

**SUMMARY ON**  
**ENVIRONMENTAL IMPACT ASSESSMENT**  
**REPORT**

**OF**

**JD Steel Industries Pvt. Ltd.**

[Expansion of Steel Plant – Expansion of Induction Furnace unit (Hot Billets / MS Billets/ Ingots from 29,200 TPA to 1,98,000 TPA), New Rolling Mill # 1 (TMT Bar, Patra, Wire Rod, CR Sheets, HR Sheets, Pipe Plant and Other Rerolled Products - 70% Hot charging and remaining 30% through RHF - 2,64,000 TPA), New Rolling Mill # 2 (Square Pipe & Round Pipe - 2,64,000 TPA), New Ferro Alloys Unit (1 x 10 MVA - FeSi – 7700 TPA / SiMn – 16,000 TPA / FeMn – 28000 TPA / FeCr – 16,000 TPA), New Coal Gasifiers (Producer Gas - 1 x 5000 Nm<sup>3</sup>/hr. & 1 x 16,000 Nm<sup>3</sup>/hr.), New Briquetting unit (100 Kg/hr.) & New Slag Crushing Unit (50,000 TPA)]

at

Plot No. 16 (Khasra nos. 264, 265, 266, 268, 269, 270, 271, 482, 483)  
Industrial Growth Centre Borai, Rasmada Village,  
Durg Tehsil & District, Chhattisgarh

Submitted to

**CHHATTISGARH ENVIRONMENT CONSERVATION BOARD**  
**Chhattisgarh**

## 1.0 PROJECT DESCRIPTION

JD Steel Industries Pvt. Ltd. has obtained Consent from Chhattisgarh Environment Conservation Board (CECB) for establishment of Induction Furnace at Plot No. 16 (Khasra no s. 264, 265, 266, 268, 269, 270, 271, 482, 483), Industrial Growth Centre Borai, Rasmada Village, Durg Tehsil & District, Chhattisgarh. Now they proposed to expand the existing plant as follows:

- Expansion of Induction Furnace Capacity from 29,200 TPA to 1,98,000 TPA by replacing 8 T Induction Furnace with 1 x 15 T and installing additional 3 x 15 T Induction Furnaces to manufacture Hot Billets / MS Billets / Ingots.
- Establishment of Rolling Mill # 1 of capacity 1 x 800 TPD to manufacture 2,64,000 TPA of TMT Bar, Patra, Wire Rod, CR Sheets, HR Sheets, Pipe Plant and Other Re-rolled Products (70% Hot charging with Hot Billets and remaining 30% through RHF with Producer Gas or LDO as fuel).
- Establishment of Rolling Mill # 2 of capacity 1 x 800 TPD to manufacture 2,64,000 TPA of Square pipe & Round pipe (through RHF).
- Establishment of Submerged Electric Arc Furnace of capacity 1 x 10 MVA to manufacture FeSi – 7700 TPA / SiMn – 16,000 TPA / FeMn – 28000 TPA / FeCr – 16,000 TPA.
- Establishment of Coal Gasifier unit of 16,000Nm<sup>3</sup>/ Hr.
- Establishment of Briquetting unit of capacity 100 Kg/Hr.
- Establishment of Slag Crushing Unit of capacity 50,000 TPA.

The estimated project cost for the proposed project is **Rs. 149.0 Crores**.

6.11 Ha. (15.0 Acres) of land is allotted by Chhattisgarh State Industrial Development Corporation Limited (CSIDC Ltd.) on 2<sup>nd</sup> June 2021.

Existing plant is located in Industrial Growth Centre, Borai. Hence conversion of land use to industrial purpose is not required.

Proposed expansion will be taken up in the same premises, for which CTE has been issued by CECB for permitted capacity.

Permitted capacity does not required prior EC, as per EIA notification 2006 & its subsequent amendments, as production capacity of Induction Furnace is less than 30,000 TPA.

