

Environmental Impact Assessment Report & Environment Management Plan (DEC.'2023)

FOR

Existing Re-rolling Mill Project

As per MoEFCC Gazette Notification No. S.O. 3250(E) Dt: 20th Jul.'2022, which mandates existing rolling mill for obtaining EC

OF

M/s SRI SAI INDUSTRIES

Mayja : Dikri, Poiwa Pachrukha Road

P.O : Poiwa,

District : Arrangabad - 824103 , State : Bihar.

Baseline Data Generated by Shiva Test House, Patna (MoEFCC CPCB
Recognised Lab vide CPCB letter No. LB/99/7/2021-InstLab-HO-
CPCB-HO/Private/767. Dt: 06th Nov.'2023 and NABL Accredited Lab)

Prepared by :-



PARAMARSH

(Servicing Environment and Development)

M.S. – 1/10, Sector A, Sitapur Road Yojna
Near St. Anthony School, Ram Ram Bank Chouraha
Aliganj, Lucknow - 226024 (U.P.)

NABET-QCI Accredited EIA Consultant Organization

(Certificate No. NABET/EIA/2124/RA 0224 valid upto 01.05.2024)

CERTIFICATE

This is to certify that Paramarsh (Servicing Environment & Development), Lucknow has carried out EIA evaluation studies for existing Re-rolling Mill Project of Sri Sai Industries, located at Vill. Dehri, Poiwa Pachrukha Road, P.O. Poiwa, Dist. Aurangabad, State Bihar.

As per requirement of MoEFCC Gazette Notification No. S.O. 3250(E) Dt: 20th Jul.'2022, existing rolling mills having capacity more than 5000 TPA requires to obtain EC and shall be exempted from requirement of Public Consultation, provided that the application for the grant of TOR shall be made within a period of 1 year from the date of this notification.

The primary baseline data collected by Shiva Test House a MoEFCC and NABL Accredited Lab within the study area supported by the secondary data collected from the Government Agencies were used for the prediction of impacts for air, noise, water, land, biology/ecology and socio-economic environments. It was observed that the proposed project does not have any major negative impacts on the environment.

Paramarsh (Servicing Environment & Development), Lucknow have successfully completed projects for different type of industries viz. Distilleries, Sugar industry, Building & Construction projects, Mining, Asbestos Milling, Pulp & Paper, Metallurgical industries, Townships and Area development projects etc, for Government, Private and Co-operative organizations. Paramarsh is Accredited under "EIA consultant Organizations Accreditation Scheme" of Quality Council of India, vide Certificate No. NABET/EIA/2124/RA 0224 valid upto 01.05.2024.

Dt: 30.12.2023



Dr. S. Prasad
EIA Co-ordinator

DECLARATION BY EXPERTS CONTRIBUTING TO EIA REPORT

We hereby certify that we are part of the EIA team in the following capacity for EIA Study and Environment Management Plan for Environment Clearance for Existing Re-rolling Mill Project of Sri Sai Industries, located at Vill. Dehri, P.O. Poiwa, Dist. Aurangabad, Bihar.

EIA Coordinator:

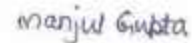
Name : Dr. S. Prasad

Signature



Sector : Metallurgical Industries (Ferrous & Non Ferrous)

Contact Information : paramarsh.env@hotmail.com

S. No.	Functional Area	Name of the experts	Involvement	Signature
1	RH	Mr. Akash Kumar	Identification of hazards materials, Fire accidents from Diesel storage and lethality damages, DMP and EPP for onsite & offsite were provided.	
2	WP		Estimating water requirements, suggesting wastewater treatment/disposal schemes and developed the plan for rain water harvesting.	
3	EB		Generating the ground truthing ecological assessment with secondary data from different departments, earmarking rare and endangered species	
4	SHW	Dr. Manjul Gupta	Estimation of Solid Waste Management , suggesting management options to minimize pollution load.	
5	SC		Study of Soil of the project area, fertility status, management practices during construction and operation phase of project.	
6	AP		Resource estimation of air pollution, secondary sources and suggested air pollution control measures during both phase of project.	

Address : M.S. – 1/10, Sector A, Sitapur Road Yojna
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Aliganj, Lucknow - 226024 (U.P.)
Contact No.: 9044905077 ; 9336348520
Email : paramarsh.env@gmail.com

S. No.	Functional Area	Name of the experts	Involvement	Signature
7	SE	Mr. Pankaj Kumar Srivastava	Analysis of Demographic and Socio economic data of the study area based on survey and secondary data from govt. agencies, viz., Census of India. Impact identification and amenities/ needs.	
8	AQ & AP	Dr. S. Prasad	Air Quality Modeling and Air Pollution control management plan	
9	Geo	Dr. Abdul Rahman	Input in EIA/EMP report regarding geology of the area.	
10	SC	Dr. S.V. Ghavri	Proposing the soil management practices during construction and operation phase of project.	
11	NV	Mr Vinod Kr Dwivedi	Assessment of Noise and Vibration and its mitigation an management plan	
12	LU & HG	Mr. S.P. Tiwari	Input in EIA/EMP report regarding Land use and Hygro-geology of the area.	



Akash Kumar
Director

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- II. Site Photographs
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- V. Reports of Baseline Data generation for Air, Ground Water, Surface Water, Soil & Noise Level.



F. No. - SIA/3(a)/2244/2023

**STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY,
BIHAR**

2nd Floor, Beltron Bhawn

Shastri Nagar

Patna - 800 023

E-mail:- seiaabihar@gmail.com

seiaa.ms.br@gmail.com

Dated:- 28/03/2023

To,

**Shri Laxmi Prasad,
Proprietor,
M/s Sri SAI Industries,
S/o Gupteshwar Ram,
Nawadih Road near Kali Kalab,
Aurangabad, Bihar,
Pin code:- 824 101,
E-mail:- laxmi227@rediffmail.com,
Telephone No.:- 9931633339**

Sub:

**Proposed Metallurgical Project "Sri SAI Industries" at
Mauza:- Dihri, Poiwa Pachrukha Road, P.O.:- Poiwa,
Village:- Dihri, Tehsil:- Aurangabad, District:-
Aurangabad, State:- Bihar; by M/s Sri SAI Industries
[Production Facilities of Re-rolling Mill of Product MS Flat
/ Angle / Channel / Square 9,450 TPA (27 TPD)] - Terms of
Reference regarding.**

Ref:

1. Online Application - SIA/BR/IND1/412034/2022.

2. Scrutiny fee submission dated 06-01-2023.
3. Minutes of the SEAC meeting held on 20-02-2023.
4. Minutes of the SEIAA meeting held on ~~20~~-03-2023.

Sir,

This has reference to the online proposal submitted in the State Level Environment Impact Assessment Authority to prescribe the Terms of Reference (ToR) for undertaking detailed EIA study for the purpose of obtaining Environmental Clearance in accordance with the provisions of the EIA Notification, 2006. For this purpose, the proponent had submitted online information in the prescribed format (Form - I) along with a Pre-feasibility Report. The details of the proposal as described in the application are as follows:

- | | |
|---|---|
| 1. <u>Online Proposal No.</u> | SIA/BR/IND1/412034/2022 |
| 2. <u>File No.:</u> | SIA/3(a)/2244/2023 |
| 3. <u>Name of the Proposal</u> | Proposed Metallurgical Project
"Sri SAI Industries" at Mauza:-
Dihri, Poiwa Pachrukha Road,
P.O.:- Poiwa, Village:- Dihri,
Tehsil:- Aurangabad, District:-
Aurangabad, State:- Bihar;
by M/s Sri SAI Industries |
| 4. <u>Category of the Proposal:</u> | Metallurgical Industries
(Ferrous & Non-Ferrous) Project.
3(a) |
| 5. <u>Project/Activity applied for</u> | Metallurgical Industries
(Ferrous & Non-Ferrous) Project |

In this regard, under the provisions of the EIA Notification, 2006 as amended, the ToR for the purpose of preparing Environment Impact Assessment report and Environment Management Plan for obtaining prior Environmental Clearance is prescribed as follows:-

A. STANDARD TERMS OF REFERENCE (TOR)

1. Executive Summary.

2. Introduction.

- i. Details of the EIA Consultant including NABET accreditation.
- ii. Information about the project proponent.
- iii. Importance and benefits of the project.

3. Project Description.

- i. Cost of project and time of completion.
- ii. Products with capacities for the proposed project.
- iii. Details of existing products with capacities and whether adequate land is available for expansion, reference of earlier EC if any.
- iv. List of raw materials required and their source along with mode of transportation.
- v. Other chemicals and materials required with quantities and storage capacities.
- vi. Details of Emission, effluents, solid waste, hazardous waste generation and their management.
- vii. Requirement of water, power, with source of supply, status of approval, water balance diagram, man-power requirement (regular and contractual).
- viii. Process description along with major equipments and machineries, process flow sheet (quantative) from raw material to products to be provided.
- ix. Production of a report / certificate from concerned authority enforcing Factory Act regarding suitability of existing unit / plant for proposed expansion mentioning whether existing plant is a satisfactory compliant of Factory Act.
- x. The proposal of the expansion of capacity to include thorough renovation/up-gradation of all existing infrastructure of the unit consisting

development/construction of First aid center/dispensary room for workers, development of facilities (toilets/urinals/washing rooms, canteen etc.)

- xi. Hazard identification and details of proposed safety systems.
- xii. Submit a copy of application submitted to competent authority / agency with regard to supply of PNG gas pipe line.
- xiii. Expansion/modernization proposals:
 - a) Copy of all the Environmental Clearance(s) including Amendments thereto obtained for the project from MoEF&CC/SEIAA shall be attached as an Annexure. A certified copy of the latest Monitoring Report of the Regional Office of the Ministry of Environment and Forests as per circular dated 30th May, 2012 on the status of compliance of conditions stipulated in all the existing Environmental Clearances including Amendments shall be provided. In addition, status of compliance of Consent to Operate for the ongoing existing operation of the project from SPCB shall be attached with the EIA-EMP report.
 - b) In case the existing project has not obtained Environmental Clearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and/or EIA Notification, 2006 shall be provided. Copies of Consent to Establish/No Objection Certificate and Consent to Operate (in case of units operating prior to EIA Notification 2006, CTE and CTO of FY 2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of consents from the SPCB shall be submitted.

4. Site Details.

- i. Location of the project site with description of surround covering village, Taluka/Tehsil, District and State, Justification for selecting the site, whether alternative sites were considered.

- ii. A toposheet of the study area of radius of 10 km and site location on 1:50,000/1:25,000 scale on an A₃/A₂ sheet. (including all eco-sensitive areas and environmentally sensitive places).
- iii. Details w.r.t. option analysis for selection of site.
- iv. Co-ordinates (lat-long) of all four corners of the site.
- v. Google map-Earth downloaded of the project site.
- vi. Layout maps indicating existing unit as well as proposed unit indicating storage area, plant area, greenbelt area, utilities etc. If located within an Industrial area/Estate/Complex, layout of Industrial Area indicating location of unit within the Industrial area/Estate.
- vii. Photographs of the proposed and existing (if applicable) plant site. If existing, show photographs of plantation/greenbelt, in particular.
- viii. Landuse break-up of total land of the project site (identified and acquired), government/private - agricultural, forest, wasteland, water bodies, settlements, etc shall be included. (not required for industrial area).
- ix. A list of major industries with name and type within study area (10km radius) shall be incorporated. Land use details of the study area.
- x. Geological features and Geo-hydrological status of the study area shall be included.
- xi. Details of Drainage of the project upto 5km radius of study area. If the site is within 1 km radius of any major river, peak and lean season river discharge as well as flood occurrence frequency based on peak rainfall data of the past 30 years. Details of Flood Level of the project site and maximum Flood Level of the river shall also be provided. (mega green field projects).
- xii. Status of acquisition of land. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land.
- xiii. R&R details in respect of land in line with state Government policy.

5. Environmental Status

- i. Determination of atmospheric inversion level at the project site and site-specific micrometeorological data using temperature, relative humidity, hourly wind speed and direction and rainfall.
- ii. Surface water quality of nearby River (100meter upstream and downstream of discharge point) and other surface drains at eight locations as per CPCB/MoEF&CC guidelines.
- iii. Whether the site falls near to polluted stretch of river identified by the CPCB/MoEF&CC, if yes give details.
- iv. Ground water monitoring at minimum at 8 locations shall be included.
- v. Noise levels monitoring at 8 locations within the study area.
- vi. Soil Characteristic as per CPCB guidelines.
- vii. Traffic study of the area, type of vehicles, frequency of vehicles for transportation of materials, additional traffic due to proposed project, parking arrangement etc.
- viii. A detailed report shall be submitted using suitable model used to predict increase in air pollutants due to increased traffic load due to proposed project.
- ix. Detailed description of flora and fauna (terrestrial, avifauna and aquatic) existing in the study area shall be given with special reference to rare, endemic and endangered species. If Schedule-I fauna are found within the study area, a Wildlife Conservation Plan shall be prepared and furnished.
- x. Socio-economic status of the study area.

6. Impact and Environment Management Plan.

- i. Assessment of ground level concentration of pollutants from the stack emission based on site-specific meteorological features. In case the project is located on a hilly terrain, the AQIP Modelling shall be done using inputs of the specific terrain characteristics for determining the potential impacts of the project on the AAQ.

Cumulative impact of all sources of emissions (including transportation) on the AAQ of the area shall be assessed. Details of the model used and the input data used for modelling shall also be provided. The air quality contours shall be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any.

- ii. Water Quality modelling - in case of discharge in water body.
- iii. Ground water classification as per the Central Ground Water Authority and NOC from CGWB.
- iv. Impact of the transport of the raw materials and end products on the surrounding environment shall be assessed and provided. In this regard, options for transport of raw materials and finished products and wastes (large quantities) by rail or rail-cum road transport or conveyor-cum-rail transport shall be examined.
- v. A note on treatment of wastewater from different plant operations, extent recycled and reused for different purposes shall be included. Complete scheme of effluent treatment. Characteristics of untreated and treated effluent to meet the prescribed standards of discharge under E(P) Rules.
- vi. Details of stack emission and action plan for control of emissions to meet standards.
- vii. Measures for fugitive emission control.
- viii. Details of hazardous waste generation and their storage, utilization and management. Copies of MoU regarding utilization of solid and hazardous waste in cement plant shall also be included. EMP shall include the concept of waste-minimization, recycle/reuse/recover techniques, Energy conservation, and natural resource conservation.
- ix. Proper utilization of fly ash, shall be ensured as per Fly Ash Notification, 2009. A detailed plan of action shall be provided.
- x. Arrangement of land/alternative sites for green-belt development inside unit or in the proximity of unit.

- xi. Submit an action plan for the three tier plantation to develop a green belt development plan in 33 % area i.e. land with not less than 1,500 trees per ha. Giving details of species, width of plantation, planning schedule etc. shall be included. The green belt shall be around the project boundary and a scheme for greening of the roads used for the project shall also be incorporated.
- xii. Action plan for rainwater harvesting measures at plant site shall be submitted to harvest rainwater from the roof tops and storm water drains to recharge the ground water and also to use for the various activities at the project site to conserve fresh water and reduce the water requirement from other sources.
- xiii. Total capital cost and recurring cost/annum for environmental pollution control measures shall be included.
- xiv. Action plan for post-project environmental monitoring shall be submitted.
- xv. Onsite and Offsite Disaster (natural and Man-made) Preparedness and Emergency Management Plan including Risk Assessment and damage control. Disaster management plan should be linked with District Disaster Management Plan.

7. Occupational health

- i. Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers.
- ii. Details of exposure specific health status evaluation of worker. If the workers' health is being evaluated by pre designed format, chest x rays, Audiometry, Spirometry, Vision testing (Far & Near vision, colour vision and any other ocular defect) ECG, during pre placement and periodical examinations give the details of the same. Details regarding last month analyzed data of above mentioned parameters as per age, sex, duration of exposure and department wise.
- iii. Details of existing Occupational & Safety Hazards. What are the exposure levels of hazards and whether they are within Permissible Exposure level (PEL). If these

are not within PEL, what measures the company has adopted to keep them within PEL so that health of the workers can be preserved,

- iv. Annual report of health status of workers with special reference to Occupational Health and Safety.
- v. Making provisions for all personal safety/security related gears (shoes /hats/ helmets/ jacket/ gloves, specks, ear plugs etc.) for all workers and enforcing use of the same.

8. Corporate Environment Policy

- i. Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.
- ii. The Project Proponent shall prepare report with the provisions contained in Ministry of Environment, Forest & Climate Change OM Vide F. No. 22-65/2017-IA.III dated 1st May 2018, as applicable, regarding Corporate Environment Responsibilities.
- iii. Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.
- iv. What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions? Details of this system may be given.
- v. Does the company have system of reporting of non compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism shall be detailed in the EIA report.

- 9. Details regarding infrastructure facilities such as sanitation, fuel, restroom etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase.

10. Enterprise Social Commitment (ESC)

- i. Adequate funds (at least 2.5 % of the project cost) shall be earmarked towards the Enterprise Social Commitment based on Public Consultation issues and item-wise details along with time bound action plan shall be included. Socio-economic development activities need to be elaborated upon.
- 11.** Any litigation pending against the project and/or any direction/order passed by any Court of Law against the project, if so, details thereof shall also be included. Has the unit received any notice under the Section 5 of Environment (Protection) Act, 1986 or relevant Sections of Air and Water Acts? If so, details thereof and compliance/ATR to the notice(s) and present status of the case.

SPECIFIC TERMS OF REFERENCE FOR EIA STUDIES FOR METALLURGICAL INDUSTRIES (FERROUS & NON FERROUS)

1. Complete process flow diagram describing each unit, its processes and operations, along with material and energy inputs & outputs (material and energy balance).
2. Details on blast furnace/ open hearth furnace/ basic oxygen furnace/ladle refining, casting and rolling plants etc.
3. Details on installation/activation of capacity meters with recording with proper calibration system.
4. Details on toxic metals including mercury, arsenic and fluoride emissions.
5. Details on stack height requirement for integrated steel.
6. Details on ash disposal and management -Non-ferrous metal.
7. Complete process flow diagram describing production of lead/zinc/copper/ aluminium, etc.
8. Raw materials substitution or elimination.

9. Details on smelting, thermal refining, melting, slag fuming, and Waelz kiln operation.
10. Details on Holding and de-gassing of molten metal from primary and secondary aluminum, materials pre-treatment, and from melting and smelting of secondary aluminium.
11. Details on solvent recycling.
12. Details on precious metals recovery.
13. Details on composition, generation and utilization of waste/fuel gases from coke oven plant and their utilization.
14. Details on toxic metal content in the waste material and its composition and end use (particularly of slag).
15. Trace metals Mercury, arsenic and fluoride emissions in the raw material.
16. Trace metals in waste material especially slag.
17. Plan for trace metal recovery.
18. Trace metals in water.
19. A tabular chart with index for point wise compliance of above ToR.

Additional Conditions

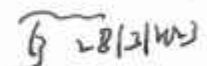
1. The SEIAA accepted the request of the Project Proponent for exemption from the requirement of Public Consultation as per S. O. No. 3250 (E), dated 20.07.2022 of MoEF&CC, GoI.
2. Submit a plan regarding automatic water sprinklers.
3. Status of the project area on ground water resource assessment as per updated report of Central Ground Water Board (CGWB).
4. Submit a list of flora and fauna of the project area.

5. Plantation details along with list of species to be planted, capital and recurring expenditure for maintenance of the same.
6. Explore using alternative clean fuel instead of the fossil fuel in order to reduce the pollution load.

Sd/-
(Sudhir Kumar)
Member-Secretary
SEIAA, Bihar

Copy, through email, for information and necessary action to :-

1. Member Secretary, Bihar State Pollution Control Board, Patna.
2. Guard File.


(Sudhir Kumar)
Member-Secretary
SEIAA, Bihar
Member Secretary
SEIAA, Bihar

CHAPTER - 1

INTRODUCTION

1.1 Purpose of the report

The Indian steel industry, one of the core industries in India, is more than a century old when the first integrated steel plant was established by Tata Iron & Steel (popularly known as Tata Steel) in 1907. India is currently the world's fourth largest producer of crude steel and is expected to become the second largest producer by 2015-16.

Steel industry derives its demand from other important sectors like infrastructure, aviation, engineering, construction, automobile, pipes and tubes etc. Thus its intense integration with other important industries makes it a strategic sector for the Governments as well.

The Indian steel sector enjoys advantages of domestic availability of raw materials and cheap labour. Iron ore is also available in abundant quantities, though the recent mining restrictions have put a strain on its availability. This abundance has been providing a major cost advantage to the domestic steel industry.

Steel plays a vital role in the development of any modern and emerging economy. The per capita consumption of steel is generally accepted as a yardstick to measure the level of socio-economic development and living standards of its countrymen. As such, no developing country can afford to ignore the steel industry.

The purpose of the EIA/EMP report is:

As per MoEFCC Gazette Notification No. S.O. 3250(E) Dt: 20th Jul.'2022, existing rolling mills (which are being operated on CTE/CTO from BSPCB) having capacity more than 5000 TPA requires to obtain EC and also exempted from requirement of Public Consultation, providing TOR should be obtained within one year from the

above referred Gazette Notification. In this connection, M/s SSI submitted an application along with filled up 'Form I' along with Pre Feasibility Report in the prescribed format to SEIAA, Bihar on 28.12.2022 for obtaining approved TOR for its proposed project, vide Proposal No. SIA/BR/IND1/412034/2022.

The above mentioned information about the project is to integrate different environmental factors into project planning and decision making by studying probable changes in the various socioeconomic and bio-physical characteristics, which shall result from the proposed project, so as to achieve ecologically sustainable development.

To identify environmental risks, reduce conflicts by promoting community participation, minimize adverse environmental impacts and keep decision makers informed thus laying base for environmentally sound project, such that the benefits shall be observed at all the stages of the project starting from conceptualization to planning, design, construction and operation stage.

1.2 Identification of the Project Proponent

M/s. Sri Sai Industries (SSI) is a proprietorship unit. The unit has established its re-rolling mill project in 2014 and started operation of the unit after obtaining CTO from Bihar State Pollution Control Board in 2015. The capacity of rolling mill is 9450 MT per annum (27 TPD). SSI is producing MS Flat / Angle / Channel / Square from its rolling mill unit. Mr. Laxmi Prasad is the main promoter of the company. Company is having 0.46 Ha. (4600 Sqm.) of land at near Village Dehri, Dist. Aurangabad and the factory is situated on this land parcel. Its registered office is situated at Gupta Cinema Campus, Gupta Cinema Road, Dist. Aurangabad.

The directors of the company have thorough experience in trading of iron bars / TMT bars. The Company already obtains ISO-9001 & ISI Certificate and doing their business with the proper manner. On the other hand the present Government of Bihar is emphasizing upon construction of Roads, Building, Bridge and other infrastructure as a major thrust.

Project Promoters:

Laxmi Prasad
Proprietor
Sri Sai Industries
Gupta Cinema Campus
Gupta Cinema Road
Dist- Aurangabad – 824 101, Bihar
Mob. No- 9439474248

1.3 Brief Description of Nature, Size, Location of the Project and Its Importance to the Country

1.3.1 Nature for the Project

In exercise of the powers conferred by sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986, read with clause (d) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986 and in supersession of the notification number S.O. 60 (E) dated the 27th January, 1994 the Central Government directs that on and from the date of publication of EIA Notification the required construction of new projects or activities or the expansion or modernization of existing projects or activities listed in the Schedule of EIA notification 2006, entailing capacity addition with change in process and or technology should be undertaken in any part of India only after the prior environmental clearance from the Central Government or as the case may be, by the State Level Environment Impact Assessment Authority, duly constituted by the Central Government under sub-section (3) of section 3 of the said Act, in accordance with the procedure specified in EIA notification 14th Sep. 2006.

The projects or activities listed in Schedule of EIA Notification require prior environmental clearance from the concerned regulatory authority i.e. Ministry of Environment and Forests for matters falling under Category 'A' in the Schedule and at State level the State Environment Impact Assessment Authority (SEIAA) for matters falling under Category 'B' in the said Schedule, before any construction work, or preparation of land by the project management except for securing the land, is started on the project or activity OR Expansion and modernization of existing projects or activities listed in the Schedule to this notification with addition of capacity beyond the limits specified for the concerned sector, that is, projects or activities which cross the threshold limits given in the Schedule, after expansion or modernization.

To get the Environmental Clearance from the Ministry of Environment & Forests (MoEF&CC), Govt. of India / State Environment Impact Assessment Authority (SEIAA) it is required to carry out an Environment Impact Assessment (EIA) study of the project, deliberating the positive and negative impacts on the environment. A befitting environment management and monitoring plan (EM&MP) will be prepared to mitigate or minimize the negative impact vis-à-vis retaining the positive impacts of the project.

As per Schedule of EIA Notification 2006 and amendments thereafter, proposed project is categorized as Category 'B' project and listed under activity 3(a), Metallurgical Industries.

Keeping in line with the requirement of EIA Notification 2006 and having a high degree of concern, for the environment and in order to assess the likely impacts arising out, M/s SSI has retained services of a QCI Accredited EIA Consultant, Paramarsh (Servicing Environment & Development), Lucknow, Accredited under "EIA consultant Organizations Accreditation Scheme" of Quality Council of India, listed at Sl. No. 114, Rev. 73, Dt : 08.02.2019, to carryout the study on Environmental Impact Assessment (EIA) and preparation of Environmental Management Plan as per TOR issued by SEIAA/SEAC, Bihar.

The present EIA cover the baseline data generation, predictions and evaluation of impact on various environmental components and preparation of Environmental Management Plan.

1.3.2 Size of the Project

This is an existing project. The unit has established its re-rolling mill project in 2014 and started operation of the unit after obtaining CTO from Bihar State Pollution Control Board in 2015. The capacity of rolling mill is 9450 MT per annum (27 TPD). SSI is producing MS Flat / Angle / Channel / Square from its rolling mill unit.

Details of existing capacity:

Manufacturing Facilities	Product	Total Capacity
Re-rolling Mill	MS Flat / Angle / Channel / Square	9450 MT/Annum

Mr. Laxmi Prasad is the main promoter of the company. Company is having 0.46 Ha. (4600 Sqm.) of land at near Village Dehri, Dist. Aurangabad and the factory is situated on this land parcel.

Apart from above 0.15 ha area (33 % of Total Plot Area 0.46 Ha.) is being utilized as green belt & plantation of dust capturing species as per requirement of MoEF & CC, Govt. of India. The main objective of the greenbelt is to provide a barrier between the plant and the surrounding areas.

Sl.No.	TYPE OF USE	AREA (Ha.)
1	Plant Area	0.22
2	Sub Station & Generator Room	0.04
3	Green Belt & Open area	0.15
4	Road, paved and open area	0.05
Total		0.46

1.3.3 Project Location

Sri Sai Industries (SSI), is situated near Vill. Dehri, Poiwa Pachrukha Road, P.O. Poiwa, District Aurangabad, Bihar having Latitude 24°44'30.44"N & Longitude 84°25'36.45"E at 115 m. above MSL nearby NH-19. It is about 4 kms. from district head quarter Aurangabad and is well connected by Poiwa Pachrukha Road to NH - 19 and rail with rest of the country. SSI is about 25 Km. (SW) from Rafiganj Railway Station & 25 Km. (SE) from Sonnagar Railway Station on Howrah - Delhi Grand Chord Sec. of ECR.

There is no reserved forest, hills / valleys & ecologically sensitive zone within a radius of 10 km. The maximum ambient temperature within the project area goes up to 44.7 °C during summer and minimum goes down to 4.2 °C during winter. The annual average rainfall received in the project area is about 1061.6 mm, out of which 90% received during June to September.

The salient features of the project locations are presented in **Table 1.1** and shown in **Figure 1 & 2**.

Table 1.1: ENVIRONMENTAL SETTING WITHIN 10 KM. RADIUS OF PROJECT AREA

<i>Particulars</i>	<i>Details</i>	
• Location	Vill. Dehri, Poiwa Pachrukha Road, P.O. Poiwa, District Aurangabad, Bihar	
• GPS coordinates	1.	24°44'31.71"N 84°25'35.79"E
	2.	24°44'31.25"N 84°25'37.28"E
	3.	24°44'28.84"N 84°25'37.23"E
	4.	24°44'29.38"N 84°25'34.97"E
• Elevation above mean sea level	115 m.	
• Total Plant Area	0.46 ha	
• Nearest Railway Station	Rafiganj Railway Station (25 Km.)	
• Nearest Highway	NH – 19	
• Nearest Major City	Aurangabad	
• Nearest River	River Adar 4 km	
• National Park, Reserve Forest	<i>Not exist within 10 km. radius</i>	
• Wildlife Sanctuary		
• Biosphere Reserve, Hill & Valleys		

1.3.4 Importance and Benefits of the Project/ Need for the project and its importance to the country and or region

As the industrial and economic development of the country gains pace, the steel industry in India is poised for faster growth in the decades ahead. India is now the 4th largest producer of steel with an annual production of around 53.9 million tonnes. The contribution of private sector and public sector is about 68 and 32 %, respectively. Indian steel industry is expected to grow by 12% annually. Steel is one of the most important metals and is widely used in automotive, construction, Infrastructure development, mechanical engineering, railway and many other industries. The steel industry in India is poised for faster growth in the decades ahead as the industrial and economic development of the country gains pace. Indian Steel industry is also emphasizing its presence in the global market. The present steel scenario is favorable for operation of existing steel plant. The steel industry is often considered to be an indicator of economic progress, because of the critical role played by steel in infrastructural and overall economic development, with the main demand creators being the automobile, construction, infrastructure and oil & gas Industries.

India has traditionally been one of the major producers of steel in the world. Till the 1990s the steel industry of India was regulated and controlled by government policies. After the economic reforms of the early 1990s, the Indian steel industry has evolved significantly to conform to global standards. India has set a vision to be an economically developed nation by 2020. The steel industry is expected to play a major role in India's economic development in the coming years. The steel industry of India has a very high growth potential and is expected to register significant growth in the coming decades. India is expected to emerge as a strong force in the global steel market in coming years.

