

EXECUTIVE SUMMARY

For

Proposed Expansion of Existing Grinding and Screening unit of Dolomite & Manganese Ore with addition of Manufacturing of 30000 TPA of Manganese Oxide by Roasting furnace & 12000 TPA of Manganese Sulphate.
Brownfield Project

At

Khasra No. 99, Village- Ashti (Khurd), Tehsil- Savner & Dist. Nagpur, Maharashtra.

[Project comes under Category “A” of Schedule, 3 (a) Metallurgical Industries (Ferrous and Non-ferrous) as per EIA Notification dated 14th September, 2006 & its amendments thereof]

Project Proponent	Environmental Consultant:
Jigsun Alloys Private Limited	
Khasra No. 99, Village- Ashti (Khurd),	Pollution and Ecology Control Services
Tehsil- Savner & Dist. Nagpur,	Near Dhantoli Police Station, Dhantoli, Nagpur
Maharashtra	Email: pecsnagpur@gmail.com
	Accreditation no.: NABET/EIA/25-28/RA 0474
	Valid upto: October 16, 2028

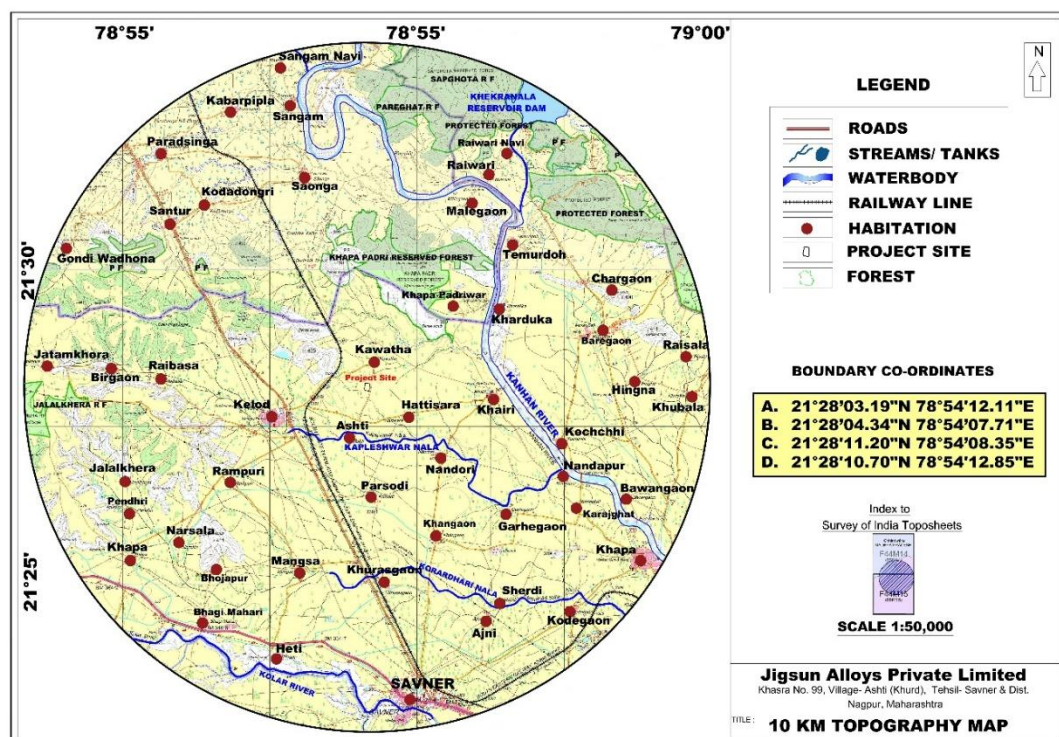


Executive Summary

1.0 INTRODUCTION

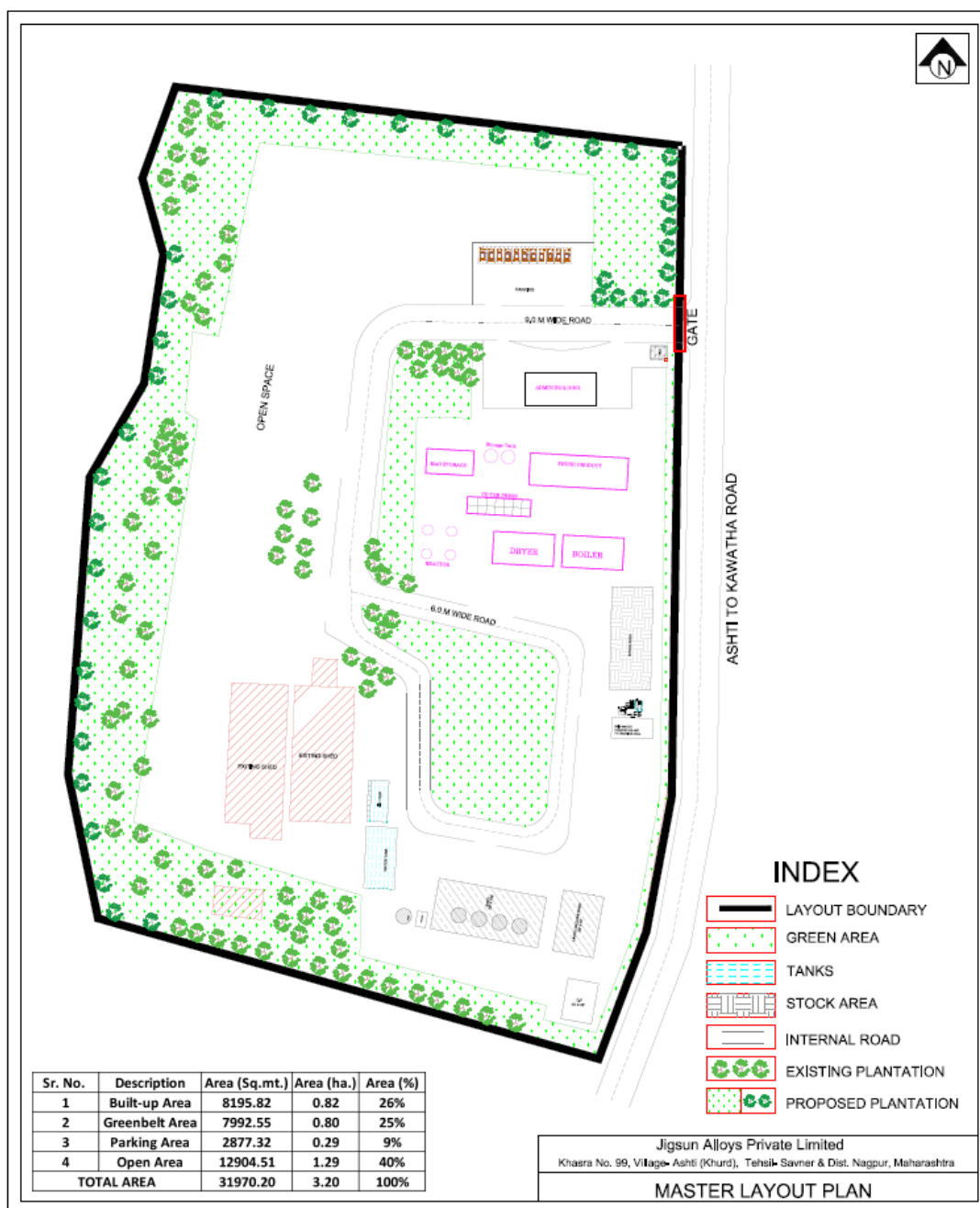
The project proponent is operating an existing Dolomite and Manganese Ore Grinding & Screening Unit at Khasra No. 99, Village Ashti (Khurd), Tehsil Savner, District Nagpur, Maharashtra. In view of the growing demand for value-added manganese products in various industrial sectors such as steel, chemicals, fertilizers, batteries, and allied industries, the project proponent has proposed expansion of the existing unit.

The proposed expansion involves the addition of manufacturing facilities for 30,000 TPA of Manganese Oxide through Roasting Furnace and 12,000 TPA of Manganese Sulphate along with the associated infrastructure and pollution control systems. The project aims to enhance the utilization of manganese ore by converting it into value-added products, thereby contributing to industrial growth and economic development. The proposed project will be developed within the existing industrial premises and is expected to generate direct and indirect employment opportunities in the region. Adequate environmental safeguard measures and pollution control systems have been incorporated into the project design to ensure compliance with applicable environmental regulations and sustainable operation of the facility.



