Executive Summary

For

Proposed Installation of 2 X350 DRI Kilns for 2,31,000 TPA Production of Sponge Iron, Steel Melting Shop (4X20 T Induction Furnace, 1X 25 T Ladle Refining Furnace , Continuous Casting Machine 4 Strands of 6X 11 m) for production of 2,64,000 TPA Billets and 20 TPH of Rolling mill for the production of 1,32,000 TPA rolled products (TMT bars & Wires) & 1,32,000 TPA of light products (angles/beam/channels) and 30 MW Power Plant (20 MW WHRB and 10 MW AFBC)

(Greenfield Project)

At

Survey no. 401/1, 401/2 and 530 under Village- Mursa, in Bhadrawati Taluka, District-Chandrapur, Maharashtra and Survey no. 379, 380, 381, 382, 383, 384, 385, 389/1, 389/2, 390, 391, 392 and 393 of village Belsani, Taluka Chandrapur, Chandrapur District, Maharashtra.

Project Proponent

M/s. Million Steels Private Limited

Environmental Consultant

Pollution and Ecology Control Services
Near Dhantoli Police Station, Dhantoli, Nagpur, Maharashtra

Accreditation no.: NABET/EIA/2225/RA 0291 Valid upto 16th October, 2025

EXECUTIVE SUMMARY

INTRODUCTION

M/s. Million Steels Pvt. Ltd. proposed a Greenfield Project by setting an installation of 2 x350 DRI Kilns for 2,31,000 TPA Production of Sponge Iron, Steel Melting Shop (4x20 T Induction Furnace, 1x 25 T Ladle Refining Furnace, Continuous Casting Machine 4 Strands of 6 x 11 m) for production of 2,64,000 TPA Billets and 20 TPH of Rolling mill for the production of 1,32,000 TPA rolled products (TMT bars & Wires) & 1,32,000 TPA of light products (angles/beam/channels) and 30 MW Power Plant (20 MW WHRB and 10 MW AFBC) at survey no. 401/1, 401/2 and 530 of Village – Mursa in Taluka Bhadrawati and survey no. 379,380, 381 382, 383, 384, 385, 389/1, 389/2, 390, 391, 392 and 393 of village Belsani in Taluka & District Chandrapur, Maharashtra.

IMPLEMENTATON OF PROJECT

The proposed project is listed at Schedule no. 3(a) "Metallurgical industries (ferrous and non-ferrous)" and 1(d) Thermal Power Plant under Category "A" of the schedule of the EIA Notification 2006.

The company submitted an online application on 03.09.2024 along with Form-1, Pre-feasibility Report and other relevant documents for obtaining Terms of Reference (ToR) from concerned Regulatory Authority for undertaking detailed EIA Study. The proposal was considered by the Committee in the 66th Meeting of EAC (Industry - I) held during 23rd – 25th September, 2024 and prescribed the ToR vide letter No. IA-J-11011/284/2024-IA-II(Ind-I); TOR Identification No. TO24A1003MH5396647N, Dated 12th October, 2024 for preparation of the EIA report for the Proposed Greenfield Project.

Therefore, in accordance with the issued ToR, a draft EIA/EMP report has been prepared to accommodate all the components in order to submit it to the Maharashtra Pollution Control Board for the purpose of holding a public hearing and consultation.

The draft EIA/EMP report is prepared based on the available secondary data/literature along with baseline monitoring studies of environmental components for one season during the period 15th March 2024 – 15th June 2024.

