

EXECUTIVE SUMMARY

For

Proposed Expansion from Induction furnace, CCM from existing 57600 TPA to 157500 TPA MS Billets along with Hot Charging based steel Rolling Mill facility from 46000 TPA to 126000 TPA and no increase in existing rerolled steel production capacity of 54000 TPA through existing BRF based rolling mill. Total Rerolled Steel Production capacity will be 180000 TPA

LOCATED AT

Plot No.03 and 04, Urla Industrial Area, Raipur 493221, Chhattisgarh

Terms of Reference File No. IA-J-11011/416/2023-IA-II(IND-I) dated 31st Jan. 2024.

Category A, Schedule 3 (a) Metallurgical Industries (Ferrous & Non-Ferrous)

Baseline Monitoring Period: Post-Monsoon Season (15th October 2023 to 15th January 2024)

PROJECT PROPONENT

M/s. Shivali Udyog (I) Limited

ENVIRONMENTAL CONSULTANT



M/s. ANACON LABORATORIES PVT. LTD., NAGPUR

QCI - NABET Accredited EIA Consultant for
3 (a) Metallurgical Industries (Ferrous & Non-Ferrous)

MoEF&CC (GOI) Recognized Laboratory

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Report No. ANqr/PD/20A/2024/236

February- 2024

EXECUTIVE SUMMARY**1.0 INTRODUCTION**

M/s. Shivali Udyog (I) Limited (M/s. SUIL) has started its production in the year 2004 with 100000 TPA Steel Rerolling Mill with consent from Chhattisgarh Environment Conservation Board vide Consent No. 1579/RO/TS/CECB/2004 Raipur Dated 22.04.2004 under Air Act and Water Act.

The company had obtained environment clearance from SEIAA CG through its letter No. 523/SEIAACG/EC/Raipur/740 Atal Nagar, Dated 25.02.2019 for implementation of MS Billet production capacity of 57600 TPA as backward integration with CCM and Hot Charging facility. The capacity of Rolling remains unchanged at 100000 TPA, within which the 46000 TPA is now from Hot Charging and 54000 TPA capacity will be with Reheating Furnace based production.

Now management has decided to further enhance its backward integration of secondary metallurgical activities of Hot Charging based Rerolling Mill through the implementation of additional Induction furnaces with augmentation of Existing 12 MT X 2 Nos Induction Furnace with CCM to 15 MT X 2 Nos and an additional 15 MT X 1 Nos. Induction furnace with 15 MT LRF will be implemented.

The production of MS Billet will first be used to produce Rerolled products through Hot Charging. However, as it is not possible to get 100% product re-rolled through hot charging thus 126000 TPA is assessed as Hot Charging based rerolling and the remaining 54000 TPA capacity (existing capacity – no change) will be produced through Reheating Furnaces. Thus total rerolling capacity will remain same i.e. 180000 TPA. It is only proposed to implement backward integration by installation of suitable capacity of MS Billet production capacity through Induction Furnaces.

Steel Melting Shop (Induction Furnaces, with CCM) along with Integrated Steel Rolling Mill fall under S. No. 3(a) of schedule EIA Notification 2006 categories as Category Rerolling mill are classified as Category B1 under S. No. 3(a) of the Schedule EIA Notification of 2006, whereas Urla Industrial Area is Critically Polluted Area under CEPI - 2018. As a result, the General Condition is applicable and hence the project shall be treated as Category A as per the provision of EIA Notification, 2006 as amended and hence an application for environmental clearance submitted to EAC (Ind. I), MoEFCC, New Delhi.

Anacon Laboratories Pvt. Ltd., Nagpur, is QCI-NABET accredited in '**Category A**' environment consultant organization (Certificate No.: NABET/EIA/2326/RA 0304) has been assigned to undertake an Environmental Impact Assessment (EIA) study and preparation of Environment Management Plan (EMP) for various environmental components, which may be affected due to the impacts arising out of the proposed project.

The online application for prior Environmental Clearance (Form-1 and PFR) was submitted to EAC (Ind. – I), MoEFCC, New Delhi on Dated 23/11/23 (Proposal No.: IA/CG/IND1/452675/2023 for implementation of Additional Induction Furnaces in the project. The ToR was granted by Ministry on dt. 31/01/2024 (Vide File No: IA-J-11011/416/2023-IA-II(IND-I)) for preparation of the EIA-EMP Report.

EIA process requires the primary baseline data collection to know the information on the biophysical, social and economic backgrounds of Greenfield project. The Environmental Impact Assessment (EIA) report is prepared for obtaining Environmental Clearance (EC) from Ministry of

Environment, Forest and Climate Change (MoEFCC), New Delhi and the Consent for Establishment from the Chhattisgarh Environment Conservation Board (CECB) for the proposed Expansion project.

1.1 IDENTIFICATION OF PROJECT

The proposal involves expansion in backward integration for production of semi-finished steel hot charging based Rolling through implementation of expansion in Induction Furnaces by way of converting 2 Nos of existing 12 Ton IFs to 15 ton and adding one new IF of 15 ton (15 MT X 3 Nos) and CCM. Total MS Billet Production will be 157500 TPA, Rolled Steel production will be enhanced to 180000 TPA (out of which 126000 TPA will be produced through Online Hot Charging and 54000 TPA will be produced through Reheating Furnace).

The proposal is for expansion of production capacities at Village- Sarora, Urla Industrial Area Plot No. 3 and 4, Tehsil - Raipur, Dist.- Raipur (Chhattisgarh) by M/s. Shivali Udyog (I) Ltd. in the following manner

➤ **MS Billet through Induction Furnace, CCM:**

Existing 12 MT X 2 Nos Induction Furnace with CCM will be augmented to 15 MT X 2 Nos and additional 15 MT X 1 Nos Induction furnace with 15 MT LRF will be implemented. Thus, after expansion Induction Furnaces will be 15 MT X 3 Nos. with CCM along with a 15 Ton LRF. Total of 157500 TPA MS Billets production facility will be possible through new induction furnaces.

➤ **Rerolled Steel Products through Rolling Mill:**

The company has existing rolling mill to produce 46000 TPA Rerolled Steel Products through hot charging. Now the total capacity of Rerolled Steel product after expansion of existing and proposed enhancement will be will be 180000 TPA out of which 126000 TPA rerolled product will be proposed by hot charging and remaining 54,000 TPA through existing billet reheating furnace.

