPA)	Source
1	Billets	6,00,000	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

Table 1 (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

2.1.1 Material Balance

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

Table 2 (A): Material Balance for Billets

Input	TPA	Out Put	TPA
Sponge Iron	380550	Billets	600000
Scrap	245100	Slag	32,400
Additives	19350	Burning Losses	12,600
Total	6,45,000		**6,45,000**

Table 2 (B): Material Balance for TMT Bars

Input	TPA	Out Put	TPA
Billets	600000	TMT bar	600000
Total	**600000**		**600000**

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 215 KLD. This requirement will be met from Local Supplier. The details of water requirement for different purposes are presented in **Table 3.**

Table 3: Water Requirement

All values in KLD

Item	Total Water Requirement (KLD)
Cooling Purpose	180
Domestic Purpose	20
Dust Suppression	15
Total	**215**

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

SPSPL has acquired 11.14ha of land under notified industrial area. The proposed expansion activity will be established within the existing plant area only. The land breakup details are presented in **Table 4.**

Table 4: Land Break-up Details

Sr. No.	Particulars	Area (m²)	Area (%)
1	Plant Area	43289.5	38.85
2	Green Belt Area	38088.8	34.19
3	Parking Area	14846.8	13.32
4	Open Area	4251.9	3.81
5	Road Area	10922	9.83
	Total	**111399**	**100**

2.4 Power Requirement

The proposed power requirement will be 25 MW. The power will be sourced from the Maharashtra State Electricity Board. The details of Existing and proposed power requirement is given in **Table 5.**

Table 5: Power Requirement

S No	Particular	Quantity	Source
1	Proposed	25.0 MW	Maharashtra State Electricity Board

2.5 Man Power Requirement

The skilled/semiskilled /unskilled manpower required for the proposed expansion project. The man power requirement will be fulfilled from the surrounding villages, to help for the improvement of the socio economic status in the surrounding rural areas. The details of employment is given in **Table 6**

Table 6: Man Power Requirement

S No	Particular	Numbers
1	Proposed (Staff + Worker)	900

2.6 Technology and Process Description

The induction furnace operates as a batch melting process producing batches of molten steel known "heats". The furnace operating cycle is called the tap-to-tap cycle and is made up of the following operations:

- Furnace charging
- Melting
- Refining
- De-slagging
- Tapping
- Furnace turn-around

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

Furnace Details

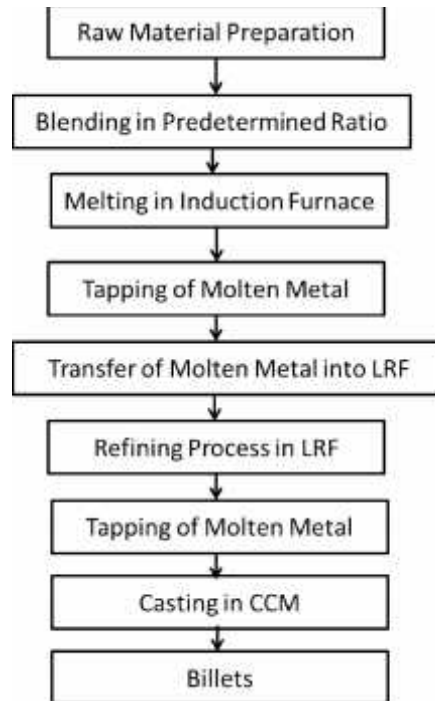3x 40 TPH Induction Furnaces will be installed.