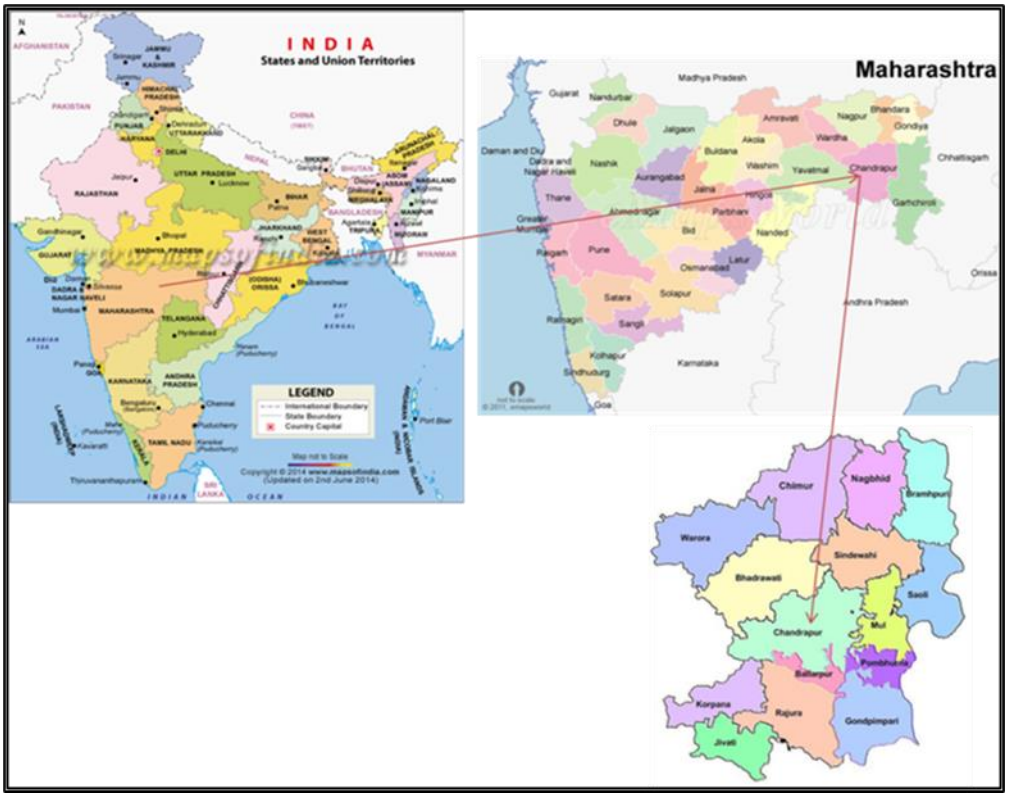
DETAILS OF THE PROJECT SITE

The proposed project will be located at survey no. 401/1, 401/2 and 530 of Village – Mursa in Bhadrawati Taluka and survey no. 379,380, 381 382, 383, 384, 385, 389/1, 389/2, 390, 391, 392 and 393 of village Belsani in Taluka & District Chandrapur, Maharashtra.

Details of project location

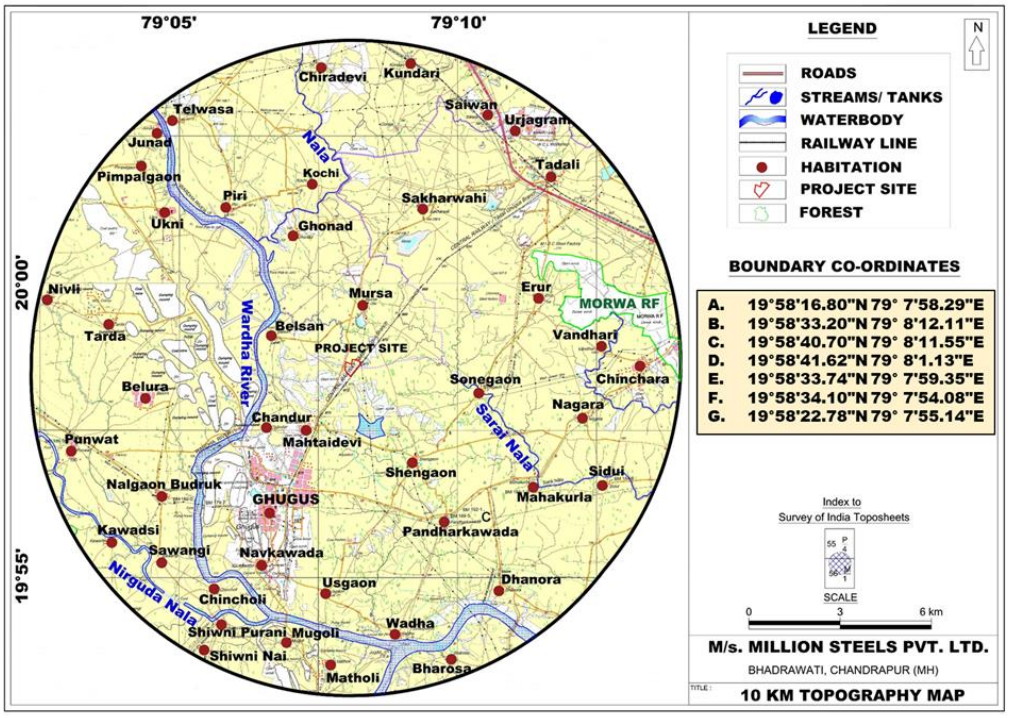
Sr. no	Particulars	Details
1	Project Site	At survey no. 401/1, 401/2 and 530 of village Mursa in Bhadrawati Taluka and Survey no. 379,380, 381 382, 383, 384, 385, 389/1, 389/2, 390, 391, 392 and 393 of village Belsani in Taluka & District Chandrapur, Maharashtra.
2	Site Co-ordinates	A. 19°58'16.80"N 79° 7'58.29"E B. 19°58'33.20"N 79° 8'12.11"E C. 19°58'40.70"N 79° 8'11.55"E D. 19°58'41.62"N 79° 8'1.13"E E. 19°58'33.74"N 79° 7'59.35"E F. 19°58'34.10"N 79° 7'54.08"E G. 19°58'22.78"N 79° 7'55.14"E
3	Toposheet No	56 M/1
4	Elevation above MSL	225 m
5	Present Land use	Non-Agricultural

The proposed site is well connected to the State Highway -84/ National highway (NH -930) having an aerial distance of about 7.77 Km (NNE) & MSH 6 ~ 3.20 Km (SSW). The nearest airport is Dr. Babasaheb Ambedkar International Airport, Nagpur ~123.5 Km (N). Mursa is the nearest village located ~1.46 Km (North direction) from the project site. Google map, boundary of project site and 10 Km radius toposheet and distance between TATR from project sites are given below figures