The Indian steel industry has entered into a new development stage from 2007-08, riding high on the resurgent economy and rising demand for steel. Rapid rise in production has resulted in India becoming the 4th largest producer of crude steel and the largest producer of sponge iron or DRI in the world. As per the report of the Working Group on Steel for the 12th Plan, there exist many factors which carry the potential of raising the per capita steel consumption in the country, currently estimated at 55 kg (provisional). These include among others, an estimated infrastructure investment of nearly a trillion dollars, a projected growth of manufacturing from current 8% to 11-12%, increase in urban population to 600 million by 2030 from the current level of 400 million, emergence of the rural market for steel currently consuming around 10 kg per annum buoyed by projects like Bharat Nirman, Pradhan Mantri Gram Sadak Yojana, Rajiv Gandhi Awaas Yojana among others.

At the time of its release, the National Steel Policy 2005 had envisaged steel production to reach 110 million tonnes by 2019-20.

The two major aspects that are expected to play a significant role in the growth of the steel industry in India are –

- Abundant availability of iron ore in the country
- The country has well established facilities for steel production.
- The major sectors where consumption of steel is expected to grow in the coming years are Construction, Housing and Ground transportation
- Hi-tech engineering industries such as power generation, petrochemicals, fertilizers.

The current scenario of the Indian steel industry indicates that there is huge growth potential in this industry. The per capita-consumption of steel in India, according to latest available estimates, is only 29 Kg. This is much less compared to the global average of 140Kg. The per capita consumption level of developed nations like the United States of America is 400Kg. In this respect, one of the major initiatives that need to be taken is to focus on increasing the consumption of steel in the rural areas of India. The potential for the growth of consumption of steel in the rural areas of India for purposes like rural housing, rural infrastructure, etc is high which needs to be tapped efficiently. In order to realize the growth potential in the steel industry of India, it is essential to ensure that the industry can remain competitive. One of the major aspects in this regard is the availability of inputs. Shortage of inputs like coke has led to increase in costs earlier. Moreover proper infrastructure facilities like transport infrastructure, power etc are of prime importance in maintaining the competitiveness of the industry. Most developed countries have regulations that are aimed to protect the domestic steel industry. The Indian steel industry has comparatively much lesser protection through regulations. Proper regulatory measures should be adopted by the government to protect the domestic steel industry.

1.4 Land Details and its Utilization

Mr. Laxmi Prasad is the main promoter of the company. Company is having 0.46 Ha. (4600 Sqm.) of land at near Village Dehri, Dist. Aurangabad and the factory is situated on this land parcel. Its registered office is situated at Gupta Cinema Campus, Gupta Cinema Road, District Aurangabad. 0.15 ha of land is being developed as green belt inside the project premises.

1.5 Legal Aspects

M/s Sri Sai Industries Pvt. Ltd. (SSI), has applied for Environmental Clearance for its existing project and will obtain necessary No Objection Certificate as well as Consents with respect to Air & Water Acts from Bihar State Pollution Control Board (BSPCB) and comply with the prescribed limits laid down for air, wastewater and noise levels for protection of the environment under the following Acts, Rules and amendments, besides compliance to Bihar State Rules and Notifications:

1. The Water (Prevention and Control of Pollution) Act, 1974

2. The Air (Prevention and Control of Pollution) Act, 1981
3. The Environment (Protection) Act, 1986 which is also called umbrella act or legislation and amendments thereafter upto date
4. Environment (Protection) Rules, 1986 and their amendments
5. Factories Act, 1948
6. EIA Notification 2006 and amendments thereafter upto date

1.6 EIA Notification 2006 & Environmental Clearance Requirement

To get the Environmental Clearance from the Ministry of Environment & Forests (MoEF), Govt. of India / State Environment Impact Assessment Authority (SEIAA) it is required to carry out an Environment Impact Assessment (EIA) study of the project, deliberating the positive and negative impacts on the environment. A befitting environment management and monitoring plan (EM&MP) will be prepared to mitigate or minimize the negative impact vis-à-vis retaining the positive impacts of the project.

Keeping in line with the requirement of EIA Notification 2006 and having a high degree of concern, for the environment and in order to assess the likely impacts arising out, M/s SSI has retained services of a QCI Accredited EIA Consultant, Paramarsh (Servicing Environment & Development) has carried out EIA evaluation studies project. Paramarsh is accredited under "EIA consultant Organizations Accreditation Scheme" of Quality Council of India vide Ref. No. QCI/NABET/EIA/ACO/19/0897 Dt: 22.01.2019, to carry out the study on Environmental Impact Assessment (EIA) and preparation of Environmental Management Plan as per TOR issued by SEIAA/SEAC, Bihar.

Fig. No. 1.1 : SOI TOPOSHEET OF STUDY AREA

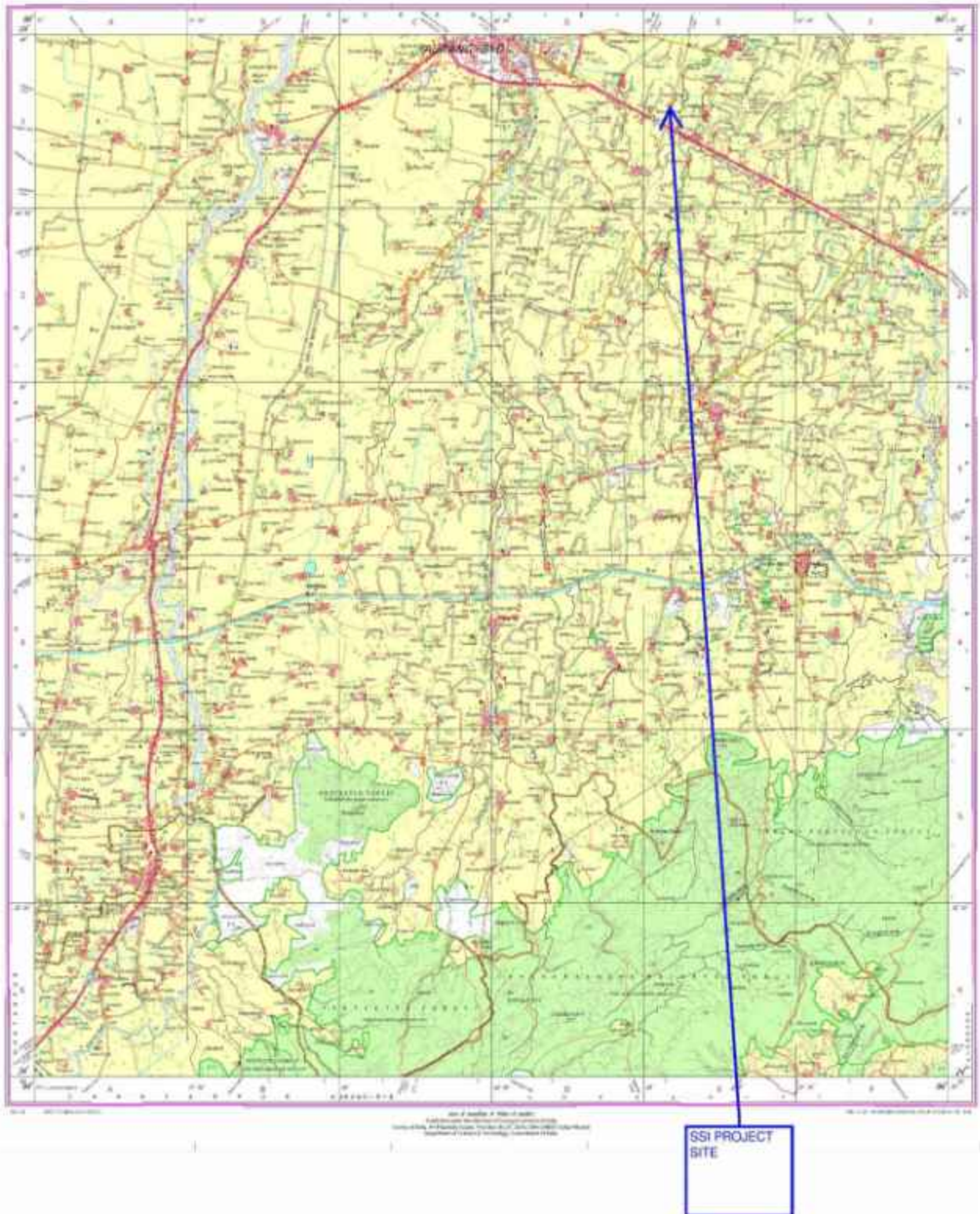
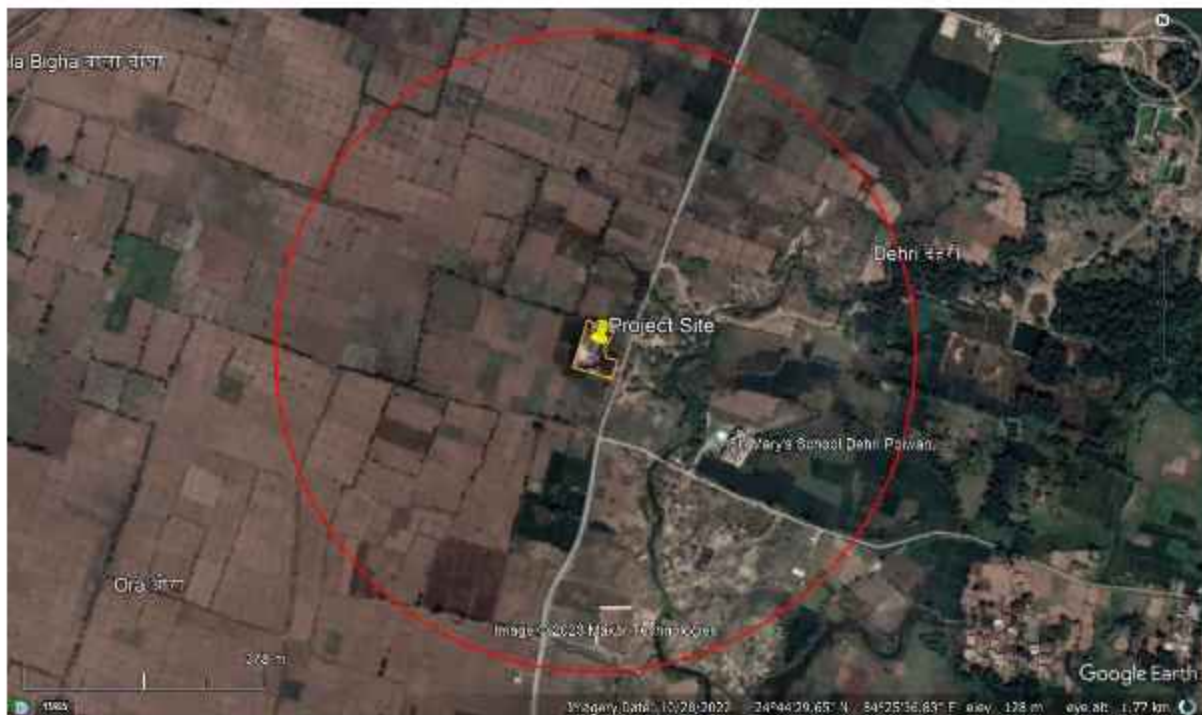


Fig. No. 1.2: 500 M. RADIUS SATELLITE IMAGERY MAP



1.7 Scope of Environment Impact Assessment

The study envisages characterization of the existing status of physical environment such as air, water, soil, land use, meteorology, socio-economic and heritage etc. as well as biological environment such as flora and fauna within the study area of 5 km radius and quantifying impacts on the environmental parameters. Based on the study, the EIA evaluates the proposed control measures by the project and prepares an environment management plan, outlining additional proposed activities and delineates the requirements of environmental monitoring program. EIA study covers the following aspects:

- ÷ Evaluation of present environmental factors through analysis of generated and collected baseline data for one complete season (3 months).
- ÷ Assess the probable impact on the environmental factors due to implementation of the project with respect to existing scenario.
- ÷ Analyze the predicted impact with respect to the regulatory environmental standards.
- ÷ Develop an Environmental Management Plan for the proposed project to mitigate the negative significant impacts that would arise from the proposed project.

- ÷ Report will help to obtain No Objection Certificate from the State Pollution Control Board.

The baseline data has been collected for the following environmental components, during March to May 2023 :

- Air Quality
- Meteorology
- Noise Environment
- Water Use & Quality
- Soil Quality
- Land Use
- Demographic & socio-economic aspects
- Terrestrial & Aquatic ecology

Baseline data on parameters of the above-mentioned aspects over a season provides means for identifying possible impact-positive as well as adverse. An environmental impact assessment and environment management plan comprising an overall assessment of the impact due to project activity over baseline condition of the existing environment and a mitigating action plan to counter the adverse impact as defined. An environmental monitoring program is also prepared to provide scientific support to future actions of environmental protection.

1.8 Methodology

A study area of 5 km radius with the SSI at the center was considered for the present study. This study will help to determine the present environmental status and likely impacts of the proposed unit's operations, if any in the region. The most predominant wind direction during study period was from the north. The monitoring/sampling locations have been established in accordance with guidelines issued by CPCB/MoEF&CC.

1.9 Approved TOR

The proposal was considered by the State Expert Appraisal Committee (SEAC), Bihar in its meeting held on 20.02.2023 and SEIAA meeting held on 20.03.2023 to determine the Terms of Reference (TOR) for preparation of EIA/EMP Report for obtaining Environmental Clearance in accordance with the provisions of the EIA Notification 2006

and amendments thereof. Accordingly, SEIAA/SEAC issued letter Ref. No. SIA/3(a)/2244/2023 dated 28.03.2023, with mentioning the TOR for preparation of EIA/EMP Report. TOR issued by SEIAA/SEAC, Bihar is appended in the beginning of EIA/EMP Report.

As per TOR issued by SEIAA, Bihar, EIA/EMP Report has been prepared & is hereby being submitted to SEIAA/SEAC for grant of Environmental Clearance.

1.10 COMPLIANCE OF TOR IN EIA/EMP REPORT ;

Table 1.2: Pointwise Terms of Reference (TOR) / Compliance

Sl. No	Terms of Reference	Compliance in EIA/EMP Report
1.	Executive Summary	Attached as Annex – I.
2.	Introduction	
i.	Details of the EIA Consultant including NABET Accreditation	Paramarsh Servicing Environment and Development (PSED), Lucknow has carried out EIA evaluation studies for proposed new project. Accredited under “EIA consultant Organizations Accreditation Scheme” of Quality Council of India vide certificate No. NABET/EIA/2124/RA0224 Dt: 30.12.2021 valid upto 01 st May 2024.
ii.	Information about the project proponent	Refer Chapter 1, Sec 1.2, Page No. 2-3.
iii.	Importance and Benefits of the Project	Refer Chapter 1, Sec 1.3.4, Page No.6.
3.	Project Description	Refer Chapter – 2
i.	Cost of Project and time of Completion	Refer Chapter 2, Sec 2.5/2.5.1, Page No. 29.
ii.	Products with capacities for the proposed project	Refer Chapter 1, Sec 1.3.2, Page No. 4.
iii.	Details of existing products with capacities and whether adequate land is available for expansion, reference of earlier Environmental clearance if any	MS Flat / Angle / Channel / Square: 9450 MT/Annum
iv.	List of Raw Materials required and their source along with mode of transportation.	Refer Chapter 2, Sec 2.4.1, Page No. 27
v	Other chemicals and materials required with quantities and storage capacities.	No other Chemicals are required.

Sl. No	Terms of Reference	Compliance in EIA/EMP Report
vi.	Details of Emission, effluents, and their management.	Refer Chapter 2, Sec 2.8, Page No. 32
vii.	Requirement of water, power, with source of supply, status of approval, water balance diagram, man power requirement (regular and contract)	Water requirement is being fulfilled through bore wells inside premises. 8 KL/Day water is required for SSI project. In the proposed project water will be used only for cooling, domestic & dust suppression activities. No Industrial water will be required.
viii.	Process description along with major equipments and machineries, process flow sheet (Quantative) from raw material to products to be provided.	Refer Chapter 2, Sec 2.6, Page No. 30
ix.	Production of a report / certificate from concerned authority enforcing Factory Act regarding suitability of existing unit/plant for proposed expansion mentioning whether existing plant is satisfactory compliant for Factory Act.	Not applicable, This is not an expansion project.
x.	The proposal of the expansion of the capacity to include through renovation /up gradation of all existing infrastructure of the unit consisting development / construction of First aid center/dispensary room for workers, development of facility (toilets/urinals/washing rooms, canteen etc.)	Not applicable, This is not an expansion project.
xi.	Hazard identification and details of proposed safety system.	Refer Chapter 7, Sec 7.2.
xii.	Submit a copy of application submitted to competent authority/agency with regard to supply of PNG gas pipe line.	Till Date PNG gas pipeline is not available near project site.
xiii.	Expansion/modernization proposals:	Not applicable, This is not an expansion project.
A.	Copy of all the Environmental Clearance(s) including Amendments thereto obtained for the project from MOEF/SEIAA shall be attached as an Annexure. A certified copy of the latest Monitoring Report of the Regional Office of the Ministry of Environment and Forests as per circular dated 30th May, 2012 on the status of compliance of conditions stipulated in all the existing environmental clearances including Amendments shall be provided. In addition, status of compliance of Consent to Operate for the	Not applicable. M/s SSI having capacity 9450 MT/Annum does not comes under preview of EIA notification 2006, however as per MoEF&CC Gazette Notification No. S.O. 3250(E) Dt: 20th Jul.'2022, existing rolling mills (which are being operated on CTE/CTO from BSPCB) having capacity more than 5000 TPA requires to obtain EC and also exempted from requirement of Public Consultation, providing TOR should be

Sl. No	Terms of Reference	Compliance in EIA/EMP Report
	ongoing existing operation of the project from SPCB shall be attached with the EIA-EMP report.	obtained within one year from the above referred Gazette Notification. In this connection. In this regards M/s SSI has applied for grant of EC.
B.	In case the existing project has not obtained environmental clearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and/or EIA Notification 2006 shall be provided. Copies of Consent to Establish/No Objection Certificate and Consent to Operate (in case of units operating prior to EIA Notification 2006, CTE and CTO of FY 2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of consents from the SPCB shall be submitted.	M/s SSI having capacity 9450 MT/Annum does not comes under preview of EIA notification 2006, however as per MoEF&CC Gazette Notification No. S.O. 3250(E) Dt: 20th Jul.'2022, existing rolling mills (which are being operated on CTE/CTO from BSPCB) having capacity more than 5000 TPA requires to obtain EC and also exempted from requirement of Public Consultation, providing TOR should be obtained within one year from the above referred Gazette Notification.
4.	Site details	
i.	Location of the project site covering village, Taluka / Tehsil, District and State, Justification for selecting the site, whether other sites are considered.	This is an existing project. Refer Chapter 1, Sec 1.3.2, Page No. 5.
ii.	A Toposheet of the Study area of radius of 10Km and site location on 1:50,000 / 1:25,000 scale on an A3/A2 sheet (including all eco-sensitive areas and environmentally sensitive places.	Refer Chapter 1, Fig. No. 1.1, Page No. 10.
iii.	Details w.r.t. option analysis for selection of site.	This is an existing project within existing premises. Hence, no option analysis has been done for selection of site.
iv.	Co-ordinates (Lat-Long) of all four corners of the site.	Refer Chapter 1, Table 1.1.
v.	Google map- Earth download of the project site.	Refer Chapter 1, Fig. No. 1.2.
vi.	Layout Maps indicating existing unit as well as proposed unit indicating storage area, plant area, utilities etc.	Refer Chapter 2, Fig. No. 2.1, Page No. 26.
vii.	Photographs of the proposed and existing site (if applicable) plant site. If existing, show photographs of plantation / greenbelt, in particular.	Photographs attached as Annex - IIs
viii.	Landuse Break-up of total land of the project site (identified and acquired), governments / private – agriculture, forest, wasteland, water bodies, settlements etc. shall be included. (Not required for industrial area.	Refer Chapter 1, Sec. No. 1.3.3.

Sl. No	Terms of Reference	Compliance in EIA/EMP Report
ix.	A list of major industries with name and type within study area. (10km radius) shall be incorporated. Landuse details of the study area.	There is no major industry in 10 km study area of project site except 1. Pappu Aluminum House 2. Bihar Cement Plant (A unit of Shree Cement Limited) 3. Hindustan Steel, Aluminium &Glass House 4. Chandra Engineering (Steel Industry)
x.	Geological features and Geo-hydrological status of the study area shall be included.	Refer Chapter 3, Sec. No. 3.2.1,
xi.	Details of Drainage of the project up to 5km radius of study area. If the site is within 1km radius of any major river, peak and lean season river discharge as well as flood occurrence frequency based on peak rainfall data of the past 30 years. Details of the Flood level of the project site and maximum Flood Level of the River shall also be provided. (Mega Green Field Projects)	Major drainage in study area is River Adari above 4.0 km. from the project. Site. There will be no discharge in river from the project. Refer Chapter 3 Sec. 3.3.
xii.	Status of Acquisition of Land. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the Land.	This is an existing project and land is already acquired by M/s SSI. Company is having 0.46 Ha. (4600 Sqm.) of land at near Village Dehri, Dist. Aurangabad and the factory is situated on this land parcel. Land Paper Attached as Annex - III
xiii.	R&R details in respect of Land in Line with state Government Policy	No R&R is required in respect of land.
5.	Environmental status	
i.	Determination of atmospheric inversion level at the project site and site-specific micrometeorological data using temperature, relative humidity, hourly wind speed and direction and rainfall.	Refer Chapter 3, Sec. No. 3.5.
ii.	Surface water quality of nearby River (100m upstream and downstream of discharge point) and other surface drains at eight locations as per CPCB/MoEF&CC guidelines.	Refer Chapter 3, Table. No. 3.6.
iii.	Whether the site falls near to polluted stretch of river identified by the CPCB/MoEF&CC, if yes give details.	No site does not falls near to polluted stretch of river identified by the CPCB/MoEF&CC.
iv.	Ground water monitoring at minimum at 8 locations shall be included.	Refer Chapter 3, Table. No.3.5.
v.	Noise levels monitoring at 8 locations within the study area.	Refer Chapter 3, Table. No.3.18.
vi.	Soil Characteristic as per CPCB guidelines.	Refer Chapter 3, Table. No.3.3.
vii.	Traffic study of the area, type of vehicles,	Refer Chapter 4, Sec. No.4.10.

Sl. No	Terms of Reference	Compliance in EIA/EMP Report
	frequency of vehicles for transportation of materials, additional traffic due to proposed project, parking arrangement etc.	
viii.	A detailed report should be submitted using model used to predict increase in air pollutants due to increase traffic load due to proposed project.	Please refer section 4.9.4 in Chapter 4.
ix.	Detailed description of flora and fauna (terrestrial and aquatic) existing in the study area shall be given with special reference to rare, endemic and endangered species. If Schedule-I fauna are found within the study area, a Wildlife Conservation Plan shall be prepared and furnished.	Refer Chapter 3, Sec. No.3.4.
x.	Socio-economic status of the study area.	Refer Chapter 3, Sec.No.3.9.
6.	Impact and Environment Management Plan	
i.	Assessment of ground level concentration of pollutants from the stack emission based on site-specific meteorological features. In case the project is located on a hilly terrain, the AQIP Modelling shall be done using inputs of the specific terrain characteristics for determining the potential impacts of the project on the AAQ. Cumulative impact of all sources of emissions (including transportation) on the AAQ of the area shall be assessed. Details of model used and the input data used for modeling shall also be provided. The air quality contours shall be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any.	Refer Chapter 4, Sec. No. 4.9. Also refer Chapter 3, Sec No. 3.7 and Chapter 4, Sec No. 4.12.
ii.	Water Quality modeling - in case of discharge in water body	There will be no discharge in water body due to project.
iii.	Ground water classification as per the Central Ground Water Authority and NOC form CGWB.	As per GWRA 2022 project area falls under safe category. The ground water requirement for the project is 8 KLD and there is no requirement of taking NOC below 10 KLD of water requirement.
iv	Impact of the transport of the raw materials and end products on the surrounding environment shall be assessed and provided. In this regard, options for transport of raw materials and finished products and wastes (large quantities) by rail or rail-cum road transport or conveyor-cum- rail transport shall be examined.	Refer Chapter 4, Sec. No. 4.12.
v.	A note on treatment of wastewater from different plant operations, extent recycled and reused for	Refer Chapter 2, Sec. No. 2.8.1.

Sl. No	Terms of Reference	Compliance in EIA/EMP Report
	different purposes shall be included. Complete scheme of effluent treatment. Characteristics of untreated and treated effluent to meet the prescribed standards of discharge under E(P) Rules.	
vi.	Details of stack emission and action plan for control of emissions to meet standards.	Refer Chapter 2, Sec. 2.8.2 and Chapter 4, Sec. 4.9.
vii.	Measures for fugitive emission control	Refer Chapter 10, Sec. No. 10.6.2.
viii.	Details of hazardous waste generation and their storage, utilization and management. Copies of MOU regarding utilization of solid and hazardous waste in cement plant shall also be included. EMP shall include the concept of waste-minimization, recycle/reuse/recover techniques, Energy conservation, and natural resource conservation.	Refer Chapter 10, Sec. No. 10.7 &10.8.
ix.	Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 2009. A detailed plan of action shall be provided.	475 TPA of coal ash will be generated, which will be sold to flyash product manufacturing units
x.	Arrangement of land / alternative sites for green belt development inside unit or in proximity of unit.	Company is having 0.46 Ha. (4600 Sqm.) of land at near Village Dehri, Dist. Aurangabad and the factory is situated on this land parcel.
xi.	Submit an action plan for three tier plantation to develop a green belt development plan in 33 % area i.e. land with not less than 1,500 trees per ha. Giving details of species, width of plantation, planning schedule etc. shall be included. The green belt shall be around the project boundary and a scheme for greening of the roads used for the project shall also be incorporated.	Refer Chapter 10, Sec. No. 10.11.
xii.	Action plan for rainwater harvesting measures at plant site shall be submitted to harvest rainwater from the roof tops and storm water drains to recharge the ground water and also to use for the various activities at the project site to conserve fresh water and reduce the water requirement from other sources.	Refer Chapter 10, Sec. No. 10.12.
xiii.	Total capital cost and recurring cost/annum for environmental pollution control measures shall be included.	The total fiscal estimation for EMP is indicated to be Rs. 40 lakhs. Refer Chapter 10, Sec. No. 10.14.
xiv.	Action plan for post-project environmental monitoring shall be submitted.	Refer Chapter 10, Sec. No. 10.13.

Sl. No	Terms of Reference	Compliance in EIA/EMP Report
xv.	Onsite and Offsite Disaster (natural and Man-made) Preparedness and Emergency Management Plan including Risk Assessment and damage control. Disaster management plan should be linked with District Disaster Management Plan.	Refer Chapter 7, Sec. No. 7.2.
7.	Occupational health	
i.	Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers	Refer Chapter 10, Sec. No. 10.9 and Sec. No. 10.14.
ii.	Details of exposure specific health status evaluation of worker. If the workers' health is being evaluated by pre designed format, chest x rays, Audiometry, Spirometry, Vision testing (Far & Near vision, colour vision and any other ocular defect) ECG, during pre-placement and periodical examinations give the details of the same. Details regarding last month analyzed data of above mentioned parameters as per age, sex, duration of exposure and department wise.	Health checkup is being conducted as per requirement of Factories Act'1948 and Bihar Factories Rules'1950
iii.	Details of existing Occupational & Safety Hazards. What are the exposure levels of hazards and whether they are within Permissible Exposure level (PEL). If these are not within PEL, what measures the company has adopted to keep them within PEL so that health of the workers can be preserved,	Refer Chapter 7, Sec. No. 7.2 & 7.3, Page No. 120-130.
iv.	Annual report of health status of workers with special reference to Occupational Health and Safety.	Health checkup is being conducted as per requirement of Factories Act'1948 and Bihar Factories Rules'1950.
v.	Making provision for all personal safety/security related gears (shoes / hats/ helmets/ jackets/ gloves, specks, ear plugs etc.) for all workers and enforcing use of the same.	Complied
8.	Corporate Environment Policy	
i.	Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.	Yes, Enclosed as Annexure – IV.
ii.	The Project Proponent shall prepare report with the provisions contained in Ministry of Environment, Forest & Climate Change OM Vide F. No. 22-65/2017- IA.III dated 1 st May 2018, as applicable, regarding Corporate Environment Responsibilities.	SSI has allocated an amount of Rs. 4.5 Lakhs (2% of total project cost i.e. Rs. 223.59 Lakhs) towards Corporate Environment Responsibility as per MoEFCC OM vide F. No. 22-65/2017- IA.III Dt: 01.05.2018

Sl. No	Terms of Reference	Compliance in EIA/EMP Report
		Refer section 8.4.
iii.	Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.	Yes
iv.	What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions? Details of this system may be given.	Yes, Refer Chapter 10, Sec. No. 10.4.
v.	Does the company have system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism shall be detailed in the EIA report	Yes
9.	Details regarding infrastructure facilities such as sanitation, fuel, restroom etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase.	Infrastructure facilities is being provided as per requirement of Factories Act'1948 and Bihar Factories Rules'1950
10.	Enterprise Social Commitment (ESC)	
i	Adequate funds (at least 2.5 % of the project cost) shall be earmarked towards the Enterprise Social Commitment based on Public Consultation issues and item-wise details along with time bound action plan shall be included. Socio-economic development activities need to be elaborated upon.	SSI has allocated an amount of Rs. 4.5 Lakhs (2% of total project cost i.e. Rs. 223.59 Lakhs) towards Corporate Environment Responsibility as per MoEFCC OM vide F. No. 22-65/2017-IA.III Dt: 01.05.2018 Refer section 8.4.
11.	Any litigation pending against the project and/or any direction/order passed by any Court of Law against the project, if so, details thereof shall also be included. Has the unit received any notice under the Section 5 of Environment (Protection) Act, 1986 or relevant Sections of Air and Water Acts? If so, details thereof and compliance/ATR to the notice(s) and present status of the case.	There is no litigation pending against the project. The unit has not received any notice under Sec. 5 of Environment (Protection) Act, 1986.
B. SPECIFIC TREMS OF REFERENCE FOR EIA STUDIES FOR METULLARGICAL INDUSTRIES (FERROUS AND NON FERROUS)		

Sl. No	Terms of Reference	Compliance in EIA/EMP Report
1.	Complete process Flow diagram describing each unit, its processes and operations, along with material and energy inputs and outputs (material and energy balance).	Refer Chapter 2, Sec. No. 2.6. Project Layout is given in figure 2.1 in Chapter-2.
2.	Details on Blast furnace/ open hearth furnace/ basic oxygen Furnace / ladle refining , casting and rolling plants etc.	Refer Chapter 2, Sec. No. 2.4.
3.	Details of installation / activation of opacity meters with recording with proper calibration system	MS Flat / Angle / Channel / Square: 9450 MT/Annum
4.	Details of toxic metals including mercury, arsenic and fluoride emissions	In this proposed project, no toxic emission will be released from metals including mercury, arsenic and fluoride.
5.	Details of Stack height requirement for integrated steel	This is a re-rolling mill project not an integrated steel plant.
6.	Details of ash disposal and management non-ferrous metal	Fly Ash shall be sold to fly-ash Brick/ Block manufacturing units. Only ends cutting are being generated as solid waste which is being sold to ingot manufacturer for reprocessing and carbon slag generated from coal gasifier system is being sold to brick manufacturer for reuse.
7.	Complete process flow diagram describing production of lead / zinc /copper /aluminum etc.	There is no production of lead / zinc / copper / aluminum in SSI Project
8.	Raw material substitution or elimination	Details provided in Chapter 2 section 2.4.1.
9.	Details of smelting, thermal refining, melting slag fuming, and waelz kiln operation.	This is re-rolling project only.
10.	Details on Holding and de-gassing of molten metal from primary and secondary aluminum, materials and pre-treatment, and from melting and smelting of secondary aluminum.	Not Applicable, as there is no aluminum melting and smelting process involved.
11.	Details of Solvent recycling	Not Applicable. There is no use of solvent.
12.	Details of precious metals recovery.	Refer Chapter 2, Sec. No. 2.4.1.
13.	Details on composition, generation and utilization of waste/fuel gases from coke oven plant and their utilization	Not applicable
14.	Details of toxic metal content in the waste material and its composition and end use (particularly of	Only ends cutting are being generated as solid waste which is being sold to ingot

Sl. No	Terms of Reference	Compliance in EIA/EMP Report
	Slag)	manufacturer for reprocessing
15.	Trace metals Mercury, arsenic and fluoride emissions in the raw material.	No emissions of Mercury, arsenic and fluoride in the raw material.
16.	Trace metals in waste material especially Slag.	There will be no generation of slag.
17.	Plan for trace metal recovery.	Not applicable, this is a re-rolling mill project
18.	Trace metals in water.	Ground Water Analysis report is provided in Chapter-3 in this EIA report.
19.	A tabular chart with index for point wise compliance of above ToR	Attached in the end of Chapter – 1 of EIA/EMP Report.
Additional conditions		
1.	The SEIAA accepted the request of the Project Proponent for exemption from the requirement of Public Consultation as per S. O. No. 3250 (E), dated 20.07.2022 of MoEF&CC, Govt.	Complied
2.	Submit a plan regarding automatic water sprinklers.	Details provided in chapter 4 (Section 4.9.2)
3.	Status of the project area on ground water resource assessment as per updated report of Central Ground Water Board (CGWB).	Project area is under Safe Category as per GWRA 2022 of CGWA.
4.	Submit a list of flora and fauna of the project area.	Refer chapter 3 section 3.4
5.	Plantation details along with list of species to be planted, capital and recurring expenditure for maintenance of the same	Refer section 10.11 in Chapter 10.
6.	Explore using alternative clean fuel instead of the fossil fuel in order to reduce the pollution load.	On availability of cleaner fuel viz., CNG/PNG in project area, SSI will switch over to cleaner fuel.

