

Executive Summary

For

**Proposed Expansion for Manufacturing of
1,000 Tonne Per Month of Manganese Oxide**

At

**Plot No. J-34, MIDC Hingna, Tehsil-Hingna,
District-Nagpur, Maharashtra**

Project Proponent

M/s. Navratna Manganese Products LLP

Environmental Consultant



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



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

EXECUTIVE SUMMARY

INTRODUCTION

M/s. Navratna Manganese Products LLP has envisaged to expand the plant to manufacture 1000 TPM of Manganese Oxide by roasting. The proposed project will be carried out in the existing project site at Plot No. J-34, MIDC, Hingna, Tehsil-Hingna, District-Nagpur, State Maharashtra. Project Proponent has leased the land from MIDC. The land earmarked for the proposed expansion project is 0.6655 Ha (6655 sq. mt). Currently only jigging and pulverizing activity of Manganese Dioxide (MnO_2) is being undertaken in the existing plant, the CTO for which is already granted vide consent no. RO-NAGPUR/CONSENT/2122001664 dated 28/12/2021 valid up to 30/09/2027. As per the Environmental Impact Assessment (EIA) Notification dated 14th September, 2006, Metallurgical Industries (Ferrous & Non-Ferrous) falls under category 'A' which requires Environmental Clearance (EC) to be obtained from MoEF&CC before the commencement of ground activity.

The project proponent has made online application on 15th May, 2024 along with Form-1, copy of pre-feasibility report and other documents for proposing Terms of Reference (TOR) for undertaking detailed EIA study. The MoEF&CC has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 and granted Standard Terms of Reference (TOR) vide IA-J-11011/93/2024-IA-II(Ind-I) dated 29th May, 2024. The cost of proposed expansion project is Rs. 2.5 Crores. The cost of the existing project is Rs. 1.2 Cr. The total project cost (existing + proposed) shall be Rs. 3.7 Cr.

SITE SELECTION CRITERIA

The proposed site has existing jigging and pulverizing activity of Manganese Dioxide (MnO_2) at Plot No. J-34 MIDC Hingna, Tehsil-Hingna, District-Nagpur, State Maharashtra for which CTO already obtained from MPCB.

- The proposed project is in MIDC Hingna, which is Notified Industrial Area.
- Assured Water Supply from MIDC.
- No Rehabilitation/Resettlement required.
- No archaeological monument and defence installation.