Following is the status of land acquisition:

**Table No. 1.1: Status of land acquisition**

Status of land	Extent (in Ha.)	Extent (in Acres)
Land is allotted by Chhattisgarh State Industrial Development Corporation Limited (CSIDC Ltd.)	6.11	15.0
<b>Total land</b>	6.11	15.0

In order, to obtain Environmental Clearance for the proposed Steel plant, Form-I, proposed TOR along with Pre-Feasibility Report were submitted to the Honourable Ministry of Environment, Forests & Climate Change (MoEF&CC), New Delhi **05<sup>th</sup> August 2022** vide Proposal No. **IA/CG/IND/233702/2022**. Accordingly, **Standard TOR** has been issued for the proposed expansion of steel plant vide F.No.**IA-J-11011/432/2021-IA-II (IND-I)**, dated **18<sup>th</sup> August 2022**. The EIA Report has been prepared by incorporating the TOR stipulated by the Hon'ble EAC.

*Pioneer Enviro Laboratories & Consultants Private Limited, Hyderabad*, which is accredited by NABET, Quality Council of India, vide certificate No. NABET/ EIA/ 1922/ SA 0148 (Rev.01), for preparing EIA report for Metallurgical Unit, have prepared Environmental Impact Assessment (EIA) report for the proposed project by incorporating the TOR approved by Ministry of Environment, Forests & Climate Change, New Delhi. The report contains detailed description of the following:

- Characterization of status of environment with in an area of 10 km radius from the plant for major environmental components including air, water, noise, soil, flora, fauna and socio-economic environment.
- Assessment of air emissions, liquid waste and solid waste from the proposed project along with the noise level assessment.
- Environmental Management Plan comprising of emission control measures proposed to be adopted in the proposed project, solid waste management, Greenbelt development.
- Post Project Environmental Monitoring & Budget for Environmental Protection Measures.

### **1.1 ENVIRONMENTAL SETTING WITHIN 10 Km. RADIUS OF THE PLANT SITE**

The following is the environmental setting within the 10 Km. radius of the Project site:

**Table No. 1.2: Environment Setting within 10 Kms. radius of the site**

S.No.	Salient Features / Environmental features	Distance w.r.t. site / Remarks
1.	Type of Land (Project site)	Existing plant is located in Industrial Growth Centre, Borai. Hence no conversion of land is envisaged.
2.	Type of Land (Study Area)	Settlements (6.9 %), Industrial Area (3.3 %), Tank / River / Reservoir (8.8 %), Scrub Forest (2.8 %), Single Crop (59.8 %), Double Crop (5.4 %), Plantation (4.1 %), Land with scrub (5.4 %), Land without scrub (1.9 %), Stone Quarry (1.6 %)
3.	National Park/ Wildlife sanctuary / Biosphere reserve / Tiger Reserve / Elephant Corridor / migratory routes for Birds	Nil
4.	Historical places / Places of Tourist importance / Archeological sites	Nil
5.	Critically polluted area as per MoEF&CC Office Memorandum dated 13 <sup>th</sup> January 2010	None And also the Plant area does not fall in the areas given in Hon'ble NGT order issued vide dated 10 <sup>th</sup> July 2019.
6.	Defence Installations	Nil
7.	Nearest village	RasmadaVillage at 0.8 Kms. (East Direction)
8.	No. of Villages in the Study Area	40 Nos.
9.	Nearest Hospital	PHC at Rasmada Village at 1.5 Kms. (East Direction)
10.	Nearest School	Govt. Higher Secondary School, at Rasmada Village at 1.4 Kms. (East Direction)
11.	Forests	Unnamed Reserve Forest: 2.8 Kms. (NW Direction)
12.	Water body	Shivnath River at 2.9 Kms. - East Direction
13.	Nearest Highway	NH # 6 at 1.7 Kms. – By Road - East Direction
14.	Nearest Railway Station	RasmadaRailway Station at 1.2 Kms. in NEE Direction
15.	Nearest Port facility	Nil within 10 Km. Radius.
16.	Nearest Airport	Nil within 10 Kms. Radius
17.	Nearest Interstate Boundary	Nil
18.	Seismic zone as per IS-1893	Seismic zone – II
19.	R & R	There is no rehabilitation and resettlement issue, as the site is located in Industrial Growth Centre Borai.
20.	Litigation / court case is pending against the proposed project / proposed site and or any direction passed by the court of law against the project	Nil

## 1.2 PLANT CONFIGURATION AND PRODUCTION CAPACITY

Following is the proposed plant configuration and proposed production capacities:

**Table No.1.2: Existing & Proposed Plant Configuration & Production Capacities**

S.No.	Unit (Product)	Plant Configuration (Production Capacity)		Total after expansion
		Existing (Obtained CTE)	Expansion	
1.	Induction Furnaces (Hot Billets / Mild Steel Billets Blooms)	(8 T) 29,200 TPA	1 x 15 T & 3 x 15 MT (1,98,000 TPA) <i>[8 T IF will be replaced with 1 x 15 T]</i>	1 x 15 T & 3 x 15 MT (1,98,000 TPA)
2.	Rolling Mill # 1 (TMT Bar, Patra, Wire Rod, CR Sheets, HR Sheets, Pipe Plant and Other Re-rolled Products) (70% Hot charging with Hot Billets and remaining 30% through RHF with Producer Gas or LDO as fuel)	--	1 x 800 TPD (2,64,000 TPA)	1 x 800 TPD (2,64,000 TPA)
3.	Rolling Mill # 2 (Square pipe & Round pipe)	--	1 x 800 TPD (2,64,000 TPA)	1 x 800 TPD (2,64,000 TPA)
4.	Ferro alloy unit	--	1 x 10 MVA (FeSi – 7700 TPA / SiMn – 16,000 TPA / FeMn – 28000 TPA / FeCr – 16,000 TPA)	1 x 10 MVA (FeSi – 7700 TPA / SiMn – 16,000 TPA / FeMn – 28000 TPA / FeCr – 16,000 TPA)
5.	Coal Gasifier (Producer Gas)	--	1 x 5000 Nm <sup>3</sup> /hr. & 1 x 16,000 Nm <sup>3</sup> /hr.	1 x 5000 Nm <sup>3</sup> /hr. & 1 x 16,000 Nm <sup>3</sup> /hr.
6.	Slag Crushing Unit	--	50,000 TPA	50,000 TPA
7.	Briquetting Plant	--	100 Kg/Hr.	100 Kg/Hr.

## 1.3 RAW MATERIAL REQUIREMENT

The following will be the raw material requirement for the proposed project:

**Table No.1.3: Raw Material Requirement, Source & Mode of Transport**

S.No.	Raw Material	Quantity (TPA)	Sources	Distance from site (in Kms.)	Mode of Transport
1.	<b>For Steel Melting Shop (Hot Billets / MS Billets / Ingots) –1,98,000 TPA (4 x 15 T)</b>				
a)	Sponge Iron	2,00,000	Chhattisgarh	~ 100 Kms.	By road

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## (Expansion of Steel Plant)

Industrial Growth Centre Borai,  
RasmadaVillage, Durg (T) & (D), Chhattisgarh

S.No.	Raw Material	Quantity (TPA)	Sources	Distance from site (in Kms.)	Mode of Transport	
					(through covered trucks)	
b)	MS Scrap/ Pig Iron	30,000	Chhattisgarh	~ 100 Kms.	By road (through covered trucks)	
c)	Ferro alloys	10,000	Own generation	---	By road (through covered trucks)	
<b>2.</b>	<b>For Rolling Mill # 1 through Hot charging &amp; RHF – 2,64,000 TPA</b>					
a)	Hot Billets	1,92,192	Own generation	----	----	
b)	Billets	87,120	Chhattisgarh	~ 100 Kms.	By road (through covered trucks)	
c)	LDO	2560 Kl/annum	Nearby IOCL Depot	~ 100 Kms.	By road (through Tankers)	
d)	Coal Gasifier (Producer Gas) - 5000 Nm <sup>3</sup> /Hr	Indian Coal	14,250	SECL Chhattisgarh / MCL Odisha	~ 500 Kms.	By rail & road (through covered trucks)
		Imported Coal	9,200	Indonesia / South Africa / Australia	~ 600 Kms. (fromVizagPort)	Through sea route, rail route & by road (through covered trucks)
<b>3.</b>	<b>For Rolling Mill # 2 through RHF – 2,64,000 TPA</b>					
a)	Billets	2,90,400	Chhattisgarh	~ 100 Kms.	By road (through covered trucks)	
b)	LDO	8550 Kl/annum	Nearby IOCL Depot	~ 100 Kms.	By road (through Tankers)	
c)	Coal Gasifier (Producer Gas) – 16,000 Nm <sup>3</sup> /Hr	Indian Coal	47,520	SECL Chhattisgarh / MCL Odisha	~ 500 Kms.	By rail & road (through covered trucks)
		Imported Coal	30,400	Indonesia / South Africa / Australia	~ 600 Kms. (fromVizagPort)	Through sea route, rail route & by road (through covered trucks)
<b>4.</b>	<b>For Ferro Alloys (1 x 10 MVA)</b>					
4 (i)	<i>For Ferro Silicon – 7,700 TPA</i>					
a)	Quartz	11,704	Chhattisgarh / Andhra Pradesh	~ 500 Kms.	By road (through covered trucks)	