Figure: 3 (A) -Manufacturing Process (Billets Manufacturing)
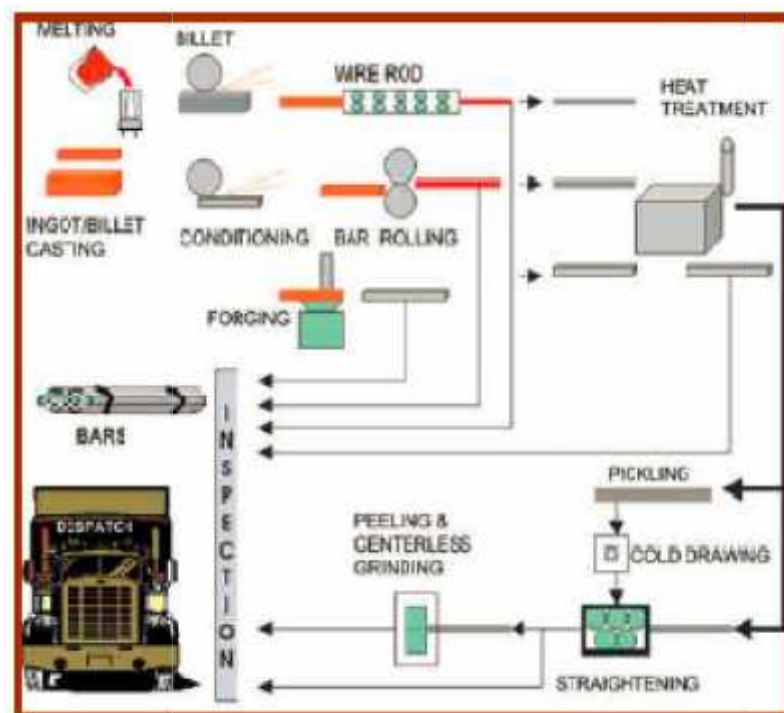
Figure: 3 (B) -Manufacturing Process (TMT Bar)
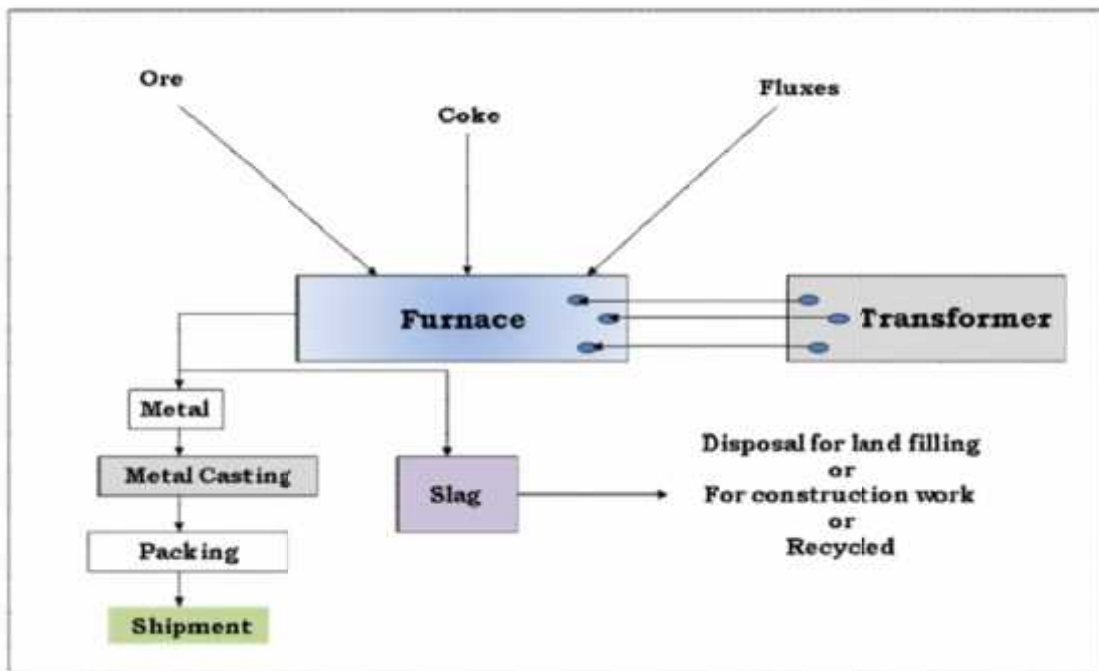
Figure: 3 (C) -Manufacturing Process (Ferro Alloys)

3.0   BASELINE ENVIRONMENTAL STUDIES

Baseline environmental studies were conducted in the proposed project area and 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 2019 to December 2019in the study area covering 10 km around the Plant area.