CHAPTER - 2

PROJECT DESCRIPTION

2.1 Type of the Project

As per MoEFCC Gazette Notification No. S.O. 3250(E) Dt: 20th Jul.'2022, existing rolling mills (which are being operated on CTE/CTO from BSPCB) having capacity more than 5000 TPA requires to obtain EC and also exempted from requirement of Public Consultation, providing TOR should be obtained within one year from the above referred Gazette Notification. In this connection, M/s SSI submitted an application along with filled up 'Form I' along with Pre Feasibility Report in the prescribed format to SEIAA, Bihar on 28.12.2022 for obtaining approved TOR for its proposed project, vide Proposal No. SIA/BR/IND1/412034/2022.

Mr. Laxmi Prasad is the main promoter of the company. Company is having 0.46 Ha. (4600 Sqm.) of land at near Village Dehri, Dist. Aurangabad and the factory is situated on this land parcel. Apart from above 0.15 ha area (33 % of Total Plot Area 0.46 Ha.) is being utilized as green belt & plantation of dust capturing species for the existing project as per requirement of MoEF & CC, Govt. of India. The main objective of the greenbelt is to provide a barrier between the plant and the surrounding areas.

2.2. Need for the project

As the industrial and economic development of the country gains pace, the steel industry in India is poised for faster growth in the decades ahead. India is now the 4th largest producer of steel with an annual production of around 53.9 million tonnes. The contribution of private sector and public sector is about 68 and 32 %, respectively. Indian steel industry is expected to grow by 12% annually. Steel is one of the most

important metals and is widely used in automotive, construction, Infrastructure development, mechanical engineering, railway and many other industries.

India has traditionally been one of the major producers of steel in the world. Till the 1990s the steel industry of India was regulated and controlled by government policies. After the economic reforms of the early 1990s, the Indian steel industry has evolved significantly to conform to global standards. India has set a vision to be an economically developed nation by 2020. The steel industry is expected to play a major role in India's economic development in the coming years. The steel industry of India has a very high growth potential and is expected to register significant growth in the coming decades. India is expected to emerge as a strong force in the global steel market in coming years.

The Indian steel industry has entered into a new development stage from 2007-08, riding high on the resurgent economy and rising demand for steel. Rapid rise in production has resulted in India becoming the 4th largest producer of crude steel and the largest producer of sponge iron or DRI in the world. As per the report of the Working Group on Steel for the 12th Plan, there exist many factors which carry the potential of raising the per capita steel consumption in the country, currently estimated at 55 kg (provisional). These include among others, an estimated infrastructure investment of nearly a trillion dollars, a projected growth of manufacturing from current 8% to 11-12%, increase in urban population to 600 million by 2030 from the current level of 400 million, emergence of the rural market for steel currently consuming around 10 kg per annum buoyed by projects like Bharat Nirman, Pradhan Mantri Gram Sadak Yojana, Rajiv Gandhi Awaas Yojana among others. At the time of its release, the National Steel Policy 2005 had envisaged steel production to reach 110 million tonnes by 2019-20.

In order to realize the growth potential in the steel industry of India, it is essential to ensure that the industry can remain competitive. One of the major aspects in this regard is the availability of inputs. Shortage of inputs like coke has led to increase in costs earlier. Moreover proper infrastructure facilities like transport infrastructure, power etc are of prime importance in maintaining the competitiveness of the industry.

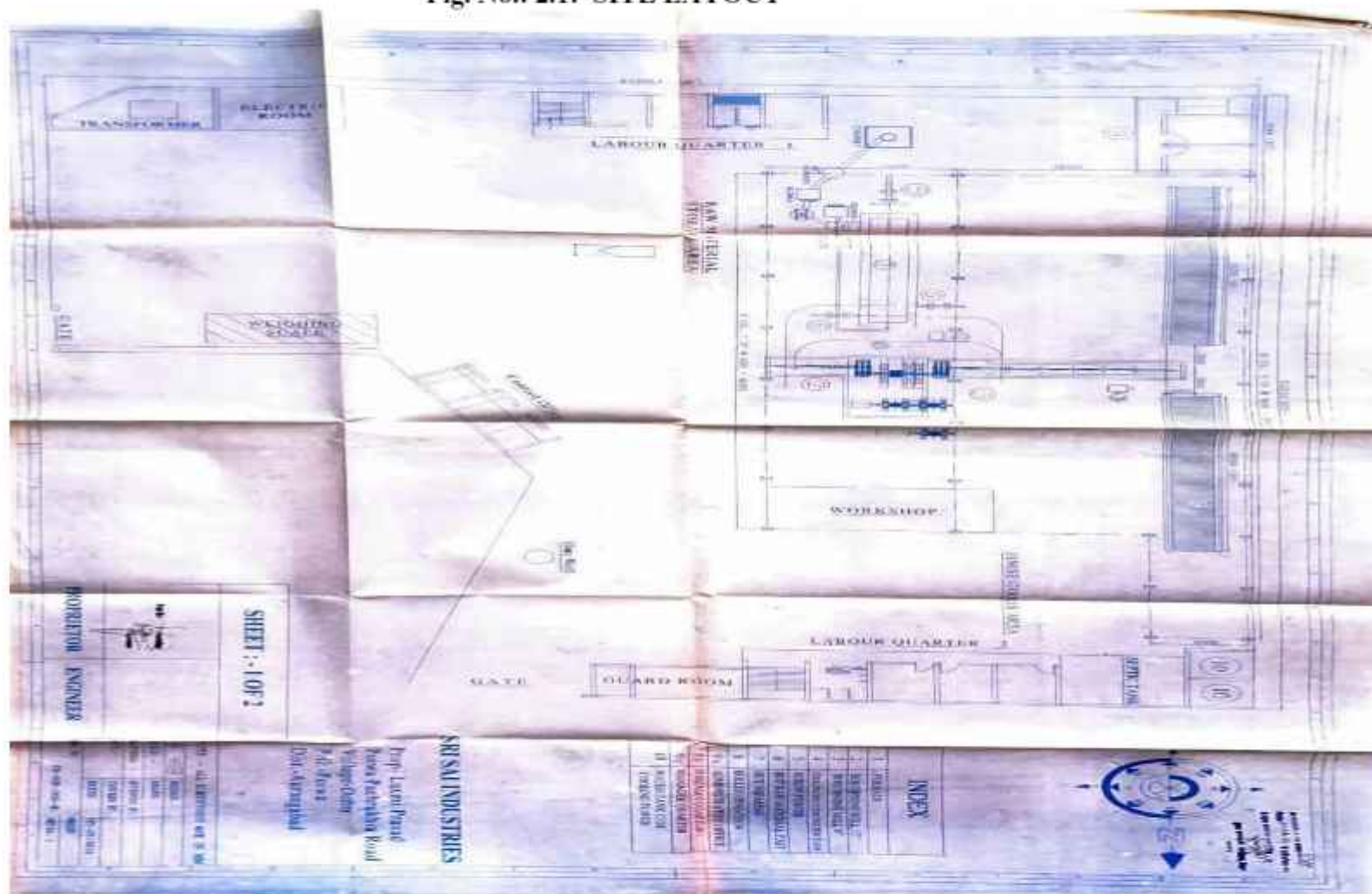
Most developed countries have regulations that are aimed to protect the domestic steel industry. The Indian steel industry has comparatively much lesser protection through regulations. Proper regulatory measures should be adopted by the government to protect the domestic steel industry.

2.3 Location of the Project

Sri Sai Industries (SSI), is situated near Vill. Dehri, Poiwa Pachrukha Road, P.O. Poiwa, District Aurangabad, Bihar having Latitude 24°44'30.44"N & Longitude 84°25'36.45"E at 115 m. above MSL nearby NH-19. It is about 4 kms. from district head quarter Aurangabad and is well connected by Poiwa Pachrukha Road to NH - 19 and rail with rest of the country. SSI is about 25 Km. (SW) from Rafiganj Railway Station & 25 Km. (SE) from Sonnagar Railway Station on Howrah - Delhi Grand Chord Sec. of ECR.

Location Map of the Project Site (Fig. 1.1 and 1.2 & with Photographs are given in Chapter-1.

Fig. No.: 2.1: SITE LAYOUT



2.4 Size or Magnitude of operation:

This is an existing project. The unit has established its re-rolling mill project in 2014 and started operation of the unit after obtaining CTO from Bihar State Pollution Control Board in 2015. The capacity of rolling mill is 9450 MT per annum (27 TPD). SSI is producing MS Flat / Angle / Channel / Square from its rolling mill unit.

Details of existing capacity:

Manufacturing Facilities	Product	Total Capacity
Re-rolling Mill	MS Flat / Angle / Channel / Square	9450 MT/Annum

Mr. Laxmi Prasad is the main promoter of the company. Company is having 0.46 Ha. (4600 Sqm.) of land at near Village Dehri, Dist. Aurangabad and the factory is situated on this land parcel.

Apart from above 0.15 ha area (33 % of Total Plot Area 0.46 Ha.) is being utilized as green belt & plantation of dust capturing species for the existing project as per requirement of MoEF& CC, Govt. of India. The main objective of the greenbelt is to provide a barrier between the plant and the surrounding areas.

2.4.1 Associated activities required by or for the project

Raw Material

The basic raw material will be iron ingots/billets. The neighbouring state of Jharkhand falls within well-developed iron/steel belt and there are many ingot manufacturing units located in Jharkhand. These units are connected to the proposed factory site through rail route as well as road route. Hence the availability of fairly priced raw material will not prove a hurdle for the company. Product wise raw materials requirement for the proposed project, source of raw materials & its transportation are mentioned in table below;

Item	Ratio	Input Qty. / MT of Product	Raw Material Requirement / Annum
MS Ingot / Billet	100.2 %	1.02 MT	9639 MT

2.4.2 Mass Balance for the Raw Materials, Requirements, Products & Source

Refers above section 2.4.1

Main suppliers of Raw Materials are as under

- Balashri Metals Private Limited
- Balaji Electro Steels Limited
- Bihar Foundry & Casting Limited
- Brahmaputra Metallica Limited
- City Alloys Pvt. Ltd.
- Dayal Alloys & Steel Castings
- Dina Iron & Steel Limited
- Ganesh Foundry & Casting Limited
- Globe Steel & Alloys Pvt. Ltd.
- Jagdamba Ispat Pvt. Ltd.
- J.G Foundry Limited
- Jharkhand Ispat (P) Ltd.
- Kampar Contrast Ltd.
- Maihar Alloys Private Limited
- Patnaik Steels & Alloys Ltd.
- Pinex Steel Industries Pvt. Ltd.
- Purulia Metal Casting Pvt. Ltd.
- Radha Casting & Metalik Private Limited
- Sri Jagannath Alloys Pvt.Ltd.
- Triveni Smeltrs Private Ltd.
- T & T Metals Pvt. Ltd.
- Tulshyan Metals Pvt. Ltd.
- Yash Alloys Private Limited

2.4.3 Fuel Requirement

In the existing project coal is being used as fuel in re-rolling mill project. At present 1890 TPA of coal is being used for heating purposes of re-rolling mill.

2.4.4 Water Requirement

Water requirement is being fulfilled through borewells inside premises. 8 KL/Day water is required for SSI project.

In the proposed project water will be used only for cooling, domestic & dust suppression activities. No Industrial water will be required.

The estimated water requirement is given below:

<i>Facilities</i>	<i>Water Requirement</i>
Cooling Purposes	6 KLD
Domestic & Drinking	1 KLD
Greent Belt Irrigation	0.5 KLD
Dust Suppression	0.5 KLD
TOTAL Water Requirement	8 KLD

2.4.5 Power Consumption

For existing unit power requirement is 5000 KVA source of the power is SBPDCL and permission for the same has been obtained from the concern authority.

2.4.6 Manpower Requirement

A well-structured manpower is essential for uninterrupted operation and proper maintenance of plant facilities. Employment will be generated during implementation of the project. The SSI Project generated employment opportunities both in direct and indirect mode. In director mode people got job in existing project and in indirect mode as company authorized dealers & sellers.

2.5 Proposed Project Schedule for approval and Implementation- Likely date of start of construction & likely date of completion.

This is an existing project and it is under operation on the basis of CTE and CTO granted by Bihar State Pollution Control Board.

2.5.1 Total Project Cost

Total cost of the project is approx. Rs. 223.59 Lakhs (Rs. 2.23 Crores). The cost of the main component is as under:-

Table 2.1: Total Project Cost

S. N	Particulars	Total cost (in lakhs)
1	Land & Side Development	25.0

2	Building & Civil Construction	30.0
3	Plant & Machinery	143.59
4	Electrical Installation	25.0
Total		223.59

2.6 Technology and process description

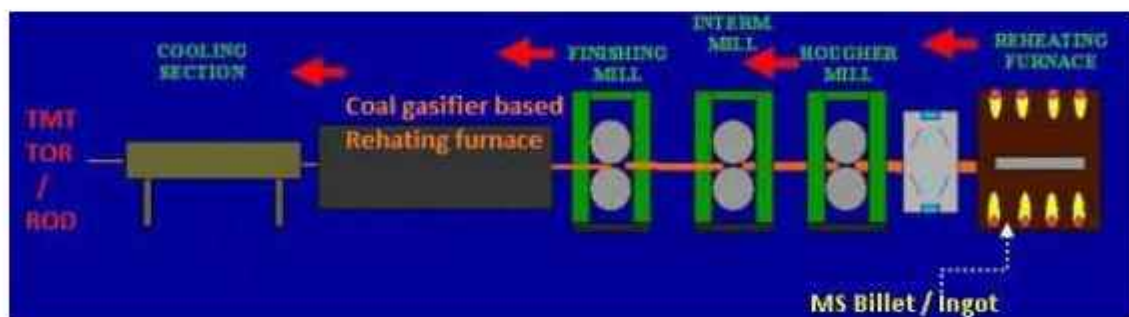
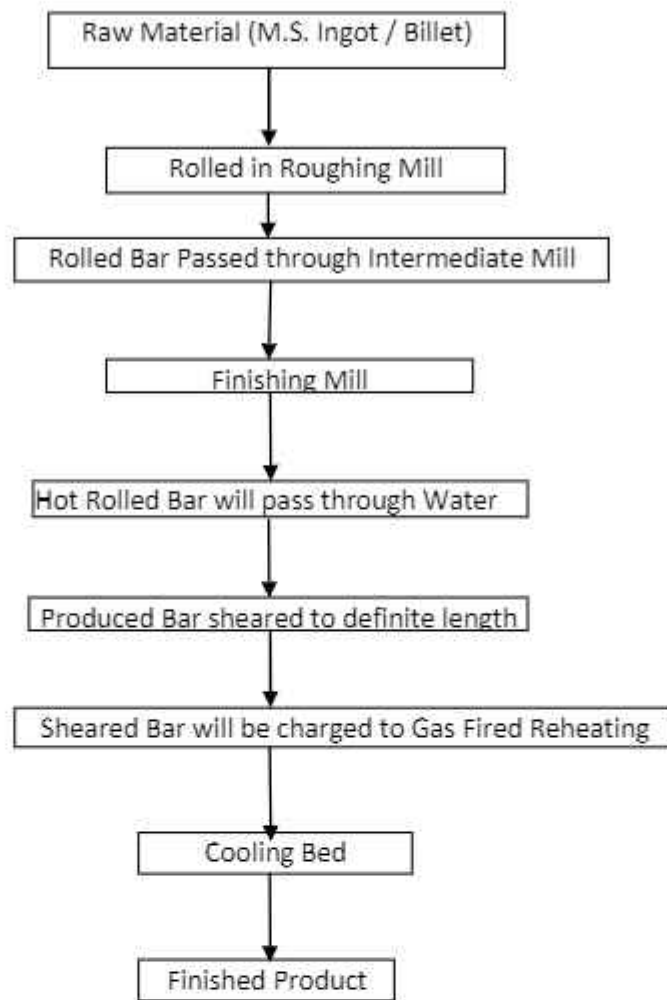
2.6.1 Re-rolling Mill Manufacturing Process

Rolling is a process of converting the shape of feed stock into desired finished section in hot condition by passing the material between a pair of grooved rolls and providing suitable draft at various stages. The whole operation has to be conducted at a particular temperature range and within a limited time span.

M. S. Ingots / Billet after shearing to definite length will be charged from one end to gas fired reheating furnace by a pusher and discharged at the other end after being heated and soaked to desired rolling temperature level of 1200°C.

M. S. Ingots/Billets will be first rolled in the 460 mm roughing mill train by following to & fro rolling using both bottom and top passes as per requirements, the bar will be then allowed to pass through 360 mm intermediate mill train over repeater located between stands. The bar coming out of 4th stand of intermediate mill shall be allowed to enter to the first finishing 260 mm mill train. 8mm hot rolled deformed bar shall be finished from the last stand of continuous mill train. 10 and 12 mm diameter bars shall be produced from preceding stands. The hot rolled deformed shall be then allowed to pass through special water cooling pipe section for production of TMT bar. The bar thus produced will be cut to suitable length by shear and will be received at cooling bed in straight length. The bars from cooling bed shall be subsequently sheared to definite commercial length for storage/shipment. Manufacturing Process Flow Diagram for the proposed project is shown on next page. The bars from cooling bed shall be subsequently sheared to definite commercial length for storage/shipment. Process Flow Sheet is shown in Fig. 2.2 below;

Fig. 2.2: Process Flow Sheet



2.7 Project description. Including drawings showing project layout, components of project etc. Schematic representations of the feasibility drawings which give information important for EIA purpose.

As per MoEFCC Gazette Notification No. S.O. 3250(E) Dt: 20th Jul. 2022, existing rolling mills (which are being operated on CTE/CTO from SPCB) having capacity more than 5000 TPA requires to obtain EC and also exempted from requirement of

Public Consultation, providing TOR should be obtained within one year from the above referred Gazette Notification. In this connection, M/s SSI submitted an application along with filled up 'Form I' along with Pre-Feasibility Report in the prescribed format to SEIAA, Bihar on 28.12.2022 for obtaining approved TOR for its proposed project, vide Proposal No. SIA/BR/IND1/412034/2022.

The above mentioned information about the project is to integrate different environmental factors into project planning and decision making by studying probable changes in the various socioeconomic and bio-physical characteristics, which shall result from the proposed project, so as to achieve ecologically sustainable development.

To identify environmental risks, reduce conflicts by promoting community participation, minimize adverse environmental impacts and keep decision makers informed thus laying base for environmentally sound project, such that the benefits shall be observed at all the stages of the project starting from conceptualization to planning, design, construction and operation stage.

2.8 Description of mitigation measures incorporated into the project to meet environmental standards, environmental operating conditions, or other EIA requirements (as required by the scope)

2.8.1 Waste Water Generation and Treatment

In SSI water is being used only for cooling, domestic, dust suppression and green belt irrigation purposes. No industrial waste water is being generated. Domestic waste water will be treated in septic tank followed by soak pit within premises..

2.8.2 Air Pollution

For control of PM and gases emission from the re-rolling mill furnace, cyclone dust collectors are installed. Stack of height of 24 meters height has been provided for wider dispersion of pollutants.

- For control of Fugitive dust emission from the open space, Pucca roads within the premises, water sprinkling in dusty areas and green belt/plantation to arrest the fugitive dust emission.
- The pollution control equipment will regularly be operated and maintained.
- Fugitive emission will be regularly monitored and suitable action like cleaning, water sprinkling will be taken.

Source of Air pollution and control measures

Section	Source of Air Pollution	Pollutants	Air Pollution control Measures
Re-rolling Mill	Furnace	PM and gases	Cyclone dust collectors with stack of 24 mtr height has been provided.
Overall Plant Area	Open Space	Fugitive Dust Emission	Pucca roads within the premises, water sprinkling in dusty areas and green belt

STACK & EMISSION DETAILS

S.No.	Input Parameter	Re-rolling Mill
1.	Stack height from Ground (m)	24
2.	Inner Diameter of stack/Duct (m)	0.55
3.	Flue Gas Temperature (°C)	120
4.	Gas Exit velocity (m/s)	10
5.	Emission of PM ₁₀ (g/sec)	0.13
6.	Emission of PM _{2.5} (g/sec)	0.08
7.	Emission of SO ₂ (g/sec)	0.04
8.	Emission of NO _x (g/sec)	0.07

2.8.3 Noise Pollution

The major sources of noise pollution would be running of machineries. The plant machineries shall be maintained properly with regular oiling and greasing to reduce the noise pollution.

There is no major noise prone process except equipment for conveyor belt and fans for furnace etc.

- By selecting low noise generating equipment, which would have below 75 dBA. This is taken care at the equipment design stage.
- By isolating the noise unit from the working personnel's continuous exposure by providing acoustic aids for plant personnel.
- By administrative & safety measures, providing noise level monitoring, remedial measures, providing noise safety appliances.

2.8.4 Solid Waste Generation and Management (Tons/Year)

189 TPA of End Cuttings will be generated from the operation of re-rolling mill furnace project. All these end cuttings will be sold back to ingot manufacturing units for recycling and reuse in production of ingot. 475 TPA of coal ash will be generated, which will be sold to flyash product manufacturing units.

Hazardous waste: There is no hazardous waste from the plant except for used oil with approx. quantity of 30 Liters per annum, during course of production of and is also saleable to the registered recyclers in the market. ;

2.8.5 Green Belt Development

The Greenbelt & plantation is being developed in 0.15 hectare (33% of the area) of plant area so as to mitigate the effects of emissions from the plant. The treated waste water from the plant will be utilized for the greenbelt development. Roads for vehicular movement will be paved and adequate mitigation measures will be provided to prevent fugitive emissions. Tree density of 2500 trees per hectare with local board leaf specification will be planted.

2.9 Proposed Infrastructure:

This is an existing running project. No new infrastructure will be developed for operation of re-rolling mill project.



CHAPTER - 3

DESCRIPTION OF THE ENVIRONMENT

3.1 Introduction

This chapter describes the existing environmental status of the study area with reference to the prominent environmental attributes. The study covers the core zone and buffer zone of 10-km radius around the project site.

Study Area

Sri Sai Industries (SSI), is situated near Vill. Dehri, Poiwa Pachrukha Road, P.O. Poiwa, District Aurangabad, Bihar having Latitude 24°44'30.44"N & Longitude 84°25'36.45"E at 115 m. above MSL nearby NH-19. It is about 4 kms. from district head quarter Aurangabad and is well connected by Poiwa Pachrukha Road to NH - 19 and rail with rest of the country. SSI is about 25 Km. (SW) from Rafiganj Railway Station & 25 Km. (SE) from Sonnagar Railway Station on Howrah - Delhi Grand Chord Sec. of ECR.

The relevant information and data (both primary & secondary) were collected in core as well as buffer zone (10 km distance from the plant boundary) during Pre - Monsoon Season (March-May 2023) in accordance with the guidelines for preparation of EIA studies. Studies on various components of environment have been conducted in the "Study Area" covering 10 km radius, centering the proposed project Area. The study area has been divided in two zones, namely, "Core Zone" and "Buffer Zone". The Core Zone is the plot area where manufacturing plant will be located. In order to establish the present environmental

scenario, various environmental factors such as topography and drainage, meteorology, air, water, soil, noise, flora, fauna and socio-economics etc. have been studied in the study area.

Details of Study:

M/s Shiva Test House, Patna, a MoEFCC (Ministry of Environment & Forests, Govt. of India) Recognized Environmental Laboratory (vide Gazette Notification No. S.O. 592 (E), 08th Mar. 2013 & Accredited by National Accreditation Board for Testing & Calibration Laboratories (NABL) has conducted baseline data generation with respect to air, water, soil quality, noise status, meteorology etc. All the field studies for baseline data generation were carried out during (March to May 2023).

Components & Methodology

Baseline study is conducted in order to identify the changes to the natural and socioeconomic environments, or any potential impact and to have a thorough understanding of the nature of those existing environments prior to commencement of the proposed project activities, it is necessary to study the present scenario of the area by collecting information on the following parameters / components:

1. Land Environment
2. Meteorology
3. Air Environment
4. Noise Environment
5. Water Environment
6. Soil Environment
7. Biological Environment
8. Socio-economic Environment

Land, soil, water, air and noise constitute the physical environment, agricultural crops, flora and fauna constitute the biological environment of the study area and these are discussed in the following sections of this chapter.

3.2 Land Environment

3.2.1 Geological features and Geo-hydrological status of the study area

The Geologically, the district is made up of various formations from Archean to present day deposits. Near southern and eastern part of the district, Chhotanapur Gneissic complex of Archean age is exposed and also as inliers and covers about 20% of the geographical area. It gradually dips towards north and form the basement. The Remaining major part is the alluvium of Pleistocene to quaternary age which lies un-conformably over the basement rocks. Alluvial is thin near southern and eastern boundary goes more than 150 m near northern boundary. The sediments are composed of finer clastics silt, clay and fine to medium sand. In the western part of the district, the sediments deposited by the river Sone are coarse to very coarse in nature.

The occurrence and movement of ground water in the area is variable, which depends on geomorphology, structure, geological setting, hydraulic properties, tectonic setup etc. The hydrogeological condition of Aurangabad is complex due to diverse geological terrain, variability of topography, drainage etc.

The project area (Aurangabad Block, Dist. Aurangabad, State Bihar) falls under Safe Category as per GWRE 2022 by CGWA. Ground water level of study area lies at 0.6-0.8 m. bgl during pre monsoon period and during monsoon and post monsoon water level lies at 0.6 – 0.78 m. bgl. (Source: CGWB Report and NOCAP Portal)

3.2.2 Land Use Pattern

The land use relates to the human activity or economic function associated with a specific piece of land, while the term land cover relates to the type of feature present on the surface of the earth (Lillesand and Kiefer, 2000). Land use/ Land cover (LULC) maps are presently being developed for various purposes. Moreover it is being used for planning and management activities. Since the industrialization is taken place, LULC changes has been studied such as deforestation, urban sprawl, etc. In the LULC mapping the use of multi-spectral bands and panchromatic band are being widely used since the emergence of satellite imageries in early 1970s. More recently, high spatial and spectral resolution satellite imageries such as quick bird sensors with spatial resolution of 0.50 meters are being utilized for more detail LULC mapping. Therefore, the satellite remote sensing technology has been widely accepted for rapid resource assessment and monitoring, particularly in the Developing World. National Aeronautical and Space Administration (NASA) of USA has made most significant contributions with satellite based remote sensing techniques. Identification and periodic surveillance of land uses and vegetation covers, in the vicinity of any developmental activity is one of the most important components for an environmental impact assessment, which would help determine the impact of the project development activity on the land use pattern.

Data Products Used

Remote Sensing Data

The details of primary data in the form of digital data for interpretation and analysis of the study area within 10 km from the project site was generated from the IRS P6 LISS-IV MX digital FCC (False Color Composite) has been used for preparation of Land use/ Land cover thematic map of study area.

Survey of India Toposheet

In addition Survey of India (SOI) toposheet with 1:50,000 scale were used for the preparation of base and drainage maps.

Methodology

For the preparation of Landuse/landcover map the methodology adopted is shown in flow chart given below.



Preliminary / primary data collection of the study area

- Data from NRSC Hyderabad

Secondary data collection from authorized bodies

- Google Map
- Layout
- Cadastral / Khasra map
- GPS Coordinates of Plant Boundary

Processing of satellite data using ERDAS Imagine 9.2 and to prepare the Land use & Land cover maps (e.g. Forest, agriculture, settlements, wasteland, water bodies etc.) by digital image processing (DIP) technique.