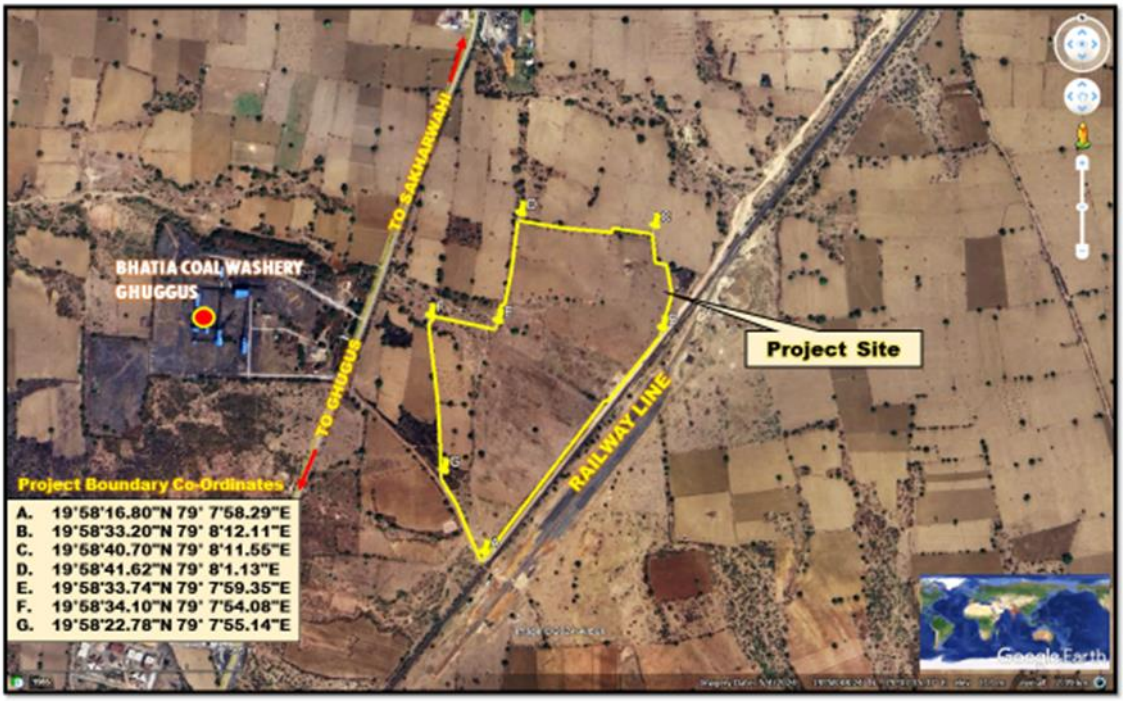


Source: ***mapsofindia.com***

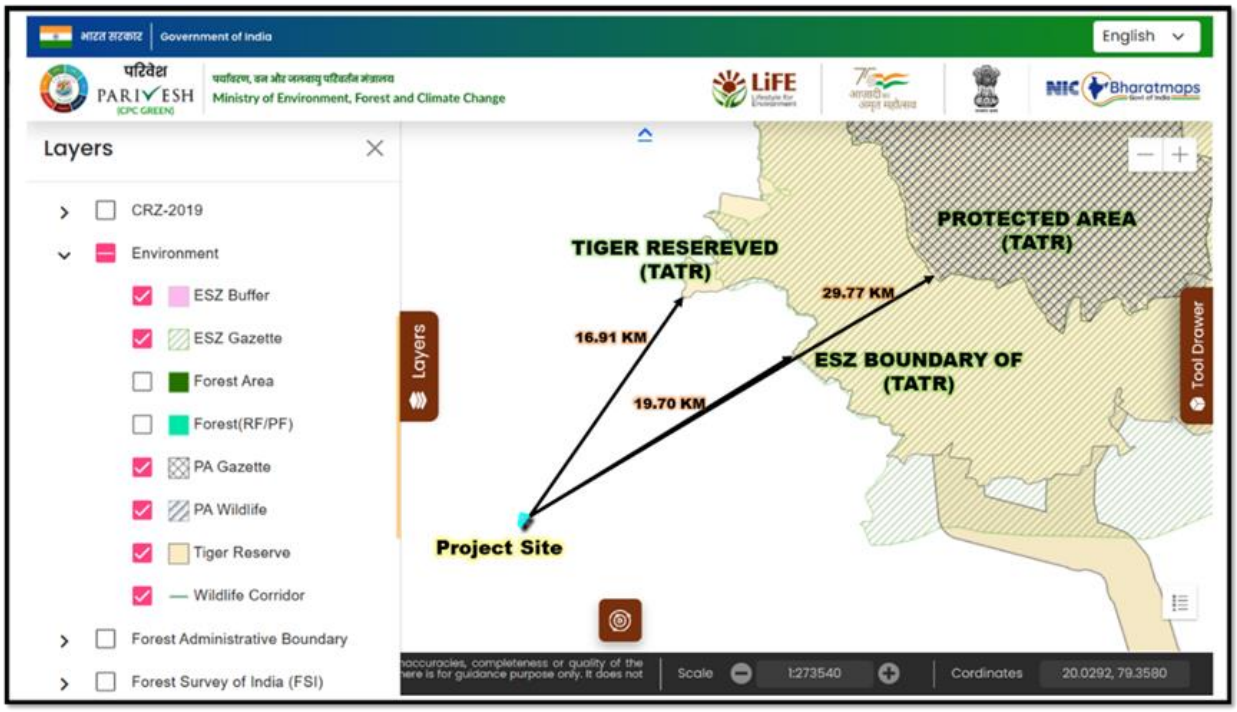
Location map of the project site



Location on Toposheet



Location on Google Map



Map Showing Distance of Project Location from Extended TATR Wildlife Sanctuary

PRCOESS DETAILS

SIZE OR MAGNITUDE OF OPERATION

The production scenario of the proposed plant is given in following Table

S. No	Name of Product	Proposed Unit	Proposed Capacity
1.	Sponge Iron	DRI Plant (2X350 TPD)	2,31,000 TPA
2.	M.S Billets	• Induction Furnace (4X20 T) • 1 x 25 T Ladle Refining furnace • 4 strands (6 x 11 m) - Continuous Casting Machine	2,64,000 TPA
3.	TMT Bars & wires	20 TPH Rolling Mill	1,32,000 TPA
4.	Angles /beam and channels (Light section)		1,32,000 TPA
5.	Power Generation	AFBC Boiler	10 MW
		WHRB	20 MW

RAW MATERIAL

The raw material requirement for the proposed unit is given as follow

Sr.No.	Input Raw Material	Quantity (TPA)	Sources	Distance from project (in Kms.)	Mode of Transport
1.	Iron Ore	3,81,150	Surjagarh Mines & Open Market	150-250	By rail/road
2.	Non coking coal	2,31,000	WCL Mines & Open Market	50-200	By rail/road
3.	Dolomite	11,550	Yavatmal & Open Market	150-300	By road
4.	Sponge Iron	2,31,000	Inhouse	-	Closed Conveyor belt
5.	MS Scrap	80,022	Import &Open Market	600-1200	By road
6.	Ferro Alloys	12,114	Open Market	150-250	By road

7.	Billets	2,74,560	In house + Open Market	-	Closed Conveyor belt