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S.No.	Raw Material	Quantity (TPA)	Sources	Distance from site (in Kms.)	Mode of Transport
b)	Mill scales	1,810	Inhouse Generation	---	By road (through covered trucks)
c)	MS Scrap	270			
d)	LAM coke	4,312	Andhra Pradesh	~ 500 Kms.	By road (through covered trucks)
e)	Electrode paste	154	Maharashtra / West Bengal	~ 300 Kms.	By road (through covered trucks)
f)	Briquetted Bag filter dust	293	Own generation	---	---
4 (ii)	<i>For Ferro Manganese – 28,000 TPA</i>				
a)	Manganese Ore	63,700	MOIL / OMC	~ 500 Kms.	By Rail & Road (through covered trucks)
b)	LAM coke	10,220	Andhra Pradesh	~ 500 Kms.	By road (through covered trucks)
c)	Dolomite	4,760	Chhattisgarh / Andhra Pradesh	~ 500 Kms.	By road (through covered trucks)
d)	MS Scrap / Mill scales	4,200	Inhouse Generation	---	By road (through covered trucks)
e)	Electrode Paste	364	Maharashtra / West Bengal	~ 300 Kms.	By road (through covered trucks)
f)	Briquetted Bag filter dust	1,400	Own generation	---	---
4(iii)	<i>For Silico Manganese – 16,000 TPA</i>				
a)	Manganese Ore	26,080	MOIL / OMC	~ 500 Kms.	By Rail & Road (through covered trucks)
b)	FeMn. Slag	16,929	In house generation	---	----
c)	LAM Coke	6,000	Andhra Pradesh	~ 500 Kms.	By road (through covered trucks)
d)	Dolomite	3,600	Chhattisgarh / Andhra Pradesh	~ 500 Kms.	By road (through covered trucks)
e)	Electrode paste	320	Maharashtra / West Bengal	~ 300 Kms.	By road (through covered trucks)

S.No.	Raw Material	Quantity (TPA)	Sources	Distance from site (in Kms.)	Mode of Transport
f)	Quartz	3,840	Chhattisgarh / Andhra Pradesh	~ 500 Kms.	By road (through covered trucks)
g)	Briquetted Bag filter dust	240	Own generation	---	---
4 (iv)	<i>For Ferro Chrome – 16,000 TPA</i>				
a)	Chrome Ore	32,000	Sukinda, Odisha Import, South Africa	~ 500 Kms. ~ 600 Kms. (from Vizag Port)	By road (through covered trucks) From Port By Road (through covered Trucks)
b)	LAM Coke	5,280	Andhra Pradesh	~ 500 Kms.	By road (through covered trucks)
c)	Quartz	2,800	Chhattisgarh / Andhra Pradesh	~ 500 Kms.	By road (through covered trucks)
d)	MS Scrap / Mill Scale	2,400	Inhouse Generation	---	By road (through covered trucks)
e)	Magnetite / Bauxite	2,704	Chhattisgarh / Maharashtra	~ 500 Kms.	By road (through covered trucks)
f)	Electrode Paste	480	Maharashtra / West Bengal	~ 300 Kms.	By road (through covered trucks)
g)	Briquetted Bag filter dust	1,024	Own generation	---	---

## 1.4 MANUFACTURING PROCESS

### 1.4.1 Steel Melting Shop

In Steel Melting Shop, Sponge Iron (2,00,000 TPA) will be melted along with MS Scrap / Pig Iron (30,000 TPA), Ferro Alloys (10,000 TPA) and fluxes in the 4 no. of 15 T Induction Furnaces to make pure liquid steel, the liquid material so obtained in then poured into the Continuous Casting Machine (CCM) to manufacture 1,98,000 TPA Hot Billets / MS Billets / Ingots.

