EXECUTIVE SUMMARY

1.0 INTRODUCTION

M/s. MR Enterprises Company is Partnership Firm. The firm is established with an object to establish business of manufacturing trading and dealing in steel sector. The firm had acquired a sick industry from Maheshwari Steels which they had acquired from formerly known unit as Nibi Steel Pvt. Ltd. from bank. This unit was set up over the lease hold land at Plot No.1-A, 1-B, 2-I at Govt. developed Heavy Industrial area at Village - Hathkhoj, Tehsil - Durg and District- Durg (CG).

In the past the firm was operating with 9000 TPA MS Ingot production through Induction Furnaces (6 MT X1 Plus 3 MT X 1 Nos. Induction Furnaces) and 21000 TPA Rerolled Steel products through Billet Reheating Furnace based on pulverized coal.

Subsequent to the takeover by the present management; they had decided to expand its capacity in 2 phases. Accordingly they had applied to seek EC under Category B1 from SEIAA CG. Subsequently, EC granted vide letter No 2180/SEIAACG/UDYOG/1489 dated 04.03.2021 and thereafter amendment in EC has been issued vide letter 1285/SEIAACG/UDYOG/1489 Dated 21.09.2021 as per which following expansion had been approved.

In first phase rolling mill capacity has been expanded from 21000 TPA to 57800 TPA by setting up another 36800 TPA Strip/ TMT new rolling mill which is being operated through existing pulverized Coal fired Billet reheating furnace.

The company had to stop the existing 9000 TPA Induction furnace as it was based on the old technology which was energy inefficient.

As per current EC in future in Second phase the company wants to adopt modern hot charging technology to directly produce rerolled steel from hot billet which will be produced from Induction furnaces proposed to be set up with 38640 TPA MS Ingot/ Billet production facility capacity. In this phase it was planned to convert to hot charging based rolling mill with 38640 TPA Hot Billets from Induction furnaces for hot charging.

The existing 21000 TPA Mill based on reheating furnace was planned to be continued to be operated as it is based on Pulverized coal.

As per Environmental Impact Assessment Notification dated 14th September, 2006 and subsequent amendments thereof, the Sponge Iron and Steel Melting Shop (Induction Furnace) falls under Sector 3(a) (Metallurgical industries (ferrous & non-ferrous). The overall project activity is categorized as Category "B_1"; therefore, it will require Environmental Clearance (EC) to be obtained from SEAC Chattisgarh.

The application for prior Environmental Clearance (Form-1) was submitted to SEAC Chhattisgarh (Online Proposal No. SIA/CG/IND/76840/2022), File No. OL/TOR/IND/DURG/2017 on 11th May 2022. and ToR was granted (vide. F.no. No. 676/SEAC,CG/Udyog/2017) on dtd. 22/06/2023

Anacon Laboratories Pvt. Ltd., Nagpur, is QCI-NABET accredited in '**Category A'** environment consultant organization 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 Environmental Impact Assessment (EIA) report is prepared for obtaining Environmental Clearance (EC) from Ministry of Environment, Forest and Climate Change (MoEF&CC), New Delhi

and the Consent for Establishment from the Chhattisgarh Environment Conservation Board (CECB) for the proposed expansion project.

The draft report is submitted for public hearing as per the EIA Notification (dated 14th September 2006) and subsequent amendment thereof. The final report will be upgraded after public hearing.

1.1 IDENTIFICATION OF PROJECT

The company "M/s MR Enterprises" is a partnership firm with an objective to set up Steel plant. The brownfield project will be established at Village- Hathkhoj, Tehsil- Durg, District- Durg (Chhattisgarh). The proposal is to seek Environment Clearance based on energy efficient as well as well proven technology process.

TABLE- 1.1
EXISTING AND PROPOSED CAPACITY DETAILS OF THE PLANT

Product	Facility		Capacity (in TPA)		
		Capacity as EC permitted in First phase	Capacity as per EC permitted in second phase after installation of IFs	Existing Capacity Already in operation	After Expansion in Final Phase
M.S. Ingot/ Billets	Induction Furnace and CCM	0	38640	0	133000
"Rerolled Steel" product	Rerolling Mill connected to CCM for Hot Charging based Rolling without any Fuel	0	38600	0	105000
	Rerolling Mill with Billet Reheating Furnace fired with Pulverized Coal	57800	21000	57800	144000
	Total : Rerolled steel products		**57800***	**57800**	**249000**
Pipe Fabrication Units	MS Pipe Fabrication based on sheet		-	120000[1]	120000

Note-

[A] As per EC the rerolled steel production of 57800 TPA is permitted through Billet Reheating Furnace till the Induction Furnace is installed.

[B] Now the firm wants to revised the capacity of Induction furnace for production of MS Billet and Rerolled Steel production as per above

The fabrication of MS Pipe does not come under purview of EIA Notification and is categories by CPCB as white category project. However consent under Air Act and Water Act is being obtained from CECB to setup this facility. The pipe fabrication process does not involve any cold or hot rolling, only involves physical fabrication process.

1.2 LOCATION OF THE PROJECT

The proposed project located at Village **– Hathkhoj, Tehsil- Durg, and District – Durg (CG).** The nearest city is Bhilai which is around 10.7 km in SW direction. Nearest airport is Swami Vivekananda Airport, Mana, Raipur about 36 KM East which is around km at E direction. The project site can be reached from nearest city through SH- 7 are adjacent from the site and from District headquarters through National highway namely. The project is well connected to all weather roads. Nearest railway station is Bhilai Nagar Railway Station 3.5 Km /S direction Railway Station which is about 4.8 km, from the project site.

1.3 EIA/ EMP REPORT

Baseline environmental monitoring was already conducted during Pre - Monsoon Season (1st March 2022 **–** 31st May 2022) 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 1.1).** The observations of the studies are incorporated in the EIA/EMP report. Impacts of the project activities during construction and operation stages were identified and duly addressed in the EIA- EMP report. EIA - EMP report along with the proposed management plan to control/ mitigate the impacts. Environmental Management Plan is suggested to implement the pollution control in the project.