The following capacities would require EC for expansion of the existing facilities:

TABLE 1: EXISTING AND PROPOSED CAPACITY DETAILS (IN TPA)

S. No.	Product	Existing		Proposed Addition		Proposed Capacity after expansion	
		Config-ration	Capacity	Configuration	Capacity	Configuration	Capacity
1	MS Ingot/ Billet	Induction Furnaces 12 MT X 2 Nos. with CCM	57600	Existing 12 MT X 2 Nos Induction Furnace with CCM will be augmented to 15 MT X 2 Nos and a additional 15 MT X 1 Nos Induction furnace with 15 MT LRF will be implemented	99,900	Induction Furnaces 15 MT X 3 Nos. with CCM along with a 15 Ton LRF	157500

2	Rerolled Steel product	Hot Charging based Rerolling Mill	46000	The existing rolling mill will be optimized to meet the additional requirement	80000	Rolling Mill of about 25 TPH	126000
		Billet Reheating Furnace based Rerolling Mill	54000	No change	NIL	Proposed to reduce production thru Billet Reheating Furnaces facility.	54000
	Total Rerolled Steel Production		100000	-	80000		180000

1.2 LOCATION OF THE PROJECT

The project is proposed on the existing land area of 3.43 Hectare, having Plot No. 3 and 4, at Urla Industrial Complex. The land is already acquired by company, and situated at Village- Sarora, Urla Industrial Area Plot No. 3 and 4, Tehsil - Raipur, Dist.- Raipur (Chhattisgarh). The nearest city is Raipur which is around 4.8 Km in South South West direction. Nearest airport is Swami Vivekanand International Airport, Raipur, which is around 18.0 km at South East direction. The nearest habitation is Sarora Village which is at 0.03 km SE direction from project site. The nearest roadway is NH30 – 2.51 Km/E Connecting NH30B – 6.03 Km/SE. The nearest railway station is Urkura Railway Station which is 4.33 Km in the East North East direction.

The details of environmental setting are given in **Table 2**.

1.3 EIA/EMP REPORT

In line with the approved ToR obtained from EAC (Industry –I), MoEF&CC, New Delhi, Environmental baseline studies were carried out during in post-Monsoon (15th Oct 2023 - 15th Jan 2024) for determining the status of ambient air quality, ambient noise levels, surface and groundwater quality, soil quality, status of flora, fauna and eco-sensitive areas and socio-economic status of the villages within 10 km radius study area from the project site (**Figure 1**). The observations of the studies are incorporated in the EIA/EMP report. Impacts of the proposed project activities during construction and operation stages were identified and duly addressed in the report.

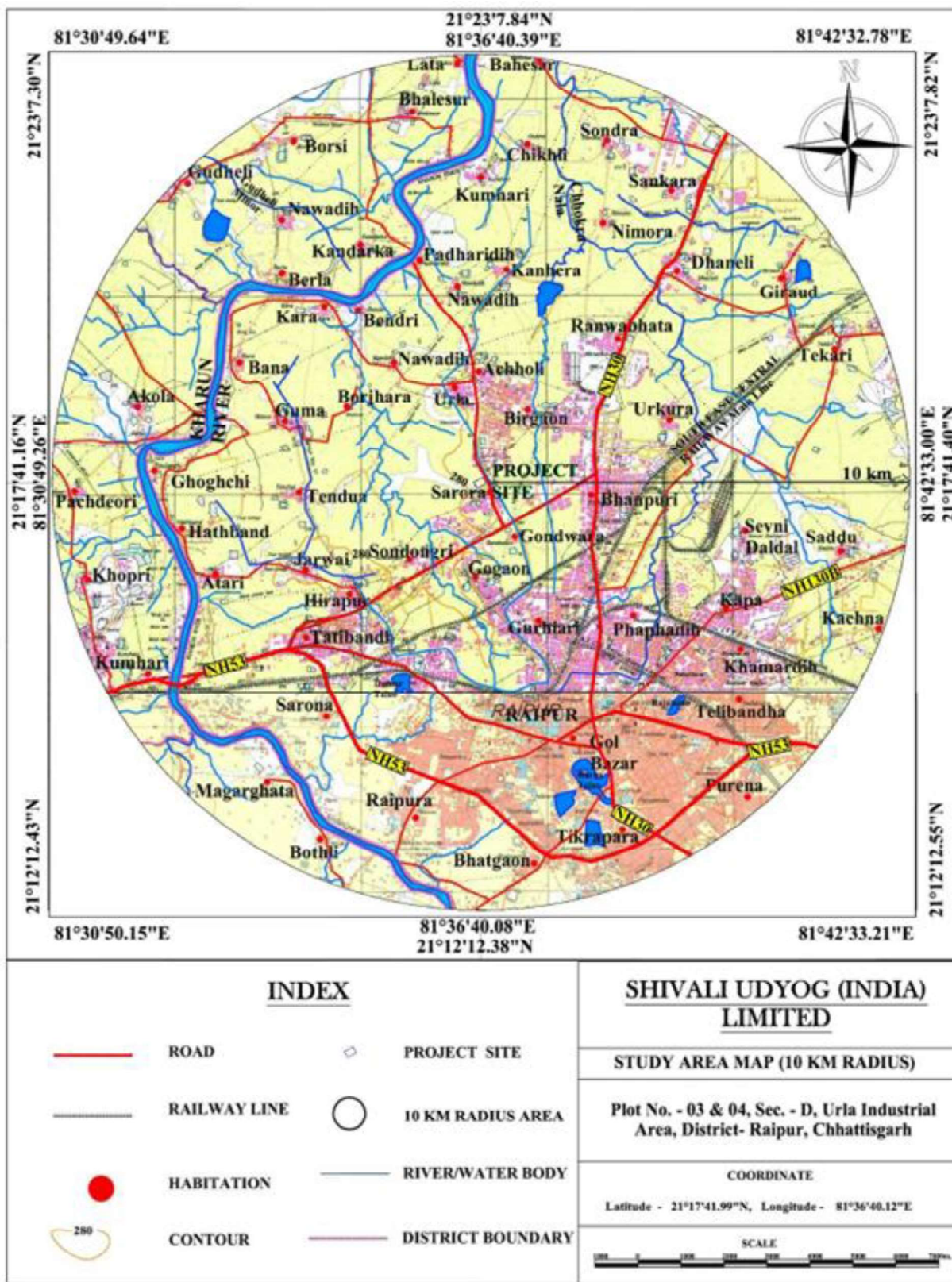


FIGURE 1: STUDY AREA (10 KM RADIAL DISTANCE)

TABLE 2 : DETAILS OF ENVIRONMENTAL SETTINGS

Sl.	Particulars	Details			
1.	Project Location	Urla Industrial Area, Plot No. 3 and 4 Tehsil - Raipur, District- Raipur State- Chhattisgarh			
2.	Latitude/Longitude	Points	Latitude	Longitude	
		1	21°17'41.27"N	81°36'34.49"E	
		2	21°17'44.79"N	81°36'41.46"E	
		3	21°17'40.40"N	81°36'43.97"E	
		4	21°17'37.10"N	81°36'37.10"E	
3.	Location covered in Toposheet No.	F44P11 (Old No. 64 G/11) and 64G/12			
4.	Nearest representative IMD Station	IMD Raipur-18 km/SE			
5.	Site elevation above Mean Sea Level	Project site located at 284 m (AMSL)			
6.	Nearest roadway	1.NH30-2.51km/E 2.NH53-5.6km/SW 3.NH130B-6.03km/SE			
7.	Nearest Railway Station	Urkura Railway Station- 4.33km/ENE			
8.	Nearest Air Port	Swami Vivekananda International Airport, Man Raipur -18.0 km/SE			
9.	Nearest village	Sarora – 0.03 Km, SE.			
10.	Nearest Port	Not in 10 KM radius study area			
11.	Distance from Sea Coast	Bay of Bengal – 410 km/SE			
12.	Nearest major city with 2,00,000 population	Raipur - 4.8 km/SSW			
13.	Nearest State/National Boundaries	Odisha - 89 km/ESE			
14.	Hills/Valleys	None within study area			
15.	Ecologically sensitive zone	None within study area			
16.	National Parks, Wildlife Sanctuaries, etc.	None within study area			
17.	Nearest Reserved / Protected forests	None within study area			
18.	Historical/Tourist places	Sr. No.	Name	Distance (Km)	Direction
		1	Banjari Mata Mandir	6.5	SSE
19.	Nearest Industries	Sr. No.	Name	Distance (Km)	Direction
		1	Bhilai Engineering Corporation Ltd.	0.05	NE
		2	Mahamaya Steel Industries Ltd.	0.44	N
		3	Shri Bajrang Alloys Ltd (Raipur)	0.16	SE
		4	SKA Steel & Power Ltd	0.40	E
		5	Nandan Steel	8.73	NNE
		6	Prime Ispat Limited	5.68	WNW