### 1.4.2 Rolling Mill

In the Rolling Mill # 1, Hot billets (1,92,192 TPA) from CCM are rolled thinner and longer through successive rolling mill stands driven by motors. 1 x 800 TPD Rolling Mill will be



established and will be operated with 70 % Hot charging and remaining 30% through RHF with Producer Gas / LDO as fuel. Coal Gasifier of 5000 Nm<sup>3</sup>/Hr. capacity will be installed to meet the fuel requirement of RHF of Rolling Mill # 1.

In the Rolling Mill # 2, Billets (2,90,400TPA) from CCM are rolled thinner and longer through successive rolling mill stands driven by motors. 1 x 800 TPD Rolling Mill will be established and will be operated through RHF with Producer Gas / LDO as fuel. Coal Gasifier of 16000 Nm<sup>3</sup>/Hr. capacity will be installed to meet the fuel requirement of RHF of Rolling Mill # 2.

#### 4.3 Ferro Alloys

In the present proposal, 1 no. of 10 MVA Submerged Electric Arc Furnace each will be installed. The three carbon Electrodes, partially submerged in the charge, are supported on hydraulic cylinders for upward and downward movement to maintain the desired electrical conditions. FeSi – 7700 TPA / SiMn – 16,000 TPA / FeMn – 28000 TPA / FeCr – 16,000 TPA will be manufactured.

Along with the above, slag crushing unit, briquetting unit will be installed for handling SMS slag and Ferro alloy slag respectively.

#### 1.5 Water Requirement

- Water requirement after the proposed expansion project will be 688 KLD. This includes make up water for Induction Furnaces, Rolling Mills, Ferro Alloys Unit, Coal Gasifier, Slag crushing Unit, Briquetting Unit, Greenbelt Development & Domestic purpose.
- Water required for the entire project will be supplied by CSIDC Ltd. Application has been submitted to CSIDC Ltd. for supply of water.

**Table No.1.4: Water Requirement & Break-Up After Proposed Expansion**

S.No.	Unit	Quantity in KLD
1.	Induction Furnace	140
2.	Rolling Mills	480
3.	Ferro Alloy Plant	30
4.	Coal Gasifier unit	10
5.	Slag crushing & Briquetting Unit	10
6.	Greenbelt development	8
7.	Domestic	10
	<b>Total</b>	<b>688</b>

**1.6 Wastewater Generation**

- Total wastewater generated from the proposed project will be 58 KLD.
- Wastewater generated from Induction Furnace, Ferro Alloys Plant will be treated in ETP and used for greenbelt development.
- Wastewater from Rolling mill will be sent to oil separator followed settling tank and will be recycled through closed circuit cooling system.
- Wastewater generated from the coal gasifier contains phenolic compounds which will be given to nearby DRI units for utilizing in ABC chamber.
- Sanitary waste water will be treated in STP and after treatment it will be utilized for greenbelt development.
- RO rejects will be used for Floor washing, Toilet Cleaning & Flushing.
- During monsoon the treated effluent will be utilized as makeup water in Rolling Mill. Accordingly, the makeup water for Rolling mill also reduces during the rainy period.
- Zero liquid effluent discharge practice will be followed.

**Table No.1.5: Breakup of Wastewater Generation**

S.No.	Source	Generation (KLD)
1.	Induction Furnaces	10
2.	Rolling Mill	30
3.	Ferro Alloys Unit	2
4.	Coal gasifier unit	8
5.	Sanitary Wastewater	8
	<b>Total</b>	<b>58</b>

**2.0 DESCRIPTION OF ENVIRONMENT**

Base line data has been collected on ambient air quality, water quality, noise levels, flora and fauna and socio-economic details of people within 10 km radius of the plant.

**2.1 Ambient air quality**

Ambient air quality was monitored for PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub> & CO at 8 stations including project site during **15<sup>th</sup> October, 2021 to 15<sup>th</sup> January, 2022**. The following are the concentrations of various parameters at the monitoring stations:

**Table No.2.1: AAQ Data Summary**

S.No.	Parameter	Concentration range	Standard as per NAAQS
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1.	PM <sub>2.5</sub>	25.1 to 47.1 µg/m <sup>3</sup>	60
2.	PM <sub>10</sub>	43.6 to 78.5 µg/m <sup>3</sup>	100
3.	SO <sub>2</sub>	8.8 to 17.3 µg/m <sup>3</sup>	80
4.	NO <sub>x</sub>	10.1 to 19.2 µg/m <sup>3</sup>	80
5.	CO	530 to 1350 µg/m <sup>3</sup>	2000

## 2.2 Water Quality

### 2.2.1 Surface Water Quality

2 no. of samples i.e. 60m Upstream & 60 m Downstream from Shivnath River (2.9 Kms. – East Direction) have been collected and analyzed for various parameters. The analysis of samples shows that all the parameters are in accordance with BIS-2296 specifications.