3.1   Meteorology

3.1.1 Summary of the Meteorological Data Generated at Site

The site Specific meteorological data is given in **Table -7** and wind rose diagram is given in **Figure 4.**

Table 7: Site Specific Climatological Data (from October 2019 to December 2019)

Month	Temperature (°C)		Relative Humidity (%)		Rainfall (mm)
	Min	Max	Min	Max	
October 2019	17.4	31.7	48	53	42.6
November 2019	16.9	29.8	44	48	29.7
December 2019	14.1	29.1	30	37	12.2
Total					84.5
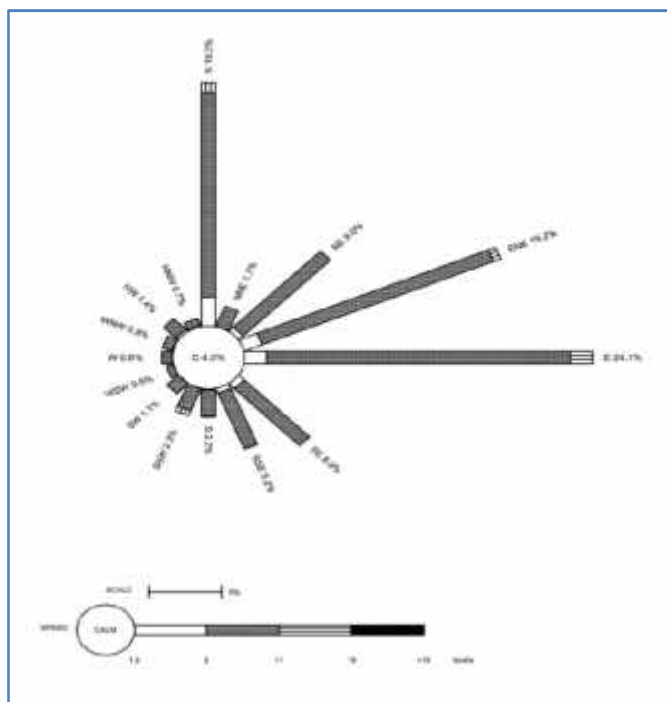
Figure 4: Windrose Diagram (Site Specific)

3.2 Ambient Air Quality Status

The status of ambient air quality within the study area was monitored for the period of during October 2019 to December 2019 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,), Oxides of Nitrogen (NO_X) and Carbon Monoxide (CO) were monitored. The minimum and maximum values of monitoring results are summarized in **Table 8.**

Table 8: Summary of Ambient Air Quality Results
Particulate Matter – PM_{10}

All Values in $\mu g/m^3$

Location Name	Minimum	Maximum	Average	98th Percentile
Project Site	75.3	83.4	79.3	83.0
Jalna	53.2	60.6	56.5	60.3
Indewadi	52.3	65.0	59.3	64.3
Jawasgaon	48.2	55.8	52.4	55.8
Bhilpuri	45.9	55.2	51.5	55.2
Haldola	42.6	49.8	46.3	49.6
Dawalwadi	60.5	68.3	65.5	68.3
Govliwada	65.7	75.7	70.9	75.6

Table 3.5 (B): Particulate Matter – $PM_{2.5}$

All Values in $\mu g/m^3$

Location Name	Minimum	Maximum	Average	98th Percentile
Project Site	32.1	35.2	33.6	35.0
Jalna	21.4	23.8	22.7	23.8
Indewadi	20.9	25.6	23.3	25.4
Jawasgaon	17.5	23.4	22.0	23.3
Bhilpuri	19.3	23.2	21.3	23.0
Haldola	17.4	19.7	18.7	19.7
Dawalwadi	24.9	28.5	27.0	28.4
Govliwada	26.5	31.0	28.6	30.9