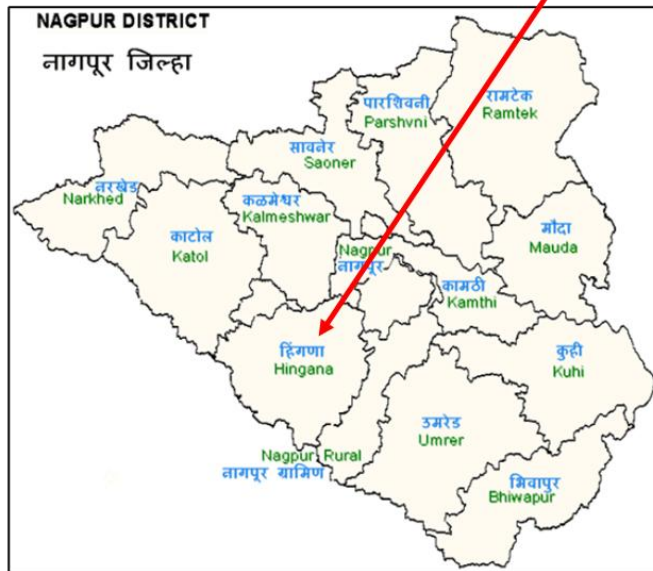
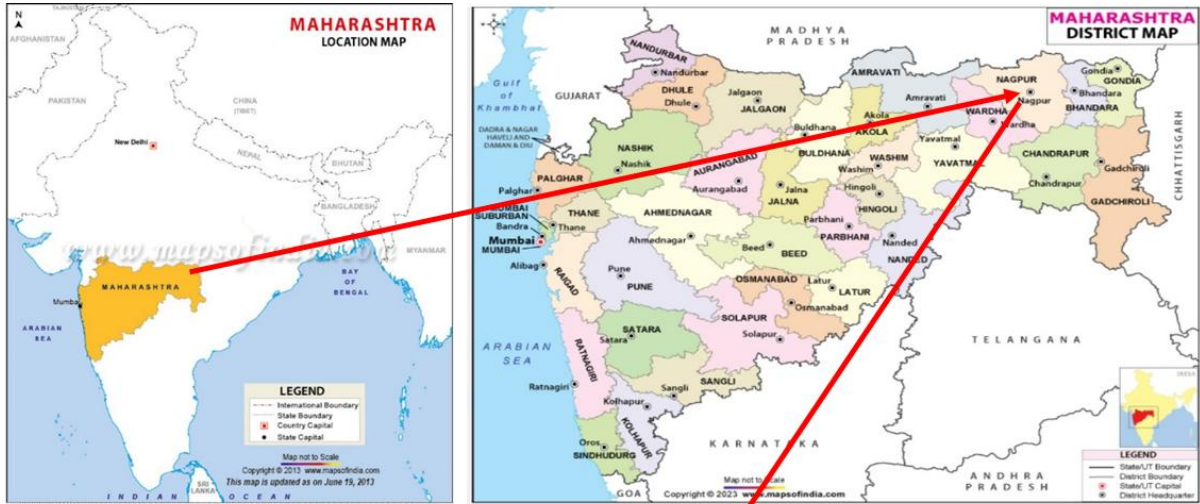
- No nallah/water body within the project site.
- Availability of Raw Material.
- Availability of Water.
- Assured Power Supply
- Availability of Man power.
- Availability of industrial infrastructure.