- Enhancement of the Satellite Imagery
- Base Map layer creation (Roads, Railway, Village Names and others Secondary data etc.)
- Data analysis and Classification using Digital interpretation techniques.
- Ground Truth studies or field verification
- Error fixing / Reclassification
- Final Map Generation

Land Use & Land Cover Classes

These are the following LULC Classes:-

Water Bodies, Crop land, Fallow Land, Human Settlement, Industrial Area, Mine Quarry, Scrub Land, Plantation, Railway Line, Road Network, Forest Land, Stony Waste Land, Open Land etc. as per NRSC Guide Line.

Definitions of LULC Classes

(Reference- National Remote Sensing Centre Guideline)

Agriculture Land: These are the lands primarily used for farming and for production of food, fiber, and other commercial and horticultural crops. It includes land under crops (Irrigated and non-irrigated, Fallow, Plantation etc.)

Crop Land: These are the areas with standing crop as on date of satellite overpass. Cropped areas appear in bright red to red in color with varying shape and size in a contiguous to noncontiguous pattern. Three cropping seasons exist in India viz., Kharif (June/July-September/October), Rabi (November-December-February-march) and Zaid (April-May).

Fallow Land: These are the lands, which are taken up for cultivation but are temporarily allowed to rest, un-cropped for one or more seasons.

Fallow land is categorized in two classes which Current Fallow and Long Fallow.

Current Fallow Land: These are the cropland areas, which are un-cropped during the agriculture year under consideration as on the date of satellite overpass.

Long Fallow Land: These are the croplands areas, which are un-cropped for Two to Four agriculture Years from the base year.

Land Use / Land Cover Interpretation:

The study area mainly comprises of fallow land which covers 45.23% of land and crop land occupies 22.58 % of total land of buffer zone. The land use & land cover details of the buffer zone is given Table - 3.1

Table No. 3.1: **LAND USE PATTERN OF THE STUDY AREA**

Classification/Legend	Area in Ha.	Percent (%)
Agriculture Crop Land	70.93	22.58
Agriculture plantation	67.36	21.44
Agriculture Fallow Land	142.08	45.23
Unculturable/Scrub/ Barren/ Waste Land	11.21	3.57
Builtup Land	19.41	6.18
Water Body	2.04	0.65
Mine/Quarry/Other Ind.	1.12	0.36

The land use land cover (LULC) map for the study area is given in **Fig. No. 3.1**.

Fig. No. 3.1: LAND USE LAND COVER OF THE STUDY AREA BASED ON SATELLITE IMAGERY

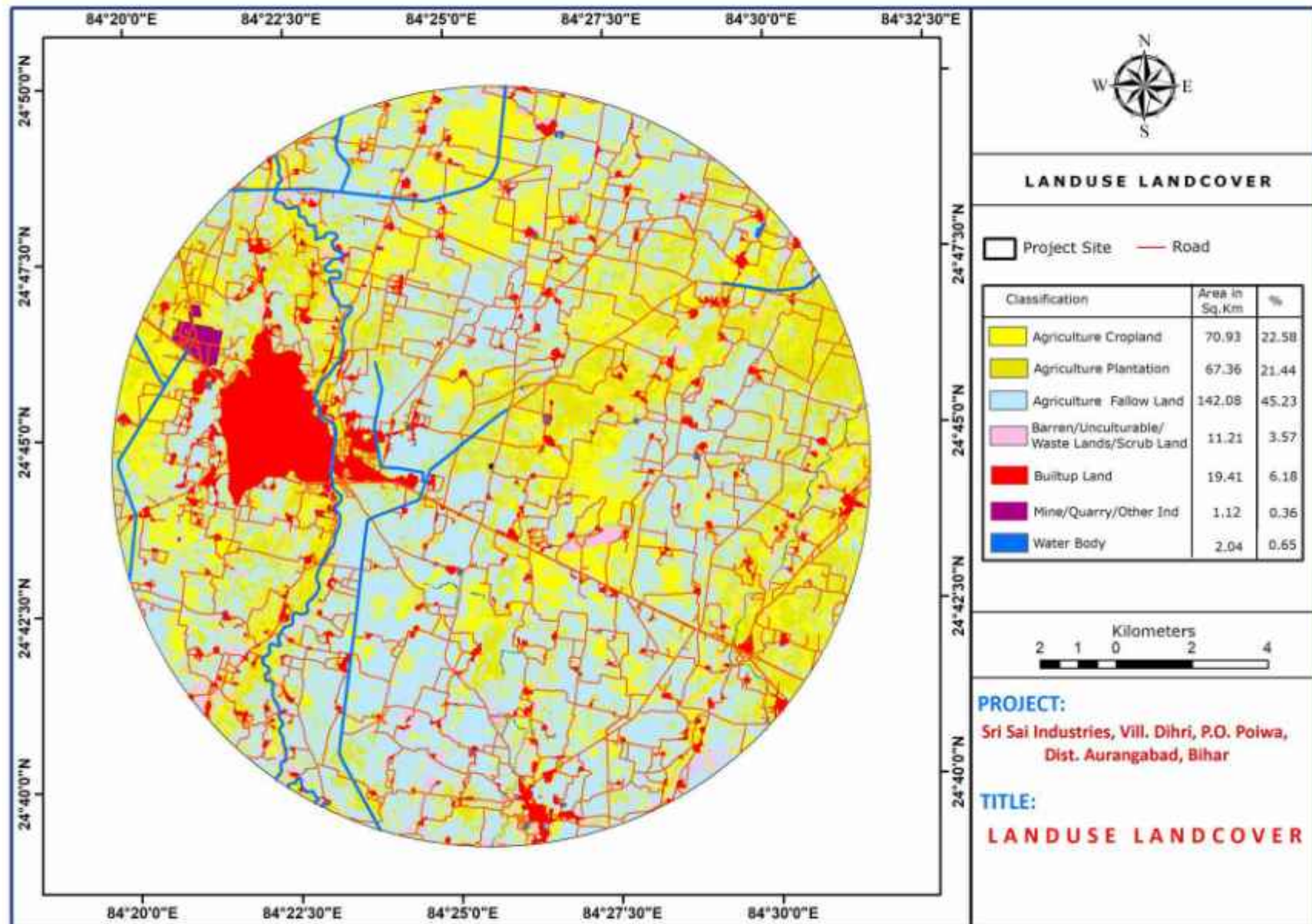


Fig. No. 3.2: SATELLITE IMAGERY OF THE STUDY AREA

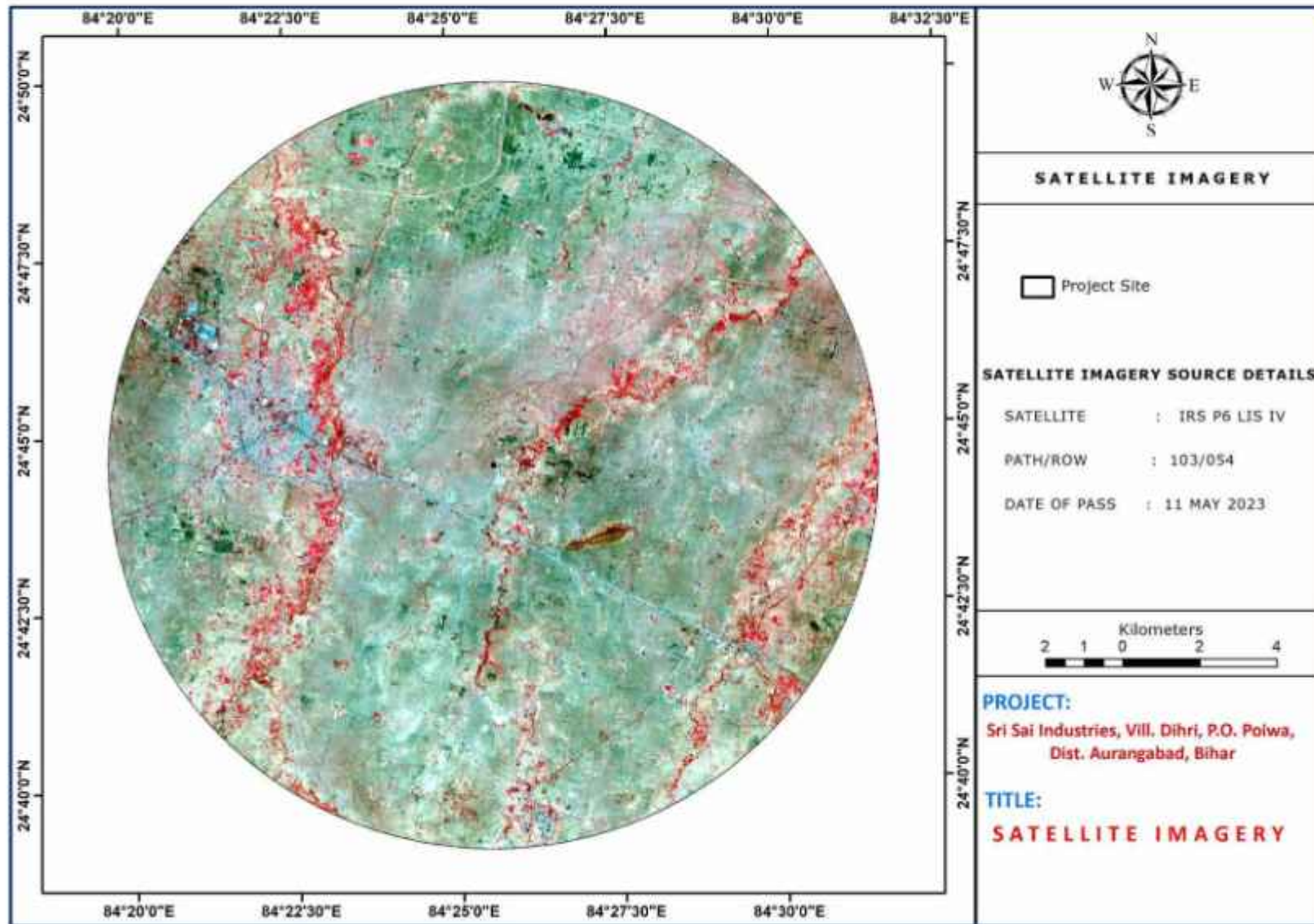


Fig. No. 3.3: **DRAINAGE MAP OF THE STUDY AREA**

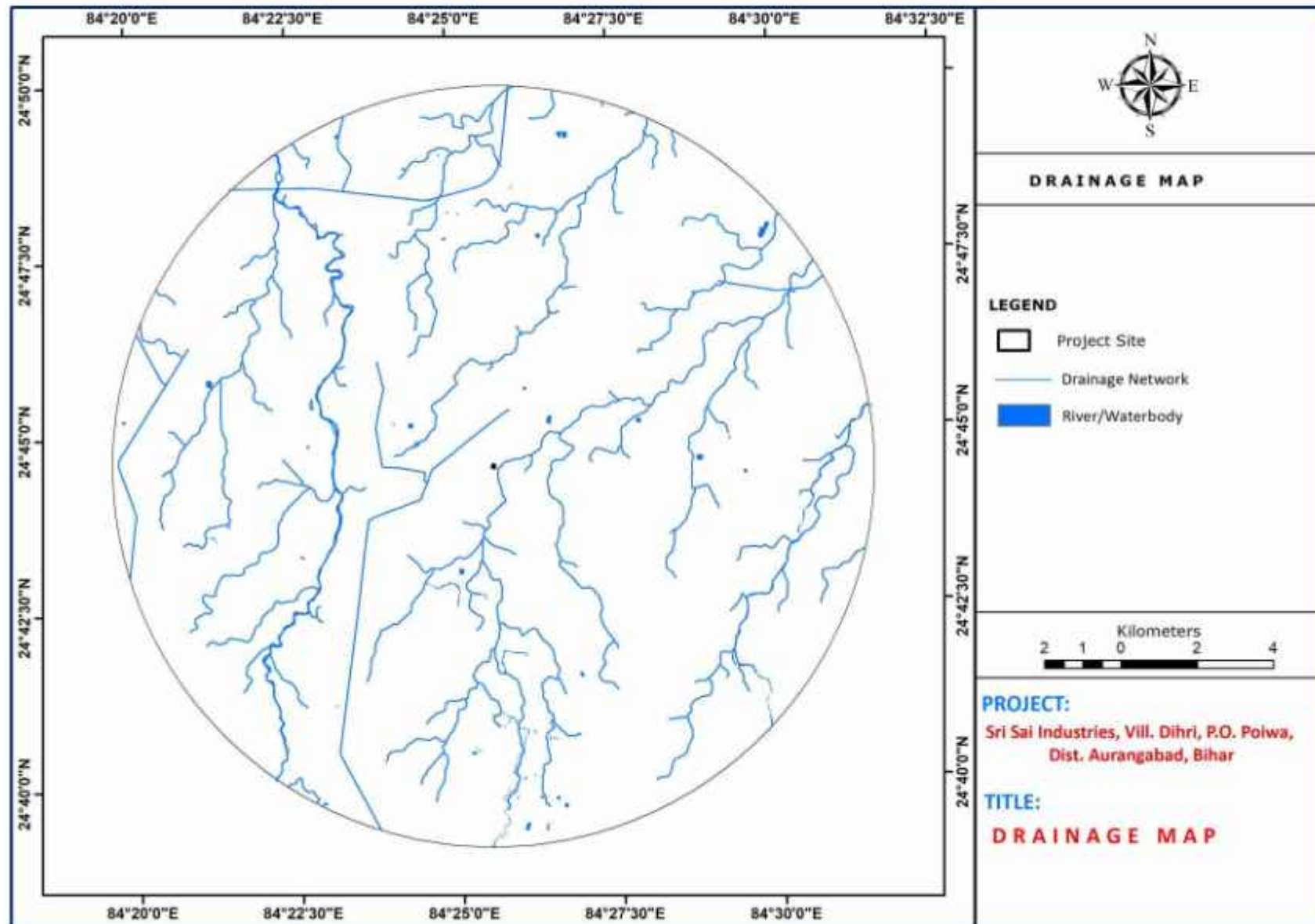
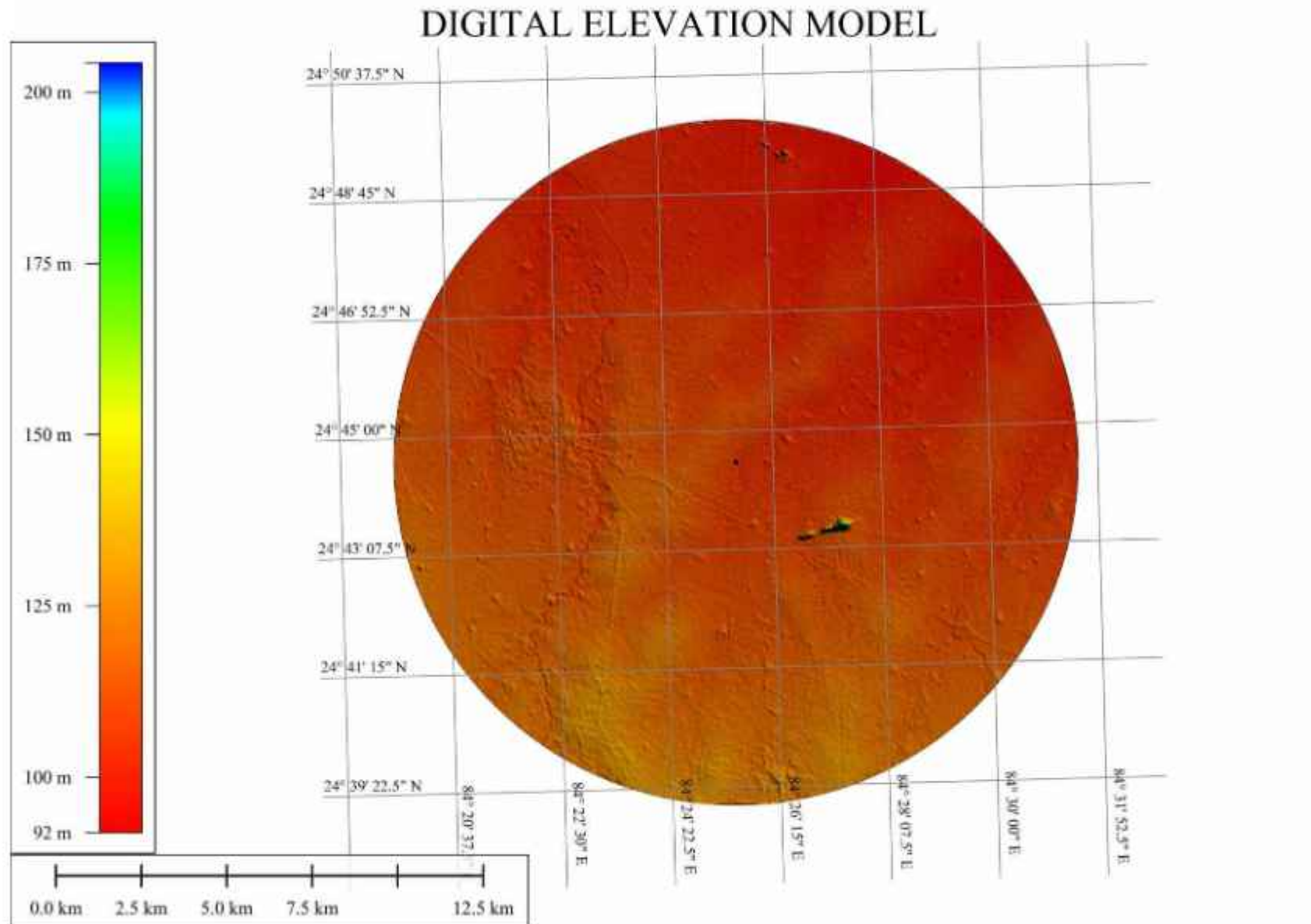


Fig. No. 3.4 : DIGITAL ELEVATION MODEL OF THE STUDY AREA



3.2.3 Soil

Soil, the loose surface material, consists of inorganic particles and organic matter, provides water and nutrients to plants. Soils tend to become acidic when rainwater leaching away basic ions, from decaying organic matter, oxidation of ammonium and sulfur fertilizers etc. Mainly three types of soil are observed in the district:

1. Younger Alluvial soils
2. Older Alluvial soils
3. Foot hill soils

Soil samples from five locations covering a radius of 10 km. were collected and analyzed. The study was designed to assess the existing soil quality around the proposed site. The soil sampling locations have been shown in the **Table 3.2** and **Figure 3.5**.

Table 3.2: SOIL SAMPLING STATIONS

Station No.	Location	Distance from Plant (in km)	Direction
S1	Project Site	0.0	Within
S2	Unthu	7.6	N
S3	Jaipal Bigha	7.7	E
S4	Deo	8.6	S
S5	Aurangabad	6.1	W

Composite sampling of soil up to root depth (15 cm) was carried out at each location. The value of important physical and chemical parameters has been given in **Table 3.3**.

Fig. 3.5 : Location of Soil Sampling Stations

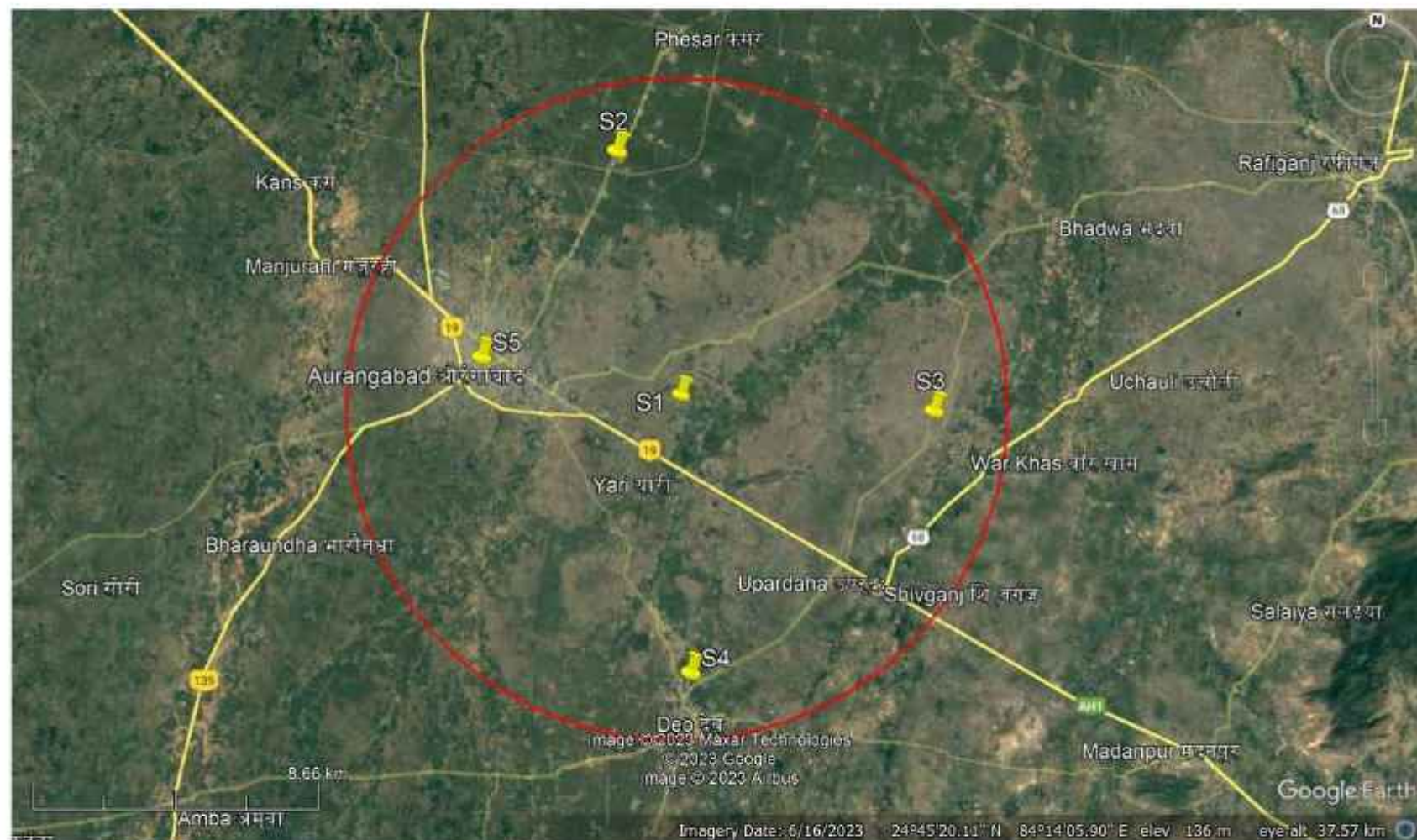


Table 3.3

SOIL QUALITY RESULTS (APRIL 2023)

Parameter	Unit	Sampling Location				
		Project Site	Unthu	Jaipal Bigha	Deo	Aurangabad
Soil Texture	-	Clay	Clay Loam	Loam	Loam	Clay Loam
Particle Size Distribution						
Gravel	%	0.62	0.52	0.36	0.42	0.55
Sand	%	5.6	16.0	10.0	22.0	5.0
Silt	%	10.0	15.0	20.0	16.0	12.0
Clay	%	15.0	18.0	12.0	18.0	16.0
Conductivity	µmhos/cm.	260.0	264.0	240.0	248.0	256.0
Water Holding Capacity	%	36	64	58	44	72
Porosity	%	8	14	10	8	18
pH	--	7.82	7.88	7.56	7.52	7.89
Available Potassium as K ₂ O	Kg/Hec.	48.0	70.0	52.0	64.0	66.0
Available P as P ₂ O ₅	Kg/Hec.	5.2	7.4	6.6	10.2	8.0
Available Nitrogen as N	Kg/Hec.	186.0	212.0	196.0	210.0	230.0
Organic Carbon	%	0.24	0.36	0.40	0.28	0.32

3.3 Water Environment

3.3.1 Surface Water Regime

The Sone River forms the western boundary of the area and at southern boundary lays the Chhotanagpur Granitic Gneissic Complex (CGGC) of Jharkhand state. The district is bounded in the north and the east by Arwal district and Gaya district respectively

3.3.2 Ground Water Regime

The occurrence and movement of ground water in the area is variable, which depends on geomorphology, structure, geological setting, hydraulic properties, tectonic setup etc. The hydrogeological condition of Aurangabad is complex due to diverse geological terrain, variability of topography, drainage etc. Based on morphogenetic and geological diversities and relative ground water potentialities in the aquifer belonging to different geological formation, the study area can be broadly sub-divided into two hydrogeological units.

3.3.3 Water Quality

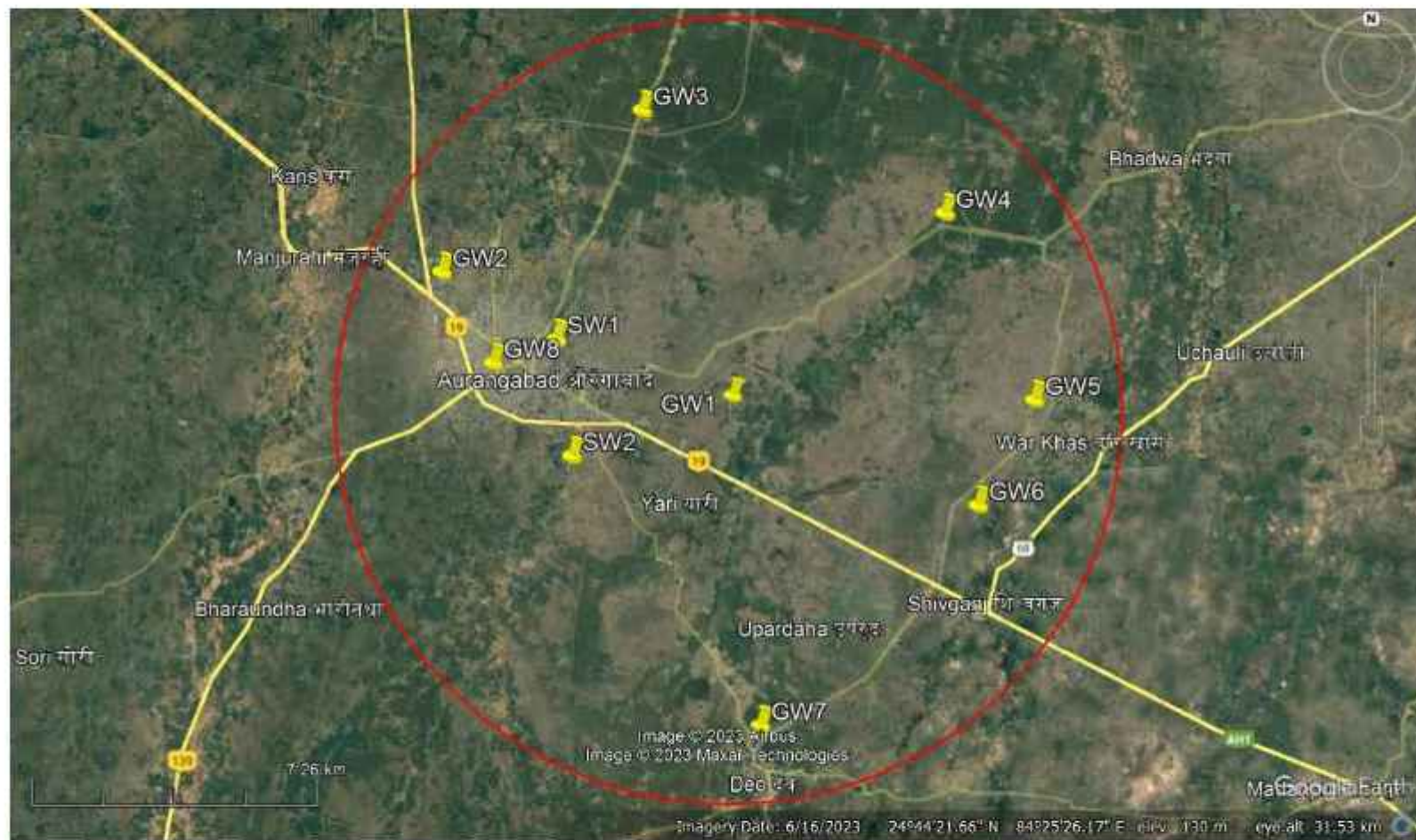
The objective of the baseline water quality program was to determine pre project water quality conditions and the nature and extent of present impacts. Eight ground water samples and two surface water samples were analyzed. Grab samples were collected during the month of April 2023 and brought to the laboratory for testing and analysis. The analysis has been carried out according to the IS standards such as IS: 3025, APHA and IS 10500:2012. The sampling locations have been shown in **Table 3.4** and **Figure 3.6**.

Table 3.4: WATER SAMPLING STATIONS

Station No.	Location	Distance from Plant (In km)	Direction
GW1	Project Site	0.0	Within
GW2	Dhobaul	8.0	NW
GW3	Unthu	7.6	N
GW4	Rajoi	7.0	NE
GW5	Jaipal Bigha	7.7	E
GW6	Erki Kala	6.9	SE
GW7	Deo	8.6	S
GW8	Aurangabad	6.1	W
SW1	River Adari (Upstream)	5.0	NW
SW2	River Adari (Downstream)	4.0	SW

The findings of the analysis have been reported in **Table 3.4** and **Table 3.5**. Brief description of the findings of water analysis has been given below:

Fig. 3.6 : Location of Water Sampling Stations



3.3.4 Ground Water Quality

All the water samples were bearing an agreeable taste. The colour of all the water samples was found to be <5 Hazen unit. Odour of all the water was unobjectionable.

The water samples were found to be free from contaminations due to Fluoride & Boron. The dissolved solids level in the water samples were found in the range of 546- 901 mg/l., which is above desirable limits. The water sample from *Jaipal Bigha* was having the minimum TDS while maximum dissolved solids were found at Aurangabad.

The chlorides were found to be in the range of 18 – 188 mg/l. The Sulphates were found in the range of 22.4 – 32.8 mg/l. Total hardness values in the range of 376 – 492 mg/l. It is very much within the permissible limits of IS 10500:2012. Total Alkalinity values were in the range of 248 – 328 mg/l.

Values of Iron are in range of 0.38 – 0.82 mg/l. & values for Zinc are in range of 0.38 – 0.46 mg/l.