Table 3.5 (C): Sulphurdioxide - SO_2

All Values in $\mu g/m^3$

Location Name	Minimum	Maximum	Average	98th Percentile
Project Site	13.5	14.9	14.1	14.8
Jalna	13.9	15.8	14.8	15.8
Indewadi	15.1	18.4	16.4	18.2
Jawasgaon	10.2	15.2	14.3	15.2
Bhilpuri	13.2	15.6	14.4	15.5
Haldola	12.5	14.2	13.4	14.1
Dawalwadi	13.3	15.3	14.3	15.2
Govliwada	13.6	15.8	14.7	15.7

Table 3.5 (D): Oxides of Nitrogen – NOx

All Values in $\mu g/m^3$

Location Name	Minimum	Maximum	Average	98th Percentile
Project Site	16.4	18.3	17.2	17.9
Jalna	16.5	18.7	17.7	18.6
Indewadi	17.9	21.8	19.5	21.6
Jawasgaon	13.0	15.1	14.2	15.1
Bhilpuri	15.9	18.3	17.1	18.2
Haldola	14.4	16.1	15.3	16.0
Dawalwadi	12.3	14.3	13.3	14.2
Govliwada	16.8	19.7	18.1	19.4

Table 3.5 (E): Carbon Monoxide – CO

All Values in mg/m^3

Location Name	Minimum	Maximum	Average	98th Percentile
Project Site	0.66	0.87	0.78	0.85
Jalna	<0.1	<0.1	<0.1	<0.1
Indewadi	<0.1	<0.1	<0.1	<0.1
Jawasgaon	<0.1	<0.1	<0.1	<0.1
Bhilpuri	<0.1	<0.1	<0.1	<0.1
Haldola	<0.1	<0.1	<0.1	<0.1
Dawalwadi	<0.1	<0.1	<0.1	<0.1
Govliwada	0.22	0.23	0.18	0.22

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 9.**

Table 9: Summary of Ambient Noise Level Monitoring Results [Leq in dB (A)]

Equivalent Noise levels		Project Site	Jalna	Indewadi	Jawasgaon	Bhilpuri	Haldola	Dawalwadi	Govliwada
Day L_{eq}		71.1	61.9	53.1	53.1	49.8	51.3	48.5	53.5
Night L_{eq}		66.4	52.3	43.7	42.6	42.9	41.4	42.2	43.9
CPCB	**Ld**	**75**	**55**	**55**	**55**	**55**	**55**	**55**	**55**
	Ln	**70**	**45**	**45**	**45**	**45**	**45**	**45**	**45**

L_d : Day Equivalent
L_n : Night Equivalents

Conclusion

The Maximum Noise (day) value was observed 71.1 dB (A) and the minimum noise (day) value was observed 48.5 dB (A). The Maximum Noise (night) value was observed 66.4 dB (A) and the minimum noise (night) value was observed 41.4 dB (A).

3.4 Surface and Ground Water Resources & Quality

Surface Water

- pH of the ground water samples collected was in the range of 7.32– 8.07
- Total Dissolved Solids in the samples was in the range of 415– 605 mg/l.
- Total Hardness was found to vary between 210 – 325 mg/l.

Ground Water

Sampling was carried out at 8 locations during the study period. Sampling and analysis was carried out, as per standard methods and frequency of the sampling was thrice/stations. The summary of the results are presented below:

- pH of the ground water samples collected was in the range of 7.26 – 8.11
- Total Dissolved Solids in the samples was in the range of 2102– 462mg/l.
- Total Hardness was found to vary between 303 – 561.6mg/l.