8.	Dolochar	45,870	In house	-	Closed Conveyor belt
9.	Coal	55,110	WCL Mines & Open Market	20-200	By rail/road

WATER REQUIREMENT

The total water requirement for the proposed project will be 2965 KLD and Source will be Wardha river. Unit wise water requirement is given in following Table.

Water Requirements during Operation Phase (KLD)

S. No	Plant Unit	Makeup water required (KLD)
1	DRI Unit	525
2	SMS Unit	640
3	Rolling Mills	200
4	Power plant	1560
5	Other domestic usages	40
	Total	**2965**

POWER REQUIREMENT

The Power for the construction phase will be sourced from Maharashtra State Power Distribution Company Limited (MSPDCL) supply. Total Power requirement for the operation phase will be 42 MW. Total power generation from captive power plant will be 30 MW. The remaining power will be met from Maharashtra State Power Distribution Company Limited (MSPDCL) supply.

LAND REQUIREMENT

The land required for the proposed project is 23.091 Ha.

EMPLOYMENT POTENTIAL

The proposed project creates employment for about 530 people.

TECHNOLOGY AND PROCESS DESCRIPTION

DRI Plant:

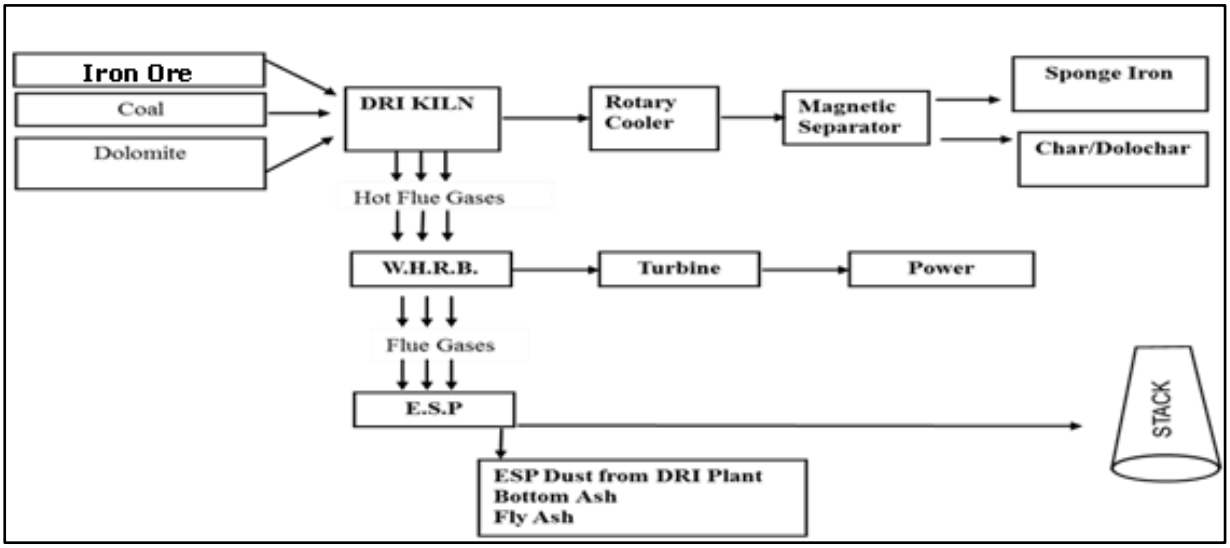
The DRI sponge iron is produced in rotary kiln by reducing air or controlled air firing in rotary kiln along with Coal and Iron Ore. The standard mix of raw materials are fed through raw material handling system and taken to a common belt conveyor through weigh feeders and then fed to the Rotary Kiln via feed tube.