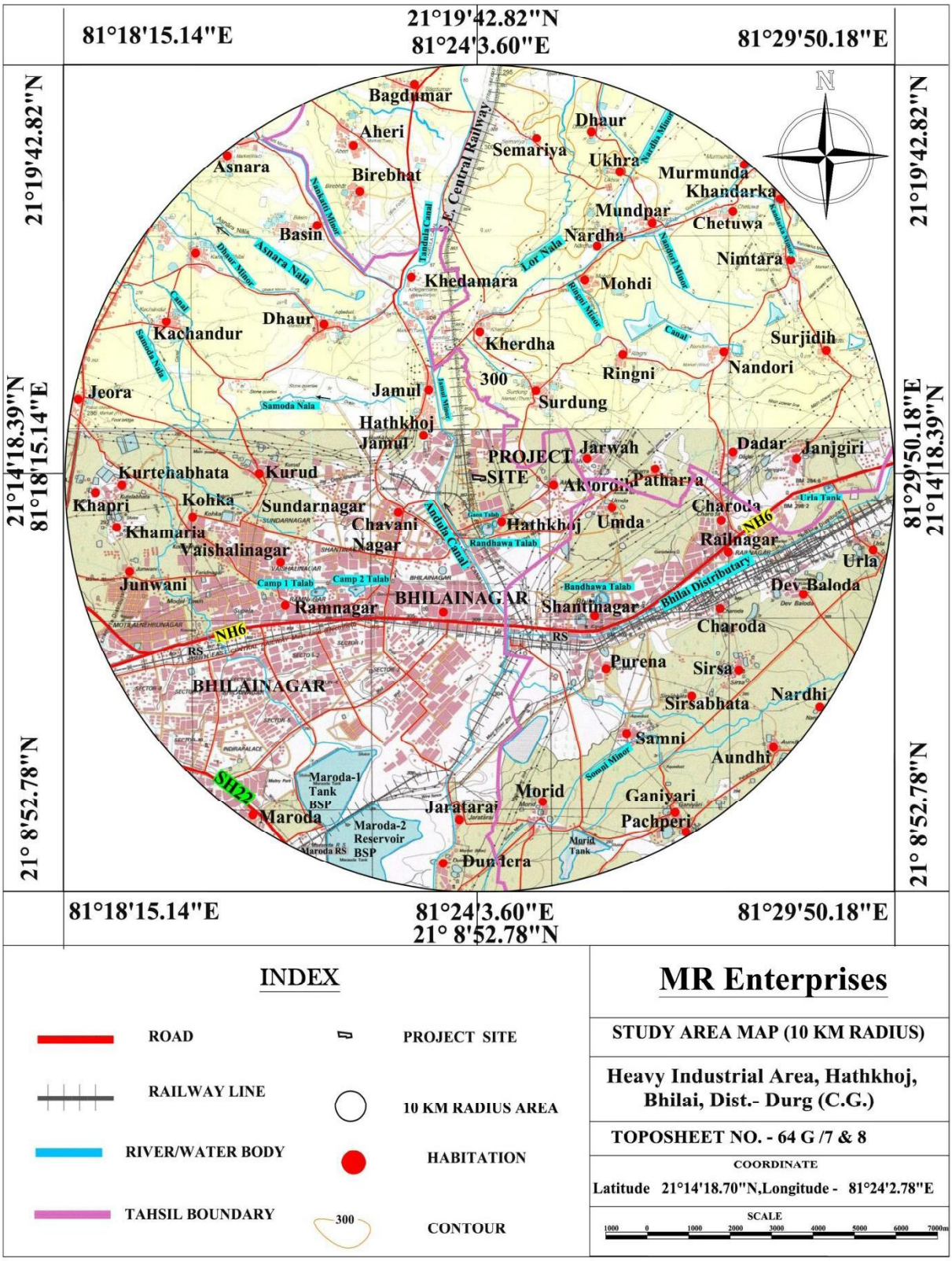

FIGURE1: STUDY AREA (10 KM RADIAL DISTANCE)

TABLE 1.2
DETAILS OF ENVIRONMENTAL SETTINGS

Sl.	Particular	Details	
1.	Plant Location	Plot No. 1A, 1B, 2I Sector-F, OP Heavy Industrial Area, Village - Hatkhoj, Tehsil - Durg, District - Durg (C.G.)	
2.	Coordinates	21°14'20.62"N	81°23'58.32"E
		21°14'20.61"N	21°14'19.89"N
		21°14'17.73"N	81°24'7.72"E
		21°14'17.71"N	81°24'3.69"E
		21°14'16.99"N	81°24'3.68"E
		21°14'17.12"N	81°23'59.27"E
3.	Climatic Conditions	Mean annual rainfall is 1252.8 mm Temperature: Pre monsoon 20.6^0 C (Min.) 41.7^0 C (Max.) : Winter 13.3^0 C (Min.) 31.0^0 C (Max) : Post monsoon 17.3^0 C (Min.) 31.8^0 C (Max.) Source: IMD, Raipur	
4.	Land Form, land Use and Ownership	▪ The project is proposed on the land of 2.42 Hectare. ▪ The existing land use pattern of proposed site is agriculture without significant natural vegetation. Sufficient flat land, free from major undulations is available for construction. ▪ 2.02 hectare land has been registered in the name of the company and the same has also been applied to be diverted for industrial purpose. Total land within the plant is 2.42 hectare ▪ It is proposed to develop total 0.82 Ha (34%) as greenbelt. ▪ At present about 0.668 Ha. has been developed as green Belt within the project area. We will develop additional 0.15 Ha. along with implementation of 2nd phase to match the additional land. Thus total green belt will be 0.82 Ha. (about 34%)	
5.	Topo sheet no.	64 G/8 and 64 G/7	
6.	Elevation	Min 288 m. – Max 292m.	
7.	Nearest IMD station	Raipur	
8.	Nearest Highway	NH 6 (Mumbai Howrah)– 6 KM/S SH 7- (Durg Dhamda) 10 KM/W	
9.	Nearest Railway Station	Bhilai Nagar Railway Station 3.5 Km /S direction	
10.	Nearest airport	Swami Vivekananda Airport , Mana, Raipur about 36 KM East	
11.	District Headquarters	Durg 12.5 KM/SW	
12.	State/National boundaries	Madhya Pradesh – 77.63 Km, W	
13.	Seismic Zone	The project site falls in Zone-II as per IS 1893 (Part-I): 2002. Hence, seismically it is a stable zone.	
14.	Major city with 2,00,000 population	Bhilai- 3.00 KM/S	
15.	Nearest village	Hathkhoj – 1 KM/E Shivpur – 0.7 KM/NW ACC colony- 1 KM/W Jamul 1 KM/NW	
16.	Hills/ valleys	None within 10 Kms	