Source: SOI Toposheet

Topographical Map (10 km Radius)



Plant Layout

2.0 PROJECT DETAILS

Project at a Glance

Sr. No.	Description	Details
1	Nature of the project	Proposed Expansion of Existing Grinding and Screening unit of Dolomite & Manganese Ore with addition of Manufacturing of 30000 TPA of Manganese Oxide by Roasting furnace & 12000 TPA of Manganese Sulphate

2	Plant Location	Khasra No. 99, Village- Ashti (Khurd), Tehsil- Savner & Dist. Nagpur, Maharashtra				
3	Configuration	30000 TPA Manganese Oxide & 12000 TPA Manganese Sulphate				
4	Raw Material Requirement	Sr. No.	Raw Material	Proposed Requirement (TPA)	Source	Mode of Transportation
		Manganese Oxide				
		1.	Manganese Ore	39,000 TPA	MOIL and imported	In Tarpaulin covered Dumper by road
			Hard Coke	7,500 TPA	Local Traders	In Tarpaulin covered Dumper by road
		Manganese Sulphate				
		2.	Manganese Ore	12000 TPA	MOIL and imported	In Tarpaulin covered Dumper by road
			Sulphuric acid	7660 TPA	Gujarat	In Tanker by road
			Firewood	3000 TPA	Local Market	Road
5	Water requirement for the proposed project	Existing: 2 KLD Proposed: 52 KLD Total: 54 KLD Source: Ground Water				
6	Power requirement & Source	500 KW Source: MSEDCL				
7	Land for proposed plant	3.90 ha				
8	Total manpower after commissioning of the unit.	100 Nos.				
9	Estimated Cost of the project	Existing Cost: Rs. 3.7 Cr Proposed Cost: Rs. 4.0 Cr Total Cost: Rs. 7.7 Cr				