Process Description

The Sponge Iron Plant uses coal for the reduction of Iron Ore to Iron. The Iron Ore Fe_2O_3 (Hematite) is reduced to 'Fe' using Carbon as reductant. The major plant facilities for the sponge iron plant are as follows:

- Day bins
- Rotary Kiln & Cooler
- Central Control Room
- Product processing and product storage
- Flue gas treatment with waste heat recovery power generation

Process Flow Diagram of DRI Kiln

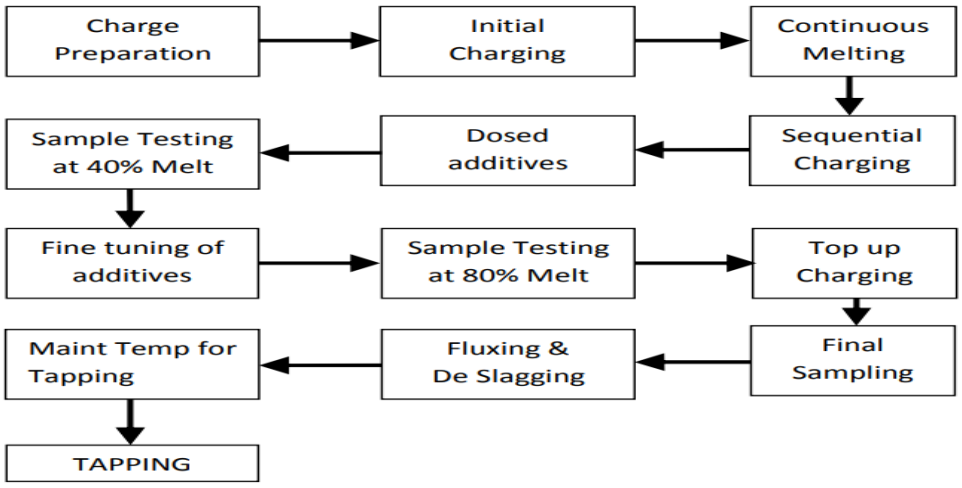


Steel Melting Shop

In Steel Melting Shop (SMS), Sponge Iron will be melted along with melting scrap and fluxes to make pure liquid steel and then to mould it in required size billets. The SMS will consist of following equipment and subassemblies:

Induction Furnace:

The steps involved in operation of induction furnace are shown in Figure below.



Process diagram of IF

Stages of operation during steelmaking in an induction furnace

- Ladles:

  Ladles are pots with refractory lining inside to withstand 1700 deg. C temperature. It has side arms so that can be lifted with the help of crane. Ladles are used to stores the liquid steel from Induction Furnace and take it for further processing. Ladles will be with bottom nozzle and pneumatically operated gate for discharge of liquid.

- Cranes: Electric Over-head (EOT) cranes of various capacities will be used to carry the ladles/materials at different places. Cranes will be used in Melting hall to charge melting scrap, remove the ladles to the LRF, further to place it over the Tundish of the Continuous Caster, to remove billets from the cooling bed and store at designated places (if required), and also for other petty use.

Laddle Refining Furnace:

After making molten steel in induction furnace, the steel is transferred into laddle for further refining, chemistry adjustment, inclusion modifications, etc. All the treatments are carried out in the laddle. Additional heat is required to carry out these operations. Hence the ladle is provided with a heat source which heats the liquid metal and compensates thermal losses. Thus, the furnace in which the quality of liquid steel is improved by refining and heating is called a ladle refining furnace (LRF).

- The Ladle has a porous refractory plug at the bottom to purge Argon gas to keep the molten metal in vertical stirring movement.
- The Laddle is covered by a water cooled roof which has opening for three graphite electrodes, a fume outlet connected to FES system and a door for charging fluxes & alloying elements. Electric heating is done by arcing under the reduction slag.
- Lime is used as flux for refining the steel
- Ferro alloys are added to achieve de-oxidation and required composition of steel.

Continuous Casting Machine (CCM):

- CCM will be used to continuously cast the liquid steel in required cross section and in length. It consists of Tundish, Mould, Bow with withdrawal mechanism, straightening mechanism and cooling bed, hydraulic system for withdrawal mechanism, water pumps and cooling towers for water spray on the withdrawn section as well as on the cooling bed. Dummy bar will be provided to start the casting. Tundish is a rectangular vessel, lined with refractory and having discharge nozzle with pneumatically operated gate. A stand is erected over the CCM where the ladle is stationed for discharging the liquid into CCM. Mould is made of copper with water cooled jacked surrounding it to keep cool. Its cross-section in the bottom is of the size of which billet is to be drawn. Initially the dummy for of the same size is kept inserted. When the liquid steel is poured in the mould, the dummy bar is drawn slowly, so that the liquid steel in partially frozen state comes out of the mould. Water spray nozzles are installed to spray water over the just drawn billet to cool it further and to harden the skin of the drawn billet.