Sl.	Particular	Details		
17.	Archaeologically important places	Nill		
18.	Protected areas as per WPA,1972	Nil		
19.	Forest's land	Nil		
20.	Defense Installations	Nil		
21.	Notified ECO-Sensitive Zone	Nil		
22.	Water Bodies	River Shivnath – 12 KM/W Randhawa Talab – 1 KM/SE Jamul Talab – 1.3 KM/W		
23.	Nearest Industries	1	Bhilai Engineering Corporation	1.54 Km, WSW
		2	Bhilai Steel Plant (BSP)	6.7 KM (SSW)
		3	NSPCL Power plant	5.36 KM (SSW)
		4	Simplex Engineering & Foundry Works Pvt. Ltd.	2.95 KM(W)
		5	ACC, Cement Jamul	2.3 KM (W)
		6	MR Enterprises	1.3 KM (NW)
		7	Vossloh Cogifer Sign. India Pvt. Ltd.	1.10 Km, W
		8	Shri Balaji Wire Industries - Iron & Steel Industry	1.01 Km, NW
		9	Shri Jai Baba Steels Pvt. Ltd.- Iron & Steel Industry	0.68 Km, SE
		10	Durafon Technologies Pvt. Ltd. - Steel fabricator	0.41 Km, WN
		11	Supreme Industries	0.20 km, WNW
		12	Perfect Wire (Omkamal Steel Private Limited)	0.06 km, S
		13	Pilania Industries Pvt Ltd	0.82km, WNW
		14	Sarthak Metals limited	0.10km, E
		15	Bhilai Iron and Steel Processing company	0.76km, WNW
		16	Kripal Industries	0.47km, NNW
		17	Encore Projects Private limited	0.83km, WNW
		18	Shree Shyam chemicals	0.44km, NW
		19	Mahamaya minerals and Chemicals	0.57km, E
		20	Shree Sai Infra India Private limited	0.69 Km, WSW
		21	Jaya Industries	4.35km, NE
		22	Ayush Industries	0.30km, SE
		23	Kukreja Industries	2 Km, WSW
		24	B.K Steel Industries	3.60km, W
		25	Golden Engineering Industries	3.45km, W
		26	Shri Bhavani Wire Industries	0.94 Km, W
		27	Atmastco Limited	3.27Km, SW
		28	Mahadeva Industries	2.15Km, SW
		29	Pawana techno Chem.industreis	0.86Km, W
		30	Anamika Industries-GI Wire Manufacturer	2.11 Km, SW
		31	SISCOL manufacturing unit 1	1.20Km, W

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 Rolling mill

Raw Material i.e. Billet coming from CCM in red hot condition is cut either by Gas Cutting or automatic hot billet Shearing Machine. In the proposed plant automatic hot billet shear machines are going to be installed with each strand. The gas cutting facility will be maintained as a backup to the hot billet shearing machine.

After the Billet is cut into required length, and then 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. Wire Rod/Bar/Rod/Round/ Strips and other shaped rerolled product etc.

2.1.3 Manufacturing process of Rerolled Steel Products through Rolling Mill:

- Billet or Ingot Steel procured as Raw Material is prepared in required length size by Gas Cutter, Shearing Machine etc. Material is cut into required length.
- Billet will be Reheating in Billet Reheating Furnace by firing of required fuel Fed into the pusher Furnace & heated upto Red-Hot then 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. BAR, Rod, TMT, Angle, Channel, Strips, Joist or other Rerolled products then transferred to Cooling Bed for Cooling.
- After Cooling and inspection, dispatched to market.

2.1.2 Manufacturing Process of Pipe Mill

- Steel Pipes/Tubes are manufactured from mild steel sheets/ stripes etc. The sheet/ strips etc will be cut into the required size. Then passes through a series of drive forming and fin rolls and takes the required circular shape and is welded continuously by passage of an electric current of high frequency across the abutting edges.

- The steel pipes tubes thus formed and welded pass through the sizing sections where dimensional deviations if any are corrected before the tubes are cut into required length by automatic cutting machines. The tubes are then end deburred and pressure tested.
- The final product will be cut in required size and dispatch to market.

2.2 LAND REQUIREMENT

The detail of land use planning in the project area is provided as follows:

TABLE 2.1: AREA STATEMENT

Particulars	Existing Area	Change in Area	Final Area After expansion (in Ha.)	Final Area (in %)
Rooftop/ Builtup Area	1.46	-0.16	1.30	54.00
Area under road and paved	0.30	-0.10	0.20	8.00
Green Belt	0.668*	+0.152	0.82	34.00
Open Area	0.17	-0.07	0.10	4.00
Total	**2.42**		**2.42**	**100.00**

NOTE: The project is proposed on the existing land area of 2.42 Hectare, it is proposed to developed total 0.82 Ha (34%) as greenbelt. At present about 0.668 Ha. has been developed as green Belt within the project area. We will develop additional 0.15 Ha. along with implementation of 2nd phase to match the additional land. Thus total green belt will be 0.82 Ha. (about 34%).

2.3 RAW MATERIALS REQUIREMENT, SOURCE & MODE OF TRANSPORT

The raw material required for the project is Cold billet, sponge iron, CI/ Pig Iron Heavy Scrap, Ferro Alloys and some of these raw materials are readily available within 50 to 500 KM radius and these will be transported through covered trucks. Fuel consumption will be main source from local sources. The project site can be reached from nearest city Bhili through NH-6.

2.3.1 Solid and Hazardous waste generation

The total estimated solid waste generation (including existing and proposed expansion) will be 46243 TPA and 3 KLA Hazardous Waste in the form of Waste oil/ used oil. The quantity of waste generation from defective billets is 4200 TPA, quantity of waste generation from slag 24761 TPA, quantity of refractory waste 175 TPA, quantity of waste generation from mill scale is 6400 TPA, quantity of waste generation from miss rolls/end cuttings 3979 TPA, quantity of coal ash generated 1728 TPA, quantity of waste generation from MS Scrap from pipe mill is 5000 TPA.

2.4 WATER REQUIREMENT & SOURCE

Water requirement (existing + proposed expansion) will be 180 KLD,
Source: Ground Water in combination with rain water collected in rain water collection tank.
The proposed project will require 180 KL/day out of which 170 KL/day is for industrial cooling and 10 KL/day will be domestic and other usage.
Water will be sourced from Ground water; Necessary approval will be obtained from CGWA for the same. The project lies in Semi Critical Zone as per CGWA.

2.5 POWER REQUIREMENT & SUPPLY

The total power requirement after proposed expansion will be 15 MW. To meet out the emergency

backup on standby DG set shall be always kept in ready alert in order to have a higher safety level. The existing power required is being sourced from CSPDCL power supply network and after expansion also the source of power will be remain the same.