All other parameters have been found to be within the permissible limits prescribed under the IS : 10500 :2012 for drinking water.

The ground water quality report is shown in Table 3.5

3.3.5 Surface Water Quality

The surface water quality report is shown in Table 3.6. The surface water can be best used for Irrigation and domestic purposes.

Table 3.5
GROUND WATER CHARACTERISTICS OF STUDY AREA
(STUDY PERIOD : MARCH TO MAY 2023)

Parameter	Unit	Limit (Acceptable) as per IS 10500:2012	Project Site	Dhobaul	Unthu	Rajoi	Jaipal Bigha	Erki Kala	Deo	Aurangabad
1. Colour	Hazen unit	5.0 hazen limit	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
2. Odour	NS	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3. Taste	NS	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4. Turbidity	NTU	1.0	<1.0	1.12	< 1.0	1.18	<1.0	<1.0	1.34	1.0
5. pH	---	6.5 – 8.5	8.01	7.94	7.87	7.93	8.13	7.26	7.84	8.05
6. Total Dissolved Solids	mg/l.	500	892	736	583.0	626.0	546.0	664.0	648.0	901
7. Total hardness as CaCO ₃	mg/l.	200	488	440.0	386.0	408.0	376.0	428.0	448.0	492
8. Calcium as Ca	mg/l.	75	64.1	80.1	78.5	82.2	72.1	88.1	80.1	65.7
9. Magnesium as Mg	mg/l.	30	79.7	58.3	46.2	56.4	47.6	50.5	60.3	79.7
10. Total Alkalinity as CaCO ₃	mg/l.	200	324	312.0	288.0	256.0	278.0	248.0	260.0	328
11. Residual Free Chlorine	mg/l.	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
12. Chloride as Cl	mg/l.	250	164	52.0	48.0	64.0	66.0	74.0	68.0	188
13. Sulphate as SO ₄	mg/l.	200	26.4	25.2	23.2	32.8	28.6	22.4	28.8	28.2
14. Fluoride as F	mg/l.	1	0.30	0.24	0.18	0.22	0.26	0.22	0.28	0.34
15. Nitrate as NO ₃	mg/l.	45.0	42.0	22.2	22.4	28.3	24.2	34.4	26.2	44.4
16. Boron as 'B'	mg/l.	2.4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
17. Iron as Fe	mg/l.	1	0.38	0.41	0.52	0.82	0.56	0.48	0.74	0.64
18. Copper as Cu	mg/l.	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
19. Zinc as Zn	mg/l.	5.00	0.40	0.44	0.42	0.46	0.43	0.38	0.41	0.52
20. Chromium as Cr	mg/l.	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Parameter	Unit	Limit (Acceptable) as per IS 10500:2012	Project Site	Dhobaul	Unthu	Rajoi	Jaipal Bigha	Erki Kala	Deo	Aurangabad
21. Arsenic as As	mg/l.	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
22. Manganese as Mn	mg/l.	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
23. Mercury as Hg	mg/l.	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0701	<0.001
24. Cadmium as Cd	mg/l.	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
25. Selenium as Se	mg/l.	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
26. Cyanide as CN	mg/l.	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
27. Lead as Pb	mg/l.	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
28. Aluminium as Al	mg/l.	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
29. Anionic Detergent	mg/l.	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
30. Mineral Oil	mg/l.	0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
31. Phenolic Compound as C ₆ H ₅ OH	mg/l.	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
32. Total Coliform	CFU/100 ml.	Shall not be detectable in 100 mL.	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
33. E.coli			Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent

Note: Sampling and Testing Protocol – IS 3025, APHA

Table 3.6

SURFACE WATER QUALITY RESULTS
(STUDY PERIOD : MARCH TO MAY 2023)

Parameter	Unit	Rever Adari Upstream	River Adari Downstream
1. pH	---	7.12	7.04
2. Electrical Conductivity	Mmhos./cm.	0.36	0.39
3. Dissolved Oxygen	mg/l.	5.4	5.2
4. Turbidity on NTU	---	5.6	5.8
5. Total Dissolved Solids	mg/l.	192.0	208.0
6. Total hardness as CaCO ₃	mg/l.	148.0	156.0
7. Calcium as Ca	mg/l.	32.8	34.4
8. Magnesium as Mg	mg/l.	16.0	17.0
9. Total Alkalinity as CaCO ₃	mg/l.	124.0	136.0
10. Chloride as Cl	mg/l.	28.0	32.0
11. Sulphate as SO ₄	mg/l.	24.8	26.2
12. Fluoride as F	mg/l.	0.38	0.42
13. Sodium as Na	mg/l.	56.0	62.0
14. Potassium as K	mg/l.	2.8	3.2
15. Boron as B	mg/l.	0.10	0.11
16. Total Phosphate as P	mg/l.	0.32	0.38
17. BOD	mg/l.	2.4	2.8
18. COD	mg/l.	20.0	28.0
19. Ammonical Nitrogen as N	mg/l.	1.1	1.7
20. Total Kjeldahl Nitrogen as N	mg/l.	2.8	3.4
21. Total Coliform (MPN value)	---	1600	2100

Note: Sampling and Testing Protocol – IS: 3025, APHA and IS: 1622

3.4 Biological Environment

The term biological environment would cover the prevalence of all living forms such as plants and animals both in terrestrial and aquatic in the study area. Living forms cover a very wide spectrum of species and even a small area may have thousands of species if all bacteria, protozoa, worms, insects, plants, animals and birds are to be included. In the present study, higher taxa (trees, small trees, shrubs, under shrubs, climbers and grasses) and fauna (mammals, birds and aquatic) are covered. River Ganga is flowing 0.4 km. away from project site. The details of most common trees, shrubs and grass species found in the area are as under -

Table 3.7 : LIST OF FLORA FOUND IN THE STUDY AREA

Family	ANGIOSPERM (DICOTYLEDONS)	Habit	Local Name
1. AMARANTHACEAE	<i>Achyranthes aspera</i> Linn.	Herb	Chirchiri
	<i>Alternanthera sessilis</i> (Linn.) D.C.	Herb	Sirouchi
2. ANACARDIACEAE	<i>Mangifera indica</i> Linn.	Tree	Aam
	<i>Spondias pinnata</i> (Linn.) Kurz.	Tree	Amra
3. APOCYNACEAE	<i>Catharanthus roseus</i> (Linn.) G. Don	Herb	Sada bahar
	<i>Tabernaemontana divaricata</i> R. Br.	Shrub	Tagar
	<i>Thevetia peruviana</i> (Press.) K. Schum.	Shrub	Kaner
	<i>Calotropis gigantea</i> (L.) R. Br.	Shrub	Aak
4. ASTERACEAE (COMPOSITEAE)	<i>Ageratum conyzoides</i> Linn.	Herb	Mahakaua
	<i>Blainvillea acmella</i> (Linn.) Philipson	Herb	---
	<i>Eclipta prostrata</i> Linn.	Herb	Bhengria
	<i>Tridax procumbens</i> Linn.	Herb	Ghamra
	<i>Parthenium hysterophorus</i> Linn.	Herb	Gajar Ghans
5. BOMBACACEAE	<i>Salmaal malabarica</i> (D.C.) Scott & Endlicher.	Tree	Semal
6. BORAGINACEAE	<i>Heliotropium indicum</i> Linn.	Herb	Hathi soorh
7. CLEOMACEAE	<i>Cleome gynandra</i> Linn.	Herb	Swet hurhur
	<i>Cleome viscosa</i> Linn.	Herb	Ujla hurhur
8. FABACEAE	<i>Cassia fistula</i> Linn.	Tree	Amaltas
	<i>Cassia tora</i> Linn.	Herb	Chakwar
	<i>Caesalpinia crista</i> Linn.	Shrub	Latakaranja
	<i>Delonix regia</i> (Boj.) Raf.	Tree	Gulmohar
	<i>Saraca asoca</i> (Roxb.) de Wilde	Tree	Ashoka
	<i>Tamarindus indica</i> Linn.	Tree	Imli
	<i>Mimosa pudica</i> Linn.	Herb	Lajwanti
	<i>Pithecellobium dulce</i> (Roxb.) Benth.	Tree	Jangli jalebi
9. CARICACEAE	<i>Carica papaya</i> Linn.	Tree	Papita

10.CONVOLVULACEAE	<i>Convolvulus arvensis</i> Linn.	Herb	Hiranpag
11.SAPOTACEAE	<i>Manilkara zapota</i> (L.) P. Royan	Tree	Chikoo
12.EUPHORBIACEAE	<i>Acalypha indica</i> Linn.	Herb	Kuppi
	<i>Euphorbia hirta</i> Linn.	Herb	Dudhi
	<i>Euphorbia thymifolia</i> Linn.	Herb	Dudhi
	<i>Phyllanthus fraternus</i> Webster	Herb	Bhui amla
	<i>Codiaeum variegatum</i> (Linn) A. Juss.	Shrub	Croton
13.LAMIACEAE	<i>Anisomeles indica</i> (Linn.) Kuntze.	Herb	Kala Bhangra
	<i>Hyptis suaveolens</i> (Linn.) Poit.	Herb	Vilaiti Tulsi
	<i>Leucas cephalotes</i> (Roth.) Spreng.	Herb	Guma
	<i>Ocimum sanctum</i> Linn.	Herb	Tulsi
14.LYTHRACEAE	<i>Lawsonia inermis</i> Linn.	Shrub	Mehdi
15.MALVACEAE	<i>Abutilon indicum</i> (Linn.) Sweet Hort.	Herb	Kanghi
	<i>Hibiscus rosa - sinensis</i> Linn.	Shrub	Arhul
	<i>Sida rhombifolia</i> Linn.	Herb	Atibala
16.MENISPERMACEAE	<i>Tinospora cordifolia</i> (Willd.) Miers.	Climber	Giloy
17.MELIACEAE	<i>Azadirachta indica</i> A. Juss.	Tree	Neem
	<i>Swietenia mahagoni</i> Jacq.	Tree	Mahagoni
18.MOLLUGINACEAE	<i>Glinus lotoides</i> Linn.	Herb	Jima
19.MORACEAE	<i>Artocarpus heterophyllus</i> Lam.	Tree	Kathal
	<i>Ficus benghalensis</i> Linn.	Tree	Bargad
	<i>Ficus religiosa</i> Linn.	Tree	Pipal
	<i>Ficus virens</i> Ait. Hort.	Tree	Pakar
20.MORINGACEAE	<i>Moringa oleifera</i> Lam.	Tree	Sahizan
21.MYRTACEAE	<i>Psidium guajava</i> Linn.	Tree	Amrood
	<i>Eucalyptus citriodora</i> Hook.	Tree	Eucalyptus
	<i>Syzygium cumini</i> (Linn.) Skeels.	Tree	Jamun
22.NYCTAGINACEAE	<i>Boerhavia diffusa</i> Linn.	Herb	Punarnava
23.OLEACEAE	<i>Jasminum sambac</i> (Linn.) Ait.	Shrub	Beli
	<i>Jasminum azoricum</i> Linn.	Climber	Joohi
24.OXALIDACEAE	<i>Oxalis corniculata</i> Linn.	Herb	Khati buti
25.PAPAVERACEAE	<i>Argemone mexicana</i> Linn.	Herb	Satyanashi
26.PAPILIONACEAE (FABACEAE)	<i>Butea monosperma</i> (Lam.) Taub	Tree	Palas
	<i>Clitoria ternatea</i> Linn.	Climber	Aprajita
27.PORTULACACEAE	<i>Portulaca grandiflora</i> Hook.	Herb	Sanjeevan buti
28.LYTHRACEAE	<i>Punica granatum</i> Linn.	Shrub	Anar
29.RHAMNACEAE	<i>Ziziphus mauritiana</i> Lam.	Tree	Ber
30.RUBIACEAE	<i>Dentella repens</i> (Linn.) Forst.	Herb	---
	<i>Neolamarckia cadamba</i> (Roxb.) Bosser	Tree	Kadam
	<i>Ixora coccinea</i> Linn.	Shrub	Jungle flame
31.RUTACEAE	<i>Aegle marmelos</i> Linn.	Tree	Bel
	<i>Murraya paniculata</i> (Linn.) Jacq.	Shrub	Kamini
	<i>Murraya koenigii</i> (Linn.) Spreng.	Tree	Mitha neem
32.SAPINDACEAE	<i>Litchi chinensis</i> Sonner. Voy.	Tree	Litchi
33.PLANTAGINACEAE	<i>Scoparia dulcis</i> Linn.	Herb	Mitha patti
34.SOLANACEAE	<i>Capsicum annum</i> Linn.	Herb	Mirch

	<i>Datura metel</i> Linn.	Herb	Dhatura
	<i>Physalis minima</i> Linn.	Herb	Banphutka
	<i>Solanum nigrum</i> Linn.	Herb	Makoi
	<i>Solanum viarum</i> Dunal.	Herb	Badi Kataila
	<i>Solanum xanthocarpum</i> Schrad.	Herb	Kataila
	<i>Solanum melongena</i> Linn.	Herb	Began
35.CANNABACEAE	<i>Trema orientalis</i> (Linn.) Blume.	Tree	Jhunjhuna
36.UMBELLIFERAE (APIACEAE)	<i>Centella asiatica</i> (Linn.) Urban	Herb	Bramhi
37.VERBENACEAE	<i>Clerodendrum viscosum</i> Vent.	Shrub	Glory Tree
	<i>Lantana camara</i> Linn.	Shrub	Lantana
	<i>Tectona grandis</i> Linn.	Tree	Sagvan
38.ARACEAE	<i>Amorphophallus campanulatus</i> (Dennst.) Nicolsmon	Herb	Ol
	<i>Colocassia esculenta</i> Linn.	Herb	Kachu
39.CYPERACEAE	<i>Cyperus rotundus</i> Linn.	Herb	Mutha
	<i>Kallinga brevifolia</i> Rott. boll.	Herb	Mutha
40.LILIACEAE	<i>Aloe vera</i> (Linn.) Burm.	Fleshy leaf herb	Ghrit kumari
	<i>Asparagus racemosus</i> Willd.	Climber	Satavar

Table 3.8: LIST OF AQUATIC FLORA (RIVERINE MACROPHYTES)

Family	Scientific Name	Habit	Habitat	Local Name
ANGIOSPERM (DICOTYLEDONS)				
AMARANTHACEAE	<i>Amaranthus spinosus</i> Linn.	Herb	Marginal	Kataiya sag
BORAGINACEAE	<i>Heliotropium indicum</i> Linn.	Herb	Marginal	Hathi soorh
LAMIACEAE	<i>Leucas aspera</i> (Willd.) Spreng.	Herb	Marginal	Guma
	<i>Leucas cephalotes</i> (Roth.) Spreng.	Herb	Marginal	Dhrub
POLYGONACEAE	<i>Polygonum glabrum</i> Willd.	Herb	Moist place	----
	<i>Polygonum plebeium</i> R. Br.	Herb	Marginal	Rani ful
RANUNCULACEAE	<i>Ranunculus sceleratus</i> Linn.	Herb	River bed	Jaldhani
SOLANACEAE	<i>Datura metel</i> Linn.	Herb	Marginal	Dhatura
	<i>Physalis minima</i> Linn.	Herb	Marginal	Banphutka
	<i>Solanum nigrum</i> Linn.	Herb	Marginal	Makoi
	<i>Solanum xanthocarpum</i>	Herb	Marginal	Kataila
VERBENACEAE	<i>Clerodendrum viscosum</i> Vent.	Shrub	Marginal	Glory Tree
	<i>Lantana camara</i> Linn.	Shrub	Marginal	Putus
	<i>Lippia alba</i> (Mill.) N E. Br.	Shrub	Marginal	-----
	<i>Phyla nodiflora</i> (Linn.) Greene.	Herb	River bed	Jal Buti
PLANTAGINACEAE	<i>Scoparia dulcis</i> Linn.	Herb	Moist place	Mitha patti
MONOCOTYLEDONS				
ARACEAE	<i>Colocassia esculenta</i> Linn.	Herb	Marginal	Kachu
	<i>Pistia stratiotes</i> Linn.	Herb	Free floating	Choti jal kumbhi
	<i>Acorus calamatus</i> Linn.	Herb	River bed	Bach
CERATOPHYLLACEAE	<i>Ceratophyllum demersum</i> Linn.	Herb	Free floating	
HYDROCHARITACEAE	<i>Hydrilla verticillata</i> (Linn.) Royle	Herb	Submerged	Jhangi

	<i>Vallisneria spiralis</i> Linn.	Herb	Submerged	---
LEMANACEAE	<i>Lemna minor</i> Linn.	Herb	Free floating	---
PONTEDERIACEAE	<i>Eichhornia crassipes</i> Martius.	Herb	Free floating	Jal kumbhi
POTAMOGETONACEAE	<i>Potamogeton crispus</i> Linn.	Herb	Submerged	---

Table 3.9: LIST OF TERRESTRIAL FAUNA FOUND IN THE STUDY AREA

Sr. No.	Scientific Name	Common Name
1.	<i>Funambulus pennanti</i>	Squirrel
2.	<i>Calotes versicolor</i>	Garden lizard
3.	<i>Hemidactylus frenatus</i>	House gecko
4.	<i>Duttaphrynus melanostictus</i>	Toad frog
5.	<i>Bos Taurus</i>	Cow
6.	<i>Canis Familiaris</i>	Dog
7.	<i>Bubalus Bubalis</i>	Buffalo
8.	<i>Felis Catus</i>	Cat
9.	<i>Rattus Rattus</i>	Black Rat
10.	<i>Herpestidae</i>	Mongoose
11.	<i>Capra hircus</i>	Goat
12.	<i>Apis Mellifera</i>	Honey Bee
13.	<i>Tribolium castaneum</i>	Red flour beetle
14.	<i>Musca domestica</i>	House Fly
15.	<i>Culicidae</i>	Mosquito
16.	<i>Blaberus discoidalis</i>	Indian Leaf Cockroach
17.	<i>Cryptotermes brevis</i>	Indian drywood Termite
18.	<i>Danaus chrysippus</i>	Butterfly
19.	<i>Lasius niger</i>	Black Garden Ant
20.	<i>Pheidologeton diversus</i>	East Indian harvesting ant

Table 3.10 : LIST OF AVI-FAUNA FOUND IN THE STUDY AREA

Scientific Name	Common Name
1. <i>Athena brama</i>	Ullu
2. <i>Centropus sinensis</i>	Mahoka

3. <i>Columba livia</i>	Rock Pigeon
4. <i>Coracias benghalensis</i>	Neelkanth
5. <i>Corvus macrorhynchos</i>	Jungle crow
6. <i>Corvus splendens</i>	House crow
7. <i>Dicrurus macrocercus</i>	Black drongo
8. <i>Milvus migrans</i>	Pariah kite
9. <i>Passer domesticus</i>	House sparrow
10. <i>Picoides nanus</i>	Katkhoddi
11. <i>Psittacula kramera</i>	Tota
12. <i>Pycnonotus cafer</i>	Bulbul
13. <i>Turdoides striatus</i>	Kachbachiya
14. <i>Upupa epops</i>	Hudhud
15. <i>Eudynamys scolopacea</i>	Koyal

Table 3.11 : LIST OF FISH AND CRUSTACEAN SPECIES (GANGA RIVER)

English/Common Name	Scientific Name
1. Rohu	<i>Labeo rohita</i>
2. Garai	<i>Channa punctatus</i>
3. Bami	<i>Mastacembelus armatus</i>
4. Mounгри	<i>Clarias batrachus</i>
5. Tengra	<i>Aorichthys (Mystus) vittatus</i>
6. Singhi	<i>Heteropneustes fossilis</i>
7. Jhinga	<i>Decapoda (crustacean) Penaeus sp.</i>

3.4.1 Natural Fauna

The study area does not host any natural wild life because there is no forest area in the study area. There is no zoo, wildlife sanctuary, national parks or any bird sanctuary in the study area within 10 km. radius of the project. No avifaunal species was found under IUCN Threat Category. There was no endemic aquatic species recoded during study.

3.5 Climatology and Meteorology

Meteorological parameters play a vital role in dispersion of the pollutants, once it is discharged in to the atmosphere. The micro-meteorological data monitoring was carried out

at a centralized location of the study area. The meteorological data were collected continuously for 24-hours during the entire study period during March to May 2023 . All the parameters such as: wind speed, wind direction, ambient temperature and relative humidity have been recorded on hourly basis.

The objective of installation of the continuous weather station was to record the prevailing site specific micro-meteorological conditions with respect to wind direction and speed in the impact zone. The instrument used for the data recording was automatic weather station, an indigenously built wind monitoring unit, which not only records the data on hourly basis but also exhibit wind rose plotted on the basis of the observations recorded. The data were compared with the Data (1970-1980) of nearest Indian Meteorological Department (IMD) station at Gaya.

3.5.1 IMD Data

3.5.2 Temperature

The highest and lowest temperature recorded in the was 44.7 °C, during *May* and 4.2 °C during *Jan*. The mean daily maximum temperature remain in the range of 23.0 to 39.8°C, while mean daily minimum temperature remain in the range of 8.7 to 26.7 °C.

3.5.3 Relative Humidity

Moisture content in the atmosphere changes the nature and characteristics of the pollutants. The suspended particulate matter provides surface area for Fog to coalesce and grow in size to settle down and also enhances chemical reaction of the gaseous pollutants.

The relative humidity recorded at IMD station is 82 % (max) and 25 % (min).

3.5.4 Rainfall

The rainy season in the region extends from June to September. The total rainfall during the monsoon period has been recorded as 306 mm out of total rainfall of 1061.6 mm. during the whole year. The rainfall data indicates that rainfall is well spread out throughout the year even though nearly 78% of the total rainfall occurs during June – September.

3.5.5 Wind Direction and Speed

Wind speed and direction have a significant role in the dispersion of air borne materials and therefore the air quality of the area. The critical consideration shows that the ground level concentrations for the pollutants are inversely proportional to the wind speed in down wind direction, while up wind direction unaffected at all and cross wind direction are only partially affected by the emission sources.

3.5.6 Site Specific Data

A fully instrumented continuous recording meteorological observatory is established and operated within the project site in order to measure the following parameters: - ambient temperature, wind speed and direction. The brief details of instruments, parameter and frequency are presented in Table 3.12.

Table 3.12: INSTRUMENTS, PARAMETERS AND FREQUENCY OF METEOROLOGICAL MONITORING AT SITE

No.	Parameters	Instruments	Frequency
1	Wind Speed	Automatic Weather station (Virtual Electronics Company)	Continuous Automatic 1 hourly Average
2	Wind Direction		
3	Ambient Temperature at 10m		

The aforesaid meteorological parameters were being observed in the field over a period of about 3-months starting from March to May 2023. The meteorological data recorded at site is given in Table 3.13.

Table 3.13: RECORDED AVERAGE METEOROLOGICAL DATA AT SITE

Month	Temperature, °C			Wind Speed, m/sec.			Humidity %		
	Min ^m	Max ^m	Mean	Min ^m	Max ^m	Mean	Min ^m	Max ^m	Mean
Mar.'2023	10.5	38.7	18.6	2.4	5.9	2.9	30	54	38
April.'2023	17.5	42.9	28.6	2.3	5.2	3.0	26	42	35
May.'2023	21.4	44.2	31.7	3.1	7.9	4.2	37	51	42

3.5.7 Temperature

The average temperature was recorded to be in the range of 10.5 – 44.2 °C during the study period. The maximum reading was found to be 44.2 °C during May'23 and the minimum was found to be 10.5 °C during Mar.'23.

3.5.8 Relative Humidity

During the study the average relative humidity was found to be in the range of 26 – 54%. The minimum values was found during April and maximum value was found during March.'2023.

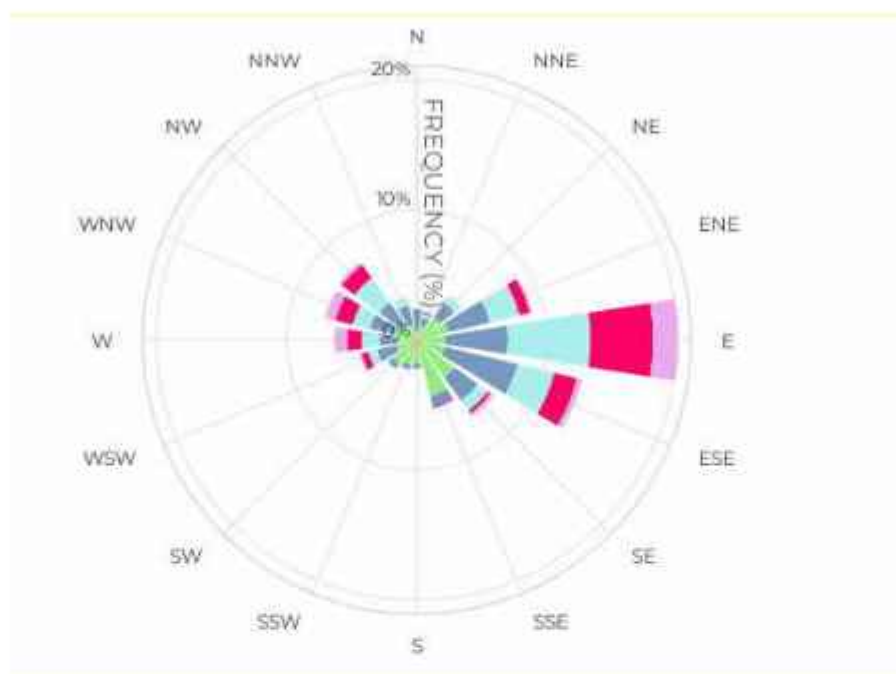
3.5.9 Rainfall

Minimum rainfall was 10.7 mm and the maximum rainfall was 32.5 mm.

3.5.10 Wind Direction and Speed

The wind is predominantly blowing from NW direction. The wind speeds are of the range of 5.1 kmph - 6.8 kmph. The periodic wind rose diagrams have been provided in Figure 3.7

Fig. 3.7 : Windrose Diagram



3.6 Ambient Air Quality

Ambient air quality measurements are essential to provide a description of the existing conditions, to provide a baseline against which changes can be measured and to assist in the determination of potential impacts of the proposed project on air quality conditions. Ambient background measurements were done during the period March to May '2023 at 8 locations spread over, in the 10 km radius centering the proposed unit. The locations have been shown in Figure 3.8 and also outlined in Table 3.14.

Table 3.14: AMBIENT AIR QUALITY MONITORING STATIONS

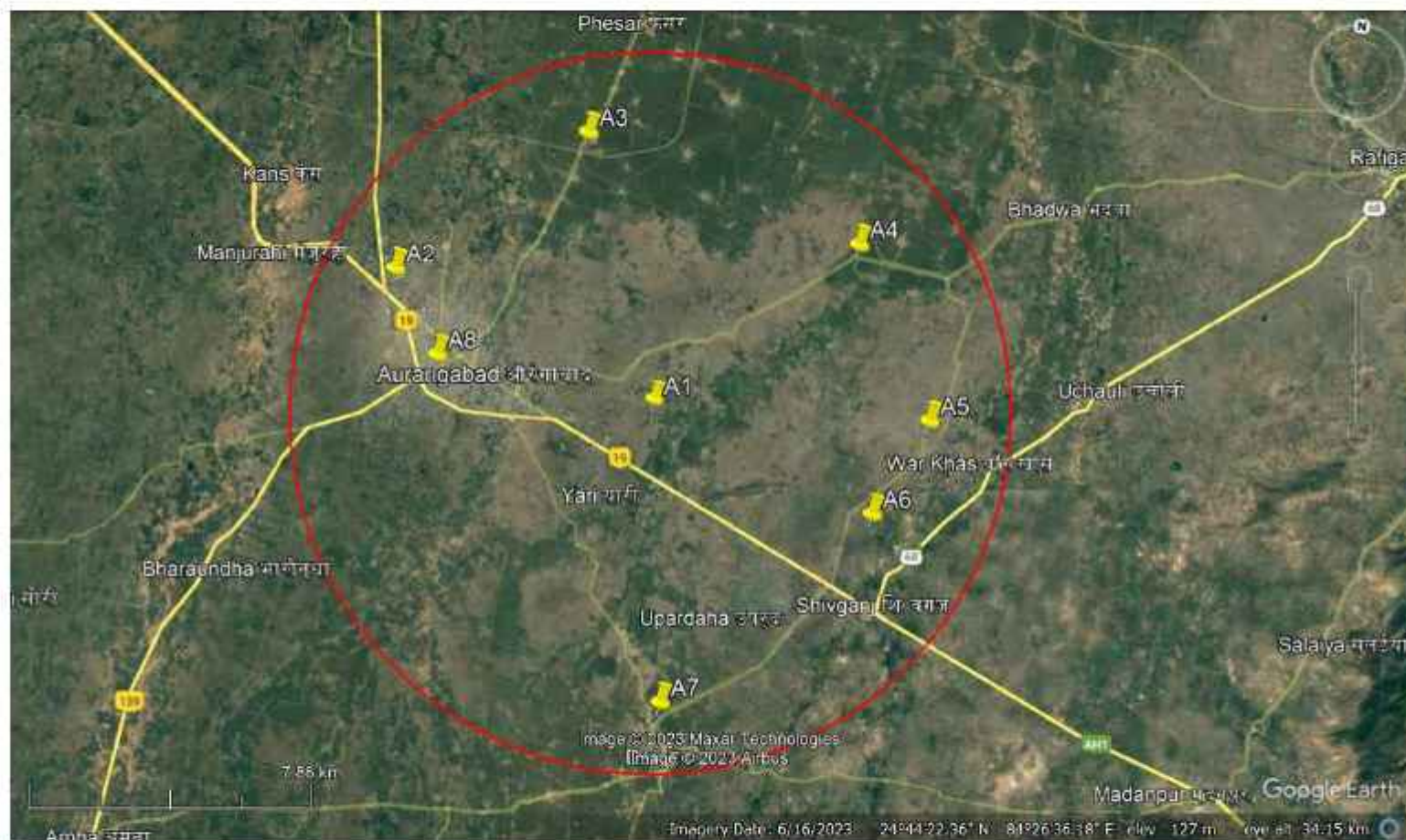
Station No.	Location	Distance from Plant (in km)	Direction
A1	Project Site	0.0	Within
A2	Dhobaul	8.0	NW
A3	Unthu	7.6	N
A4	Rajoi	7.0	NE
A5	Jaipal Bigha	7.7	E

A6	Erki Kala	6.9	SE
A7	Deo	8.6	S
A8	Aurangabad	6.1	W

The air quality assessment involved the determination of ambient levels of Respirable Particulates, PM₁₀ (<10µm), PM_{2.5}, Sulphur dioxide gas, oxides of Nitrogen gas & Carbon Monoxide.