3.0 PROCESS DESCRIPTION

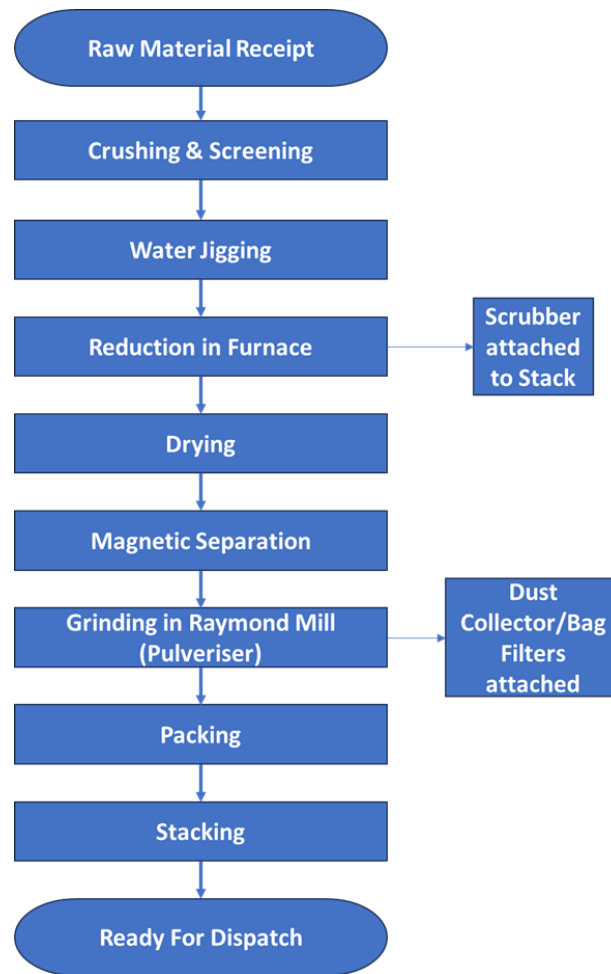


Figure: Manufacturing Process of Manganese Oxide

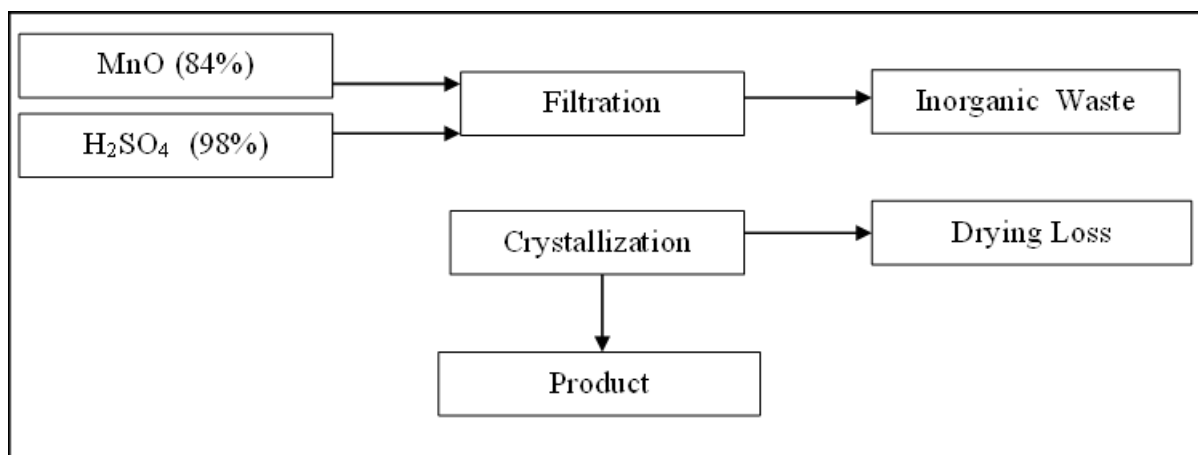


Figure: Manufacturing Process of Manganese Sulphate

4.0 DESCRIPTION OF ENVIRONMENT

Air Environment

The ambient air quality monitored at eight locations selected based on predominant wind direction, indicated the following ranges;

PM₁₀ : 39.0 - 69.7 µg/m³.

PM_{2.5} : 15.8 – 40.1 µg/m³

SO₂ : 10.3 – 29.5 µg/m³

NO_x : 12.3 – 34.1 µg/m³

Industrial Area, Residential, Rural Area (CPCB Norms)	PM ₁₀	PM _{2.5}	SO ₂	NO _x
	100 µg/m ³	60 µg/m ³	80 µg/m ³	80 µg/m ³

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

Water Environment

A total of 15 samples including seven surface & eight ground water samples were collected and analyzed. The water samples were analyzed as per Standard Methods for Analysis of Water and Wastewater, American Public Health Association (APHA) Publication. The data indicates that the ground water as well as the surface water quality are below the stipulated standard for drinking water (BIS 10500 – 2012) except presence of coliform in surface water, which may be due to the human activities

Noise Environment

It has found that in the proposed expansion plant, noise levels are in the range of 38.1 to 54.3 dB (A) at all eight stations. Maximum levels of noise have recorded in day hours which are natural as our most of activities have done in day hours.

Noise levels measured at all eight stations are well within limit of either 65.0 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

Eight Soil samples were collected analyzed for physico-chemical characteristics at selected locations in the study area to assess the existing soil conditions around the proposed project site. The relevant parameters show the following characteristics.

The characteristics of the soil sample were compared with different depths for respective parameters.

The observations of soil characteristics are discussed parameter wise below;

- a) Texture of all soil samples are Silty clay in Texture Classification.
- b) Colour of soil samples is Yellow, Red, Reddish brown & brown in color.
- c) The bulk density of soil samples is in the range of 1.27 to 1.52 gm/cc.
- d) Soil samples have pH values in the range of 7.14 to 7.42. The pH values are indicating nature of soil samples as neutral.
- e) Soil samples have conductivities between 298.8 to 372.6 $\mu\text{S}/\text{cm}$.
- f) Soil samples have Organic Matter between 1.22 to 1.68 %. These values represent average fertility of soils.
- g) Soil samples have concentration of Available Nitrogen values ranged between 239 to 316 kg/ha.
- h) Soil sample have concentration of Available Phosphorous values ranged between 38 to 71 kg/ha.
- i) Soil sample have concentration of Available Potassium values range between 124 to 182 kg/ha.