2.6 MANPOWER REQUIREMENT

M/s. MR Enterprises will provide employment to 300 (115 existing + 185 additional) peoples as direct employment which includes 30 people as administrative staff and 270 people will be appointed for production staff. Preference will be given to local people, depending upon their qualification and skill.

2.7 FIRE FIGHTING FACILITIES

In order to combat any occurrence of fire in plant premises, a central firefighting facility is proposed which will have access to 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.

2.8 PROJECT COST

The existing cost of the project is Rs. 27.80 Crores whereas cost for proposed expansion is Rs. 30.00 Crores. Thus, Total Cost of the project after expansion is Rs. 57.80 Crores. Provision for CER is kept as Rs. 15 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 Pre-monsoon Season (1st March 2022 – 31st May 2022).

3.2 METEOROLOGY & AMBIENT AIR QUALITY

Summary of the Meteorological Data Generated At Site (1st March 2022 – 31st May 2022)

Predominant Wind Direction	Pre-monsoon season
First Predominant Wind Direction	WSW (19.97%)
Second Predominant Wind Direction	W (13.81%)
Calm conditions (%)	1.22
Avg. Wind Speed (m/s)	3.01

The status of ambient air quality within the study area was monitored for Pre - Monsoon Season of the year 2022 at 8 locations covering project site. The levels of Respirable Particulate Matter (PM_{10}), Fine Particulates ($PM_{2.5}$), Sulphur Dioxide (SO_2,), Oxides of Nitrogen (NO_X) and carbon monoxide (CO), Ammonia, Ozone, Benzene and BAP were monitored. The details of Ambient Air Quality Monitoring Results are summarized and given in **Table 3.1.**

TABLE 3.1
SUMMARY OF AMBIENT AIR QUALITY RESULTS

Sr. No.	Location			PM_{10} µg/m³	$PM_{2.5}$ µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³	Ozone µg/m³	NH_3 µg/m³
1	Project Site	1	Min	59.9	24.7	11.7	18.6	0.444	7.8	6.8
		2	Max	75.6	32.7	17.6	25.7	0.578	11.7	10.6

Sr. No.	Location			PM_{10} µg/m³	$PM_{2.5}$ µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO mg/m³	Ozone µg/m³	NH_3 µg/m³
		3	Avg	68.5	28.4	14.2	21.6	0.502	9.8	8.6
		4	98th	75.2	32.3	17	25.1	0.569	11.5	10.4
2	Hathkhoj	1	Min	64.7	27.5	13.7	20.4	0.538	9.9	7.6
		2	Max	82.7	45.2	19.1	27.9	0.685	14.5	10.8
		3	Avg	73.4	36.8	16.2	24.1	0.634	12.3	9.4
		4	98th	82.1	44.9	18.8	27.6	0.683	14.1	10.7
3	Akrodih	1	Min	64.0	27.7	10.1	18.7	0.642	9.5	6.1
		2	Max	85.2	39.2	18.2	27.7	0.736	13.1	10.2
		3	Avg	71.9	33.4	15.1	24.4	0.694	11.5	8.5
		4	98th	83.4	38.8	18.2	27.7	0.730	13.0	9.9
4	Jarwah	1	Min	56.4	24.2	10.6	17.7	0.373	7.3	6.2
		2	Max	72.6	31.4	16.5	21.9	0.479	11.3	9.2
		3	Avg	64.2	27.8	13.7	20.3	0.428	9.1	7.5
		4	98th	70.9	31.2	16.2	21.9	0.471	11.1	9.0
5	Surdung	1	Min	56.3	22.4	8.5	15.5	0.439	5.5	4.8
		2	Max	67.7	28.7	15.0	24.5	0.683	11.6	8.1
		3	Avg	61.7	25.4	11.8	19.6	0.567	8.7	6.5
		4	98th	67.6	28.3	14.6	23.5	0.674	11.5	7.8
6	Kurud	1	Min	49.5	17.8	6.5	14.1	0.286	5.6	4.5
		2	Max	63.8	25.3	9.7	20	0.387	8.2	6.9
		3	Avg	56.5	21.7	8.2	16.5	0.328	6.9	5.8
		4	98th	63.3	25.0	9.6	19.6	0.382	8.1	6.9
7	Chavani Nagar	1	Min	55.6	22.7	11.8	19.5	0.458	7.7	7.1
		2	Max	75.3	36.4	16.7	25.8	0.538	12.4	9.4
		3	Avg	67.5	30.0	14.6	22.5	0.496	10.1	8.2
		4	98th	74.5	35.8	16.5	25.2	0.536	12.3	9.3
8	Bhilai Nagar	1	Min	52.7	20.9	8.4	16.1	0.407	6.7	5.6
		2	Max	71.8	29.2	12.2	25.7	0.526	9.7	8.7
		3	Avg	62.9	24.6	10.4	21.2	0.463	8.1	7.2
		4	98th	70.8	28.5	12.2	25.1	0.517	9.6	8.7
9	Jamul	1	Min	50.4	19.6	7.6	15.5	0.313	5.9	5.4
		2	Max	68.4	27.3	11.4	21.2	0.429	8.8	8.4
		3	Avg	58.6	23.6	9.3	17.8	0.374	7.5	6.6
		4	98th	67.5	27.2	11.4	20.8	0.426	8.7	7.9
CPCB Standards				**100 (24hr)**	**60 (24hr)**	**80 (24hr)**	**80 (24hr)**	**2 (8hr)**	**100 (8hr)**	**400 (24hr)**

3.3 AMBIENT NOISE LEVELS

Ambient noise level monitoring was carried out at the 08 monitoring locations; those were selected for ambient air quality monitoring. The monitoring results are summarized in **Table 3.2.**

TABLE 3.2
AVERAGE NOISE LEVELS IN THE STUDY AREA

Sr. No.	Monitoring Locations	Equivalent Noise Level	
		Leq_{Day}	Leq_{Night}
Residential Area			
1.	Akrodih	53.1	42.8
2.	Jarwah	51.6	41.4
CPCB Standards dB(A)		**55.0**	**45.0**
Commercial Area			
3.	Vishv Bank Colony	56.8	44.5
4.	New Khursipar	59.2	46.1
CPCB Standards dB(A)		**65.0**	**55.0**
Silence Zone			
5.	Surdung	48.3	37.7
6.	DAV Public School	46.9	38.1
CPCB Standards dB(A)		**50.0**	**40.0**
Industrial Area			
7.	Project site-	61.8	56.5
8.	Hathkhoj	64.2	53.7
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 Geology and Hydrogeology

Regional Geology

10 km radius study area is mainly comprised of sedimentary rock formations, like stromatolitic limestone, ferruginous sandstone and lateritic patches. All these formations are of Proterozoic age. There are no major geological structure present in study area as far as concern with construction of buildings and other structure. Study area falls in seismic zone-II.