Ambient air samples were collected by Respirable Dust Samplers (RDS) fitted with Low Volume Sampling (LVS) attachments for gaseous sampling. Composite samples were collected on 24-hourly basis and brought to the laboratory for analysis. Sample collection and analysis have been strictly carried out according to the Bureau of Indian Standards guidelines; IS: 5182 series.

Fig. 3.8: Location of Ambient Air Stations



3.6.1 Methods of Monitoring

Sampling and analysis of Ambient Air samples were carried out with reference to the Standards developed by Bureau of Indian Standards IS: 5182 series. Brief methods of monitoring have been outlined in Table 3.15.

Table 3.15: Ambient Air Quality Monitoring Methodology

AMBIENT AIR QUALITY MONITORING METHODOLOGY

Parameters	Methodology
PM ₁₀	Gravimetric method by use of Respirable Dust Sampler as per IS: 5182 (Part – 23), 2006
PM _{2.5}	Gravimetric method by use of Fine Particulate Sampler as per CPCB Guidelines & USEPA, 2006
SO ₂	Chemical analysis by absorption of gases in <i>Sodium Tetra-Chloro Mercurate</i> followed by colorimetric estimation using p-Rosaniline hydrochloride and Formaldehyde as per IS: 5182 (Part – 2), 1969
NO ₂	Chemical analysis by absorption of gases in dilute sodium hydroxide and then estimated colorimetrically with <i>sulphanilamide</i> and <i>N (1-Nephthyle) Ethylene diamine Dihydrochloride</i> and <i>Hydrogen Peroxide</i> as per IS: 5182 (Part – 6), 1975

3.6.2 Particulate Matter

A. (PM₁₀)

Air is drawn through a size-selective inlet and through a 20.3 X 25.4 cm (8 X 10 in) filter at a flow rate, which is typically 1.13 m³/min. Particles with aerodynamic diameter less than the cut-point of the inlet are collected, by the filter. The mass of these particles is determined by the difference in filter weights prior to and after sampling. The concentration of PM₁₀ in the designated size range is calculated by dividing the weight gain of the filter by the volume of air sampled.

B. PM_{2.5}

Air is drawn through a size-selective inlet and through a specially designed WINS (Well Impact Ninty-Six) impactor at a flow rate, which is typically 1.0 m³/hr. Particles with aerodynamic diameter less than 10 micro grams but greater than 2.5 microns are trapped in WINS Impactor and particles having size less than 2.5 microns bounce and collected at 46 mm Teflon filter paper at the base. The mass of these particles is determined by the difference in filter weights prior to and after sampling. The concentration of PM_{2.5} in the designated size range is calculated by dividing the weight gain of the filter by the volume of air sampled.

3.6.3 Sulphur Dioxide

Sulphur dioxide gas in ambient air was monitored in accordance to IS: 5182 Part – II. The gas was bubbled in *sodium tetra-chloromercurate* solution at the rate of about 1.0 lpm till 24 hours. The sample was taken to the laboratory and analyzed colorimetrically by addition of *p-Rosaniline hydrochloride* and *Formaldehyde* solution.

3.6.4 Nitrogen Oxides

Nitrogen oxides in the ambient air were monitored in accordance to IS 5182 Part – VI. The air sample was bubbled to dissolve in dilute sodium hydroxide solution at the rate of 1.0 lpm for about 24 hours. Then the sample was taken to the laboratory and estimated colorimetrically with addition of *sulphanilamide*, *N (1-Nephthyle) Ethylene diamine Dihydrochloride* and *Hydrogen Peroxide*.

3.7 Results and Discussions

The summary of the monitoring results have been presented in **Table 3.16** and the detail monitoring results are enclosed at **Annexure III**.

Table 3.16: SUMMARY OF AMBIENT AIR QUALITY MONITORING RESULTS
(STUDY PERIOD : MARCH TO MAY'2023)

Stn. No.	Location Name	24-hourly average concentration ($\mu\text{g}/\text{m}^3$)									
		PM ₁₀		PM _{2.5}		SO ₂		NO _x		CO (mg/m ³)	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
A 1	Project Site	58.8	68.8	30.4	40.1	5.1	6.7	8.3	18.2	0.10	0.23
A 2	Dhobaul	60.9	88.8	30.2	46.2	5.2	9.8	12.7	31.1	0.11	0.44
A 3	Unthu	40.7	62.2	23.7	31.8	5.0	9.3	11.4	26.1	0.05	0.23
A 4	Rajoi	43.9	61.5	25.1	34.9	5.9	10.2	13.6	28.4	0.08	0.34
A 5	Jaipal Bigha	41.5	59.7	24.9	34.9	5.2	9.0	11.2	23.0	0.06	0.19
A 6	Erki Kala	50.0	70.2	21.2	38.8	5.5	11.6	12.2	32.6	0.07	0.32
A 7	Deo	38.4	67.8	22.9	35.8	5.1	9.7	12.1	30.4	0.08	0.37
A 8	Aurangabad	61.2	90.1	33.2	47.8	6.1	13.2	14.3	32.2	0.08	0.40

3.7.2.1 Particulate Matters

(i) Respirable Suspended Particulate Matters (PM₁₀)

The maximum 24 hourly concentration of PM₁₀ was found to be 90.1 $\mu\text{g}/\text{m}^3$ at Aurangabad while the minimum concentration was recorded to be 40.7 $\mu\text{g}/\text{m}^3$ at Unthu.

Concentration of PM_{10} in the study area found to be within the prescribed norms of National Ambient Air Quality Standards of $100 \mu\text{g}/\text{m}^3$ for Industrial and Residential, Rural and Other areas respectively.

(ii) Fine Particulate Matters ($PM_{2.5}$)

The maximum 24 hourly concentration of $PM_{2.5}$ was found to be $47.8 \mu\text{g}/\text{m}^3$ at Aurangabad while the minimum concentration was recorded to be $21.2 \mu\text{g}/\text{m}^3$ at Erki Kala. Concentration of $PM_{2.5}$ in the study area is found to be within the prescribed norms of National Ambient Air Quality Standards of $60 \mu\text{g}/\text{m}^3$ for Industrial and Residential, Rural and Other areas respectively.

3.7.2.2 Sulphur Dioxide (SO_2)

The 24 hour maximum concentration of SO_2 was found to be $14.9 \mu\text{g}/\text{m}^3$ at Aurangabad, while the minimum concentration was recorded to be $5.1 \mu\text{g}/\text{m}^3$ at project site.

Thus, all the values have been found to be far below the prescribed norms of $80 \mu\text{g}/\text{m}^3$ for Residential, Rural and Other areas.

3.7.2.3 Oxides of Nitrogen (NO_x)

The maximum concentration of NO_x was found to be $32.2 \mu\text{g}/\text{m}^3$ at Aurangabad, while the minimum concentration was recorded to be $8.3 \mu\text{g}/\text{m}^3$ at Project site.

Thus, all the values have been found to be far below the prescribed norms of $80 \mu\text{g}/\text{m}^3$ for Residential, Rural and Other areas.

3.7.2.4 Carbon Monoxide (CO)

The maximum concentration of CO was found to be $0.44 \text{ mg}/\text{m}^3$ at Dhobaul, while the minimum concentration was recorded to be $0.05 \text{ mg}/\text{m}^3$ at Unthu.

Thus, all the values have been found to be far below the prescribed norms prescribed in the National Ambient Air Quality Standards of $4 \text{ mg}/\text{m}^3$ for Industrial, Residential, Rural and Other areas.

3.8 Noise

Noise level readings were recorded in eight locations spread over, in the 10 km radius centering the proposed unit. The monitoring locations have been shown in **Figure 3.9** and outlined in **Table 3.17**.

Table 3.17: NOISE MONITORING STATIONS

Station No.	Location	Distance from Plant (in km)	Direction
N1	Project Site	0.0	Within
N2	Dhobaul	8.0	NW
N3	Unthu	7.6	N
N4	Rajoi	7.0	NE
N5	Jaipal Bigha	7.7	E
N6	Erki Kala	6.9	SE
N7	Deo	8.6	S
N8	Aurangabad	6.1	W

Noise levels were recorded by the use of a digital noise level meter. The instrument was calibrated before and after each set of readings.

The monitoring was carried out on 24-hourly basis and the hourly L_{eq} values were derived and reported.

The maximum daytime L_{eq} was found at Aurangabad i.e 62.9 dB(A) and maximum nighttime L_{eq} was found at Aurangabad i.e. 47.0 dB(A). The maximum values may be attributed towards the nearby industrial, commercial activities and traffic movements. The minimum value for day time and night time was found 49.3 and 35.7 dB(A) at Unthu. The monitoring data have been presented in Table 3.19.

Fig. 3.9 : Location of Ambient Noise Stations

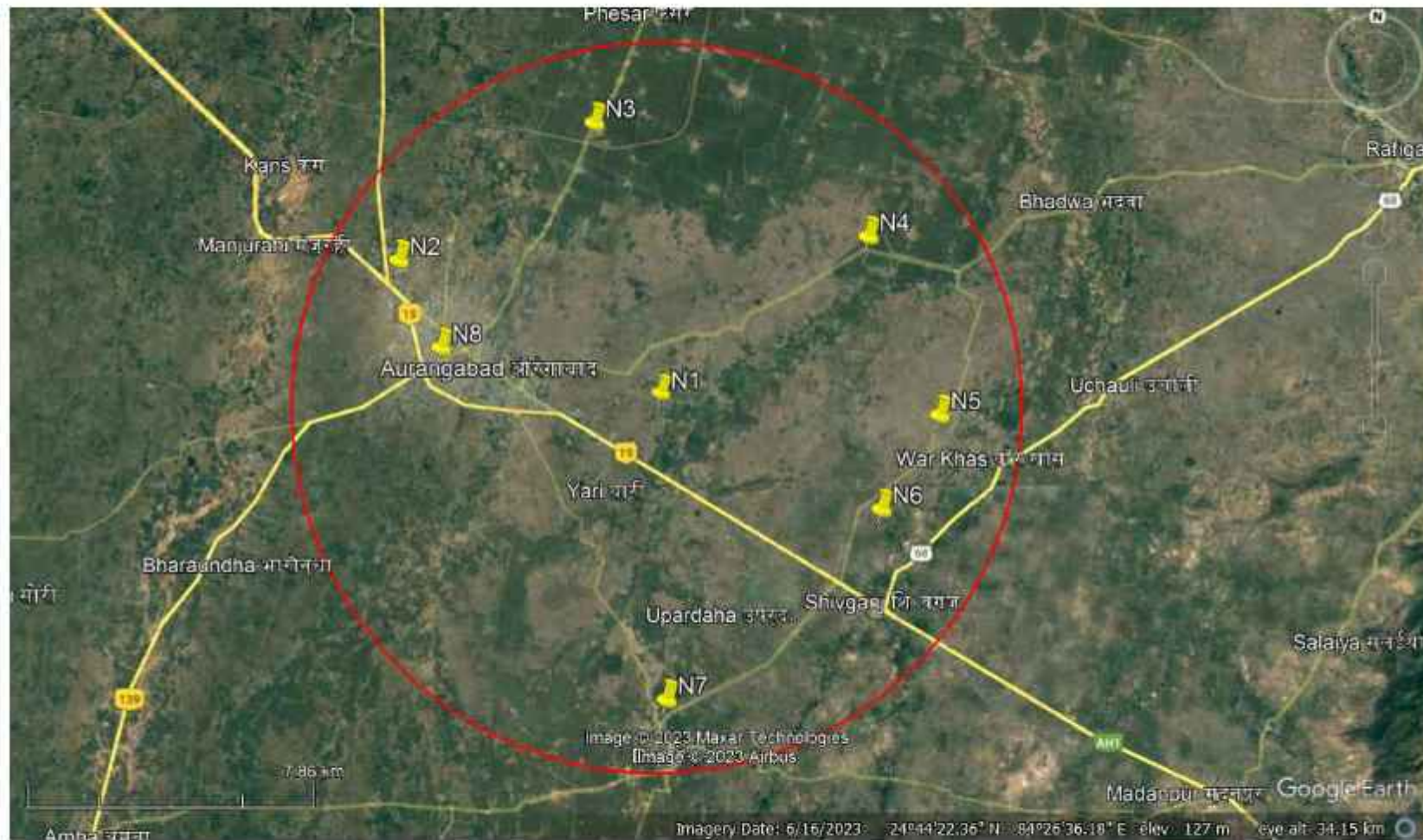


Table 3.18: Noise Monitoring Results

Period	Time	Project Site	Dhobaul	Unthu	Rajoi	Jaipal Bigha	Erki Kala	Deo	Aurangabad
Day Time	06:00	45.4	43.0	51.2	45.0	44.6	45.3	56.6	53.2
	07:00	48.9	45.6	58.4	49.1	51.5	47.8	54.6	62.7
	08:00	51.2	48.4	48.2	51.0	51.8	49.8	51.5	66.4
	09:00	55.6	50.8	46.6	54.4	52.6	53.9	55.7	70.4
	10:00	59.4	62.1	55.2	57.6	53.3	55.8	57.6	74.2
	11:00	64.8	61.4	45.9	50.8	55.6	52.5	54.1	75.3
	12:00	61.2	60.1	49.2	59.0	53.6	58.8	60.7	75.4
	01:00	68.4	66.3	61.7	57.5	54.5	53.0	54.7	76.6
	02:00	70.2	60.2	46.5	55.6	56.8	49.1	50.7	72.4
	03:00	65.0	57.2	45.8	54.3	55.0	55.0	56.7	68.5
	04:00	63.8	55.9	59.4	51.6	57.5	51.2	52.8	66.2
	05:00	66.9	56.3	57.5	50.6	55.2	49.4	51.0	61.2
	06:00	60.2	52.1	43.8	47.2	53.1	48.0	49.5	54.1
	07:00	58.7	51.0	42.9	46.4	50.6	46.7	48.2	51.4
	08:00	56.3	50.4	43.3	45.2	48.7	44.5	46.0	49.8
	09:00	53.2	49.1	42.3	43.6	45.2	42.0	45.4	47.2
	10:00	50.6	48.4	40.0	41.8	43.6	41.6	43.6	45.9
Leq Daytime		58.8	54.0	49.3	50.6	51.9	49.6	52.3	62.9
Night Time	11:00	35.4	46.6	37.1	40.3	40.2	40.1	39.6	48.6
	12:00	36.1	45.3	35.3	39.1	42.2	36.4	44.5	47.2
	01:00	37.8	41.2	36.0	37.1	37.7	42.2	36.8	45.8
	02:00	35.0	44.8	36.6	36.5	34.7	34.4	35.5	44.3
	03:00	36.9	42.7	38.8	38.8	34.1	37.2	38.4	46.2
	04:00	37.2	41.9	34.3	35.6	31.1	34.1	35.2	42.8
	05:00	38.4	43.2	32.5	36.0	36.2	36.2	37.3	45.9
	06:00	41.2	45.4	34.5	38.9	38.2	35.3	36.4	50.6
Leq Nighttime		37.2	44.4	35.7	38.1	37.0	36.9	37.9	47.0

3.9 Demography & Socio Economic Profile

Socio-economic study of an area enables to assess the socio-economic conditions and living standards of that area and it also helps in predicting the impact on the future of the economic conditions of the study area, due to progressive growth of industrialization. The socio-economy of the study area is influenced by commercial and industrial activities in the surrounding. Growth of socio-economic condition of the area has been identified in the last decade.

3.9.1 Methodology

Data have been collected on demographic pattern, literacy rate, livelihood, prevailing infrastructure and education facilities etc. of the Aurangabad Rural Block. The prime source of such data collection was the Census Data, 2011.

3.9.2 Population

Aurangabad is one of district of Bihar in India. There are 11 Taluks, 1847 villages and 6 towns in Aurangabad district.

As per the Census India 2011, Aurangabad district has 391898 households, population of 2540073 of which 1318684 are males and 1221389 are females. The population of children between age 0-6 is 455394 which is 17.93% of total population.

The sex-ratio of Aurangabad district is around 926 compared to 918 which is average of Bihar state. The total area of Aurangabad is 3305 sq.km with population density of 769 per sq.km.

Out of total population, 90.68% of population lives in Urban area and 9.32% lives in Rural area. There are 24.1% Scheduled Caste (SC) and 0.04% Scheduled Tribe (ST) of total population in Aurangabad district.

3.9.3 Literacy

The literacy rate of Aurangabad district is 57.71% out of which 65.88% males are literate and 48.9% females are literate.

3.9.4 Livelihood

In Aurangabad out of total population, 837,770 were engaged in work activities. 18.91% of workers describe their work as Main Work (Employment or Earning more

than 6 Months) while 14.07% were involved in Marginal activity providing livelihood for less than 6 months.



Table No. 3.19 **Demographic Status of Study Area (Aurangabad Block, Dist. Aurangabad, Bihar State)**

Name of Village	No. of Household	Total Population	Total Male Population	Total Female Population	Schedule Caste Population	Schedule Caste Male Population	Schedule Caste Female Population	Schedule Tribe Population	Schedule Tribe Male Population	Schedule Tribe Female Population
Aurangabad (Block)	43336	283193	147819	135374	51419	26793	24626	136	62	74
Jamhaur	1484	9642	4967	4675	2521	1285	1236	2	1	1
Jokahri	167	1069	539	530	243	121	122	0	0	0
Jagdishpur	217	1414	750	664	466	244	222	0	0	0
Susnar	193	1104	563	541	308	160	148	0	0	0
Deohara	151	756	401	355	0	0	0	0	0	0
Raypura	301	2283	1155	1128	940	472	468	0	0	0
Bharthauli	215	1346	731	615	332	181	151	0	0	0
Majurahi	171	1084	575	509	490	249	241	0	0	0
Babhandih	158	1128	557	571	18	7	11	0	0	0
Khaira Bind	366	2398	1229	1169	831	417	414	0	0	0
Karma	749	4623	2412	2211	771	413	358	0	0	0
Dambha	42	233	118	115	200	102	98	0	0	0
Rampur	292	1896	978	918	590	296	294	0	0	0
Kauthia	193	1303	684	619	366	194	172	0	0	0
Bharthauli	316	1864	953	911	684	375	309	1	0	1
Batawan	222	1490	767	723	417	214	203	0	0	0
Patanwan	229	1385	706	679	163	76	87	0	0	0
Chitargopi	154	818	430	388	376	196	180	0	0	0
Kusdihra	490	3278	1747	1531	630	320	310	0	0	0
Semariya	104	658	348	310	205	114	91	0	0	0
Barawan	448	2930	1534	1396	400	205	195	0	0	0
Jhikatiya	67	474	256	218	8	5	3	0	0	0
Deuria	263	1688	867	821	1043	539	504	0	0	0

Kurmha	446	2639	1370	1269	605	309	296	0	0	0
Dihri	202	1259	659	600	147	71	76	0	0	0
Deunria	156	1053	515	538	39	20	19	0	0	0
Parrawan	501	2786	1492	1294	845	452	393	0	0	0
Pathak Bigha	111	735	376	359	428	210	218	0	0	0
Dihri	266	1566	811	755	853	442	411	0	0	0
Patoi	86	603	319	284	67	35	32	0	0	0
Rukhua	136	907	479	428	189	100	89	0	0	0
Gosia	51	325	160	165	90	47	43	0	0	0
Jagdispur	47	334	170	164	1	1	0	0	0	0
Simra	243	1933	1002	931	337	164	173	0	0	0
Phesra	149	1232	655	577	43	19	24	0	0	0
Pokhraha	378	2465	1254	1211	790	404	386	0	0	0
Bagaiya	208	1361	706	655	301	151	150	0	0	0
Arazi Sohraiya	4	29	17	12	0	0	0	0	0	0
Phesar	409	2806	1487	1319	254	181	73	0	0	0
Alampur	131	955	497	458	220	115	105	0	0	0
Sohraiya	73	484	258	226	0	0	0	0	0	0
Shahpur	76	536	292	244	86	45	41	0	0	0
Az Rakbe Sohraiya	41	321	167	154	35	19	16	0	0	0
Gamhari	257	1882	993	889	535	292	243	0	0	0
Jaisri Bigha	62	357	180	177	122	66	56	0	0	0
Mirzapur	50	252	140	112	109	58	51	0	0	0
Bakhari	123	918	477	441	104	58	46	0	0	0
Baghoi Kalan	154	1004	519	485	227	110	117	0	0	0
Baghoi Khurd	93	623	319	304	63	33	30	0	0	0
Mianpur	59	380	206	174	117	60	57	0	0	0
Semrahua	111	720	368	352	217	110	107	1	0	1
Kusa	52	372	218	154	97	59	38	0	0	0

Fateha	76	584	297	287	80	39	41	0	0	0
Simri	49	283	144	139	1	1	0	0	0	0
Barimal	95	789	428	361	132	71	61	0	0	0
Dosmha	107	659	330	329	129	65	64	0	0	0
Dabura	40	221	121	100	0	0	0	0	0	0
Senuari	93	598	305	293	14	6	8	0	0	0
Karmukhap	48	354	177	177	68	38	30	0	0	0
Parasdi	223	1283	675	608	183	94	89	1	1	0
Mohiuddinpur	138	827	452	375	184	98	86	0	0	0
Chatar Khas	123	703	348	355	23	12	11	0	0	0
Khairi	78	647	338	309	382	197	185	0	0	0
Chitwar Khap	33	157	79	78	47	24	23	0	0	0
Madarpura	126	758	409	349	143	78	65	0	0	0
Kirpa Bigha	65	409	210	199	76	39	37	1	1	0
Bakan	286	1964	1002	962	450	223	227	0	0	0
Dariapur	186	1316	670	646	280	149	131	0	0	0
Basdihakalan	140	864	450	414	43	24	19	0	0	0
Khairi	160	1074	565	509	176	89	87	0	0	0
Deuria Rustam	211	1572	829	743	454	245	209	0	0	0
Basdiha Khurd	118	766	391	375	176	81	95	0	0	0
Jamalpur	87	749	398	351	11	5	6	0	0	0
Harnahi	82	635	332	303	0	0	0	0	0	0
Unthu	235	1805	970	835	379	205	174	1	0	1
Banahi	94	608	334	274	0	0	0	0	0	0
Piraunta	295	1859	958	901	154	77	77	0	0	0
Tendua	70	471	239	232	36	17	19	0	0	0
Maulanagar	177	1295	686	609	305	149	156	0	0	0
Inguna	99	536	288	248	65	36	29	0	0	0
Tetaria	129	994	527	467	58	30	28	2	1	1

Chauriya	122	896	463	433	186	94	92	0	0	0
Bansikhap	99	614	334	280	170	82	88	0	0	0
Chatara	179	1304	672	632	21	9	12	0	0	0
Kusi	678	4719	2439	2280	1044	530	514	7	2	5
Parsa	72	579	304	275	61	32	29	0	0	0
Morauli	64	429	226	203	166	84	82	0	0	0
Dhobaul	233	1476	806	670	659	352	307	0	0	0
Jarma Khap	130	944	488	456	167	91	76	0	0	0
Bela	496	3264	1706	1558	785	409	376	30	11	19
Dabura Kalan	51	285	134	151	248	115	133	0	0	0
Dabura Khurd	128	785	430	355	115	64	51	0	0	0
Nirmal Bigha	45	316	166	150	14	8	6	0	0	0
Tendua	134	744	385	359	5	3	2	0	0	0
Tendawa urf Tendua	135	986	517	469	81	47	34	1	0	1
Bala Bigha	5	31	18	13	26	15	11	0	0	0
Panrepur	136	809	415	394	16	6	10	0	0	0
Ora	495	3452	1818	1634	330	166	164	0	0	0
Dehri	86	506	265	241	25	12	13	0	0	0
Shekh pura	117	801	409	392	715	368	347	0	0	0
Rajpur	177	1060	546	514	1005	515	490	0	0	0
Dondi Bigha	14	103	54	49	53	28	25	0	0	0
Bazidpur	149	988	505	483	3	0	3	0	0	0
Wahid Bigha	102	493	247	246	177	85	92	0	0	0
Majurkha	76	537	275	262	175	83	92	0	0	0
Pathra	32	209	111	98	27	14	13	0	0	0
Hetampur	72	600	352	248	176	98	78	0	0	0
Barianwan	65	433	241	192	94	54	40	0	0	0
Kapasias	162	908	479	429	457	240	217	1	1	0
Khan	184	1232	649	583	156	84	72	0	0	0

Imanpur	96	558	272	286	113	54	59	0	0	0
Pokhrah	140	1030	556	474	147	82	65	0	0	0
Poiwan	416	2615	1360	1255	809	414	395	0	0	0
Akauna	396	2663	1396	1267	91	52	39	0	0	0
Inglish	55	368	192	176	76	40	36	0	0	0
Naugarh	286	2019	1034	985	603	317	286	0	0	0
Raghaulia	266	1718	906	812	578	303	275	0	0	0
Panre Khap	74	449	228	221	174	88	86	0	0	0
Ibrahimpur	221	1763	911	852	585	312	273	0	0	0
Parsi	112	834	451	383	136	74	62	0	0	0
Makhdumpur	10	95	48	47	0	0	0	0	0	0
Beli	169	919	452	467	93	47	46	0	0	0
Majhar	264	1678	905	773	692	350	342	0	0	0
Jhikatia	172	1097	571	526	132	71	61	2	0	2
Dhandhwa	379	2263	1124	1139	534	288	246	0	0	0
Rajoi	285	1824	954	870	244	130	114	0	0	0
Nehuti Lapura	245	1455	761	694	214	114	100	0	0	0
Paharman	164	853	445	408	73	56	17	0	0	0
Sokhea	78	378	206	172	0	0	0	0	0	0
Nehuta	221	1482	797	685	349	185	164	0	0	0
Mahuari	69	471	252	219	94	53	41	0	0	0
Biseni	299	2018	1057	961	465	250	215	3	1	2
Bhaudiha	14	76	38	38	0	0	0	0	0	0
Renriya	105	797	419	378	39	19	20	0	0	0
Badli	56	415	235	180	0	0	0	0	0	0
Bahuara	237	1564	815	749	357	188	169	0	0	0
Panduki	144	837	439	398	81	43	38	1	0	1
Bijoi	176	1172	632	540	37	21	16	0	0	0
Khaira Sarim	219	1235	615	620	324	157	167	0	0	0

Mamka	171	949	497	452	304	160	144	0	0	0
Karanja	181	1063	550	513	133	66	67	0	0	0
Khaira	252	1719	892	827	334	185	149	0	0	0
Kariawan	175	1354	711	643	363	181	182	0	0	0
Chamardiha	50	358	188	170	16	9	7	0	0	0
Karman	69	476	238	238	97	44	53	0	0	0
Chaukhara	85	685	347	338	164	80	84	0	0	0
Niman	73	547	274	273	0	0	0	0	0	0
Narsiha	213	1382	690	692	337	172	165	0	0	0
Bheria	172	1038	512	526	522	262	260	0	0	0
Kanbehri	110	766	394	372	147	77	70	13	6	7
Karahra	176	1173	642	531	467	259	208	0	0	0
Muraria	34	272	154	118	0	0	0	0	0	0
Bharwar	211	1429	726	703	219	100	119	0	0	0
Sonbarsa	114	729	370	359	29	18	11	0	0	0
Yari	245	1625	859	766	376	200	176	0	0	0
Hasauli Azarkbe	39	310	157	153	0	0	0	0	0	0
Anandpura	48	444	226	218	73	38	35	0	0	0
Aurangabad (Nagar Parishad)	15782	102244	53542	48702	10669	5638	5031	69	37	32
Aurangabad (Nagar Parishad) WARD NO.-0001	496	3629	1878	1751	931	497	434	1	1	0
Aurangabad (Nagar Parishad) WARD NO.-0002	771	4707	2517	2190	1241	676	565	21	11	10
Aurangabad (Nagar Parishad) WARD NO.-0003	625	3845	2048	1797	172	85	87	0	0	0
Aurangabad (Nagar Parishad) WARD NO.-0004	502	3265	1714	1551	899	464	435	5	2	3
Aurangabad (Nagar Parishad) WARD NO.-0005	607	3494	1841	1653	21	12	9	26	12	14
Aurangabad (Nagar Parishad) WARD NO.-0006	502	3038	1569	1469	60	36	24	1	1	0

Aurangabad (Nagar Parishad) WARD NO.-0007	556	3648	1957	1691	88	44	44	0	0	0
Aurangabad (Nagar Parishad) WARD NO.-0008	519	3314	1908	1406	202	177	25	2	2	0
Aurangabad (Nagar Parishad) WARD NO.-0009	263	1896	969	927	108	57	51	0	0	0
Aurangabad (Nagar Parishad) WARD NO.-0010	425	3080	1568	1512	185	92	93	6	3	3
Aurangabad (Nagar Parishad) WARD NO.-0011	441	2729	1418	1311	327	168	159	0	0	0
Aurangabad (Nagar Parishad) WARD NO.-0012	501	3236	1707	1529	212	121	91	1	0	1
Aurangabad (Nagar Parishad) WARD NO.-0013	560	3497	1782	1715	856	426	430	0	0	0
Aurangabad (Nagar Parishad) WARD NO.-0014	799	5258	2709	2549	314	157	157	1	1	0
Aurangabad (Nagar Parishad) WARD NO.-0015	364	2736	1409	1327	45	29	16	0	0	0
Aurangabad (Nagar Parishad) WARD NO.-0016	440	3014	1594	1420	169	84	85	2	1	1
Aurangabad (Nagar Parishad) WARD NO.-0017	344	2253	1113	1140	187	93	94	0	0	0
Aurangabad (Nagar Parishad) WARD NO.-0018	268	1905	1018	887	44	23	21	0	0	0
Aurangabad (Nagar Parishad) WARD NO.-0019	635	3901	2034	1867	51	28	23	0	0	0
Aurangabad (Nagar Parishad) WARD NO.-0020	538	3475	1829	1646	320	172	148	1	1	0
Aurangabad (Nagar Parishad) WARD NO.-0021	536	3424	1767	1657	23	10	13	0	0	0
Aurangabad (Nagar Parishad) WARD NO.-0022	393	2208	1183	1025	106	56	50	0	0	0
Aurangabad (Nagar Parishad) WARD	414	2550	1290	1260	11	5	6	0	0	0

NO.-0023										
Aurangabad (Nagar Parishad) WARD NO.-0024	479	3276	1739	1537	86	47	39	0	0	0
Aurangabad (Nagar Parishad) WARD NO.-0025	365	2221	1120	1101	219	118	101	0	0	0
Aurangabad (Nagar Parishad) WARD NO.-0026	445	2620	1368	1252	151	83	68	0	0	0
Aurangabad (Nagar Parishad) WARD NO.-0027	433	2651	1425	1226	473	246	227	0	0	0
Aurangabad (Nagar Parishad) WARD NO.-0028	337	2477	1290	1187	626	306	320	0	0	0
Aurangabad (Nagar Parishad) WARD NO.-0029	385	2397	1279	1118	1423	768	655	0	0	0
Aurangabad (Nagar Parishad) WARD NO.-0030	463	3277	1743	1534	229	122	107	0	0	0
Aurangabad (Nagar Parishad) WARD NO.-0031	585	3989	2005	1984	538	256	282	2	2	0
Aurangabad (Nagar Parishad) WARD NO.-0032	323	2133	1129	1004	98	51	47	0	0	0
Aurangabad (Nagar Parishad) WARD NO.-0033	468	3101	1622	1479	254	129	125	0	0	0

CHAPTER - 4

ENVIRONMENTAL IMPACT ASSESSMENT & MITIGATION MEASURES

4.1 Details of Investigated Environmental impacts

(Details of Investigated Environmental impacts due to project location, possible accidents, project design, project construction, regular operations, final decommissioning or rehabilitation of a completed project)

Impact prediction is a very important phenomenon in evaluating the environmentally potential adverse impacts for any proposed new or expansion industrial project. The impact prediction is always carried out under worst possible conditions so as to mitigate or to eliminate the environmental hazards. These predictions thus calculated are superimposed over the baseline data to calculate the net impact on the environment after the proposed plant comes into production. The impact of the proposed project has been considered and discussed in this chapter.