Sl.	Particulars	Details			
		7	Ispat India Limited	8.9	NE
		8	Heera Group of Industries	2.3	NNE
		9	Kesri Metal Ltd.	1.6	NNE
		10	Rotocast	1.58	NNE
		11	Raipur Forging Pvt. Ltd	1.4	NNE
20.	Nearest Water Bodies	Sr. No.	Name	Distance (Km)	Direction
		1	Karun River	6.2	W
		2	Chhokra Nala	5.10	ENE
		3	Dumar Talao	5.02	SW
		4	Burha Talao	6.85	SSE
		5	Raja Talao	6.7	SE
21.	Archaeological Sites	None			
22.	Religious Places	Sr. No.	Name	Distance (Km)	Direction
		1	Shitla Mandir Kara	5.14	NW
		2	Mahamaya Mandir	3.09	ESE
		3	Shitla Mata Mandir Kumhari	7.20	NNW
		4	Gurdwara Guru Nanak Sahib	5.07	NE
23.	Hospitals and Education Institutions (Sensitive Manmade Landuse)	HOSPITALS			
		Sr. No.	Name	Distance (Km)	Direction
		1	All India Institute of Medical Sciences, Raipur (AIIMS)	5	SW
		2	JNM Medical College, Raipur	5.44	SE
		3	Lifeworth Super Speciality Hospital	5.38	SSE
		4	Agrawal Ramkrishna Care Hospital	5.48	S
		EDUCATIONAL INSTITUTIONS			
		Sr. No.	Name	Distance (Km)	Direction
		1	Govt.Hr.sec.school Guma	4.15	WNW
		2	Shahid Nandkumar Patel Govt College	2.76	ENE
24.	Community Places	Sr. No.	Name	Distance (Km)	Direction
		1	Swami Vivekananda Athletic Stadium	4.1	S
		2	Shagun Marriage Hall	3.43	E
		3	Maruti Mangalam Marriage Hall	3.96	SE
25.	Seismic zone	Seismic zone – II (Seismically Stable)			
26.	CPA/SPA/ESA/ESZ, If Any	Urla Industrial Area is Critically Polluted area as per CEPI – 2018			

2.0 PROJECT DESCRIPTION

2.1 PROCESS DESCRIPTION

2.1.1 Manufacturing process of Steel Melting Shop with CCM and Hot Charging Rolling Mill Induction Furnaces

- The manufacturing process installed in the unit is one which is well established and proven technology presently being followed by majority of similar manufacturing units mostly in small or medium scale sector.
- The melting process involves taking sample of Sponge Iron & Pig Iron; Iron Powder and mild steel scrap, end cutting from rolling mills or scrap from user units is taken from raw material storage. This is than tested for its chemical composition and noted..
- Melting of steel along with other alloying element is accomplished in the crucible of coreless M.F. Induction Furnace.
- After completion of melting cycle of an hour the homogeneous molten mass is poured hydraulically into the ladle.

➤ **CCM**

- The ladle containing liquid steel is placed on the Continuous Casting Machine platform and continuous casting of hot billet is carried out in the same.
- In the CCM section hot billet shearing machines will be installed with each casting strand, so as to facilitate the cutting of billets to proper length for feeding in to the rolling mill.

2.1.2 Manufacturing process of rerolled steel through Billet heating furnace (Producer Gas based) Rolling Mill

- Cold Steel Billets received in the mill are cut to size; either by Gas Cutting or by automatic shearing machine
- The sized billets are then Pushed into Billet reheating furnace fired with coal hot producer gas.
- After the Billet is Red Hot then these are pushed out to rolling stands for re-rolling.
- Steel Pieces are rolled through all stands in order to get required shape of finished goods i.e., MS Channel, Structures and other rerolled product as finished product.

Producer Gas plant based on Coal: In Order to provide required thermal energy to Billet reheating furnace in Rolling Mill Two stage coal producer gas plant is being used for which a coal producer gas plant to gasifier about 2 to 2.5 ton per hour C grade coal used which would produce about 7000 NM3 to 8500 NM3 producer Gas per hour. 3.6-meter dia. into two PG units or one single PG unit of. to 5-meter dia. coal producer gas plant with hot cyclone. The TAR condensate collected from the Hot Cyclone and PG Pipe traps (Water Seals) would be collected and used in the BRH furnace.

2.1 LAND REQUIREMENT

The project is proposed on the existing land area of 3.43 Hectare, having Plot No. 3 and 4, at Urla Industrial Complex, out of which about 40% (1.38 Hectare) land will be developed as Green Belt.

The existing land is already having industrial use and the steel rerolling mills is already installed and operational at site, for which this expansion project is being proposed. No additional land required to be acquired.

TABLE 3 : AREA STATEMENT

Particulars	Area (existing)	Area after proposed expansion	In %
	(Area in Ha.)		
Built up area	1.73	1.73	50 %

Area under Road and Paved	0.20	0.20	6 %
Green Belt Area	1.38	1.38	40 %
Open Area	0.12	0.12	3 %
Total	3.43	3.43	100 %

2.2 RAW MATERIALS REQUIREMENT, SOURCE & MODE OF TRANSPORT

Availability of raw material is abundant in a range of distance within 50 km to 250 km area from project site. The details of raw material requirement are given in Table 2.4.