Site specific Geology:

Project area is mostly covered by stromatolitic limestone, Ferruginous sandstone, Laterrite and soil covered which is having thickness of around 0.6 - 1.2m. Outcrops are very rare in project site.

Hydrogeology:

All of the study area is covered by sedimentary formations. Groundwater occurs in water table, semi-confined and confined conditions. Primary porosity of these formations is very poor as limestone is hard and compact. The weathered and cavernous part of the formations and fractured zones act as a good aquifer in the study area.

Depth to water level scenario in the study area:

- Pre-monsoon Water levels - 7 to 13 m bgl
- Post-monsoon water levels - 3 to 5 m bgl

Geomorphology:

Study area comprises of gently sloping plains (Pediplains) on Proterozoic age. Some surface waterbodies are observed. Lateritic patches also observed in most of the study area.

3.4.2 Water Quality

Groundwater and surface water quality was assessed by identifying 8 groundwater (Bore well/ hand pump) locations in different villages and 4 surface water samples.

A. Groundwater Quality

The analysis results indicate that the pH ranged 6.72 – 8.16. The TDS was ranging from 324 – 478 mg/l. Total hardness was found to be in the range of 157.44 – 216.99 mg/l. The fluoride concentration was found to be in the range of 0.16 – 0.32 mg/l. The nitrate and sulphate were found in the range of 3.48 – 12.81 mg/l and 13.02 – 21.51 mg/l respectively. The chloride concentration was found in the range of 21.71 to 49.94 mg/l. The Total suspended solid concentration was found below detection limit (DL -10mg/l) at all sampling location. Heavy metals like As, Pb, Ni was found below detection limit i.e. BDL (DL-0.01), BDL (DL-0.001), BDL (DL-0.1) respectively and Iron was found in the range of 0.09 to 0.32 mg/l.

B. Surface Water Quality

The analysis results indicate that the pH ranged between 6.73 – 7.97 which is well within the specified standard of 6.5 to 8.5. The pH of water indicates whether the water is acid or alkaline. The TDS was observed to be 402 – 595 mg/l which is within the permissible limit of 2000 mg/l. The total hardness recorded was in the range of 160.28 – 278.78 mg/l as CaCO3 which is also within the permissible limit of 600 mg/l. The levels of chloride and sulphate were found to be in the range of 26.19 – 51.96 mg/l and 17.32 – 61.82 mg/l respectively. The reported value of Dissolved is in the range of 5.6 – 6.4 mg/l. PO4 concentration was found to be in the range of 0.44 – 0.63 mg/l. COD ranges from 10.96 – 22.64 mg/l and BOD ranges from 3.18 – 7.24 mg/l.

C. Bacteriological Characteristics

Coliform group of organisms are indicators of faecal contamination in water. All surface water samples were found to be bacteriologically contaminated. Presence of total coliforms in surface water indicates that the 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 19th MAY 2021 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 21°8'52.39"N to 21°19'5.85"N latitude and 81°18'57.79"E to 81°30'6.15"E longitude and elevation 263 to 351 meters are used as per the project site confined within that area.

The Land Cover classes and their coverage are summarized in Table 3.3.

TABLE 3.3
LU/LC CLASSIFICATION SYSTEM WITH 10 KM STUDY AREA

Sr. No.	Level-I	Level-II	Area (Sq. Km²)	Percentage (%)
1	Built-up land	Settlement	73.88	22.79
		Industrial Settlement	12.51	3.86
		Road Infrastructure	4.38	1.35
		Railway Line	1.96	0.60
2	Agricultural Land/ Crop Land	Single Crop	135.92	41.92
		Double Crop	71.91	22.18
3	Mines Area	Stone Quarry	0.68	0.21
4	Scrubs/Wastelands	Wasteland	8.21	2.53
5	Water bodies	River/Nala/Stream/Canal	2.32	0.72
		Pond/Lake	7.60	2.34
		Tanks	2.18	0.67
		Reservoir	2.66	0.82
Total			**324.21**	**100**

3.6 SOIL QUALITY

For studying soil profile of the region, sampling locations were selected to assess the existing soil conditions in and around the project site representing various land use conditions. The physical, chemical and heavy metal concentrations were determined. The samples were collected by ramming a core-cutter into the soil from 15 cm up to a depth of 60 cm. Total 8 representative samples were collected from different locations within the study area and analyzed.

Physical Characteristics of Soil

Physical characteristics of soils were determined through specific parameters viz. particle size distribution, bulk density, porosity, water holding capacity, texture.

Regular cultivation practices increase the bulk density of soils thus inducing compaction. This results in reduction in water percolation rate and penetration of roots through soils. The soils with low bulk density have favourable physical conditions whereas those with high bulk density exhibit poor physical conditions for agriculture crops. The bulk density of the soil in the study area ranged between 1.531 - 1.719 g/cc which indicates favourable physical condition for plant growth. The water holding capacity is between 31.52 - 36.41%. Infiltration rate, in the soil is in the range of 19.46 – 24.36 mm/hr.

Chemical Characteristics of Soil

Data collected for chemical characteristics of soils through selected parameters viz. pH, soluble cations and anions, exchangeable cations, organic content and fertility status in the form of NPK values and organic matter.

pH is an important parameter indicative of alkaline or acidic nature of soil. It greatly affects the microbial population as well as solubility of metal ions and regulates nutrient availability. Variation in

the pH of the soil in the study area is found to be neutral (6.75 – 7.27) in reaction. Electrical conductivity, a measure of soluble salts in the soil is in the range of 176.20 – 308.26 µS/cm.

The important soluble cations in the soil are calcium and magnesium whose concentration levels ranged from 147.29 – 342.15 mg/Kg and 46.32 – 61.42 mg/Kg respectively. Chloride is in the range of 133.78 – 176.93 mg/Kg.. Organic matter and organic carbon present in the soil influences its physical and chemical conditions and is responsible for stability of soil aggregates. Organic matter and organic carbon were found in the range of 1.97% – 4.10% and 1.14% – 2.38%.