Both beneficial (positive) and adverse (negative) impacts on various components of environment due to existing operation are identified, based on the nature of the various activities associated with the proposed project operations. Environment impact analysis gives an indication of ways to consider modeling the project to mitigate adverse impacts through best practicable environmental option or alternate processes.

Any developmental activity in its wake will bring about some impacts associated with its origin, which can be broadly classified as reversible, irreversible, long and short-term impacts. In this chapter, an endeavor has been made to identify various Environmental Impacts associated with the plant operation and other activities wherein, there may be a chance of pollution.

Impacts due to any project activity have been divided according to the temporal scale into 'Impacts during Construction Phase' & 'Impacts during Operation Phase'. The impacts on different environmental parameters, due to the operation of M/s Sri Sai Industries Pvt. Ltd. project, will be mostly permanent and irreversible in nature.

Based on the possible worst case emissions and waste generation from the operation of M/s SSI, project and also taking into consideration the baseline Environmental status at the proposed project location, the environmental factors that are likely to be affected (Impacts) are assessed identified. Both instrumental (positive) and detrimental (negative) impacts are accounted for this purpose. The prediction of impacts helps in the preparation of a sound Environmental Management Plan which has to be executed during the on-going activities for the proposed project to minimize the adverse impacts on the environmental quality. The mathematical models were used to quantitatively describe the cause-effect relationships between the sources of pollution and different components of environment. In case if the mathematical models are not available or it is not possible to identify/validate a model for particular situation, predictions would be made through available scientific knowledge.

(Measures for minimizing and / or offsetting adverse impacts identified / Irreversible and Irretrievable commitments of environmental components / Assessment of significance of impacts (Criteria for determining significance, Assigning significance) / Mitigation measures)

A. Methodology

The potential impacts on the environment from the proposed project are identified based on the nature of the various activities associated not only with the project implementation and operation, but also on the current status of the environmental quality at the project site.

4.2 Impact on Land Use Pattern

There would be no impact of the project on the land use pattern because this is an existing project within the existing plant layout. This industry was established in

2014 and since then, the land is being used for industrial purpose and will be used for the same purpose only.

Most of the work force will be from nearby areas therefore no camp would be required. Since the present site is exclusively in possession of project authorities, rehabilitation & resettlement problem does not occurs.

4.2.1 Impact during Construction Stage

No construction is proposed as the plant is already operational.

4.2.2 Impact during Operation Stage

There will be no change in land use as the plant is already operational. Company is having 0.46 Ha. (4600 Sqm.) of land at near Village Dehri, Dist. Aurangabad and the factory is situated on this land parcel. Its registered office is situated at Gupta Cinema Campus, Gupta Cinema Road, Dist. Aurangabad.

4.3 Impact on Land Environment / Soil

Any construction activity could tend to create changes in the soils of the area. Excavation work tends to denude the soil and make it loose. Destruction of the soil and removal of vegetative cover enhances the possibility of soil erosion. The excavated soil and construction materials, such as sand etc. could tend to infiltrate and clog the inter-granular spaces, leading to decreased permeability.

Since the project will be operated within the existing and designated plant boundary the impacts would be confined principally within the plant site and thus would be of localized nature.

4.3.1 Impact during Construction Stage

No construction is proposed as the plant is already operational.

4.3.2 Impact during Operation

During operation phase the soil will not be affected due to any operation. However, any percolation of any contaminates into ground water will be prevented by constructing suitable storage facilities as per guidelines of CPCB and MoEFCC.

Another manner in which the soils within the impact zone might undergo changes is due to deposition of air pollutants. Stack Emission results will be well within the limits of BSPCB and E(P) Rules. Presently SSI has one no. of numbers of rolling mill with other allied facilities like Raw material handling system, pollution control system, electrical substation along with semi-automated PLC based control for achieving higher level of efficiency in the functioning of the plant. Stack attached to Furnace of Re-rolling Mill. Cyclone Dust Collection has been provided for controlling air pollution due to operation of re-rolling mill project. Stack of 24 m. height has been provided to re-rolling mill Furnace as per BSPCB Norms. Meanwhile, the 2-5 m wide green belt would largely offset the change to the existing landscape and would provide visual comfort. Stack Emission results are well within the limits of BSPCB & E (P) Rules.

4.4 Solid Waste Management

Only ends cutting are being generated as solid waste which is being sold to ingot manufacturer for reprocessing.

Hazardous waste: There is no hazardous waste from the plant except for used oil with approx. quantity of 30 Liters per annum, during course of production of and is also saleable to the registered recyclers in the market.

4.5 Impact on Surface Water Hydrology

The unit will use only ground water during operational stage of plant. There is no use of surface water in the project. There will be no discharge in surface water body from re-rolling mill project of SSI. Therefore, there would not be any anticipated impact on surface water hydrology.

4.6 Impact on Ground Water Hydrology :-

No industrial waste water will be generated. The proposed project will not discharge any waste water to the land, the adverse impact on ground water is therefore unlikely.

4.7 Impact on Water Use

4.7.1 Impact during Construction Stage

No construction is proposed as the plant is already operational.

4.7.2 Impact during Operation

Water requirement is being fulfilled through borewells inside premises. 8 KL/Day water is required for SSI project.

The area falls under safe category as per GWRA 2022 of CGWB, where on average 1061.6 mm. of rain is recorded annually. The small quantity of withdrawal of ground water during the operation of plant will not affect the large quantity of ground water available in the area.

4.8 Impact on Water Quality

4.8.1 Impact during Construction Stage

No construction is proposed as the plant is already operational.

4.8.2 Impact on Surface Water during Operation

No waste water will be discharged into surface water. The distance from plant to Adari river is 4.0 Km East from project area.

4.8.3 Impact on Ground Water Quality

There will not be any direct impact on ground water quality due to the project operation, as the unit will not generate or discharge any Industrial waste water.

Thus, there would neither be any significant impact on surface water bodies nor on ground water due to the proposed project.

4.8 Impact on Air Environment

4.9.1 Impact During Construction

No construction is proposed as the plant is already operational.

4.9.2 Impact on Air Quality During Operation

The capacity of rolling mill is 9450 MT per annum (27 TPD). Stack attached to Re-rolling mill Furnace. Cyclone dust collector are provided to minimize and control air pollution. Stack of 24 m. height has been provided as per BSPCB Norms. Meanwhile, the 2-5 m wide green belt would largely offset the change to the existing landscape and would provide visual comfort. Stack Emission results are well within the limits of BSPCB & E (P) Rules.

Further measures to minimize the pollution have been envisaged as:

- ❖ Providing adequate stack height as per norms of CPCB for wider dispersion of pollutants, resulting in lower ground level concentration.
- ❖ The exhausts of DG set will be provided with adequate height as per norms prescribed by Central Pollution Control Board.
- ❖ Transport vehicles will be maintained properly.
- ❖ Dust control will be done by water spraying on the exposed area, time to time.

Source of Air pollution and control measures

Section	Source of Air Pollution	Pollutants	Air Pollution control Measures
Re-rolling Mill	Furnace	PM and gases	Cyclone dust collectors with stack of 24 mtr height has been provided.
Overall Plant Area	Open Space	Fugitive Dust Emission	Pucca roads within the premises, water sprinkling in dusty areas and green belt

The concerning emission will be only from Point Source i.e. from Stack of Furnace, which will be released through the stacks of 24 m height. The emissions from other

point source i.e. exhausts of Diesel Generator set and the vehicular emissions will be of insignificant value.

4.9.3 Impact Assessment

The impact on air quality has been assessed considering the following:

- a) The air quality impacts have been predicted for the release of emissions from Stacks.
- b) Plume Rise and Effective Stack Height
Brigg's modified equation as suggested by Central Pollution Control Board has been used for calculation of effective Stack Height.
- c) Dispersion Coefficient: Brigg's dispersion coefficients have been used to determine σ_y and σ_z for rural conditions.
- d) Particulate Matter (PM) has been considered taking maximum limit of 150 mg/Nm³ for Stack as prescribed by Central Pollution Control Board.

4.9.4 Air Quality Modeling

The main air pollutant from the operations would be Particulate Matter and for the same short term 24-hourly GLC's has been computed. The GLC's are estimated using the site-specific meteorological data and various input parameters using AERMOD Air Quality Modeling Software based on USEPA Guidelines.

AERMOD

Prediction of impacts on air environment by proposed industry during operation phase has been carried out by using AERMOD (version 18.7.182) Flat terrain dispersion model based on a steady state Gaussian plume dispersion, designed for point sources for short-term and developed by United States Environmental Protection Agency [USEPA].

Air Emission Dispersion Modelling uses mathematical formulations to characterize the atmospheric processes that disperse a pollutant emitted by a source. Based on emissions and meteorological inputs, a dispersion model can be used to predict concentrations at selected downwind receptor locations. These air quality models are used to determine compliance with National and international Ambient Air Quality Standards. It orders to estimate the pollutant concentration from a point source emission, USEPA AERMOD view model have been used. AERMOD view is a Gaussian plume model that incorporates source-related factors, meteorological

factors, receptors, terrain and building downwash factors to estimate pollutant concentration from continuous point source emission. The following section describes the prediction of emission of PM₁₀, PM_{2.5}, SO₂ and NO_x from the induction furnaces and its impact on ambient air quality within 10 Km radius.

4.9.5 Input Parameters

For modeling purpose, Particulate Matter (PM), SO₂ & NO_x have been considered. The PM emission from existing / proposed stack has been taken maximum 150 mg/Nm³ for PM and for SO₂ 30 mg/Nm³ to 100 mg/Nm³ and for the Nox 50 mg/Nm³ to 150 mg/Nm³ have been taken. The details are presented in Table 4.2 as under.

Table 4.1: Stack and Emission Details

S.No.	Input Parameter	Re-rolling Mill
1.	Stack height from Ground (m)	24
2.	Inner Diameter of stack/Duct (m)	0.55
3.	Flue Gas Temperature (°C)	120
4.	Gas Exit velocity (m/s)	15
5.	Emission of PM ₁₀ (g/sec)	0.13
6.	Emission of PM _{2.5} (g/sec)	0.08
7.	Emission of SO ₂ (g/sec)	0.04
8.	Emission of NO _x (g/sec)	0.07

4.9.6 Results & Discussions

The summary showing maximum GLC observed is given in Table 1.4 and map showing GLC for PM₁₀, PM_{2.5}, SO₂ and NO_x concentration has been given below in Figure no. 1.1 to 1.4.

Table Fehler! Kein Text mit angegebener Formatvorlage im Dokument..4: Maximum Concentration at receptors

S.No.	Pollutants	Max. GLC observed, (µg/m ³)	Distance and Direction (Towards)
1	PM ₁₀	1.2	1000 m and SE
2	PM _{2.5}	0.7	1000 m and SE
3	SO ₂	0.4	1000 m and SE
4	NO _x	0.8	1000 m and SE

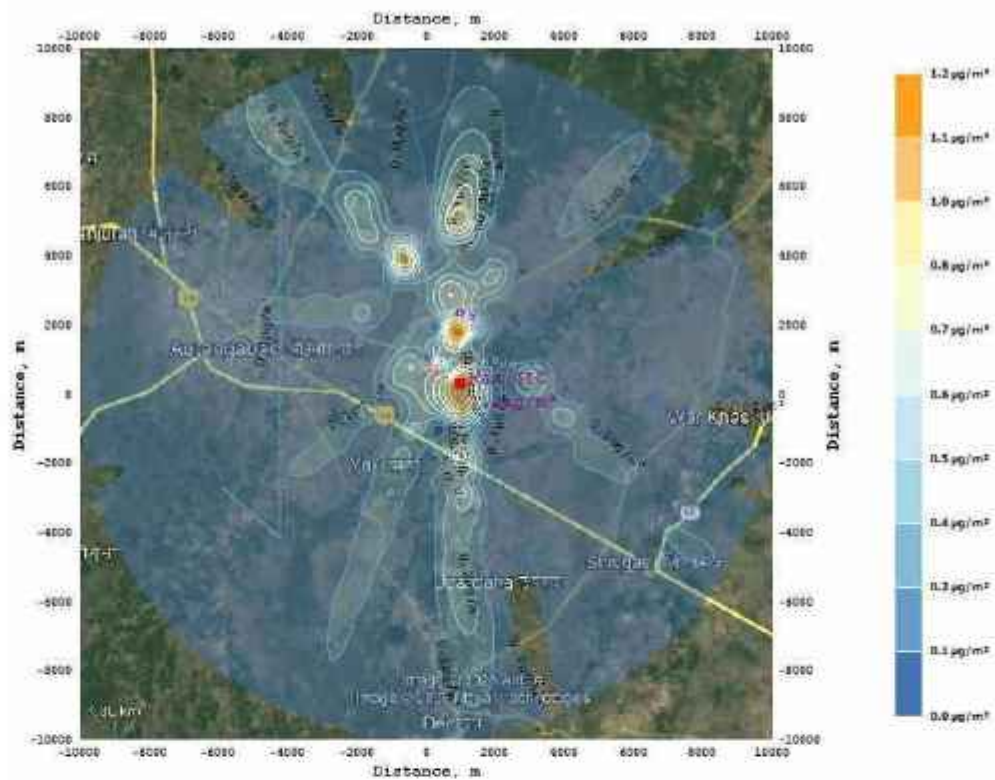


Figure 4.1: Isopleth of Maximum Predicted 24 hourly Ground – Level Concentrations for PM₁₀

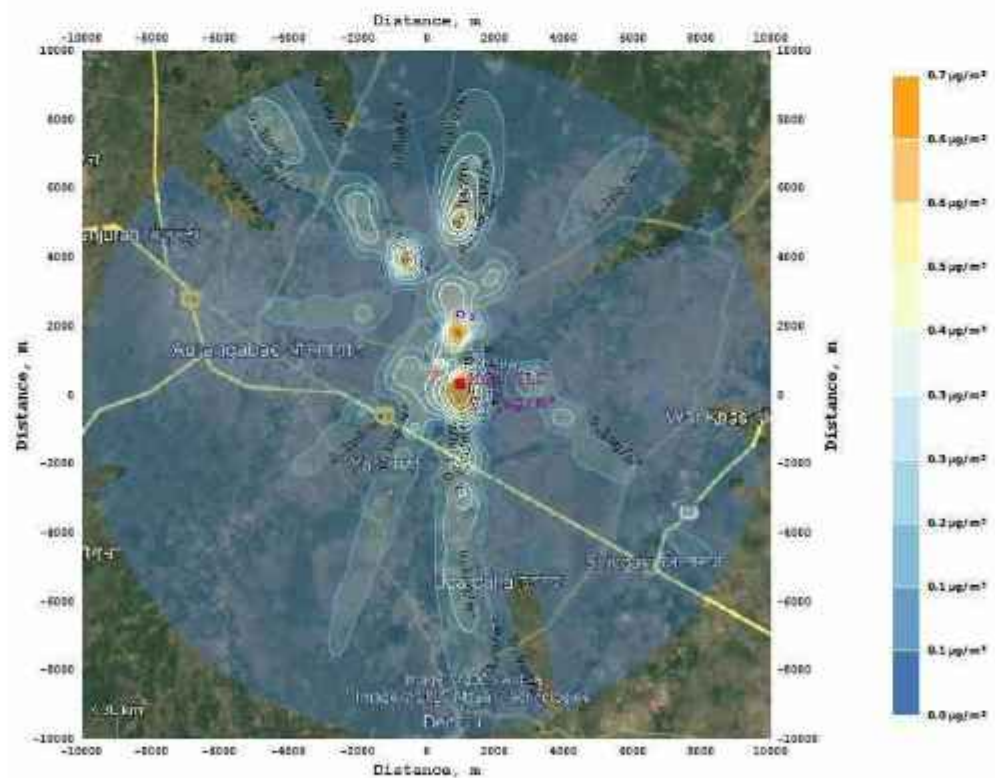


Figure 4.2 : Isopleth of Maximum Predicted 24 hourly Ground – Level Concentrations for PM_{2.5}

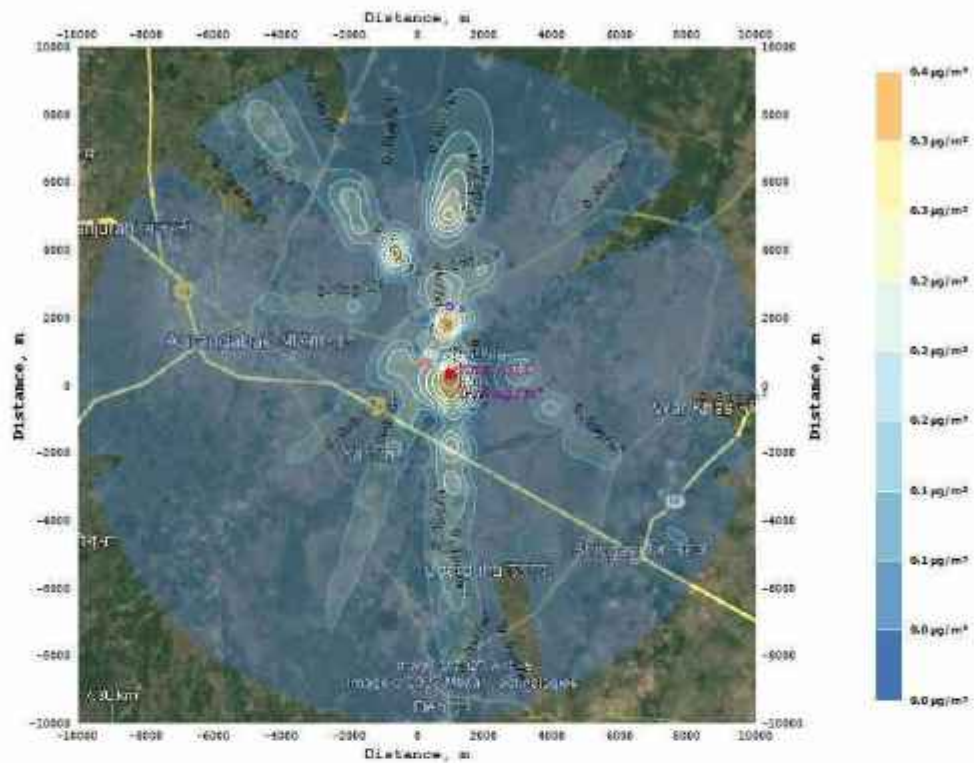


Figure 4.3: Isopleth of Maximum Predicted 24 hourly Ground – Level Concentrations for SO₂

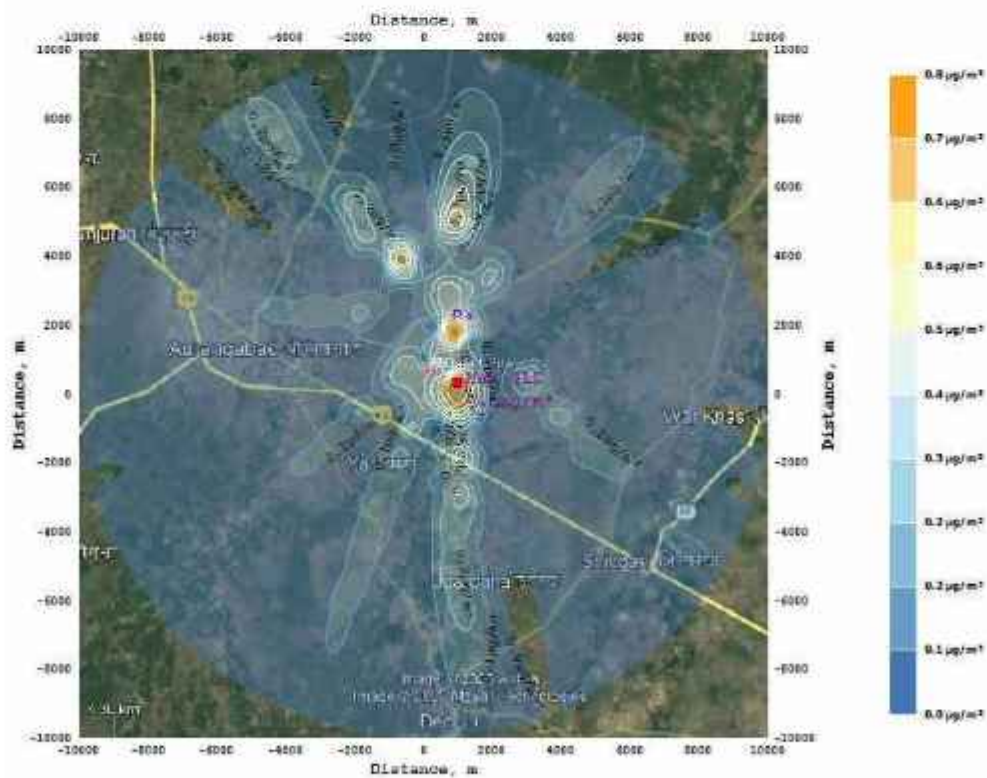


Figure 4.4: Isopleth of Maximum Predicted 24 hourly Ground – Level Concentrations for NO_x

4.9.7 Resultant Concentrations after Commissioning of the Project

The resultant concentration due to operation of SSI project on the GLC of air pollutants as predicted and super imposing the predicted values on the maximum baseline concentrations recorded during the study period respective to the direction and distance of the monitoring location is as under. The cumulative ground level concentrations (baseline + increment) after commissioning of the proposed project are presented in Table 4.5.

Table 4.5 : Predicted Maximum Cumulative Short Term Ground Level Concentration

Pollutants	Maximum Incremental Concentration $\mu\text{g} / \text{m}^3$	Location		Max ^m AAQ Concentration Recorded during study period $\mu\text{g} / \text{m}^3$	Resultant Concentration $\mu\text{g} / \text{m}^3$	NAAQS Standard $\mu\text{g} / \text{m}^3$
		Distance In Meter	Direction			
PM ₁₀	1.2	1000 m.	SE	70.2	71.4	100.0
PM _{2.5}	0.7	1000 m.	SE	38.8	39.5	60.0
SO ₂	0.4	1000 m.	SE	9.5	9.9	80.0
NO _x	0.8	1000 m.	SE	32.2	33.0	80.0

The predicted GLCs of Pollutants due to operation of SSI project is insignificant to add up on the existing ambient air quality. However, the air pollution control system is maintaining the existing ambient air quality and help in bringing down the concentrations in ambient air quality.

The estimated cumulative GLCs due to SSI project are found to be within the National Ambient Air Quality Standards 2009.

Hence it can be concluded that the impact on Ambient Air Quality of the nearby areas by the proposed project is insignificant.

Moreover, the environment around the project site has enough buffer to assimilate these values. The favorable wind and height of stack disperse these pollutants in different directions fast to longer distance with negligible concentrations.

Therefore, because of the SSI re-rolling mill project the anticipated adverse impact on ambient air quality can be minimized by adoption of proper and effective air pollution control measures.

4.10 Impacts of Secondary Emissions due to Vehicular Movement ;

Vehicular movement in and around the site are the major source of secondary emission. Loads of Pollutants arising from emissions by vehicle plying from nearest state highway to the project site have been calculated on the following assumptions;

Traffic Density of Study Area ;

The project site is located near GT Road. To assess the existing pollution load due to plying of vehicles in the study area, traffic survey was conducted on 10th April, 2023 near GT Road. Traffic Scenario of the project area is as under:

Time (Hrs.)	TYPE OF VEHICLE			HCV's
	2 Wheelers	3 Wheelers	4 Wheelers & LCV's	
10-11	175	75	270	88
11-12	178	58	252	72
12-13	190	63	216	52
13-14	188	102	231	88
14-15	210	129	261	100
15-16	200	69	225	124
16-17	175	146	255	68
17-18	163	116	261	64
18-19	125	102	255	88
19-20	103	88	237	68
20-21	70	56	201	56
21-22	45	45	174	80
22-23	25	42	99	152
23-24	20	30	45	224
00-01	18	15	30	312
01-02	15	10	18	248
02-03	10	8	30	216
03-04	32	20	54	292
04-05	55	27	105	336
05-06	88	33	126	168
06-07	85	40	99	140
07-08	115	45	171	168
08-09	133	52	153	128
09-10	153	63	201	100
TOTAL	2568	1433	3969	3432

Due to proposed project there will be increment in traffic density in the project area.

Incremental Traffic Scenario will be as under;

Type of Vehicle	Present Scenario	Incremental Traffic Load due to SSI rolling mill project	Cumulative Traffic Load after Establishment of Project
HTV (Trucks, Tractors etc.)	3432	4	3436
MTV (Car & Jeeps)	3969	5	3974
LTV (Two & Three Wheelers)	4001	25	4026

Existing Pollution Load due to traffic density of study area is as under;

Type of vehicle	Total No. of vehicles / Day	Pollution Load (Kg./Day)				
		CO	HC	NO ₂	SO ₂	SPM
HTV (Trucks, Tractors etc.)	3432	130.8	21.62	216.2	15.44	7.72
MTV (Car & Jeeps) Diesel	2381	7.86	2.00	7.07	2.79	3.21
MTV (Car & Jeeps) Petrol	1588	190.6	28.58	15.24	0.38	1.57
LTV (2 & 3 Wheelers)	4001	204.1	120.0	0.84	0.24	2.40
TOTAL		533.2	172.2	239.4	18.85	14.91

Incremental Pollution Load due to movement of vehicles due to Operation of SSI Project is as under ;

Type of vehicle	Total No. of vehicles / Day	Pollution Load (Kg./Day)				
		CO	HC	NO ₂	SO ₂	SPM
HTV (Trucks, Tractors etc.)	4	0.2	0.03	0.3	0.02	0.01
MTV (Car & Jeeps) Diesel	3	0.01	0.00	0.01	0.00	0.00
MTV (Car & Jeeps) Petrol	2	0.2	0.04	0.02	0.00	0.00
LTV (2 & 3 Wheelers)	25	1.3	0.8	0.01	0.00	0.02
TOTAL		1.7	0.8	0.3	0.02	0.03

Cumulative Pollution Load due to movement of vehicles will be as under;

Type of vehicle	Total No. of vehicles / Day	Pollution Load (Kg./Day)				
		CO	HC	NO ₂	SO ₂	SPM
HTV (Trucks, Tractors etc.)	3436	130.9	21.65	216.5	15.46	7.73
MTV (Car & Jeeps) Diesel	2384	7.87	2.00	7.08	2.79	3.22
MTV (Car & Jeeps) Petrol	1590	190.8	28.62	15.26	0.38	1.57
LTV (2 & 3 Wheelers)	4026	205.3	120.8	0.85	0.24	2.42
TOTAL		534.9	173.0	239.7	18.87	14.94

It can be seen from the above table that the movement of vehicles within and around the project premises will not adversely affect the existing scenario.

Regular water spraying will further help in improving the air quality of the area. Moreover, the site experiences favourable wind throughout the year which would help in dispersing the pollutants to longer distances with insignificant concentrations.

4.11 Impact on Noise Environment

The major sources of noise pollution would be running of machineries. The plant machineries shall be maintained properly with regular oiling and greasing to reduce the noise pollution.

There is no major noise prone process except equipment for conveyor belt and fans for furnace etc.

- By selecting low noise generating equipment, which would have below 85 dBA. This is taken care at the equipment design stage.
- By isolating the noise unit from the working personnel's continuous exposure by providing acoustic aids for plant personnel.
- By administrative & safety measures, providing noise level monitoring, remedial measures, providing noise safety appliances.

Proposed project will take all mitigation measures to control noise pollution. Some methods of noise pollution control have been outlined in Table 4.6.

Table 4.6 : Noise Mitigation Measures

Mitigation Measures
1. By adopting smooth roads and yard.
2. By adopting good foundation, good alignment, well lubricated machineries.
3. Steam release, only occasional and for a small duration of time.
4. Proper sturdy foundation provided for all the machines and equipments.

4.12 Impact of Transportation

The raw materials like, steel scrap, pig iron and ferro-alloy and end product TMT bar are not a direct source of any kind of environmental pollution under normal climatic conditions. However, emission from the transporting vehicle may be a

potential source of air pollution. Meanwhile, the emission may not be directly attributed to the contribution of the project – because the proponent would be using the exiting transportation facility available in the market and those vehicles will be complying with the standard emission through a mandatory "Pollution Under-Control Certificate".

Therefore, the impact of transportation of the raw material and end product on the surrounding environment would be insignificant.

4.13 Impact on Terrestrial Ecology

Impact during Construction

No impact during construction stage as the plant is operational.

Impact during Operation

The impact on the terrestrial ecosystem due to the operation of the proposed project would mainly occur from deposition of air pollutants. Particulates are major pollutants. These pollutants affect biotic and abiotic components of the ecosystem individually and synergistically. Chronic and acute effects on plants and animals may be induced when the concentration of these pollutants exceed threshold limits.