TABLE 4 :RAW MATERIAL REQUIREMENT AND MODE OF TRANSPORTATION

Particulars	For existing (as per EC)	After proposed capacity expansion	Source	Distance	Mode of Transportation
For Induction Furnace (Steel Melting Shop)/ Hot Charging based Steel Rolled Product					
Sponge Iron	54720.00	150000	Local market	50 KM	Road through covered vehicles
CI / Pig Iron Heavy Scrap	8640.00	32308	Internal/ Local market	50 KM	Road through covered vehicles
Ferro Alloys & Aluminum	576.00	1616	Internal/ Local market	50 KM	Road through covered vehicles
Ramming Mass and Refractory lining	86.00	236	Internal/ Local market	350 KM	Road through covered vehicles
Consumable including oil and grease lubrications	-	158	Local market	100 KM	Road through covered vehicles
Calcined Lime for LRF 50KGS/Ton	-	7875	Internal/ Local market	350 KM	Road through covered vehicles
Flourospar	-	1575	Internal/ Local market	700 KM	Road through covered vehicles
Electrode for LRF	-	315	Internal/ Local market	50 KM	Road through covered vehicles
Met Coke	-	315	Internal/ Local market	700 KM	Road through covered vehicles
LDO for Laddle Heating	-	315	Internal/ Local market	100 KM	Road through covered Tanker
Total	64022.00	194713			

Particulars	For existing (as per EC)	After proposed capacity expansion	Source	Distance	Mode of Transportation
For Induction Furnace (Steel Melting Shop)/ Hot Charging based Steel Rolled Product					
Billet Reheating Furnace					
Hot Billet Available from own Induction Furnace	48960	126500	Internal Transfer	-	Conveyor
Cold Billet from Own Induction Furnace	8640	31500	Internal Transfer	-	Road
Cold Billet from Market	48783	36900	Local Market	50	Road through covered vehicles
Total::	106383	194900			

2.3.1 Solid and Hazardous waste generation

The total estimated solid waste generation (including existing and proposed expansion) will be **44818 TPA** and 3 KLA Hazardous Waste in the form of Waste oil/ used oil. The details of solid waste generation are presented in **Table 5** and hazardous waste generation details are presented in **Table 6**.

TABLE 5 : SOLID AND HAZARDOUS WASTE GENERATION AND ITS DISPOSAL

Name of Waste generated	For existing	For proposed expansion	Proposed Disposal Plan
Slag from Induction Furnace	82100	19500	After recovery of metal used for Road making and Land filing/ given to metal recovery unit
LRF Slag	0	9450	After recovery of metal used for Road making and Land filing/ given to metal recovery unit
Refractory & Ramming Mass waste (IF)	43	118	Reused then Sold to authorized recyclers
Mill Scale (SMS)	3850	7200	Captive use in Ferro Alloys Plants
Miss Rolls and End cuts	3850	7200	
Coal Ash	2025	1350	Given to Fly Ash Brick making units
Total	91868	44818	

TABLE 6 : HAZARDOUS WASTE GENERATION

Type of Hazardous Waste	H. W. Category	Quantity	Disposal
Waste Oil/Used Oil	5.1(as per HWM Schedule I)	3 KL/Annum	Will be given to authorized recycler having Authorization from competent authority.
Used Lead Acid batteries	17 (as per HWM Schedule IV)	—	

2.3 WATER REQUIREMENT & SOURCE

Existing Water requirement is 81 m³/day, Water requirement is being obtained from the surface water source from CSIDC (Industrial Water Supply network.). Total water requirement after expansion is estimated as 185 m³/day out of which 150 m³/day of fresh water requirement will be obtained from the CSIDC and the remaining requirement of 35 m³/day will be met from recycle water. Closed circuit cooling system will be adopted. Industrial waste water (38 KLD) will be treated in ETP (Cap. 50 KLD). Treated water will be used in process.

Domestic waste water generation (6 KLD) will be treated in STP (10 KLD). Treated water will be used for greenbelt development

No Groundwater withdrawal envisaged in the project, water will be source from CG Ispat Bhumi Ltd. industrial water supply network. Closed Circuit cooling system will be adopted to minimize the fresh water requirement

2.4 POWER REQUIREMENT & SUPPLY

Total power requirement (existing and proposed expansion) will be 21.6 MW and all the power will be sourced through State Grid (CSPDCL). In addition, existing plant already has kVA and 1 no of kVA DG sets is proposed which will be continued to be used as emergency backup.

2.5 MANPOWER REQUIREMENT

The industry will provide employment to about 284 (181 existing + 103 additional) persons. Total manpower requirement is given in **Table 7**.

TABLE 7 : TOTAL MANPOWER REQUIREMENT FOR THE PROPOSED EXPANSION PROJECT

Particulars	Existing	Proposed additional	Total
Administrative Staff	18	10	28
Production Staff	163	93	256
Total :	181	103	284

2.6 FIRE FIGHTING FACILITIES

In order to fight with emergency situation due to fire in plant premises, firefighting facilities are provided in various units of the plant. In addition to this, all plant units, office buildings, laboratories, etc. will be provided with adequate number of portable fire extinguishers to be used as first aid fire appliances.

2.7 PROJECT COST

The total project cost of the project is **4079.94** Lakhs (which includes Existing - Rs **3575.94** Lakhs + Rs. **504.00** Lakhs).

3.0 EXISTING ENVIRONMENTAL SCENARIO

3.1 BASELINE ENVIRONMENTAL STUDIES

Baseline environmental studies were conducted at project site along with 10 km radial distance from the project site. The baseline environmental quality data for various components of environment, viz. Air, Noise, Water, and Land were monitored during **Post-monsoon (15th October 2023 – 15th January 2024)** **METEOROLOGY & AMBIENT AIR QUALITY**

Summary of the Meteorological Data Generated at Site (Post-monsoon (15th October 2023 – 15th January 2024)

Predominant Wind Direction	Period: 15 th Mar 2023 – 15 th June 2023
First Predominant Wind Direction	ENE (19.05 %)
Second Predominant Wind Direction	E (18.65 %)
Calm conditions (%)	1.03
Avg. Wind Speed (m/s)	2.10

The status of ambient air quality within the study area was monitored for pre-monsoon season at 8 locations. All these 8 sampling locations were selected based on the meteorological conditions considering upwind and downwind, cross wind directions and reference point. The levels of Respirable Particulate Matter (PM₁₀), Fine Particulates (PM_{2.5}), Sulphur Dioxide (SO₂), Oxides of Nitrogen (NO_x) and carbon monoxide (CO), Ammonia, Ozone, Benzene and BAP were monitored. The details of Ambient Air Quality Monitoring Results are summarized and given in **Table 6**.