3.7 BIOLOGICAL ENVIRONMENT

Floral composition in Study Area

Total 105 plant species were enlisted within the study area out of which habit wise details are given below:

a.	**Trees**	:	Total 54 species were found in the study area
b.	**Shrubs (small trees)**	:	Total 24 species were enumerated from the study area.
c.	**Herbs**	:	In the study area 11 species were observed.
d.	**Bamboo & Grasses**	:	10 species were enlisted from the study area
e.	**Climbers and Twiners**	:	Total 05 species of climbers/ twiners were recorded in the study area.
f.	**Parasite Plant**	:	1 species enlisted in the study area.

RET (Rare, Endangered and Threatened species) STATUS

According to IUCN Status report 2013 out of total 105 plant species identified within study area among the 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

The IUCN Red List is the world's most comprehensive inventory of the global conservation status of plant and animal species. IUCN Red List is recognized as the most authoritative guide to the status of biological diversity.

Among the reported animals all wild fauna including avifauna are categorized under least concern category.

As per Indian Wild Life (Protection) Act, 1972

Wild Life (Protection) Act, 1972, as amended on 17th January 2003, is an Act to provide for the protection of wild animals, birds and plants and for matters connected therewith or ancillary or incidental thereto with a view to ensuring the ecological and environmental security of the country.

Among mammals; Jackal (*Canis aureus*), Common Mongoose (*Herpestes edwardsii*), Rhesus Macaque (*Macaca mulatta*), Common Langur (*Presbytis entellus*) and Indian Fox (*Vulpes bengalensis*) are provided protection as per schedule II of Wild Life (Protection) Act, 1972. *Funambulus pinnati* (Palm squirrel) protected in Schedule IV whereas, Rats species protected under Schedule V of Wild Life (Protection) Act, 1972.

Among the reptiles and Amphibians, Indian Cobra (*Naja naja*), Russel's Viper (*Vipera russelli*) Common rat snakes (*Ptyas mucosus*) and Checkered Keelback (*Xenochrophis piscator*) are provided protection as per Schedule-II of Wild life protection act, (1972). Remaining species are included in schedule IV and some of the species are does not give the protection in any schedule of WPA 1972. There is total 21 bird's species observed within the study area. Among them 19 bird species give the protection in schedule IV and 2 species having the protection in schedule V.

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 3.4.** Details regarding education and infrastructure facilities 2011 are presented in **Table 6** and **Table 3.5** respectively.

TABLE 3.4
SUMMARY OF SOCIO-ECONOMIC ENVIRONMENT OF VILLAGES WITHIN STUDY AREA

Zones	Total household	Total Population	Total Male	Total Female	Total 0-6 child	Total SC	Total ST
0-2 km	766	3699	1855	1844	497	536	173
2-5km	6080	28295	14427	13868	3632	7326	1230
5-10km	16479	76602	38822	37780	9561	12835	4678
10km	23325	108596	55104	53492	13690	20697	6081
In%	**4.66**		**50.74**	**49.26**	**12.61**	**19.06**	**5.60**

Source: Primary census abstract 2011, State Chhattisgarh

TABLE 3.5
INFRASTRUCTURE FACILITIES AVAILABLE IN THE STUDY AREA

Infrastructure facilities	Availability (In percentage) As per year 2011, Census Durg District
Educational Facilities	100%
Drinking water	100%
Road	100%
Power	100%
Communication	86.11%
Transportation	88.89%
Govt. PHC & SC	52.78%
Bank & Society	25%
Drainage	44.44%
Recreation	91.67%

Source: Primary census abstract 2011, State Chhattisgarh.

Salient Observation of the Socio-Economic Survey

A number of aspects were studied in the villages surveyed for socio- economic studies. Following are the observations found during interviews, focused group discussions and as per the Questionnaire.

- **Housing Pattern:**

The people in study area economically not so good and hence many houses in the area are seen old. It is observed that, the housing pattern in study area varied from hatched to pucca (pakka) houses. Near about 50% of the houses were in pucca (pakka) form whereas 30% in semi pakka form and 20% houses were observed in kaccha form.

- **Employment:**

The Main occupation in the study area was agriculture and Labor Work its allied activities eg. Cattle rearing, dairy farming, agro-horticulture, bamboo-agricultural crop patterns, floriculture, bee-keepings etc. Other income generation sources of the area, small business; private jobs etc. The labors were getting daily wages in the range of 400-450 Rs, depending on type of work they set

- **Major crops of study area, production & yield**: The farmers in the area cultivate vide variety of crops. About half of the study area, as per site survey, belongs to the agricultural land category. Both (Rabi and Kharif) type of cropping practice is prevailing in this area. The main crops include Rice, Maize, Millets, Wheat and Soybean. Other than this, Vegetables and fruits are also grown in the region.
- **Migration from other states**: The area is industrially developed and main industries found here are coal washery, power plant, steel industries etc. Migration from other states eg. UP, Bihar & Odisha for employment purpose found in the study area.
- **Education Status**: The education status was explored in 15% of the sample villages which was discussed with Panchayat members or school teacher for adult working population only.. It is to be noted that the Skill gaps in the industries for persons having skilled jobs degree are largely fulfill by the urban areas while the persons with unskilled jobs are largely taken up from surrounding villages during construction and operation stage of the industries.
- **Transportation Network:** The site is well connected to all weather roads. It is also connected to railway network. One should note that the transportation road network is vital and had played significant role in economic development, trade and social integration of the country. It facilitates smooth conveyance of both people and goods. Size of the road network, its quality and access have a bearing on various parameters of the economy like travel time, transport costs, cost of input, cost of finished products etc. Besides, road network promotes wide market of various products / services and thereby extend markets as a consequence enable exploitation of the economies of scale as witnessed in Durg district.
- **Medical facilities:** The Primary & secondary data reveals that, there are only 02 nos. of Sub Health Centers & 09 nos. of PHC's in the Study area. During FGD villagers made various issues in health care facilities, such as health facilities available at PHCs, Laboratory testing and Delivery facilities at Government Health Centers, availability of clean toilet and drinking water at PHCs. To control the spread of diseases and reduce the rates of mortality due to lack of adequate health facilities, special attention needs to be given to the health care in rural areas. The key challenges in the healthcare sector are low quality of care, poor accountability, lack of awareness, and limited access to facilities. It is also observed that Malnutrition is the common in most of the villages.
- **Drinking water, sanitation & infrastructure**: It is observed that the source of water for Drinking & Agriculture in most of the Villages is groundwater. And the remaining villages which are proximate to the river, uses it as source of drinking water & for Agriculture. It was observed that most of the Houses in the villages are not having sanitation facilities including in several schools. It was observed that now a day's Internet is playing major role in society, but in the study area only one Internet shop is available.
- **Banking facility:** The study area has almost all the schedule commercial banks with ATM facility at urban areas and the district HQ.
- **Sports & social ailment issues:** Social ailment issues like child marriage, alcoholism among tribes. It is observed during FGD that there are only a few people got the benefit of Self

employment scheme and needs substantial improvement. It is observed that there is no encouragement for sports as there are less Schools & Colleges in the Study area.