3.5 Land use Land Cover classification

The Land Cover classes and their coverage are summarized in **Table 10**.

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

S. No.	Particular	Area (ha.)	PGA *** (%)
1	Water body	996.93	3.16
2	Wasteland	8170.12	25.97
3	River	199.35	0.63
4	Quarrying	352.89	1.12
5	Built Up	2281.03	7.3
6	Agriculture Land	19454.03	61.82
	Total	**31454.35**	**100**

3.6 Soil Quality

Sampling was carried out at 8 locations during the study period. The summary of the results are presented below:

- pH in soil sample was observed in the range 7.19 to 8.27.
- Bulk density was observed in the range of 1.66 -1.87 g/cc.

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.**

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 7.**

Table 7: Population Details

S. No.	Particulars	0-10km
1	Number of households	67739
2	Male population	184902
3	Female population	172757
4	Total population	357659

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5	SC population	48837
6	ST population	5477
7	Average household size	5.27
8	% of males to the total Population	51.7
9	% of females to the total population	48.3
10	Total Literates	245843
11	Male Literates	136801
12	Female Literates	109042

4.0   IMPACT ASSESSMENT AND MITIGATION MEASURES

4.1   AIR Pollution

The air quality modeling has been done and the details are given below:

24 Hourly Concentrations	Particulate Matter (PM) ($\mu g/m^3$)	Oxides of Nitrogen (NOx) ($\mu g/m^3$)
Baseline Scenario (Max)	83.40	21.8
Predicted Ground Level Concentration (Max)	1.30	4.36
Overall Scenario	**84.7**	**26.16**
NAAQ Standards	**100**	**80**

Mitigation Measures

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

- Stack height would be approx.45 m (4 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.

- Stack emission level will be kept within permissible limit by installation of bag filtersand online stack emission monitoring will be done.

- 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.

- 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.

- 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.

- 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 total water requirement of the plant is 215 KLD. The water will be mainly used **for furnace cooling purpose, greenbelt, dust suppression and domestic purpose only**. Cooling water will be continuously recalculated in the cooling circuit and domestic effluent is sent to septic tank followed by soak pit. The water is supplied for cooling water in Induction Furnace. The water for other areas i.e. for greenbelt, dust suppression and domestic use is supplied directly. However, the Plant will be designed for Zero Discharge from the operations. Wastewater/ sewage (16.0 KLD) generated from domestic activities will be treated in the MBBR Technology based STP (Capacity: 20.0 KLD). Treated water will be used for green belt development. Zero discharge norms will be followed.

4.3 Noise Pollution Control

Noise level at the plant boundary, calculated from the above equation, is expected to be less than 60 dB (A) without considering any attenuation factors.

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 total Plant area will be developed as green belt.

4.5 Solid and Hazardous Waste Generation and Management

The details of solid and other waste generation are given below:

Sr. No.	Particular	Total Quantity
1	Induction Furnace Slag	17325 TPA
2	Submerged Electric Arc Furnace	8,250 TPA
3	Used and Waste oil	3.0 KL/Annum

ₛ Process slags will be used for filling of low laying areas, Brick manufactures and cement industry and some quantity will be given to foundries

4.6 Environment Management Plan

Details of environment management plan are given in **Table 11.**

Table 11: EMP Budget

S. No	Item	Capital Cost (Crores)	Recurring Cost per annum (Lac)
1	Air Pollution Control	10.5	20
2	Water Pollution Control	0.75	15
3	Noise Pollution Control	1.5	5
4	Environment Monitoring and Management	0.5	15
5	Occupational Health	0.5	15
6	Greenbelt	0.5	5
7	Safety Management	0.75	5
8	Laboratory and Chemicals	0	5
	Total	**15.0**	**85.0**

4.7 Corporate Environment Responsibility

SPSPL earmarked INR 1.5 crores towards CER. CER is Calculated (@2.0% of Capital Cost) as per MOEF&CC 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 24 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.