DETAILS OF THE PROJECT SITE

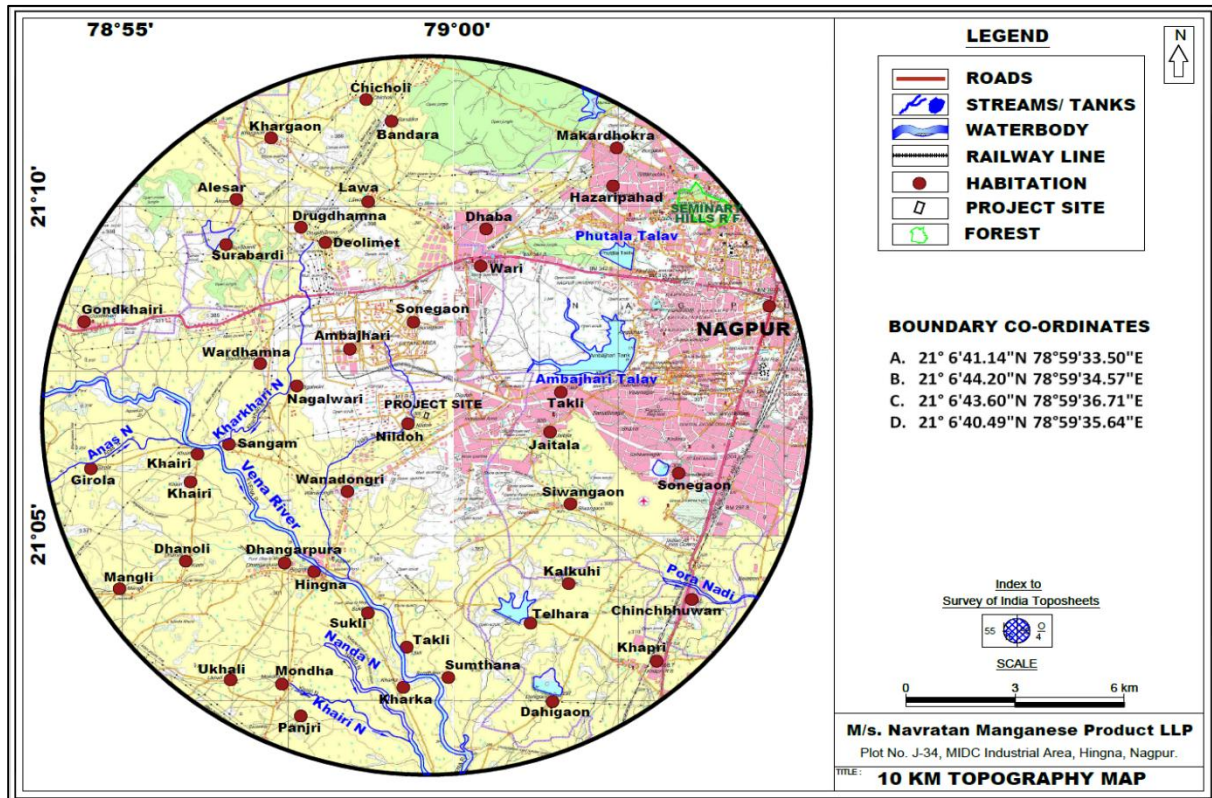
Sr. No.	Particulars	Details
1	Project Site	Plot No. J-34, MIDC Hingna, Tehsil-Hingna, District-Nagpur, State Maharashtra Total land: 0.6655 Ha (6655 sq. mt).
2	Geographical Coordinates	A. 21° 6'41.14"N 78°59'33.50"E B. 21° 6'44.20"N 78°59'34.57"E C. 21° 6'43.60"N 78°59'36.71"E D. 21° 6'40.49"N 78°59'35.64"E
3	Elevation above MSL	334 m
4	Toposheet	55 K/16, 55 O/4
5	Present Land Use	Industrial Use
6	Nearest National Highway / State Highway	SH 255: 0.53 Km (SE) SH 260: 2.25 Km (NE)
7	Nearest Airport/ Air Strip	Dr. Babasaheb Ambedkar International Airport: 6.80 Km (ESE)
8	Nearest Railway Station	Ajni Railway Station: 9.0 Km (NE)
9	Nearest Village	Nildoh: 0.25 Km (W)
10	Nearest Town	Nagpur: 1.0 Km (E)
11	Forest	Nil
12	Ecologically Sensitive Zones like wild life sanctuaries, national parks and biospheres	Nil
13	Water Bodies	Nag Nadi : 0.25 Km (W)

Sr. No.	Particulars	Details
		Pora Nadi : 7.50 Km (SE) Anas Nala : 6.40 Km (W) Nanda Nadi : 6.50 Km (SSW) Khairi Nala : 8.00 Km (SSW) Ambajhari Tank : 3.0 Km (ENE) Phutala Talav : 6.50 Km (NE) Vena River : 4.50 Km (SW) Kharkhari Nala : 3.60 Km (WNW) Sonegaon Talav : 6.0 Km (ESE)
14	School	1. Zilla Parishad High School: 0.65 Km (WNW) 2. Priyadarshini School: 0.82 Km (W) 3. Shubham English primary School: 0.80 Km (ESE) 4. The Pride School: 1.0 Km (SE) 5. ZP School: 1.50 Km (SE) 6. Shangrila English School: 0.97 Km (E)
15	Hospital	1. Ujjwal Multispecialty Hospital: 1.20 Km (SSW) 2. Lata Mangeshkar Hospital, Digdoh: 1.40 Km (SE) 3. Life Springs Hospital and Parvati IVF: 4.60 Km (E) 4. Dewtale Memorial Surgical Maternity Hospital: 5.0 Km (ENE)
16	Defense installation	Ordnance Factory Ambajhari: 2.15 Km (NW)
17	Industries	1) Megataj Agrovet Pvt Ltd: 80 m (WSW) 2) Yash Forging-Steel fabricator: 180 m (E) 3) Berar Metal Processing Industries Pvt Ltd: 310 m (ESE) 4) Sakhi Industries (TARKO): 430 m (E) 5) Mohite Industrial Area P III: 270 m (SW)