- **Animal Husbandry:** Cows & buffalos were found in the study area with people. Bullocks were also found to be used for agricultural activities.
- **Criminal Cases:** The criminal cases were no found to be significant within the study area as per the discussion with villagers, but some women reported that they are being victim of domestic violence which is not being reported to police.
- **Population Growth:** As per indiagrowing.com Durg District population in 2022 is 3,698,169 (estimates as per aadhar uidai.gov.in Dec 2020 data). As per 2011 census of India, Durg District has a population of 3,343,872 in 2011 out of which 1,682,101 are male and 1,661,771 are female. Hence, it can be said that there is increase in population by 10.59% after census 2011.
- **Migration Status:** Our Primary finding suggest that from the total population of 108596 villages coming under the radial distance of 10 km from the project site, about 05% of the population are migrated. The owner of these houses return twice in a year (in May and during Oct-Nov Diwali Vacation). The popuation residing are doing large agriculture labour work and also depended upon causual labour work industries.

Awareness and opinion of the respondents about the project

Public opinion is the aggregate of individual attitudes or beliefs. It is very important to take opinion of the villagers about the project. The awareness will not only promote community participation but also enable them to understand the importance of the project and encourage them to express their view. To know the awareness and opinion of the villagers about the project, group discussion, meeting with school teachers/village leaders were carried out in the study area.

- In core zone villages, majority of the respondents were aware about the project site bot they were unaware about the project activity.
- The respondents were happy to know about the project and they opined positively because the activity would contribute development in the study area.
- Village leaders asked to give employment opportunities to local people.
- Main demands of villagers in study area were for medical facility and employment opportunity.

3.8.1 Interpretation

Hathkhoj is a heavy industrial area having a plenty of industries are present within 10 km radius area from the project site. People work in industries as labour and also do farming. The people in the area are earning enough money to cater to their basic needs of food, cloth, and shelter but to improve the lifestyle social and infrastructural development is necessary in terms of education, modernization of agriculture activities etc. Vocational training centers, trainings related to modern agricultural techniques and women empowerment programs should be arranged for the people in the area. Trainings related to new technologies and methods of doing farming should be given to people in study area. Education is the base for development of area. This will rise to grow economy by creating opportunities to students to get jobs in different fields. Training to the youth for development of technical skills should be given so that the local they get good employment in industries. Health camps, women empowerment, entrepreneurship programs, training computer skills will be beneficial to the people to grow healthy and economically. Apart from this, the villages are lacking infrastructure facilities like community hall, bank facility, toilet facilities, open gyms, college facilities and sports

clubs. The people in the study area were happy to know that the existing project of MR Enterprises is going to be installed in the area as it will create more employment opportunities to the local people.

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 AIR ENVIRONMENT

Dust will be the main pollutant affecting the ambient air quality of the area during the construction phase. Dust will be generated during vehicular movement of trucks, dumpers and construction machinery. Further, concentration of NOx and CO may also slightly increase due to increased vehicular traffic. However, change in ambient concentrations of air quality will be insignificant and temporary. As most of the construction equipment will be mobile, the emissions are likely to be fugitive. The impacts will be localized in nature and the areas outside the project boundary are not likely to have any significant adverse impact.

The maximum ground level concentrations (GLCs) for particulate matter and gaseous concentration SO2, NOx due to proposed condition were carried out. In normal condition the predicted 24-hourly maximum contribution of particulate matter are 0.25 µg/m^3 and 0.15 µg/m^3 for existing and proposed scenarios respectively. After proposed expansion, the incremental concentration of SO_2 and NOx will be 0.33 µg/m^3 and 0.45 µg/m3 at distance of 1000 m respectively in NE direction in controlled condition.

Details of Air Pollution Control System/ Mitigation measures

Sl. No.	Facilities	Air Pollution Control equipment	Emission Level
1	Induction Furnace	Bag filter with central dust collection system, 30 meter stack along with online stack monitoring system	PM - 30 mg/Nm^3
2	Reheating Furnace	Wet scrubber 30 Meter stack, along with online stack monitoring system	PM - 30 mg/Nm^3, SO_2 - 300 mg/Nm^3 & NO_X - 400 mg/Nm^3

Additional Measures to reduce/control pollution control

- Roads are being / will be frequently sprinkled with water.
- Most of the materials are being /will be stored under covered shed.
- Regular maintenance of vehicles and machineries is being/ will be carried out in order to control emissions.
- Green belt development would be taken up all along the roads, plant premises etc.
- Protective appliances are being/ will be provided to all the workers exposed in dusty atmosphere.
- Avoiding overloading of the trucks.
- Proper gradient of roads to reduce cumulative noise.
- Transportation of materials is being/ will be limited to day hours only.
- Periodical maintenance of process machinery.
- End to end pavement of road.
- Fleet management to avoid unnecessary vehicle movement restriction.
- Daily sweeping of road to remove silt content.

4.2 NOISE ENVIRONMENT

Noise will be generated during the normal operation of manufacturing process due to operational activities of Induction Furnaces, ID Fan, Blower/air Fan, Cutting/Shearing Machine, CPP (WHRB) and DG Set, etc.the ambient noise levels are expected to increase significantly with the attributes of the respective equipment, but this noise will be restricted close to the concerned equipment. The nearest human settlements Hathkhoj is 900 m away from project site and resultant noise level at this village are 64.2 dB(A) & 54.0 dB(A) at day night respectively. The ambient noise levels (daytime and night time) at some locations will be marginal increased and noise mitigation measure should be adopted at project site to attenuate noise levels to safe limits. The preventive measures are given below:

1. Dense plantation will help to reduce noise pollution in the following ways –
   - The sounds that are produced by the leaves helps muffle the noise.
   - Hedging makes a thick front of the wall and blocks the noise.
   - Thick tree trunks create a sound-absorbing buffer zone.
   - They help in filtering the noise.
   - The research also concluded that a 30 m dense plantation can give a noise reduction of 6 dB (A).
2. Equipment will be standard and equipped with silencer. The equipment will be in good working conditions, properly lubricated and maintained to keep noise within permissible limits.
3. Most of the equipment's will be placed in closed room.
4. Equipment's will be placed on acoustic floor to reduce vibration and noise.
5. High noise zone will be marked, and earplugs will be provided to the workmen near high noise producing equipment.
6. Use of PPES awareness program will be provided to all workers.
7. Proper shifting arrangement will be made to prevent over exposure to noise and vibration.
8. Silent DG sets will be used site.
9. Speed limits will be enforced on vehicle.
10. Regular noise & vibration monitoring will be carried for all equipment's to check compliance with prevailing rules.