### 2.2.2 Ground Water Quality

8 No. of ground water samples from open wells / bore wells were collected from the nearby villages to assess ground water quality impacts and analyzed for various Physico-Chemical parameters. The analysis of samples shows that all the parameters are in accordance with BIS: 10500 specifications.

## 2.3 Noise Levels

Noise levels were measured at 8 locations during daytime & Nighttime. The equivalent day-night noise levels in the study zone are ranging from **49.6 dBA to 60.1 dBA**.

## 3.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

### 3.1 Prediction of impacts on air quality

The likely emissions from the proposed project are PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub> & CO. The predictions of Ground level concentrations have been carried out using Industrial Source Complex (ISC-3) model. Meteorological data such as wind direction, wind speed, max. and min. temperatures collected at the site have been used as input data to run the model.

**Table No.3.1: NET RESULTANT MAXIMUM CONCENTRATIONS DURING THE OPERATION OF THE PROPOSED PROJECT (APCS WORKING SCENARIO)**

Item	PM <sub>10</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )	NO <sub>x</sub> (µg/m <sup>3</sup> )	CO (µg/m <sup>3</sup> )
Maximum baseline conc. in the study area	78.5	17.3	19.2	1350
Maximum predicted incremental rise in concentration due to proposed project (Point Sources)	2.0	3.8	12.7	---

Maximum predicted incremental rise in concentration due to proposed project (Vehicular emissions)	0.4	----	0.4	2.1
<b>Net resultant concentrations during operation of the proposed project</b>	<b>80.9</b>	<b>21.1</b>	<b>32.3</b>	<b>1352.1</b>
<b>National Ambient Air Quality Standards</b>	<b>100</b>	<b>80</b>	<b>80</b>	<b>2000</b>
The net resultant Ground level concentrations during operation of the proposed project are within the NAAQS. Hence, there will not be any adverse impact on air environment due to the proposed project.				

The net resultant Ground level concentrations during operation of the proposed project are within the NAAQS. Hence, there will not be any adverse impact on air environment due to the proposed project.

### 3.2 Prediction of impacts on Noise quality

The major sources of noise generation in the proposed project will be Furnace, Rolling Mills, DG set, etc. The ambient noise levels will be within the standards prescribed by MoEF vide notification dated 14-02-2000 under the Noise Pollution (Regulation & Control), Rules 2000 i.e. the noise levels will be less than 75 dBA during day time and less than 70 dBA during night time. **2.10 Ha.** of extensive greenbelt will be developed to further attenuate the noise levels. Hence there will not be any adverse impact due to noise on population in surrounding areas due to the proposed project.

### 3.3 Prediction of impacts on Water Environment

- Wastewater generated from Induction Furnace, Ferro Alloys Plant will be treated in ETP and used for greenbelt development.
- Wastewater from Rolling mill will be sent to oil separator followed settling tank and will be recycled through closed circuit cooling system.
- Wastewater generated from the coal gasifier contains phenolic compounds which will be given to nearby DRI units for utilizing in ABC chamber.
- Sanitary waste water will be treated in STP and after treatment it will be utilized for greenbelt development.
- RO rejects will be used for Floor washing, Toilet Cleaning & Flushing.
- During monsoon the treated effluent will be utilized as makeup water in Rolling Mill. Accordingly, the makeup water for Rolling mill also reduces during the rainy period.

- Zero liquid effluent discharge practice will be followed.

### 3.4 Prediction of Impacts on Land Environment

The effluent will be treated to achieve SPCB standards. Zero effluent discharge will be adopted. All the required air pollution control systems will be provided to comply with CPCB / SPCB norms. All solid wastes will be disposed / utilized as per CPCB / SPCB norms. **2.10 Ha.** of extensive greenbelt will be developed as per guidelines. Hence, there will not be any adverse impact on land environment due to the proposed project.