TABLE 8:SUMMARY OF AMBIENT AIR QUALITY MONITORING RESULTS

Sr. No.	Location		PM ₁₀	PM _{2.5}	SO ₂	NO ₂	CO	Ozone	NH ₃
			µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	µg/m ³
1	Project Site	Min	67.5	30.4	11.9	22.5	0.356	8.1	7.9
		Max	111.7	43.1	18.2	35.2	0.767	14.3	10.9
		Avg	87.8	36.2	14.5	28.3	0.512	11.1	9.3
		98 th	107.8	42.0	17.8	34.5	0.757	14.1	10.8
2	Sorora	Min	68.2	28.3	11.4	20.7	0.330	7.7	5.9
		Max	93.4	39.6	16.8	29.5	0.710	13.8	10.8
		Avg	81.8	34.4	13.8	26.2	0.474	10.6	8.1
		98 th	92.5	39.2	16.4	29.5	0.701	13.8	10.6
3	Sondongari	Min	73.7	35.4	12.5	19.5	0.531	7.9	7.1
		Max	107.2	50.2	19.1	30.5	0.730	12.4	10.2
		Avg	90.4	42.1	15.2	24.6	0.636	9.7	8.6
		98 th	105.9	49.0	18.6	29.9	0.725	12.3	10.0
4	Jarwai	Min	71.7	28.1	12.8	21.6	0.346	9.6	8.7
		Max	92.1	42.6	19.9	29.4	0.475	14.8	13.5
		Avg	82.5	35.2	16.3	25.3	0.414	12.5	10.6
		98 th	92.0	42.0	19.7	29.3	0.472	14.7	13.2
5	Birgaon	Min	68.4	24.5	10.3	19.7	0.347	6.5	5.2
		Max	89.2	36.7	14.8	29.9	0.522	10.7	9.8
		Avg	78.8	29.6	12.4	25.1	0.424	9.0	7.5
		98 th	88.5	35.7	14.3	29.3	0.503	10.6	9.7
6	Urkura	Min	67.7	20.1	11.5	19.1	0.350	7.5	7.6
		Max	89.7	33.9	15.1	28.1	0.481	10.7	11.3
		Avg	80.8	28.6	13.5	23.3	0.406	8.9	9.7
		98 th	89.1	33.3	15.1	27.5	0.477	10.6	11.2
7	Urla	Min	75.6	26.7	12.5	22.3	0.415	6.9	7.6
		Max	110.6	46.1	16.4	32.8	0.562	10.2	11.1
		Avg	86.9	35.2	14.3	27.2	0.477	8.6	9.1
		98 th	107.3	44.2	16.3	32.1	0.557	10.1	10.9
8	Bhanpuri	Min	64.9	26.9	10.9	25.3	0.366	6.7	7.1
		Max	81.5	37.9	16.1	34.9	0.477	9.8	11.8
		Avg	74.0	32.6	13.3	29.0	0.415	8.3	8.9
		98 th	81.5	37.5	15.7	33.8	0.470	9.6	11.2
CPCB Standards			100 (24hr)	60 (24hr)	80 (24hr)	80 (24hr)	2 (8hrs)	100 (8hr)	400 (24hr)

From the above results, it is observed that the ambient air quality at all the monitoring locations was within the permissible limits specified by CPCB.

3.3 AMBIENT NOISE LEVELS

Site of an area was selected to meets the manmade land use pattern as prescribed in the standard e.g., Industrial, Commercial, Residential and Silence Zone. Eight (8) locations were identified based on the activities in the village area, traffic and sensitive areas like hospitals and schools. The noise monitoring locations are shown in Figure 3.3.1 and details are given in Table 3.3.1.

TABLE 9:SUMMARY OF AMBIENT NOISE LEVEL MONITORING RESULTS

Sr. No.	Monitoring Locations	Equivalent Noise Level	
		Leq Day	Leq Night
Residential Area			
1.	Sarora	54.2	43.7
2.	Bhanpuri	53.2	40.6
3.	Sondongri	50.6	42.5
CPCB Standards dB(A)		55.0	45.0
Commercial Area			
4.	Gondwara	59.6	47.5
5.	Tendua	61.7	54.3
CPCB Standards dB(A)		65.0	55.0
Silence Zone			
6.	Birgaon	49.7	39.0
CPCB Standards dB(A)		50.0	40.0
Industrial Area			
7.	Project Site	65.1	58.7
8.	Urla	65.3	52.6
CPCB Standards dB(A)		75.0	70.0

Source: Field monitoring and analysis by Anacon Laboratories Pvt. Ltd., Nagpur

3.4 SURFACE AND GROUND WATER RESOURCES & QUALITY

3.4.1 Regional Geology

➤ Site Specific Geology

The study area lies in Raipur District, Chhattisgarh. Sedimentary rock formations can be seen regionally belonging to Chhattisgarh Super group of Proterozoic Age. Generalized stratigraphic sequence of formation in and around the study area

3.4.2 Hydrogeology and Aquifer Systems

The hard rock such as limestone, shale, dolomite and sandstone belong to Chhattisgarh Super group of Proterozoic age. Ground water occurs in phreatic condition in the weathered mantle of these rocks, which extends up to a depth of 25 mbgl.

The caverns formed in limestone and dolomites holds good amount of ground water which are limited mostly to around 80 meters. Limestone and dolomite form the main aquifer system in the study area. Charmuria limestone and Gunderdehi shale are not very good yielding. Cavernous limestone of Chandi formation forms the good aquifer in the district. The alluvium blanket along the Kharun rivers also form good repository of ground water.

Pre-monsoon water level: 2.7 to 15 mbgl

Post- monsoon water level: 0.5 to 7.8 mbgl

3.4.4 Water Quality

A. Surface Water Quality

Parameters	Unit	Baseline Monitoring Period (15 th Oct, 2023 – 15 th Jan, 2024)	IS 2296:1992; Class C (Drinking water source after conventional treatment and disinfection)
		Range	
pH	-	7.65 – 7.91	No relaxation (6.0 to 9.0)
EC	µs/cm	493.29 – 967.91	-
TDS	mg/l	327 – 563	1500
Total hardness	mg/l	145 – 257.20	-
DO	mg/l	5.4 – 6.1	4.0
BOD	mg/l	4.98 – 13.88	3.0
COD	mg/l	14.51 – 48.89	-
Chloride	mg/l	82.29 – 168.19	600
Sulphate	mg/l	19.07 – 43.65	400
Nitrate	mg/l	7.17 – 19.46	50
Fluoride	mg/l	0.13 – 0.37	1.5
Iron	mg/l	0.13 – 0.36	0.5
Cadmium	mg/l	BDL (DL - 0.001)	0.01
Arsenic	mg/l	BDL (DL - 0.01)	0.2
Zinc	mg/l	0.08 – 0.26	15
Lead	mg/l	BDL (DL - 0.001)	0.1
Chromium	mg/l	BDL (DL - 0.03)	0.05
Total Coliform	MPN/100 ml	43 – 253	5,000

B. Groundwater Quality

Parameters	Unit	Baseline Monitoring Period (15 th Mar, 2023 – 15 th June, 2023)	Permissible Limit
		Range	
pH	-	6.91 – 7.37	No relaxation (6.5 to 8.5)
EC	µs/cm	605.28 – 1023.75	-
TDS	mg/l	388 – 585	2000
Total hardness	mg/l	196.41 – 319.58	600
Chloride	mg/l	81.75 – 140.19	1000
Sulphate	mg/l	15.55 – 91.99	400
Nitrate	mg/l	5.15 – 19.26	No relaxation (45)
Fluoride	mg/l	0.12 – 0.21	1.5
Iron	mg/l	0.11 – 0.41	No relaxation (1.0)
Cadmium	mg/l	BDL (DL - 0.001)	No relaxation (0.003)
Arsenic	mg/l	BDL (DL - 0.01)	No relaxation (0.01)
Zinc	mg/l	0.07 – 0.21	15
Lead	mg/l	BDL (DL - 0.001)	No relaxation (0.01)
Chromium	mg/l	BDL (DL - 0.03)	No relaxation (0.05)

Location wise Water Quality Assessment

Sr. No.	Locations	WQI	Quality	Remark
1	Project Site	65.50	Good	Water quality assessed based upon above physico-chemical parameters and all the samples are physico-chemically good.
2	Sarora	65.62	Good	
3	Sondongari	66.82	Good	
4	Jarwai	64.87	Good	
5	Birgaon	67.57	Good	
6	Urkura	57.10	Good	
7	Urla	53.05	Good	
8	Bhanpuri	60.28	Good	

C. Bacteriological Characteristics

Coliform group of organisms are indicators of fecal contamination in water. All surface water samples were found to be bacteriologically contaminated. Presence of total coliforms in surface water indicates that a contamination pathway exists between any source of bacteria (septic system, animal waste, etc.) and the surface water stream. A defective well can often be the cause when coliform bacteria are found in well water. For surface water, treatment followed by chlorination or disinfection treatment is needed before use for domestic purpose. Groundwater samples were not found to be bacteriologically contaminated.