Sr. No.	Particulars	Details
		6) International Combustion India factory: 260 m (SE) 7) Akash Furnitech Private Limited: 110 m (NW) 8) Jalaram Vetcare Industries M9: 360 m (NW) 9) G V SAW MILL: 250 m (NE) 10) Shreenath Engineering Industries: 330 m (ENE) 11) Sagar Industries: 490 m (NE) 12) Sanjivani Agro Machinery: 610 m (NE) 13) Mahindra Logistics Limited: 720 m (ENE) 14) AV Weldtech Private Limited: 640 m (NE) 15) R C Plasto Tanks and Pipes Pvt Ltd.: 2.20 Km (NE) 16) Mahindra and Mahindra Tractor factory: 1.10 Km (E) 17) Jayaswal Neco Industries Ltd.: 1.5 Km (ENE) 18) Haseeb Pharmaceuticals Pvt Ltd.: 1.0 Km (NE) 19) Pix Transmission: 0.3 KM (E)



Location Map of the Proposed Project Site



Source: SOI Toposheet

Topographical Map (10 Km Radius)

PURPOSE OF EIA

The purpose of the EIA study for the proposed expansion project by M/s. Navratna Manganese Products LLP is identifying existing environmental condition, predicting environmental impacts associated with the proposed expansion and suggesting measures to mitigate the adverse impacts and to delineate a comprehensive environment management plan along with recommendations and suggestions. The different activities that are likely to take place have been identified and mitigation measure has been proposed.

As a part of EIA process, proponent has made online application on 15th May, 2024 along with Form-1, copy of pre-feasibility report and other documents for proposing Terms of Reference (TOR) for undertaking detailed EIA study. The MoEF&CC has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 and granted Standard Terms of Reference (TOR) vide IA-J-11011/93/2024-IA-II(Ind-I) dated 29th May, 2024.

In order to assist the M/s. Navratna Manganese Products LLP for getting the

Environmental Clearance, M/s Pollution and Ecology Control Services (PECS) Nagpur is assigned for undertaking (EIA) study and prepare Environmental Impact Assessment report and Environmental Management Plan. The EIA report is prepared using the baseline data generated during January to March 2024.

PROCOESS DETAILS

SIZE OR MAGNITUDE OF OPERATION

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

SR. NO.	PRODUCT	CONFIGURATION	RODUCTION CAPACITY
1	Manganese Oxide by Roasting Furnace	3 x 15 T	1000 TPM (12,000 TPA)

RAW MATERIAL

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

Sr. No	Product	Raw Material Quantity	Source	Mode of Transportation
1	Manganese Ore	16,000 TPA	MOIL/Others	Tarpaulin covered trucks. Distance: 200 km – 800 km
2	Hard Coke	3,000 TPA	Open Market	Tarpaulin covered trucks. Distance: 200 km
3	Fire Wood	1,000 TPA	Open Market	Tarpaulin covered trucks. Distance: 50 km

WATER REQUIREMENT

Water requirement for the proposed project is 25.0 KLD. Water is mainly required for furnace cooling, jigging/washing process as well as for domestic uses, drinking, plantation & other purposes. Water will be sourced from MIDC. Unit wise water requirement is given in following Table.

Water Requirements during Operation Phase (m³/day)

Sr. No.	Unit	Water Requirement KLD	Wastewater Generation KLD	Mode of disposal of wastewater	Treatment
1	Furnace Cooling and Jigging	20.0	18.0	Reused	Settling Tank
2	Domestic	3.0	2.5	Recycle and	Packaged

Sr. No.	Unit	Water Requirement KLD	Wastewater Generation KLD	Mode of disposal of wastewater	Treatment
	Purpose			reused in Process or Plantation	Type STP
3	Green Belt Development	2.0	0.0	NA	NA

Wastewater from Furnace Cooling and Jigging process will be collected in settling tank which will be further recycled and the domestic sewage will be treated in packaged Type STP. Hence, the zero-wastewater discharge is proposed for the said project.