Rolling Mill

Rolling mill is a straight type mill has been envisaged for the plant. The stands will be grouped into Roughing, Intermediate and Finishing groups. Roughing group will have 4 (four) stands, Intermediate group will have 8 (eight) stands and Finishing group will have 8 (eight) stands.

Roughing group of stands will be driven by one motor. 4 nos. of Intermediate stands will be driven by two motors and balance 4 nos. will be driven by a separate motor. Each stand of finishing group will be driven by single motor. Necessary guides and

troughs will be provided at entry and exit of mill stands. Automated tilting, drop type tilter and feeding arrangement will be provided in roughing group of stands. Repeaters will be provided in roughing / intermediate stands as necessary.

The motors used shall be DC motors with thyristorized controls for Power conservation. Similarly, Cardan shafts shall be used to couple motor shafts with Roller shafts for better energy efficiency. Provision shall be kept for one wire rod outlet which will have 4 stand blocks driven by a single motor through gear box.

Provision for Coil forming and handling of coil shall also be provided. Design provision has also been made for introduction of slit rolling facility in future to roll 8 mm, 10 mm & 12 mm rebars in two strands.

The rebars discharged from the mill will pass through a rapid water quenching system comprising cooling pipes with high pressure water nozzles for rapid water quenching. At the cooling pipes the bar skin temperature will be reduced to about 6000 C. The core of the bar still remains hot. This entrapped heat tempers the bar. This thermo-mechanical treatment of the bars increases tensile strength without adversely effecting weldability and elongation properties. This process eliminates requirement of cold twisting of bars for production of rebars.

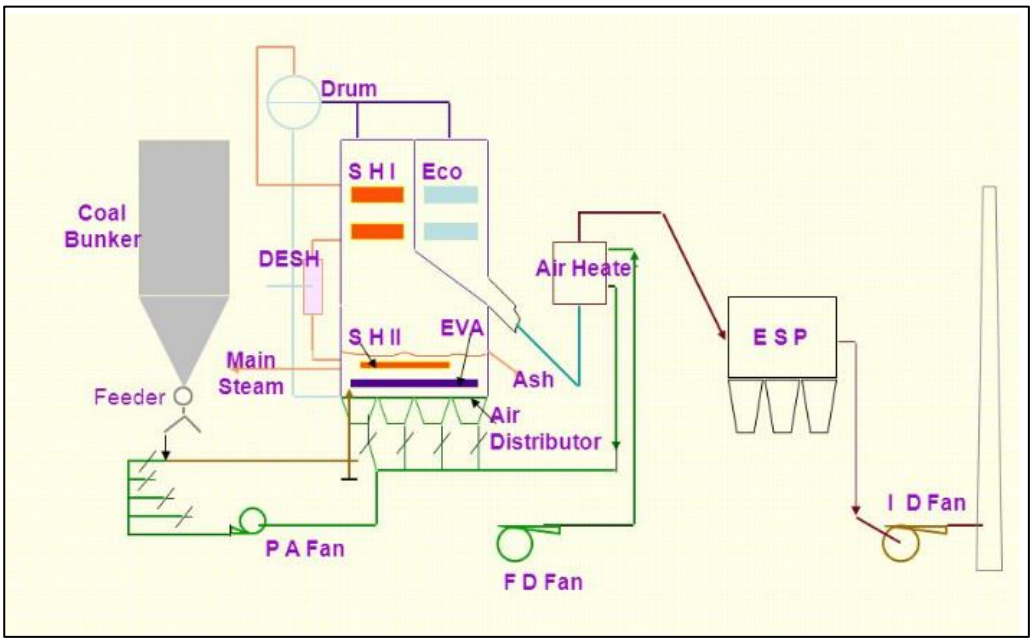
The TMT Box will be fitted with state-of-the-art PLC system for regulation of water flow depending upon section rolled, temperature of inflow and outflow water and for regulating water pressure. The TMT Box shall be designed in such a manner to achieve Fe 500+ and Fe 550 grade TMT rebars.

A flying shear, to cut the products to cooling bed length will be located immediately after the TMT. This shear will divide all products to cooling bed lengths. Rake type cooling beds have been envisaged to receive the rolled product. Cooling bed will be provided with incoming and outgoing roller tables. One cold shear will be provided to cut the bars coming out of cooling bed into commercial length of 6 to 12 m. The bar products will be formed into bundles and will be strapped by strapping machine automatically. The finished products will be removed by overhead EOT crane and stored in the storage area or dispatched through road vehicles.

Power Plant

Production of sponge iron in DRI kiln generates huge quantities of hot flue gases carrying considerable sensible heat. The energy content of these gases can effectively be used to generate electric power as well as steam for meeting various process requirements. Thus a WHRB (Waste Heat Recovery Boiler) power plant would be an

ideally suited proposition to effectively make use of this waste gas.