Vehicular Movement

There will be NOx emission impact observed 1296 gm/km, CO emission impact observed 729.0gm/km, HC emission impact observed 178.2 gm/km and PM emission impact observed 58.3 on the surrounding environment due to 162 trucks/day. From the results it is observed that after proposed expansion project, the level of service on NH-6 will be "C (0.4 to 0.6)" i.e. Good / Average/ Fair. For the road connecting the project site with NH-6, the level of service for after proposed expansion will be "C (0.4 to 0.6)" i.e. Good / Average/ Fair.

4.3 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. Total water requirement will be 180 KLD. Total water required for domestic purposes will be 10 KLD. There will be no industrial effluent discharged outside the plant premises due to existing as well as proposed units. Domestic wastewater will be generated treated in STP and treated water will be used for green

belt and dust suppression purposes. M/s. MR Enterprises will maintain zero discharge condition from the plant all the time throughout the year.

The various control measures that will be adopted are:

- Closed circuit circulation system will be followed.
- Rain water charged to ground water.
- All stock piles will be on pucca flooring to prevent for any ground water contamination.

4.4 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 nearby vegetation.
2.	Gaseous emission from Stack, Movement of vehicle inside plant and Raw material & finished product transportation, Product manufacturing	Decline in photosysenthetic activities, Stomatal index may be minimized, Crop yield may be reduced.	Air quality modelling outputs study revealed that, the resultant concentrations of particulate matter, sulphur di-oxide and oxides of nitrogen are well within the prescribed limits. Greenbelt area of 0.82 Ha. (34%) will be provided with local species, broad leaves, higher canopy and fast growing tree species. The total plantation after expansion will be 2050 nos (considering 2500/Ha. density). Indigenous species for plantation is recommended. 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.

There is no ecological sensitive area like national park, sanctuary, biosphere reserve, within 10 km radial distance from the project site. No forest land involved in the project activities. Thus, no significant impact envisaged on biological environment.

4.5 SOCIO-ECONOMIC IMPACT

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

The project is for expansion of production facilities of MS Billets, Rerolled Steel Products and MS Black pipes within the existing premises of M/s. MR Enterprises. All the facilities related to production are already available in the existing premises thus, no site alternative has been considered.

The proposal is based on Induction furnace, CCM, Hot Rolling, reheating and pipe mill. In India more than 1000 units are operating based on Induction Furnace melting technology. Direct Hot Charged based rolling is also considered as proven technology. All the process to manufacture as well as control the pollution is well tested in India.

6.0 ENVIRONMENTAL MONITORING PROGRAMME

Monitoring plan has been prepared to ensure compliance with the applicable environmental laws and conditions stipulated in the environmental permits. The monitoring plan also ensures compliance with the recommended safeguards for pollution prevention and abatement and sustainable development of the project.

7.0 RISK ASSESSMENT

7.1 RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

The assessment of risk in the proposed expansion project has been estimated for fire, explosion and toxicity and corresponding mitigation measures are suggested in the EIA/EMP report.

A detailed Disaster Management Plan for facing disasters due to natural effects and human reasons is prepared and incorporated in the EIA/EMP report for ensuring safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities. For effective implementation of Disaster Management Plan, it will be widely circulated and personnel training through rehearsals. Site facilities, procedures, duties and responsibilities, communications, etc. are considered in details in the Disaster Management Plan.

7.2 PUBLIC CONSULTATION

The draft EIA-EMP report is submitted for public hearing as per the EIA Notification (dated 14th September 2006) and subsequent amendment thereof. The final report will be upgraded after public hearing.

8.0 PROJECT BENEFITS

The proposed expansion project would provide development of area and consequent indirect and direct job opportunities which would finally result in improvement in the quality of life of people in the central region. M/s MR Enterprises will carry community welfare activities in the following areas:

- Community development
- Health& medical care
- Roads
- Education
- Drainage and sanitation

The project proponent will comply with its obligation for CSR as per Company's Act too.

Corporate Environment Responsibility (CER) value of Rs. 15 Lakhs will be spent for the social infrastructure development.

9.0 ENVIRONMENTAL MANAGEMENT PLAN

The major objective and benefit of utilizing Environmental Impact Assessment in project planning stage itself, is to prevent avoidable losses of environmental resources and values as a result of Environmental Management.

Environmental impact has been identified, predicted and evaluated during construction and operation activities to mitigate the standards specified by the statutory authority and minimize the impact on eco system. Environmental Management Plan provides control measures of potential environmental impacts. Environmental Management System for different environmental attributes is discussed in subsequent topics.

Judicious use of the environmental management will be implemented with addressing the components of environment, which will be likely affected during construction and operation of the expansion project. . The project cost of expansion is Rs. 30.00 Crores. The budgetary provision for EMP for proposed expansion project is Capital cost of Rs. 73 Lakhs and Recurring Cost of Rs. 18.00 Lakhs.

10.0 CONCLUSION

The proposed expansion project of M/s. MR Enterprises will be beneficial for the overall development of the nearby villages. Environmental aspects like dust emission, noise, wastewater generation, traffic density, etc. will have to be controlled better than the permissible norms to avoid impacts on the surrounding environment in particular agriculture crop. Necessary pollution control equipment like ESP, bag house as regulatory requirement whereas Industrial sweeping machine, wheel washing system, Industrial grade vacuum cleaner, water sprinklers, enclosures, etc. form integral part of the plant infrastructure and it will be implemented under ideal environmental management practices. Additional pollution control measures and environmental conservation measures will be adopted to control/ minimize the 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 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 expansion project will not add adverse pollution levels to the environment. As per employment point of view, 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 MR Enterprises are 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 firm 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/2023/SA0160 (Rev.01) dtd. 13 March, 2023. Validity of accreditation certificate further extended to Sept 27, 2023 as per QCI-NABET letter No. QCI/NABET/ENV/ACO/23/2788 dt. June 28, 2023