POWER REQUIREMENT

The estimated power requirement for the proposed project will be 150 KW and will be supplied by Maharashtra State Electricity Board.

LAND REQUIREMENT

The land required for the proposed project is 0.6655 Ha (6655 sq. mt).

EMPLOYMENT POTENTIAL

The proposed project creates employment for about 60 people.

TECHNOLOGY AND PROCESS DESCRIPTION

MANUFACTURING PROCESS OF MANGANESE DIOXIDE

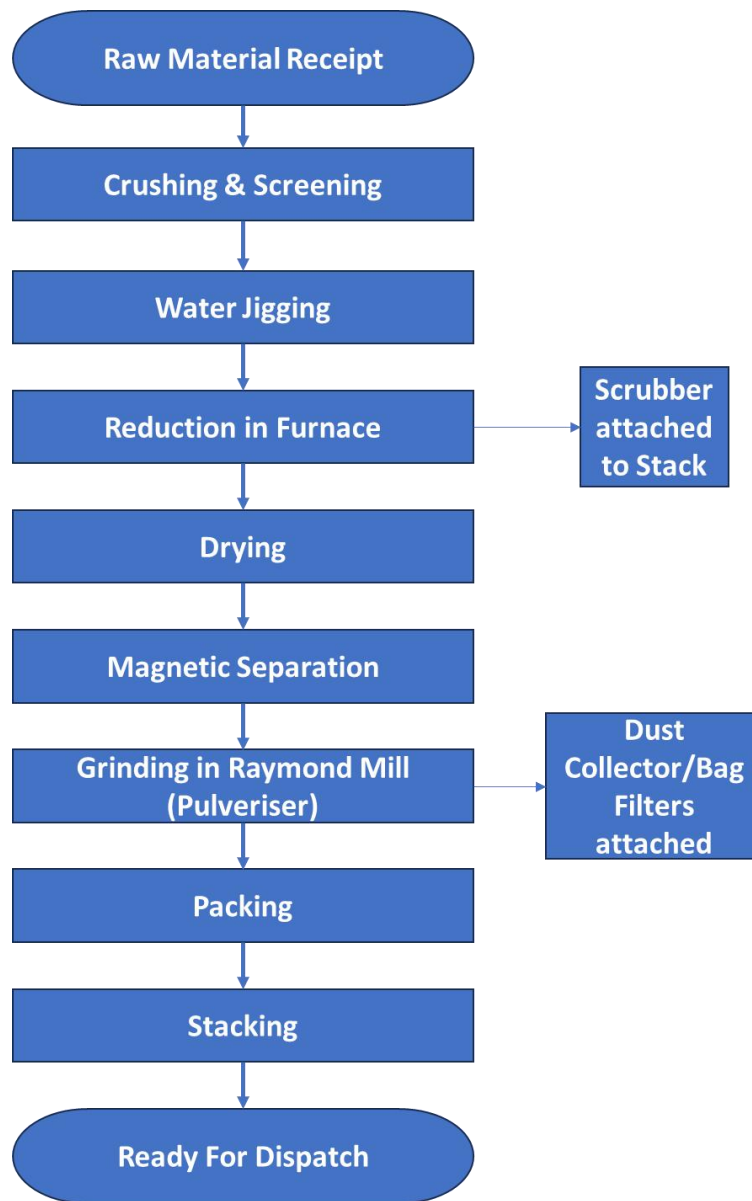
- After Manganese Ore receipt at the site, it is tested for the contents of various elements and then the material is crushed and then screened. After screening you get different sizes which are jigged in automatic water jigging machine.
- The material is then roasted in Hard Coke fired furnace (Bhatti) for 10 to 12 hours. After cooling the furnace, it is unloaded and then shifted for drying and magnetic separation.