Flow Chart for Power Generation

DESCRIPTION OF THE ENVIRONMENT (BASELINE DATA)

Air Environment

Ambient air quality (AAQ) samples were collected on basis of 24-hour sampling and twice a week at each site. The ambient air quality samples were collected from 15th March 2024 to 15th June 2024 for continuous 12 weeks in an area of 10 km radius around the proposed project site. Results for various parameter are as follows.

PM_{10} – 40.1 to 54.6 µg/m^3

$PM_{2.5}$ – 20.1 to 30.5 µg/m^3

SO_2 – 11.5 to 21.8 µg/m^3

NOx – 16.2 to 29.1 µg/m^3

CO – BDL

The concentrations of PM_{10}, $PM_{2.5}$, SO_2, NOx and CO were found within the National Ambient Air Quality Standards (NAAQ).

Water Environment

A total 14 samples including Six Surface & Eight ground water samples were collected and analyzed during May 2024. The water samples were analyzed as per Standard Methods for Analysis of Water and Wastewater, American Public Health

Association (APHA) Publication. The data indicates that the ground water as well as the surface water quality is below the permissible limits of drinking water standard (IS 10500 – 2012).

Noise Environment

It has been found that the noise levels are in the range of of 38.5 to 53.3 dB (A) at all eight stations. Maximum levels of noise have recorded in day hours which are natural as our most of activities have done in day hours. Noise levels measured are within limit of 55.0 dB (A) for Residential Area or 75.0 dB (A) for Industrial Area as given in MoEF Gazette notification for National Ambient Noise Level Standard.

Land Environment

The characteristics of the soil sample were compared with respective parameters in eight stations. The characteristics of the soil sample were compared with different depths for respective parameters. The observations of soil characteristics are discussed parameter wise below;

a) Texture of all soil samples are Silty clay in Texture Classification.
b) Colour of soil samples is Dark brown, light grey & reddish in color.
c) The bulk density of soil samples is in the range of 0.63 to 0.87 gm/cc.
d) Soil samples have pH values in the range of 7.24 to 8.36. The pH values are indicating nature of soil samples as neutral.
e) Soil samples have conductivities between 0.057 to 0.345 mmhos/cm.
f) Soil samples have Organic Matter between 0.84 to 2.87 %. These values represent average fertility of soils.
g) Soil samples have concentration of Available Nitrogen values ranged between 152 to 627.9 kg/ha.
h) Soil sample have concentration of Available Phosphorous values ranged between 23.40 to 65.30 kg/ha.
i) Soil sample have concentration of Available Potassium values range between 68.8 to 391 kg/ha.

Interpretation

Samples collected from different land use classifications indicating the soil Sample exhibit different colours i.e. Light Grey, Reddish and Dark Brown in colour. pH range of soil indicates neutral soil condition and is generally favourable for nutrient availability. All the major nutrients were present, namely, nitrogen's presence in

moderate level indicating sufficient nitrogen availability, phosphorus values indicates moderate to sufficient quantity and potassium is good in quantity. In all the results shows mix of soil properties, fertility levels and nutrient availability

Socio Economic Environment

As per the survey of 2024 the classification of respondents in various occupational groups, it was observed that majority of the sample families belong in agriculture in study area villages were 32.5%, having agriculture as their main source of income, followed by 45.9% who worked as agriculture & non-agriculture laborers, 11.5% in the Private/Govt. services section, 5.6% were engaged in business and 4.5% were engaged in other section.

Cotton, Soyabean, Tur, Gram, Rise, Pulses are the major crops of the area. Modern scientific technology in agriculture, such as intensive cultivation is not known. Along with many people have adopted side business of dairy and they are sold milk or milk products in the local market. There is a good prospect of dairy farming which can supply dairy products to the proposed project in the area. Thus it infer that the pattern of occupation is nearly constant in the last five years.

Primary schools are located in most of the villages in the study area. Students have access to middle school, providing education up to Class VIII, within a distance of 2-5 km from the village. High school education facilities are available within a distance of 2-5 km. from most of the places. All the villages have their independent drinking water facilities.

The economic opportunities include preference to the persons of the surrounding villages in all sphere of livelihood: Job opportunities with MSPL Plant or employment with contracting agencies and through other sources are available for the villagers. There will be preferences in allotment of shops, award of petty contracts, Vehicle hiring, Vendor permit or any other opportunity deemed fit by the project. Any person would be normally entitled for only one economic opportunity subject to availability and to the extent possible.

ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

Air Environment

In the proposed project the source emission is envisaged from DRI plant, IF and power plant.

Cumulative Predicted 24-hourly Ground Level Incremental Concentrations (GLCs) are given in the following table.

Parameters	Maximum Incremental Levels (µg/m^3)
	Proposed
PM_{10}	1.15
Distance/Direction	750m/NE
$PM_{2.5}$	0.604
Distance/Direction	700m/NE
Sox	1.67
Distance/Direction	500m/NE
Nox	1.07
Distance/Direction	550m/NE

Air Pollution Control Measures

Following mitigation measures will be implemented for controlling the air pollution from the proposed project:

- ESP/bag filters followed by stack of adequate height will be installed for controlling the process emissions
- Heat from the exhaust gases of DRI Kilns will be utilized for power generation through WHRB.
- A closed conveying system will be provided for internal transportation of raw materials. Mist spray system will be provided in the conveyors for dust suppression.
- Particulate matter will be controlled below 30 mg/Nm^3 by providing dust collector and bag filer to stack. Water spray system shall be installed in the material handling system transfer points.
- Green belt will be developed inside plant area.