5.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Air Environment

The proposed expansion project of M/s. Jigsum Alloys Private Limited involves the existing grinding and screening of dolomite and manganese ore, along with the addition of a 30,000 TPA Manganese Oxide manufacturing unit through roasting furnaces and a 12,000 TPA Manganese Sulphate manufacturing unit. Air emissions are anticipated mainly from the roasting furnaces, material handling, grinding and screening operations, and product handling.

The following mitigation measures will be implemented to minimize air pollution:

- The roasting furnaces will be connected to an efficient air pollution control system comprising wet scrubbers followed by a common stack of adequate height to ensure particulate matter emissions remain within the prescribed statutory limits.
- Grinding and screening units will be provided with dust extraction and dust collection systems to effectively control particulate emissions at the source by installation of Bag filter.
- Water sprinkling arrangements and other dust suppression measures will be provided on internal roads, raw material storage areas, and material handling locations to control dust generation.
- Raw materials and finished products will be stored in designated covered areas to prevent windblown dust.
- Internal roads will be maintained in good condition, and regular housekeeping practices will be adopted throughout the plant premises.
- A green belt will be developed and maintained around the plant boundary in accordance with applicable environmental guidelines to act as a natural barrier against dust dispersion.
- Regular monitoring of stack emissions and ambient air quality will be carried out to ensure compliance with the applicable environmental standards.
- Periodic monitoring of environmental components, including ambient air quality, stack emissions, water, noise, and soil quality, will be undertaken through NABL-accredited and MoEF&CC-recognized laboratories.
- All pollution control equipment will be regularly inspected and maintained to ensure efficient operation and continuous compliance with statutory environmental norms.

Noise Pollution & control measures

The noise levels will not exceed the standards stipulated by Central Pollution Control Board at any point of time. The equipment will have inbuilt noise control devices. The measured noise level produced by any equipment will not exceed 85 dB(A) at a distance of 1.0-m from its boundary in any direction under any load condition. The noise produced in valves and piping associated with handling compressible and incompressible fluids will be attenuated to 75 dB(A) at a distance of 1.0 m from the

source by the use of low noise trims, baffle plate silencers/line silencers, acoustic lagging (insulation), thick-walled pipe work as and where necessary. The general mitigations for the attenuation of the noise are given below:

- ❖ Encasement of noise generating equipment where otherwise noise cannot be controlled
- ❖ Noise proof cabins will be provided to operators where remote control for operating noise generating equipment is feasible.
- ❖ In all the design/installation precautions are taken as specified by the manufacturers with respect to noise control will be strictly adhered to;
- ❖ High noise generating sources will be insulated adequately by providing suitable enclosures;
- ❖ Use of lagging with attenuation properties on plant components / installation of sound attenuation panels around the equipment
- ❖ Other than the regular maintenance of the various equipment, ear plugs/muffs are recommended for the personnel working close to the noise generating units;
- ❖ All the openings like covers, partitions will be designed properly
- ❖ Inlet and outlet mufflers will be provided which are easy to design and construct.
- ❖ All rotating items will be well lubricated and provided with enclosures as far as possible to reduce noise transmission. Extensive vibration monitoring system will be provided to check and reduce vibrations. Vibration isolators will be provided to reduce vibration and noise wherever possible;
- ❖ The insulation provided for prevention of loss of heat and personnel safety will also act as noise reducers.

Impact on Water

The water requirement for the proposed activities is 52 KLD. Water will be sourced from ground water. During plant operation wastewater will be generated from the jigging/washing process. The wastewater generated in this process will be stored in the settling tank and will be reused in the process. For wastewater generated from the production of manganese sulphate (MnSO_4), an Equalisation tank is provided to adjust the pH before further treatment, recycling, or disposal. Since MnSO_4 production

generally involves the use of sulfuric acid, the wastewater is typically acidic and requires neutralization. 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

The proposed expansion project of M/s. Jigsun Alloys Private Limited will generate solid waste primarily in the form of ash and process residues. The details of solid waste generation, quantity, and disposal/utilization plan are presented below:

Table: Solid Waste Generation & Mitigation Measures

Sr. No.	Solid Waste	Proposed Quantity (TPA)	Disposal / Utilization
1.	Hard Coke Ash	800	Will be sold to brick manufacturers
2.	Firewood Ash	240	Will be sold to brick manufacturers
3.	Residue/Tailings/sludge	4000	Dried tailings/sludge (high SiO ₂ + Fe ₂ O ₃) will be Use as additive in cement or as clay replacement in bricks.