- Then the material is dried (through wood fired hot plate driers) and after Magnetic Separation it is fed to grinding Machine, where it is powdered in grinding machine in the required mesh size.
- After grinding it is semi automatically packed in 25 kg/50 kg HDPE Bags and 1250 kg Jumbo bags and kept ready for dispatch.

Manufacturing Process

The proposed project is for Crushing, Screening, Jigging, roasting in Furnace, Drying and Grinding of Manganese Oxide. The flow diagram showing manufacturing process is given below.

PROCESS FLOW CHART OF MnO PRODUCTION



MITIGATION MEASURES

Air Environment

In the proposed project, the source emission is envisaged from furnace during roasting of manganese ore with coke and grinding of manganese ore. One Stack of 30 m height will be attached to the roasting furnace/Bhatti with movable hood attached to dust collector and scrubber followed by stack to control PM emission within 50 mg/NM³. Dust suction system will control fugitive emission due to material and raw material handling. Dust suppression system will be provided in the form of water sprinklers.

Noise Pollution & control measures

Noises from fans, centrifugal pumps, electrical motors etc. will be kept in control so that the ambient noise level shall not exceed 75dBA during daytime and 70dBA during nighttime. Noise pollution control measures will be provided in respective departments by way of providing silencers soundproofs cubicles / covers and proper selection of less noise prone machinery and by development of green belt. In plant, workers shall be provided with ear plugs or ear muffs working in plant in order to avoid exposure to high levels noise. The employees shall be trained in the mitigation measures and personal protection measures to be taken to prevent noise related health impacts.

Impact on Water

The total water requirement for the proposed activities is 25 KLD. During plant operation waste water will be generated from the Furnace Cooling and Jigging process. The wastewater generated in this process will be stored in the settling tank and will be reused in the process. The sewage will be treated in Packaged Type STP. No wastewater be discharge outside the plant premises and maintained Zero liquid discharge.

Solid Waste Generation & Management

The solid waste generation and management in the proposed plant is given in following Table.

Solid Waste Generation & Mitigation Measures

Waste	Quantity TPA	Mitigation Measures
Hard Coke Ash	320	Will be sold to brick manufacturers
Firewood Ash	80	Will be sold to brick manufacturers

DESCRIPTION OF THE ENVIRONMENT (BASELINE DATA)

Air Environment

Ambient air quality (AAQ) samples were collected on basis of 24-hour sampling and twice a week at each site. The ambient air quality samples were collected from January 2024 to March 2024 for continuous 13 weeks in an area of 10 km radius

around the proposed project site. Results for various parameter are as follows

PM₁₀ – 39.16 to 71.94 µg/m³.

PM_{2.5} – 21.67 to 42.9 µg/m³

SO₂ – 8.36 to 29.59 µg/m³

NO_x – 11.11 to 30.36 µg/m³

CO – 0.128 to 1.341 mg/m³

The concentrations of PM₁₀, PM_{2.5}, SO₂, NO_x and CO were found within the National Ambient Air Quality Standards (NAAQ).

Water Environment

A total 16 samples including eight surface & eight ground water samples were collected and analysed during January 2024. The water samples were analysed as per Standard Methods for Analysis of Water and Wastewater, American Public Health Association (APHA) Publication. The water quality collected from the lake/pond and nalla water samples are showing that the water sources are polluted except of Vena River sample. The surface water quality was compared with CPCB norm for surface water. Comparison shows that only Vena River water source meeting the criteria specified for Class C. Rest of the samples are not meeting the Surface water quality criteria. Surface water samples when compared with IS: 10500 standards the result shows that most of the surface water quality parameters are meeting the permissible limit at all locations.

The data indicated that in all the ground water samples most of the parameters are within the respective acceptable limit of IS: 10500 except for the Total Dissolved Solids, Total Alkalinity, Total Hardness, Chloride and Magnesium. The Total Dissolved Solids, Total Alkalinity, Total Hardness, Chloride and Magnesium levels are more than the acceptable limits but within the permissible limits.