### 3.5 Socio - Economic Environment

There will be certain upliftment in Socio Economic status of the people in the area & development of the area due to the proposed project. Due to this the economic conditions, the educational and medical standards of the people living in the study area will certainly move upwards which will result in overall economic development, improvement in general aesthetic environment and increase in business opportunities.

### 4.0 ENVIRONMENTAL MONITORING PROGRAMME

Post project monitoring will be conducted as per the guidelines of SPCB and MoEF&CC are tabulated below:

**TABLE NO.4.1: MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS**

S.No.	Particulars	Frequency of Monitoring	Duration of sampling	Parameters required to be monitored
<b>1. Water &amp; Wastewater quality</b>				
A.	Water quality in the area	Once in a month except for heavy metals which will be monitored on quarterly basis	Grab Sampling	As per IS: 10500
B.	Effluent at the outlet of the ETP	Twice in a month	Composite Sampling	As per EPA Rules, 1996
C.	STP Inlet & Outlet	Twice in a month	Composite Sampling	As per EPA Rules 1996
<b>2. Air Quality</b>				
A.	Stack Monitoring	CEMS (Major Stacks)	--	PM, SO <sub>2</sub> & NO <sub>x</sub>
		Once in a month	--	PM, SO <sub>2</sub> & NO <sub>x</sub>
B.	Ambient Air quality	CAAQMS	continuously	PM <sub>2.5</sub> , PM <sub>10</sub> , SO <sub>2</sub> , NO <sub>x</sub>
		Quarterly Once	24 Hourly	

S.No.	Particulars	Frequency of Monitoring	Duration of sampling	Parameters required to be monitored
				PM <sub>2.5</sub> , PM <sub>10</sub> , SO <sub>2</sub> , NOx & CO
C.	Fugitive emissions	Once in a month	8 hours	PM
<b>3. Meteorological Data</b>				
	Meteorological data to be monitored at the plant.	Daily	Continuous monitoring	Temperature, Relative Humidity, rainfall, wind direction & wind speed.
<b>4. Noise level monitoring</b>				
	Ambient Noise levels	Once in a month (Hourly)	Continuous for 24 hours with 1 hour interval	Noise levels

## 5.0 ADDITIONAL STUDIES

There is no displacement of people due to the proposed project. No Rehabilitation and Resettlement is required as the site is located in Industrial Growth Centre Borai. Thus R & R issues are not applicable.

## 6.0 PROJECT BENEFITS

With the establishment of the proposed project employment potential will increase. Land prices in the area will increase. The economic status of the people in the area will improve due to the proposed project. Periodic medical checkups will be carried out. Top priority will be given to locals in employment.

## 7.0 ENVIRONMENT MANAGEMENT PLAN

### 7.1 Air Environment

The following are air emission control systems proposed in the proposed project:

**Table No.11.7.1: Air Emission Control Systems Proposed**

S.No.	Source	Control Equipment	Air Emission at the outlet
1.	Induction Furnaces	Fume Extraction system with PTFE bag filters	PM < 30 mg/Nm <sup>3</sup>
2.	Re-heating furnaces attached to Rolling Mill	Stack	PM < 30 mg/Nm <sup>3</sup>
3.	Submerged Electric Arc Furnaces	4 <sup>th</sup> Hole Fume Extraction system with PTFE bag filters	PM < 30 mg/Nm <sup>3</sup>

S.No.	Source	Control Equipment	Air Emission at the outlet
<b>Note :</b> Apart from the above Fume Extraction System with bagfilters, dust suppression system, covered Conveyers, mechanical dust sweepers etc. will also be installed.			

Apart from the above the following air emission control systems/ measures are proposed in the Plant:

- All conveyors will be completely covered with G.I. sheets to control fugitive dust.
- All bins will be totally packed and covered so that there will not be any chance for dust leakage.
- All the dust prone points material handling systems will be connected with de-dusting system with bag filters.
- All discharge points and feed points, wherever the possibility of dust generation is there a de-dusting suction point will be provided to collect the dust.