- The internal road will be concreted to reduce the fugitive dust due to vehicular movement
- Water spraying will be practiced frequently.
- The emissions from the stacks shall be monitored regularly for exit concentration of Sulphur dioxide, Nitrogen oxides and PM. Sampling ports shall be provided in the stacks according to CPCB guidelines.

Details of the air pollution control systems to be installed

S.No.	Location	APCE	Location	Stack height (in meters)
1.	Sponge Iron Plant	ESPs	SID	70 (one stack)
2.	Power Plant	ESP, Low NOx Burner	Power Plant	65 (one stack)
3.	SMS (IF)	Bag Filter	SMS	30 (two stack)
4.	Rolling Mill			

Noise Pollution & control measures

In plant, workers particularly working near higher noise sources, may be exposed to higher level upto 75 dB(A) for longer durations

Noise pollution control measures will be provided in respective department by the way of providing silencer, provision of ear plugs or ear muffs and selection of suitable noise proof machineries and development of greenbelt.

Impact on Water

The company will follow "the zero-liquid discharge concept" and the entire wastewater will be recycled to the plant for various uses after treatment. The waste generated from the industrial process will be treated neutralization tank after treated it will be reused in the process and for dust suppression and waste water generated from domestic use will be treated in STP and used for plantation purpose. As no wastewater will be discharged outside the plant premises, there will be no impact on the water quality of any surface water bodies of the area.

Solid Waste Generation and its Management

Solid Waste generation and management is given below:

Waste Generation from Sponge Iron Plant :		
Solid Waste	**Quantity (TPA)**	**Method of Disposal**
Dolochar	1,20,120	In house consumption in power plant and remaining will be sold to nearby power plant
ESP Dust	46,200	It will be sold to brick manufacturing units
Wet scraper sludge	7,869	Sold to authorized vendor
Accretion slag	2,772	Sold to authorized vendor
Solid Waste Generation from Induction Furnace & Rolling Mill :		
Solid Waste	**Quantity (TPA)**	**Method of Disposal**
Slag	58,080	Slag will be sold to Slag Crushing Units.
Tail Cuttings	7,914	Will be reused in Induction Furnace.
Solid Waste Generation from Power Plant :		
Solid Waste	**Quantity (TPA)**	**Method of Disposal**
Fly Ash	16,533	Fly ash generated will be sold to the fly ash bricks manufacturing plant. Surplus will be sold to other vendors.

ENVIRONMENTAL MONITORING PROGRAMME

Environmental Monitoring will be carried out on regular basis. The ambient air quality, water quality, noise levels etc. will be monitored as per the MoEF&CC/CPCB & MPCB guidelines.

GREENBELT DEVELOPMENT

Total land area of plant will be 23.091 Ha, out of which 9.327 Ha (40.4 %) Greenbelt will be developed in the plant area in the proposed project. Greenbelt acts as a surface for settling of dust particles and thus reduces the concentration of particulate matter in

air. Apart from this, company will also plant trees along the roadside as well as well as nearby villages. 23317 trees will be planted in the plant premises @ 2500 tree per ha. The width of the green belt along the plant boundary will be at least 15 m.

ADDITIONAL STUDIES

The additional studies as per the TOR issued by MoEF&CC are Public Consultation, Risk Assessment, & Disaster Management Plan.

PROJECT BENEFITS

Company will give direct employment to near about 530 persons. Company will give priority to local peoples. Rs 2 Crores will be spent under CER, which will be further revised after the conduction of Public Hearing as per the issues raised in Public Hearing. CER amount will be spent in 3 years based on the public hearing issues and accordingly budget will be finalized after conduction of public hearing. The amount will be spent in various activities like construction of toilets, education etc.

ENVIRONMENTAL MANAGEMENT PLAN

Company is committed towards protection of environment and the community and also to practice best environmental management practices, regular maintenance and consistent operation of pollution control systems, and adoption of cleaner and environment friendly technologies etc. company are bound take all the necessary steps to identify and control pollution and EMP which includes effective pollution control measures, green belt development, adequate safety measures, and post project monitoring facilities for the estimation of pollutants.

ENVIRONMENTAL MANAGEMENT PLAN COST

The total Project cost is Rs.432 Cr Budgetary provision of Rs. 38.23 crores has been made for implementation of Environmental Management Plan and recurring cost is 1.55 crore per year.

OCCUPATIONAL SAFETY & HEALTH MANAGEMENT

Company will provide all necessary provisions under Factory Act. In addition, a Safety committee will be formed and manned by equal participants from Management and Workers. All personal protect equipments like Safety shoes, helmet & uniform

will be issued to each employee based on the nature of job involved.

CONCLUSION

The potential environmental, social and economic impacts have been assessed. The proposed activities will have the marginal impacts on the local environment. With effective implementation of proposed environment management plan and mitigation measures, these impacts will be insignificant. Implementation of the project has beneficial impact in terms of providing direct and indirect employment opportunities. This will be a positive socio-economic development in the region.