3.5 LAND USE LAND COVER CLASSIFICATION

The land-use & land cover map of the 10 km radial study area from the periphery of project site has been prepared using Resource SAT-1 (IRS-P6), sensor-LISS-3 having 23.5m spatial resolution and date of pass 20th May 2023 satellite image with reference to Google Earth data. In order to strengthen the baseline information on existing land use pattern, the following data covering 10 km radius is approximate about 81°30'45.93"E to 81°42'29.79"E longitude and 21°12'13.28"N to 21°23'5.05"N latitude and elevation 249-341 meters are used as per the project site confined within that area

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

TABLE 10 : LU/LC CLASSIFICATION SYSTEM

LU/LC Classification System				
Sr. No.	Level-I	Level-II	Area (Sq. Km ²)	Percentage (%)
1	Built-up land	Settlement	104.97	32.65
		Industrial Settlement	8.74	2.72
		Road Infrastructure	4.64	1.44
		Railway Line	1.96	0.61
2	Agricultural Land/ Crop Land	Single Crop	104.52	32.51
		Double Crop	62.02	19.29
3	Scrubs/Wastelands	Open Scrub	8.52	2.65
		Wasteland	8.41	2.62
		Fairly Dense Scrubs	0.72	0.22
4	Waterbodies	River/Nala/Stream/Canal	5.84	1.82
		Pond/Lake	10.72	3.33

5	Mines Area	Stone Quarry	0.46	0.14
		Total	321.52	100

3.6 SOIL QUALITY

The project site and its terrain consist of flat to moderately steep slopes. The terrain is characterized by forest, agricultural land, land, various settlements, waterbody and open scrub/wasteland. It is also observed that the open scrub area and barren land are dominant in North and North West Portion of the study area. The following observations from the Soil Quality reports are as follows:

Parameters	Unit	Results	Fertility Status
pH	-	6.05 – 6.96	Slightly acidic to neutral
Organic Carbon	%	0.55 – 1.27	Average sufficient to more than sufficient
Nitrogen	Kg/hect	128.71 – 301.60	Good to sufficient
Phosphorus	Kg/hect	40.67 – 89.67	Medium to sufficient
Potassium	Kg/hect	246.11 – 423.11	Average to more than sufficient
Sodium Absorption Ratio	-	1.31 – 3.92	Excellent (Little or No Hazard)

3.7 BIOLOGICAL ENVIRONMENT

Floral composition in Study Area:

Total 110 plant species were enlisted within the study site out of which habitat wise details are given as follows: Trees: 62, Shrubs: 23, Herbs: 13, Climbers: 7, Grasses & Bamboos: 4, and Parasite: 1 species observed in the study area.

Endemic Plants of the Study Area

Among recorded plant species none were assigned the status of endemic plant of this region.

RET (Rare, Endangered and Threatened species) Status

According to IUCN Status report 2013 out of total 110 plant species identified within study area among the observed species *Chloroxylon swietenia* which is Vulnerable (VU) species as per IUCN RED list. The other identified plant species in the study area belongs to least concern (LC), Data Deficient (DD) and Data not available (NA), as per IUCN status. Thus, none of reported species in study area belongs to Rare, Endangered or Threatened category.

Fauna Details:

- **As per IUCN RED (2013) List**

Among the reported animals, all are categorized under least concern category as per IUCN list.

- **As per Indian Wild Life (Protection) Act, 1972**

Among mammals; Jackal (*Canis aureus*), Common Langur (*Semnopithecus entellus*), Common Mongoose (*Herpestes edwardsi*), Indian fox (*Vulpes bengalensis*), are protected in Schedule-II. whereas, Black-naped hare (*Lepus nigricollis*), Palm squirrel (*Funambulus pinnati*) protected in Schedule-IV and Rats protected in Schedule-V.

Among the Herpetofauna, Indian Cobra (*Naja naja*), and Common Rat Snake (*Ptyas mucosa*) were

provided protection as per Schedule-II of Wild life protection act, (1972) and Common Indian Krait (*Bungarus caeruleus*), Indian Toad (*Bufo parietalis*) were provided as per Schedule – IV of Wildlife protection act 1972 and as amended.

Among the Avifauna: All birds were observed in the study are included in Schedule-IV as per wildlife protection act.

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 collection from census 2011 & District Census hand book 2011. Summary of the socio-economic status of the study area is given in **Table 12**. Details regarding education and infrastructure facilities 2011 are presented in **Table 11** respectively

TABLE 11 : SUMMARY OF SOCIO-ECONOMIC ENVIRONMENT OF VILLAGES WITHIN 10 KM RADIUS AREA

Zones	Total household	Total Population	Total Male	Total Female	Total 0-6 child	Total SC	Total ST	Population Literate	Population Illiterate
0-2 km	4339	20680	10724	9956	3271	2916	1434	13903	6777
2-5km	8688	42658	21682	20976	5961	4330	2009	28993	13665
5-10km	13402	65825	33479	32346	10315	10676	3814	40952	24873
10km	26429	129163	65885	63278	19547	17922	7257	83848	45315
In %	4.89		51.01	48.99	15.13	13.88	5.62	64.92	35.08

Source: Primary census abstract 2011, District Raipur and Durg, State Chhattisgarh.

TABLE 12:IN PERCENTAGE DETAILS REGARDING INFRASTRUCTURE FACILITIES WITHIN 10 KM RADIUS STUDY AREA

Infrastructure facilities	Availability (In percentage) As per year 2011, Census Dist. Raipur Chhattisgarh
Educational Facilities	100
Drinking water	100
Road	100
Power	100
Communication	86.79
Transportation	92.45
Govt. PHC & SC	35.84
Bank & Society	24.52
Drainage	41.50
Recreation	90.56

Source: Primary census abstract 2011, District Raipur and Durg, State Chhattisgarh.

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 Air Environment

Impact on Air Environment

The impact on air environment mainly depends on magnitude of operation and threshold limit of the project. The source of emission will be mainly in form of fugitive emission and point source.

The mathematical **Model AERMOD** was used for predicting the GLCs, which is entirely in line with the requirement of Central Pollution Control Board, New Delhi. In 1991, the U.S. Environmental Protection Agency (EPA) in conjunction with the American Meteorological Society (AMS) formed the AERMOD. AERMOD is a steady-state plume model aimed at short-range (up to 50 km) dispersion from stationary industrial-type sources.

The impact of a source or group of sources on air quality is evaluated using mathematical models. The widely accepted interpretation models simulate the relationships between air pollutant emissions and its impact on air quality. For the present study, this model is used for the prediction of maximum ground level concentrations.