6.0 ENVIRONMENTAL MONITORING PROGRAMME

An Environmental Monitoring Programme will be implemented to ensure compliance with CPCB/SPCB standards and to assess the effectiveness of pollution control measures during the construction and operation phases of the project. Monitoring will be carried out for ambient air quality (PM₁₀, PM_{2.5}, SO₂, NO_x), stack emissions, water quality, noise levels, and soil quality at regular intervals as per prescribed norms. Online monitoring systems (CEMS/CEQMS) will be installed for major emission sources.

A dedicated Environment Management Cell (EMC) will oversee the monitoring activities, maintain records, and ensure timely reporting to regulatory authorities. The programme will facilitate early detection of any environmental impacts and implementation of corrective measures, ensuring sustainable operation of the project.

7.0 ADDITIONAL STUDIES

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

8.0 PROJECT BENEFITS

CORPORATE ENVIRONMENT RESPONSIBILITY (CER)

Developmental activities should be based on community priority and with significant local contributions. Important areas identified by Social Impact Assessment and during Public hearings have been considered under CER activities. This approach will strengthen the groups, empower the members and local people will be benefited.

CER Budget

- CER Budget will be finalized after the conduction of Public Hearing based on issues raised in Public Hearing.
- The amount will be spent in various activities as per the issues raised in public hearing
- After successful completion of CER activities more villages will be selected for CSR.
- CSR activity shall be regular feature till the life span of project.

9.0 ENVIRONMENTAL MANAGEMENT PLAN

The environmental management plan will be followed during construction and operation phases. The project allocated a budget of Rs. 50 Lakhs for the implementation of capital works under EMP apart from the annual recurring budget that will be allocated annually for operation and maintenance of environmental infrastructure. An environment management cell will be established for the proposed project.

10.0 GREEN BELT DEVELOPMENT

Green belt will be developed within the Plant premises covering a total area of about 7992.55 sq mt (25%) of total Plant area. The plantation work for green belt development will be carried out as per CPCB guidelines, local species would be preferred.

A green belt or tree plantation around the proposed plant shall help to arrest the effects of particulate matter in the area besides playing a major role in environmental conservation efforts. Green belt development and plantation programme for the proposed project shall also be a part of the proposed plan. An Area of 7992.55 sq mt

will be developed as green belt in phases. Approximately 500 trees have already been planted within the project premises. Further, about 1,500 additional trees will be planted as part of the greenbelt development programme in consultation with the Forest Department. The proposed plantation will mainly include native and pollution-tolerant species such as Neem (*Azadirachta indica*), Ashoka (*Polyalthia longifolia*), Karanj (*Pongamia pinnata*), Mango (*Mangifera indica*), Jamun (*Syzygium cumini*), Arjun (*Terminalia arjuna*), and Amla (*Phyllanthus emblica*). The plantation will help improve the local environment, enhance biodiversity, and contribute to ecological balance.

11.0 CONCLUSION

The proposed expansion of the existing Dolomite and Manganese Ore Grinding & Screening Unit with the addition of 30,000 TPA Manganese Oxide and 12,000 TPA Manganese Sulphate manufacturing facilities by M/s. Jigsun Alloys Private Limited has been planned with due consideration to environmental protection and sustainable development.

The baseline environmental studies indicate that the existing environmental quality of the study area is within the prescribed standards. The anticipated environmental impacts from the proposed project will be effectively controlled through the installation of efficient pollution control systems, including wet scrubbers, bag filters, wastewater treatment and recycling facilities, scientific solid waste management practices, and development of a greenbelt over 25% of the project area.

The project will operate on the principles of resource conservation, water recycling, zero liquid discharge, regular environmental monitoring, and compliance with all applicable environmental regulations.

The proposed expansion will generate employment opportunities, promote value addition to manganese ore, support the growth of ancillary industries, and contribute to the socio-economic development of the region. With the implementation of the proposed mitigation measures and environmental management practices, the project is not expected to cause any significant adverse impact on the surrounding environment.