## 7.2 Water Environment

- Wastewater generated from Induction Furnace, Ferro Alloys Plant will be treated in ETP and used for greenbelt development.
- Wastewater from Rolling mill will be sent to oil separator followed settling tank and will be recycled through closed circuit cooling system.
- Wastewater generated from the coal gasifier contains phenolic compounds which will be given to nearby DRI units for utilizing in ABC chamber.
- Sanitary waste water will be treated in STP and after treatment it will be utilized for greenbelt development.
- RO rejects will be used for Floor washing, Toilet Cleaning & Flushing.
- During monsoon the treated effluent will be utilized as makeup water in Rolling Mill. Accordingly, the makeup water for Rolling mill also reduces during the rainy period.
- Zero liquid effluent discharge practice will be followed.

### Treated Sewage Characteristics

S.No.	Parameters	Parameters limit
1.	pH	6.5 – 8.0
2.	BOD (mg/ L)	Not more than 10

3.	COD (mg/ L)	Not more than 50
4.	TSS (mg/ L)	Not more than 20
5.	NH <sub>4</sub> -N (mg/ L)	Not more than 5
6.	N-Total (mg/ L)	Not more than 10
7.	Fecal Coliform (MPN/100 ml)	Less than 100

**TREATED EFFLUENT DISPOSAL**

Total treated effluent generation	58 KLD
RO rejects used for Floor Washing, Toilet cleaning & Flushing	8 KLD
Effluent to be used for Greenbelt development	50 KLD

2.10 Ha. of greenbelt will be developed within the plant premises by using the treated effluent. A dedicated pipe distribution network will be provided for using the treated effluent for greenbelt development.

**7.3 Noise Environment**

The major sources of noise generation in the proposed project will be Furnace, Rolling Mills, DG set, etc. The ambient noise levels will be within the standards prescribed by MoEF vide notification dated 14-02-2000 under the Noise Pollution (Regulation & Control), Rules 2000 i.e. the noise levels will be less than 75 dBA during day time and less than 70 dBA during night time. 2.10 Ha. of extensive greenbelt will be developed to further attenuate the noise levels. Hence there will not be any adverse impact due to noise on population in surrounding areas due to the proposed project.

**7.4 Land Environment**

The effluent will be treated to achieve SPCB standards. Zero effluent discharge will be adopted. All the required air pollution control systems will be provided to comply with CPCB / SPCB norms. All solid wastes will be disposed / utilized as per CPCB / SPCB norms **2.10 Ha.** of extensive greenbelt will be developed as per guidelines. Desirable beautification and landscaping practices will be followed. Hence, there will not be any adverse impact on land environment due to the proposed project.



**Table No.7.2: Solid Waste Generation and Disposal**

S.No.	Waste	Quantity (TPA) (After proposed expansion)	Method of disposal
1.	SMS Slag	19,800	Slag from SMS will be crushed and iron will be recovered & then remaining non -magnetic material inert by nature will be given to Brick manufacturing unit and Road contractors for road laying.
2.	Mill Scales	6,864	Will be used in proposed Ferro Alloys plant captively
3.	End cuttings	15,840	Will be reused in Induction Furnace captively.
4.	Slag from FeMn	16,929	Will be reused in manufacture of SiMn as it contains high SiO <sub>2</sub> and Silicon.
5.	Slag from FeSi	1,854	Will be given to Cast iron foundries
6.	Slag from SiMn	14,252	will be used for Road construction / will be given to slag cement manufacturing
7.	Slag from FeCr	9293	Will be processed in Zigging plant for Chrome recovery. After Chrome recovery, the left-over slag will be analysed for Chrome content through TCLP test, if the Chrome content in the slag is within the permissible limits, then it will be utilised for Road laying /given to brick manufacturing units. If Chrome content exceeds the permissible limits, it will be sent to nearest TSDF.

### 7.5 Greenbelt Development

Greenbelt of **2.10 Ha.** of extensive greenbelt will be developed in the plant premises. Width of proposed greenbelt ranges from 15-20m.

### 7.6 Cost for Environment Protection

Capital Cost for Environment Protection for proposed plant : Rs. 21.45 Crores

Recurring Cost per annum for Environmental protection : Rs. 3.73 Crores

### 7.7 Implementation of CREP Recommendations

All the CREP recommendations will be strictly followed.

- Continuous stack monitoring system is proposed for stack attached to all the Stacks.
- Online Ambient Air Quality Monitoring Stations will be established in consultation with SPCB during operation of the plant.
- Fugitive emission monitoring will be carried out as per CPCB norms.
- Energy meters will be installed for all the pollution control systems.
- Rain water harvesting pits are being constructed in consultation with CGWB.