Presentation of Results

The model simulations are done for the air pollutants due to existing and proposed project. Ground level concentration has been carried out using hourly meteorological data for various scenarios as

PREDICTED INCREMENTAL GROUND LEVEL CONCENTRATIONS

Pollutant	Incremental Concentration (µg/m ³)	Distance (m)	Direction
PM ₁₀	1.39	500	SW
PM _{2.5}	0.50		
SO ₂	0		
NO _x	0		

Details of Air Pollution Control System/Mitigation measures

Facilities	Air Pollution Control equipment
Induction Furnace	Movable suction hood along with Bag Filters with a common chimney.
Reheating Furnace	Waste heat recuperator with Bag Filters with a Chimney

Additional Measures to reduce/control pollution control

- Roads will be frequently sprinkled with water.
- Most of the materials like Sponge Iron, pig iron will be stored under covered shed.
- In case of storage of Sponge Iron, pig iron in open, it will be covered by tarpaulins to prevent spread of dust from it during transportation.
- Regular sweeping of road by using vacuum cleaner will be carried out
- Regular maintenance of vehicles and machineries will be carried out in order to control emissions.
- Green belt development will be taken up all along the roads, plant premises etc.
- Protective appliances will be provided to all the workers exposed in dusty atmosphere.
- Avoiding overloading of the trucks.

- Workers will be equipped with all personal protective devices like Gum Boot; hand gloves; Safety helmet; Safety goggles, earplugs at work place.
- By controlling the speed of the truck.
- Proper gradient of roads to reduce cumulative noise.
- Transportation of materials will be limited to day hours only.
- Periodical maintenance of process machinery.

4.2 Noise Impacts

There will be noise generation from earth moving equipment and material handling traffic. The major sources of noise during the construction phase are vehicular traffic, construction equipment like dozers, scrapers, concrete mixers, cranes, pumps, compressors, pneumatic tools, saws, vibrators etc. The operation of these equipments will generate noise ranging between 85-90 dB (A) near the source. These noise levels will be generated within the plant boundary and will be temporary in nature.

The construction activity will be carried out mostly during daytime. The construction equipment will undergo preventive maintenance test at routine intervals. Any machinery or equipment generating excessive noise levels (above 90 dBA) will be taken out of service and replaced by new ones. The noise generation will be confined within the surrounding areas of construction site. Greenbelt will be developed from construction stage hence its impact will be minimum.

Embedded Control Measures	Assessment	Mitigation measures	Recidual Impact
<ul style="list-style-type: none"> • Accoustic enclosure to DG Set • Green belt will be developed within 40 % within plant premises 	Ambient noise monitoring in study area as well as in work place Frequency: Monthly (day time and night time). Sound pressure level (Leq)	As per OSHA Stipulates noise level up to 90 dB (A) are acceptable for 8 hrs working shift per day.	<ul style="list-style-type: none"> • The nearest human settlement Sarora Village is 0.03 KM away from project site in South-East Direction and resultant noise level at this village are 54.6 dB(A) & 47.0 dB(A) at day & night time respectively. Thus, thick green belt 20 M will be developed towards South-East direction.

4.3 Impact on Water Environment

The proposed expansion may have some impact on the water environment. The impact may be on the source of water in the form of depletion of water resources of the area and in the form of deterioration of quality of natural water resources due to discharge of plant effluent

➤ **Mitigation measures**

- Adequate pollution control Equipment as per the CPCB Guidelines should be adopted and proper maintenance of industrial and pollution control equipment should be done to ensure minimum pollution.
- The efficiency of the pollution control equipment should be checked periodically to comply with the emission standards provided by CPCB and minimize the pollution levels.
- Ensure that roads are properly signed, vehicles are well maintained and drivers are well trained and safety conscious.

- A Safety climate should be prepared and every worker should be trained with all safety equipment. All health and safety measures should be adopted by the company to ensure the safety of the workers and the surrounding society.
- Project proponent should take appropriate steps to keep environment clean and green belts development/ Plantation along with the internal Road.
- Transportation of hazardous waste should be done as per CPCB Guidelines. The heavy trucks are covered to prevent spillage or dusting. The drivers should be imparted training.

4.4 Impact on Biological Environment

Ecology & Biodiversity: Aspect- Impact identification and mitigation measures suggestion for proposed expansion project

S. No.	Project Aspects / Activities	Recidual Impacts	Mitigation Measures Suggested
1.	Transportation, unloading & storage of Material and Movement of vehicle inside plant, Dust and sound generation due to proposed expansion activities	Impact on nearby vegetation and avifauna in a scale of 3 out of 5 due to proposed expansion activity.	Thick greenbelt will be developed along periphery of the project site in order to provide buffer between plant fugitive emission and nearest vegetation.
2.	Gaseous emission from Stack, Movement of vehicle inside plant and Raw material & finished product transportation, Product manufacturing	Decline in photosynthetic activities, Stomatal index may be minimized, Crop yield may be reduced.	Air quality modelling outputs study revealed that, the resultant concentrations of particulate matter, are well within the prescribed limits and no addition of sulphur di-oxide and oxides of nitrogen in expansion project. is proposed at total 3.43 hectare land out of which Green belt is being developed within 1.38 (40%) within plant premises. Indigenous species for plantation is recommended along the approach road and plantation under CER. Thus, the impact due to proposed expansion project would be minimal as project activity will be carried out within the plant boundary limit with proper control measures.

4.5 Impact on Socio-economic environment

➤ **Positive Impacts**

- Benefits to the nation and GDP due to steel production and Business development. Nation also gets benefitted with taxes.
- Creation of indirect employment through the local community establishing small shops like tea stalls, supply of intermediate raw materials, repair outlets, hardware stores garages etc.
- Economic growth due to development of area and increase in quality of life.
- Improvement in green cover due to the plantation of trees in the study area, also are leading to a decrease in environmental pollution.
- Improvement in social and infrastructural development by the industries as a part of CER and EMP.

➤ **Negative Impacts.**

- Health of the surrounding population may get affected due to emission of gases in the atmosphere. Production of Sponge Iron and operation of Induction furnace can cause release of pollutants in the Air Environment. Other components of Environment like animals, birds and trees may also get affected.
- The increase in vehicles due to the proposed expansion may lead to extra pressure on the existing traffic. Heavy vehicle movement lead to dispersion of dust particles which affects the health of the workers and Local Peoples. Trucks, tankers, and other vehicles may cause additional air pollution to the surrounding areas. The effects may be more prominent in nearby villages.
- Possibilities of Hazards and accident which may cause harm to the workers working or loss of life of the workers.
- Generation of Solid and Hazardous waste will be there, if the waste is not managed properly, it may cause contamination of the area, environment and health of the nearby population.
- If influx of workers from outside areas, then there may an increased pressure on residential accommodation the neighborhood.

➤ **Mitigation Measures**

In order to mitigate the adverse impact likely to arise in social, cultural and economic aspects in the surrounding region due to the proposed expansion project and improvement in quality-of-life following mitigation measures should be adopted:

- Adequate pollution control Equipment as per the CPCB Guidelines should be adopted and proper maintenance of industrial and pollution control equipment should be done to ensure minimum pollution.
- The efficiency of the pollution control equipment should be checked periodically to comply with the emission standards provided by CPCB and minimize the pollution levels.
- Ensure that roads are properly signed, vehicles are well maintained and drivers are well trained and safety conscious.
- A Safety climate should be prepared and every worker should be trained with all safety equipment. All health and safety measures should be adopted by the company to ensure the safety of the workers and the surrounding society.
- Project proponent should take appropriate steps to keep environment clean and Green belts development/ Plantation along with the internal Road.
- Transportation of hazardous waste should be done as per CPCB Guidelines. The heavy trucks are covered to prevent spillage or dusting. The drivers should be imparted training.