Noise Environment

It has been found that the noise levels are in the range of 39.9-55.4 dB (A) at all eight stations. Maximum levels of noise have recorded in day hours which are natural as

our most of activities have done in day hours. Noise levels measured are within limit of 55.0 dB (A) for Residential Area or 75.0 dB (A) for Industrial Area as given in MoEF Gazette notification for National Ambient Noise Level Standard.

Land Environment

The characteristics of the soil sample were compared with respective parameters in eight stations. The soil analysis report indicates that the soil has sufficient nutrients and better in fertility which will support plant growth.

Socio Economic Environment

The Socio-economic environment was studied by collecting Data/Information through secondary sources (i.e. Census 2011, Government department, maps, literature research etc.). The data indicated that average Sex ratio is 909.16 in the study area. Employment pattern indicated that total working population was 2,43,217 (35%) of total population which indicated that about two persons from each family are working. Out of main workers, 22,043 (9%) were cultivator workers, 47,918 (20%) workers engaged as agricultural labours, 5,592 (2%) were involved in household industry related work and other working population were 1,67,664 (69%).

ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

Air Environment

In the proposed project the source emission is envisaged from furnace during roasting of manganese ore with coal and grinding of Manganese Ore. Cumulative Predicted 24-hourly Ground Level Incremental Concentrations (GLCs) are given in the following table.

Predicted Ground Level Concentrations

Pollutant	Maximum Incremental Levels ($\mu\text{g}/\text{m}^3$)	Distance (km)	Direction
PM ₁₀	0.247	0.600 Km	SW
PM _{2.5}	0.104	0.600 Km	SW
SO _x	0.638	0.500 Km	SW
NO _x	0.367	0.500 Km	SW

Air Pollution Control Measures

- Particulate matter will be controlled below 50 mg/Nm³ by providing dust collector and bag filter to stack. Water spray system shall be installed in the material handling system transfer points.
- Green belt will be developed inside plant area.
- The internal road will be concreted to reduce the fugitive dust due to vehicular movement
- Water spraying will be practiced frequently.
- The emissions from the stacks shall be monitored regularly for exit concentration of Sulphur dioxide, Nitrogen oxides and PM. Sampling ports shall be provided in the stacks according to CPCB guidelines.

Noise Pollution & control measures

In plant, workers particularly working near higher noise sources, may be exposed to higher level upto 75 dB(A) for longer durations. However, provision of ear plugs or ear muffs shall be made for in-plant workers working at such locations in order to avoid exposure to high levels whenever they come near the high noise generating sources.

Impact on Water

The water requirement for the proposed activities is 25.0 KLD. During plant operation wastewater will be generated from the jigging/washing process. The wastewater generated in this process will be treated in the settling tank and will be reused in the process and cooling. The sewage generated from the domestic usage in the proposed plant will be 2.5 KLD which will be treated in packed type STP and treated sewage will be reused for plantation purpose.

Solid Waste Generation and its Management

The major solid waste generated will Hard Coke Ash and Firewood Ash.

- Solid waste is non-hazardous and non-toxic in nature.
- Hard Coke Ash and Firewood Ash generated will be sold to brick manufacturing.

ENVIRONMENTAL MONITORING PROGRAMME

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

ADDITIONAL STUDIES

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

PROJECT BENEFITS

Company will give direct employment to near about 60 persons. The proposed capital budget of Rs. 2.5 Lacs which is 1% of the project cost will be spent towards CER activities in 3 years. The amount will be spent in various activities like construction of toilets, education etc.

ENVIRONMENTAL MANAGEMENT PLAN

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

OCCUPATIONAL SAFETY & HEALTH MANAGEMENT

M/s. Navratna Manganese Products LLP will provide all necessary provisions under Factory Act. In addition, a Safety committee will be formed and manned by equal participants from Management and Workers. All personal protect equipments like Safety shoes, helmet & uniform will be issued to each employee based on the nature of job involved.

CONCLUSION

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