5.0 ANALYSIS OF ALTERNATIVES (SITE AND TECHNOLOGY)

5.1 Site Selection

The proposal is for a Brownfield project for the expansion of their facilities for production of MS Billets, Hot-rolled Steel Rerolled products, along with existing Reheating Furnace based Rerolling Mill unit within the existing premises of M/s. SUIL which is having prior environmental clearance. Since the Project is a brownfield project no site alternative has been considered. The additional induction furnaces will be implemented within the existing shade.

5.2 Selection of Alternative Technology

The aspects of the project are dealing with the study of alternative technology in brief involved in each of the products and choice of the technology based on environmental applicability, technical and financial viability.

6.0 ENVIRONMENTAL MONITORING PROGRAM

An Environmental Management Cell (EMC) will be established for the proposed project under the control of by General Manager (Plant Head) with a direct reporting to Board of Directors.

The company has proposed to set up its own Environment Monitoring lab as it is evident with the investment of about Rs 15 lakhs towards environment monitoring testing land. This facility will be created along with the gradual implementation of the project.

In addition to the above as the proposed project comes into operation, NABL/MoEFCC accredited lab (Third party) will engage to monitor all the environmental components as per CPCB/CECB norms.

7.0 ADDITIONAL STUDIES

7.1 PUBLIC CONSULTATION

The Draft EIA-EMP report for expansion of production facility of Induction, CCM and Hot Charging based steel Rolling Mill facility at Village- Sarora, Urla Industrial Area Plot No. 3 and 4, Tehsil - Raipur, Dist.- Raipur (Chhattisgarh) is prepared as per the TOR issued by EAC(Industry-I), MoEF&CC, New Delhi and the report is submitted for public consultation process as per the provisions of EIA Notification 2006 and amendments thereof.

After completing the public consultation process, the points raised and commitment of project proponent during the public hearing will be incorporated in the final EIA-EMP report for final submission to Environmental Clearance.

7.2 RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

Hazard analysis involves the identification and quantification of the various hazards (unsafe conditions) that exist in the project site. Industrial process and activities cause hazards. There may be possible hazards to human beings, flora-fauna, building structure and the environment. Extreme care is essential in handling all of them in various stages of manufacturing viz. processing, treatment, transport etc. On the other hand, risk analysis deals with the identification and quantification of risks occurring due to the plant equipment and personnel exposed, due to accident resulting from the hazards in the plant.

The main objective of the risk assessment study is to determine damage due to major hazards having damage potential to life and property and provide a scientific basis to assess safety level of the facility. The secondary objective is to identify major risk in manufacturing process, operation, occupation and provide control through assessment and also to prepare on-site, off site plans to control hazards.

Risk analysis (RA) provides a numerical measure of the risk that a particular facility causes to the public. It begins with the identification of potential hazardous events and determination of impact of each event. The consequences of each event are then calculated for numerous combinations of weather conditions and wind direction. These consequences predications are combined to provide numerical measures of the risk for entire facility.

8.0 PROJECT BENEFITS

Proposed Social Welfare Arrangement

M/s. Shivali Udyog (I) Ltd. also support social welfare activities under CSR obligation under companies act.

The Social welfare/CSR activities will aim at strengthening the bond between the project authorities and the local population in the vicinity of project area. In line with CSR policy, M/s SUIL is being and will carry community welfare activities in the following areas:

- Community development
- Health & medical care
- Roads
- Education
- Drainage and sanitation
- Drinking water supply occasionally in the event of water scarcity through tankers, etc.
- The project benefits also entail revenue earnings to national and state exchequer through Gross GST (Estimated Rs 6.23 Crores GST), road tax, income by registration of trucks & trailers, income tax, corporate tax, etc.
- Fully compliance of Corporate Responsibility for Environmental Protection (CREP) for steel industry.
- Thus, result in –
 - ✓ Periodic Monitoring Low emissions,
 - ✓ Water conservation, recycle of treated wastewater,
 - ✓ Solid waste management
 - ✓ Thereby protection of environment and also result in low cost of production
 - ✓ Hot Charging based steel reolling will also result in fuel emission avoidance of almost 27645 t CO₂ per annum.

9.0 ENVIRONMENTAL MANAGEMENT PLAN

An Environmental Management Plan comprising following set of mitigation, management, monitoring and institutional measures to be taken during implementation and operation of the project, to eliminate adverse environmental impacts or reduce them to acceptable levels.

- Overall conservation of environment.
- Minimization of natural resources and water.
- Ensure effective operation of all control measures.
- Monitoring of cumulative and longtime impacts.
- Ensure effective operation of all control measures.
- Control of waste generation and pollution.

The total project cost of the project is Rs. 2690.00 Lakhs (which includes Existing - Rs. 1190 Lakhs + proposed - Rs. 1500 Lakhs). Capital cost of EMP in the project will be Rs 361 Lakhs (Existing Cost Rs. 177 Lakhs and Proposed Rs. 184 Lakhs) and recurring cost will be Rs. 8.5 Lakhs.

10.0 CONCLUSION

The proposed project of M/s. Shivali Udyog (I) Ltd. will be beneficial for the overall development of the nearby villages. Some environmental aspects like dust emission, noise, wastewater, traffic density, etc. will have to be controlled better than the permissible norms to avoid impacts on the surrounding environment. Necessary pollution control equipment like bag house, water sprinklers, enclosures, etc. are integral part of the plant infrastructure. Additional pollution control measures and environmental conservation measures will be adopted to control/minimize impacts on the environment and socio-economic environment of the area. Measures like development of green belt

and plantation in nearby village and along transport road, adoption of rainwater harvesting/recharging in the plant and in nearby villages will be carried out. The proposed CSR/CER activities to be initiated by the industry will be helpful to improve the social, economic and infrastructure availability status of the nearby villages.

Thus, it can be concluded that with the judicious and proper implementation of the pollution control and mitigation measures, the proposed project will not add adverse pollution levels to the environment, moreover, it will be beneficial to the society and will help to reduce the demand-supply gap of steel to some extent and will contribute to the economic development of the region and thereby the country.

11.0 DISCLOSURE OF CONSULTANTS

The Environmental studies for proposed expansion project of M/s. Shivali Udyog (I) Ltd. has been carried out by M/s. Anacon Laboratories Pvt. Ltd., Nagpur (M/s. ALPL). Anacon established in 1993 as an analytical testing laboratory and now a leading Environmental Consultancy company backed by testing lab for environment and food in Central India region. M/s. ALPL is a group of experienced former Scientists from the Government Institutions and excellent young scientist of brilliant career with subject expertise. It is recognized by Ministry of Environment & Forests, New Delhi for carrying out environmental Studies & accredited by Quality Council of India (QCI) for conducting Environmental studies having Accreditation Certificate No.: **NABET/EIA/2326/RA 0304** dtd. 18 September, 2023 valid till Sept 29, 2026.