The Particulate Matter (PM) depending upon their size and weight settle down at varying distances on vegetation and soil surfaces in the prevailing wind direction. Deposition of fly ash on the soil alters its physical and chemical characteristics. Such changes may hamper plant growth at higher concentrations. Foliar deposition interrupts gaseous exchange through stomatal clogging, thereby affecting plant growth.

In the present scenario the PM₁₀ level emitted from stack will be within the norms, as such no adverse effect can be expected. The emissions of particulates from the stacks will always remain below 150 mg/Nm³.

Furthermore, emission of PM through the 24 m. tall stack results in a very wide dispersion of the particulates, leading to minimum annual average ground level

concentrations. Such low concentration of PM in the air and its deposition would not induce any change in the ecosystem.

It would thus be observed that pollutant concentrations due to operation of the plant are much lower than the threshold limits for damage to terrestrial flora established above and as such, the impact on the terrestrial ecosystem would be marginal.

4.14 Impact on Aquatic Ecology

Impact during Construction

No impact during construction stage as the plant is operational.

Impact during Operation

No water shall be discharged into the surface water body. As such, it may be concluded that no adverse effects leading to the depletion of growth of the existing aquatic biota are envisaged due to the operation of the project.

4.15 Impact on Demography & Socioeconomic

Impact during Construction

▪ *Impact on Demography* ---

The peak workforce strength during construction would rise-up to hundred persons. Though the technical persons and skilled labors would by and large, be imported from outside the study area, bulk of the labor force would comprise of unskilled and semi-skilled workers, a substantial number of whom would presumably be recruited from the surrounding areas itself. Since majority of the unskilled workforce would be from surrounding areas, they would settle in the villages.

Therefore, the demographic scenario including population, sex-ratio, literacy level etc. would undergo certain local changes within a limited peripheral zone. The overall impact over the study area would be marginal.

▪ *Impact on Socioeconomic* ---

Construction of any major industrial project invariably results in socioeconomic changes. The influx of material and money lends to change the economic status of

the community. Markets, workshops and commercial centers would develop in the area.

Construction of the proposed project will involve a substantial unskilled labor force. Since most of the unskilled labor force will be from nearby village, unplanned and haphazard development of slums would not be significant. However, labour camps with provision of basic amenities of water supply and sanitation etc. would be provided which would go long way in curbing the degradation of the physical and aesthetic environment.

▪ *Project Affected Persons (PAP) ---*

There will not be any project affected person, due to the fact that the entire land required for the proposed project is owned by project proponent and project is under operation.

▪ *Rehabilitation and Resettlement Programme ---*

As mentioned earlier the land belongs to the project proponent and project is under operation, rehabilitation or resettlement problem do not exist.

Impact during Operation

▪ *Impact on Demographic Pattern ---*

Operation of the unit will require an appreciable quantum of skilled and semi-skilled workforce which, would have to be imported from outside the study area.

Moreover, a sizeable number of service class people who are directly connected with the operating personnel of the plant, e.g. house servants, washer man, barbers, shopkeepers etc. will flow in from the neighboring areas. As the plant and its ancillary facilities act as an active nucleus of activity, a shift of population towards this center will also occur within the study area. This would result in an alteration of the local demographic pattern. The literacy level of people and their families involved in the operation of the plant would certainly enhance the overall literacy rate within the study area. The population density in the peripheral zone will also tend to rise, though very marginally.

▪ *Impact on Socioeconomic* ----

This project will definitely alter the simple and quiet rural nature of the locality, which exists today.

As there will be flow of financial and material resources, there remains a large possibility of growth of population in the business, trade, commerce and service sector. The large inflow of financial and material resources accompanied with the urban culture complete with technological inputs as modern housing, water closets, radio, television, synthetic fibers, use of steel and aluminum, use of LPG/electricity for domestic cooking would all contribute towards changing the socioeconomic environment of the areas as this would introduce a mixed culture emphasizing urban traits in place of traditional, prevalent rural customs. The economic, cultural and technological changes are likely to induce social stress and ethical changes. All these would change the local life style.

Thus, a simple backward community may be transformed into a semi-urban complex within a short time frame. Such impacts are inevitable, that could also be felt in case of the proposed project; however, these would be attempted to be controlled and minimized by ensuring suitable human management, stable working conditions, security and the provision of adequate compensation.

▪ *Growth Dynamics and Stress Areas* ---

It has been observed that people always have a propensity to settle at locations where civic amenities as transportation, postal service, educational institutions, drinking water, market, medical treatment, electricity etc. are easily available within a short distance, as well as the working place being within a reasonable distance.

Therefore, some migrated people would settle in the peripheral zone / proximate of the project site i.e. within Rural Area & or at Aurangabad Town.



CHAPTER - 5

ANALYSIS OF ALTERNATIVES

Description of Each Alternatives / Summary of adverse impacts of each alternative / Mitigation measures proposed for each alternative and / Selection of alternative.

5.1 Introduction

M/s. Sri Sai Industries (SSI) is a proprietorship unit. The unit has established its re-rolling mill project in 2014 and started operation of the unit after obtaining CTO from Bihar State Pollution Control Board in 2015. The capacity of rolling mill is 9450 MT per annum (27 TPD). SSI is producing MS Flat / Angle / Channel / Square from its rolling mill unit. Mr. Laxmi Prasad is the main promoter of the company. Company is having 0.46 Ha. (4600 Sqm.) of land at near Village Dehri, Dist. Aurangabad and the factory is situated on this land parcel. Its registered office is situated at Gupta Cinema Campus, Gupta Cinema Road, Dist. Aurangabad.

Project Promoters:

Laxmi Prasad
Proprietor
Sri Sai Industries
Gupta Cinema Campus
Gupta Cinema Road
Dist- Aurangabad – 824 101, Bihar
Mob. No- 9439474248

As per MoEFCC Gazette Notification No. S.O. 3250(E) Dt: 20th Jul. '2022, existing rolling mills (which are being operated on CTE/CTO from BSPCB) having capacity more than 5000 TPA requires to obtain EC and also exempted from requirement of Public Consultation, providing TOR should be obtained within one year from the above referred Gazette Notification. In this connection, M/s SSI submitted an application along with filled up 'Form I' along with Pre Feasibility Report in the prescribed format to SEIAA, Bihar on

28.12.2022 for obtaining approved TOR for its proposed project, vide Proposal No. SIA/BR/IND1/412034/2022.

5.2 Criteria for Site Selection

The selection of project site/location has been based on the factors as given below:-

- i) Availability of adequate flat land for the proposed plant and its rational future expansion.
- ii) Proximity to raw materials.
- iii) Proximity to finished goods market
- iv) Existence of road connection in the vicinity for transportation of incoming & Outgoing materials.
- v) Availability of industrial infrastructure facilities, e.g. power, water & skilled personnel.

5.3 Alternatives for Technology and Other Parameters;

M/s SSI is already adopting latest and modern technology for existing project.



CHAPTER - 6

ENVIRONMENTAL MONITORING PLAN

Technical aspects of monitoring the effectiveness of mitigation measures (incl. Measurement methodologies, frequency, location, data analysis, reporting schedules, emergency procedures, detailed budget & procurement schedules)

6.1 Introduction

Monitoring of the post project environment is of utmost importance and has legal requirements. Regular monitoring of the environment helps in assessing the benefits of implementation of environment management plan. Proposed Project will adopt an effective monitoring plan with proper schedule as a step forward to ensure better environment management practices.

Monitoring involves periodic checking to ascertain whether activities are going according to the plans. It provides the necessary feedback for project management to keep the program on schedule. The purpose of the environmental monitoring plan is to ensure that the envisaged purpose of the project is achieved and results in desired benefits.

Monitoring involves periodic checking to ascertain whether activities are going according to the plans. It provides the necessary feedback for project management to keep the program on schedule. The purpose of the environmental monitoring plan is to ensure that the envisaged purpose of the project is achieved and results in desired benefits. An environmental monitoring program is important as it provides useful information and helps to the effectiveness of mitigation measures:

- Assist in detecting the development of any unwanted environmental situation, and thus, provides opportunities for adopting appropriate control measures, and
- Define the responsibilities of the project proponents, contractors and environmental monitors and provides means of effectively communicating environmental issues among them.
- Define monitoring mechanism and identify monitoring parameters.
- Evaluate the performance and effectiveness of mitigation measures proposed in the Environment Management Plan (EMP) and suggest improvements in management plan, if required,
- Identify training requirement at various levels

6.1.1 Need for Environmental Monitoring

- Verify and support compliance with applicable Central & State environmental laws, regulations, permits, authorization, consent to operate, protocols and orders.
- Establish baselines and characterize trends in the physical, chemical, and biological condition of environmental media / matrix.
- Identify potential environmental problems and evaluate the need for remedial actions or measures to mitigate the problems.
- Detect, characterize, and report unplanned releases.
- Evaluate the effectiveness of flue gas from incinerator & leachate treatment and control, and pollution abatement programs.
- Determine compliance with commitments made in environmental impact statements, Form V – environmental statements, assessments
- EMS- ISO: 14001, safety analysis reports, or other official documents or for due diligence.

6.2 Objectives of Environmental Monitoring Program

- To evaluate the performance of mitigation measures proposed in the EMP.
- To evaluate the adequacy of Environmental Impact Assessment
- To suggest improvements in management plan, if required
- To enhance environmental quality.
- To implement and manage the mitigative measures defined in EMP.
- To undertake compliance monitoring of the proposed project operation and

6.3 Measurement Methodologies

6.3.1 Instruments to be used

The following instruments are being / will be used for data collection work in the monitoring Schedule:

- Respirable Dust Sampler (RDS)
- Fine Particulate Matter (FPM) Sampler
- Stack Monitoring Kit
- Sound Level Meter
- Micro Meteorological Station
- Water Level Indicator
- Global Positioning System (GPS)

In addition to the above instruments, the data on land use, vegetation and agricultural crops to be collected by the team by meeting with a large number of local inhabitants in the study area and different government departments / agencies.

6.3.2 Monitoring Programme

The post project monitoring will include details of any major/ minor impact in the core zone and area within buffer zone for the following parameters: -

- Ambient Air Quality,

- Stack Emission
- Work zone Air quality,
- Water Quality and Ground Water Level
- Soils Quality
- Noise Level
- Wastewater Analysis
- Terrestrial / Aquatic Analysis
- Demography and socio-economic analysis based on last available census data for entire study area

This would be attained by collection of samples of water, stack emission, ambient air and work zone environment and analyzing the samples by various methods. Noise level would be monitored by a noise recorder and the data would be generated instantly.

Stack emission would be monitored from all the stacks. Work zone environment would be monitored at sensitive points of manufacturing areas, where the fugitive emissions would be visibly more.

The ambient air quality may be monitored at four locations, with one at the proposed project as the center point and the remaining three at 120° to each other in down wind direction. The locations would change with the season and the wind pattern.

6.3.3 Data Analysis

Monitoring data analysis will be done by MOEF&CC approved laboratory as per CPCB guidelines & timely submitted to concerned authority.

6.3.4 Monitoring / Reporting Schedule

The environmental monitoring must be done as per the schedule summarized in **Table 6.1**.

Table 6.1: Environment Monitoring Schedule

Environmental Component	Frequency of Monitoring / Sampling & Location	Parameters to be covered
Ambient Air Quality Monitoring	104 samples as per NAAQS 2009 (Biweekly basis)	PM ₁₀ , PM _{2.5} , SO ₂ , NO _x , & CO
Stack Emission Monitoring	Monthly for Stack/Exhaust	Flue Gas Temp., Velocity, Volumetric Flow Rate, PM ₁₀ , PM _{2.5} , SO ₂ & NO _x and VOC's
Ambient Noise Level Monitoring	Monthly at 5 different locations	Ambient Equivalent contains noise level in dB(A) / Sound Pressure Level (Leq) at Day and Night Time
Ground Water / Drinking Water Quality	Monthly from Borewell and Drinking Water tap	pH, Turbidity, Total Dissolved Solids, Total Hardness, Calcium, Magnesium, Iron, Total residual free Chlorine, Alkalinity, Chloride, Sulphate, Nitrate, Fluoride, Coliform (MPN Value) & E.Coli
Surface Water Quality	2 stations at nearest water body (One sample from upstream and one from downstream)	pH, Turbidity, Total Suspended Solids, Total Dissolved Solids, Chloride, DO, BOD, COD, Total Hardness, Total Alkalinity, Coliform (MPN Value), Faecal Coliform & E.Coli

6.3.5 Emergency Procedures

- Design, manufacture and construction of buildings, plant and machineries will be as per National and International Codes as applicable in specific cases and laid down by statutory authorities.
- Provision of adequate access ways for movement of equipment and personnel will be made.
- Minimum of two numbers of gates for escape during disaster will be provided.
- In the vicinity of main plant entrance, there will be an emergency assembly point where plant personnel will assemble in the event of any disaster.
- Adequate numbers of Fire Fighting equipment and Fire extinguishers will be installed in the work places for emergency purpose and the Supervisors / Workers will be trained to use the equipments.
- An ambulance will be provided in the factory premises.
- A qualified Doctor and a compounder will be employed for attending to any emergency

6.3.6 Detailed Budget and Procurement Schedules / Environmental Mitigation Measures

The total fiscal estimation for EMP is indicated to be Rs. 70.0 lakhs, details are given in Table no. 6.2.

Table 6.2: Cost of Environmental Protection Measures

Particulars	Amount in INR, Lakhs
One Time Installation Cost	
1. Air Pollution Control System	15.0 lakh
2. Green Belt Development	5.0 lakh
3. Medical centre, PPE (Personnel Protective Equipment)	2.5 lakh
4. Fire hydrant system, Fire alarm, Water sprinklers, Gas leak detecting system	2.5 lakh
Total	25 lakh
Recurring Cost / Annum	
1. Environmental Monitoring	3.0 Lakh
2. Running Cost of Pollution Control Equipments	5.0 lakh
3. Greenbelt maintenance	2.5 lakh
4. Medical centre, PPE (Personnel Protective Equipment)	2.5 lakh
5. Fire hydrant system, Fire alarm, Water sprinklers, Gas leak detecting system	2.0 lakh
Total	15 lakh
Grand Total	40 lakh



CHAPTER - 7

ADDITIONAL STUDIES

7.1 Introduction

As per generic structure of the EIA/EMP report prescribed in EIA Notification dated 14.09.2006, this chapter is to comprise of risk assessment & disaster management, as well as public consultation. As per MoEFCC Gazette Notification No. S.O. 3250(E) Dt: 20th Jul.'2022, existing rolling mills (which are being operated on CTE/CTO from BSPCB) having capacity more than 5000 TPA requires to obtain EC and also exempted from requirement of Public Consultation, providing TOR should be obtained within one year from the above referred Gazette Notification. In this connection, M/s SSI submitted an application along with filled up 'Form I' along with Pre Feasibility Report in the prescribed format to SEIAA, Bihar on 28.12.2022 for obtaining approved TOR for its proposed project, vide Proposal No. SIA/BR/IND1/412034/2022.

As per the ToRs prescribed by SEIAA, Patna, the following Additional Studies were carried out for the proposed Re-rolling mill project.

7.2 Public Hearing / Consultation

As per MoEFCC Gazette Notification No. S.O. 3250(E) Dt: 20th Jul.'2022, the SSI Re-rolling mill project is exempted from public hearing.

7.3 Risk Assessment & Disaster Management Plan

Risk assessment and management is activity process about defining sources of uncertainty (risk identification), estimating the consequences of uncertain events/conditions (risk analysis), generating response strategies in the light of expected outcomes and finally, based on the feedback received on actual outcomes and risks emerged, carrying out identification,

analysis and response generation steps repetitively throughout the life cycle to ensure that the project objectives are met.

Risk is often referred to as the presence of potential or actual threats or opportunities that influence the objectives of a project during construction, commissioning, or at time of use. Risk is also defined as the exposure to the chance of occurrences of events adversely or favorably affecting project objectives as a consequence of uncertainty.

7.3.1 Risk Assessment and Damage Control

Risk assessment is the determination of quantitative & qualitative value of risk related to a concrete situation and a recognized threat.

Activities requiring assessment of risk due to occurrence of most probable instances of hazard and accident are both on-site & off-site.

The cement grinding unit is labour intensive and does not use potentially hazardous manufacturing processes. Some examples of hazards are as under ;

- (i) Exposure to High Temperature
- (ii) Physical Hazards

EXPOSURE TO HIGH TEMPERATURES ;

The principal exposures to heat in the proposed project occur during handling of hot raw materials and operation & maintenance of hot equipments. Recommended prevention & control measures are as under ;

- Shielding surfaces where workers proximity and close contact with hot equipment is expected, using PPE i.e. insulated gloves & shoes.
- Minimizing the work time required in high temperature environments by implementing shorter shifts at these locations.

PHYSICAL HAZARDS ;

Injuries during project operations are typically related to slips, trips and falls, contact with falling/moving objects and lifting / over exertion. Other injuries may occur due to contact with or capture in, moving machinery (e.g. dump trucks, front loaders, forklifts). Activities related to maintenance of equipment, including crushers, mills, mill separators, fans, coolers and belt conveyors, represent a significant source of exposure to physical hazards. These hazards include the following ;

- Falling / impact with objects
- Hot surface burns
- Transportation
- Contact with allergic substances

Following mitigation measures will be implemented to prevent the physical hazards in the plant:

- Any person working on equipment with moving parts will personally ensure the equipment is de-energized, isolated and locked/tagged out.
- Any person working from a position with the potential risk for a fall from height will use fall protection measures.
- Prescribed PPE will be provided to all workers exposed to open processes or systems
- In case of any accident immediately & proper medical care will be provided at the plant site.

Following other mitigation measures will also be implemented for Risk assessment and damage control

- Design, manufacture and construction of buildings, plant and machineries will be as per National and International Codes as applicable in specific cases and laid down by statutory authorities.
- Provision of adequate access ways for movement of equipment and personnel will be made.
- Minimum of two numbers of gates for escape during disaster will be provided.
- In the vicinity of main plant entrance, there will be an emergency assembly point where plant personnel will assemble in the event of any disaster.

- Adequate numbers of Fire Fighting equipment and Fire extinguishers will be installed in the work places for emergency purpose and the Supervisors / Workers will be trained to use the equipments.
- An ambulance will be provided in the factory premises.
- A qualified Doctor and a compounder will be employed for attending to any emergency.

Emergencies may occur due to many reasons. It may occur due to natural causes like earthquake, cyclone, flood etc. It may occur due to malfunction of standard working systems or practices. There can be no set criteria for assessing the gravity of a disaster in the abstract since this depends to a large extent on the physical, economic and social environment in which it occurs. What would be consider a major disaster in a developing country, ill equipped to cope with the problems involved, may not mean more than a temporary emergency elsewhere. However, all disasters bring in their wake similar consequences that call for immediate action, whether at the local, national or international level, for the rescue and relief of the victims. This includes the search for the dead and injured, medical and social care, removal of the debris, the provision of temporary shelter for the homeless, food, clothing and medical supplies, and the rapid re-establishment of essential services.

7.3.2 Objectives of Risk & Disaster Management Plan

The Risk & Disaster Management Plan (DMP) is aimed to ensure 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 the Risk & Disaster Management Plan, it will be widely circulated and personnel training through rehearsals/drills.

The Risk & Disaster Management Plan would reflect the probable consequential severalties of the undesired event due to deteriorating conditions or through 'Knock on' effects. Further the management will be able to demonstrate that their assessment of the consequences uses good supporting evidence and is based on currently available and reliable information, incident data from internal and external sources and if necessary the reports of outside agencies.

To tackle the consequences of a major emergency inside the factory or immediate vicinity of the factory, a Risk & Disaster Management Plan has been formulated and this planned emergency document is called "Risk & Disaster Management Plan".

The objective of the Industrial Risk & Disaster Management Plan is to make use of the combined resources of the plant and the outside services to achieve the following:

- Effect the rescue and medical treatment of casualties;
- Safeguard other people;
- Minimize damage to property and the environment;
- Initially contain and ultimately bring the incident under control;
- Identify any dead;
- Provide for the needs of relatives;
- Provide authoritative information to the news media;
- Secure the safe rehabilitation of affected area;
- Preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of the Emergency.

In effect, it is to optimize operational efficiency to rescue, rehabilitation and render medical help and to restore normalcy.

7.3.3 Major Causes of On-site Emergency

Fire consequences can be disastrous, since furnace plant will run on electricity only, where fire can be occur due to short circuit or electrical system malfunctioning. Preliminary hazard Analysis has provided a basis for consequence estimation. Estimation can be made by using various fire consequence calculations. During the study of risk assessment, the nature of damages is worked out and probability of occurrence of such hazards is also drawn up. Adequate fire fighting systems as per Tariff Advisory Committee (TAC) and OISD guidelines will be provided and maintained.

7.4 Emergency Action Plan

The emergency action plan consists of:

- First information
- Responsibilities of Work Incident Controller
- Responsibilities of Chief Incident Controller
- Responsibilities for Declaration of Emergency
- Responsibilities for Emergency Communication Officer
- Responsibilities of key personnel
- Responsibilities and action to be taken by essential staff and various teams during emergency and
- Responsibilities for All Clear Signal.

The first person who observes/identifies the emergencies will inform by shouting and by telephone to the Shift Engineer and Fire Station about the hazard. The Shift Engineer will inform to Works Incident Controller, Chief Incident Controller and also telephone operator will communicate it to all key personnel.

7.4.1 Responsibilities of Work Incident Controller

The Work Incident Controller on knowing about an emergency immediately will rush to the incident site and take overall charge and inform the same to Chief Incident Controller (General Manager / Managing Director). On arrival, he will assess the extent of emergency and decide if major emergency exists and inform the communication officer accordingly. His responsibilities will be to ensure compliance to the duties (1 to 6) listed below.

7.4.2 Responsibilities of Chief Incident Controller

The General Manager / Managing Director, who is also the Chief Incident Controller, will assume overall responsibilities for the factory/storage site and its personnel in case of any emergency. His responsibilities are to:

1. Assess the magnitude of the situation and decide if staff needs to be evacuated from their assembly point to identified safer places. Declare on-site/off-site emergency.
2. Exercise direct operational control over areas other than those affected.
3. Undertake a continuous review of possible developments and assess in consultation with key personnel as to whether shutting down of the plant or any section of the plant and evacuation of personnel are required.
4. Liaison with senior officials of Police, Fire Brigade, Medical and Factories Inspectorate and provide advice on possible effects on areas outside the factory premises.
5. Look after rehabilitation of affected persons on discontinuation of emergency.
6. Issue authorized statements to news media, and ensures that evidence is preserved for inquiries to be conducted by the statutory authorities.

7.4.3 Responsibilities for Declaration of Major Emergency

- Making the emergency known inside the plant

The major emergency will be made known to everyone inside the plant by resounding the alarm. Separate alarms to warn different types of major emergencies such as fire and explosion or toxic gas escape will be provided. Public address system is also available throughout the plant.

Announcement will be made by the concerned official/interpreter in local language. Similarly announcement for termination of the emergency will also be announced.

7.4.4 Responsibilities of Emergency Communication Officer (ECO)

On hearing the emergency alarm he will proceed to Emergency Control Center. He will:

- Report to Chief Incident Controller and Work Incident Controller and maintain contact with them.
- On information received from the WIC of the situation, recommending if necessary, evacuate the staff from the assembly points.
- Identify suitable staff to act as runner or messenger who is listed in the Essential staff, between him and the Works Incident Controller if the telephone and other system of communication fail due to any reason.
- Maintain inventory of items in the emergency control center.
- Contact local meteorological office to receive early notification of changes in weather condition in case of gas leak and prolonged action.
- Maintain a log of incidents.
- Keep in constant touch with happenings at the emergency site and with WIC

7.4.5 Key Personnel

Apart from Works Incident Controller and Chief Incident Controller, other works personnel will have key role to play in providing advice and in implementing the decisions made by the Chief Incident Controller. The key personnel include:

A. Engineer-in-charge responsible for

- Operation
- Electrical Maintenance
- Mechanical maintenance
- C&I
- Chemical

B. Head of Personnel and Officers connected with Labour Welfare

C. Head (Technical Service)

7.4.6 Responsibilities of Key Personnel

▪ *Department Heads*

The departmental heads will provide assistance as required by the WIC. They will decide which members of their departments are required at the incident site.

- *Chief Personnel Manager*

He will:

- A. Report to Work Incident Controller;
- B. Ensure that all non-essential workers in the affected areas are evacuated to assembly points in consultation with the Chief Incident Controller;
- C. Receive reports from nominated persons from assembly points, and pass on the absence information services;
- D. Keep liaison with other coordinators to meet the requirements of services such as materials, security management, transportation, medical, canteen facilities etc. as required during emergency;
- E. Be in constant touch with the Chief Incident Controller and feed him correct information of the situation;
- F. Give information to press, public and authorities concerned on instructions from the CIC/WIC;
- G. Ensure that casualties receive adequate attention at medical center and arrange required additional help and inform relatives of the injured;
- H. Arrange to inform public on Radio and TV about evacuation etc.; and
- I. Arrange TV coverage on handling emergency.

- *In-Charge*

On knowing about an emergency, he will report to CIC and assist him in all activities. He will also liaison with all teams.

- *Medical Officer*

Medical Officer will render medical treatment to the injured and if necessary will shift the injured to nearby Hospitals. He will mobilize extra medical help from outside if necessary.

- *Safety Officer*

On hearing the Emergency alarm he will proceed to main entrance/main gate. He will:

- a) Make sure that all safety equipment are made available to the emergency teams;
- b) Arrange to control the traffic at the gate and the incident area;
- c) Direct the security staff to the incident site to take part in emergency operations under his guidance and supervision;
- d) Evacuate the persons in the plant or in the nearby areas as advised by WIC after arranging the transport through the Transport in-charge;
- e) Allow only those people who are associated with handling emergency;

- f) Maintain law and order in the area, if necessary seek the help of police and
- g) Maintain communication with CIC/WIC and ECO.

- Fire Office

On hearing the emergency, he will reach the fire station and arrange to sound the alarm as per the type of emergency in consultation with WIC, He will:

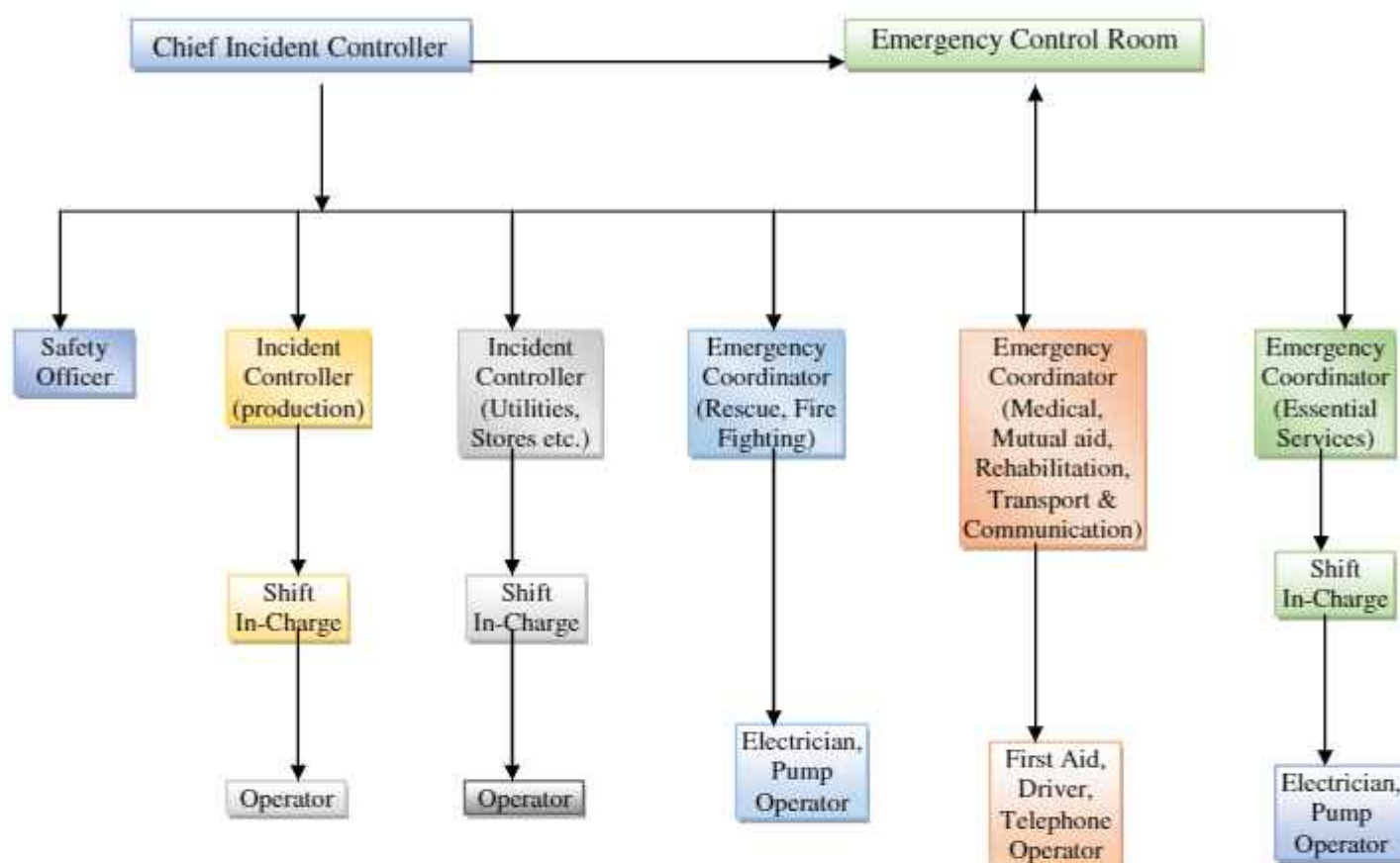
- a) Guide the fire fighting crew i.e. firemen and trained plant personnel and shift the fire fighting facilities to the emergency site. Adequate facilities will be made available;
- b) Take guidance of the WIC for fire fighting as well as assessing the requirement of outside help;
- c) Maintain communication with WIC, CIC and ECO.

- Transport -in-Charge

On hearing the emergency alarm he will immediately report to Work Incident Controller. He will:

- a) Ensure availability of auto base vehicles for evacuation or other duties, when asked for ; and
- b) Make all arrangements regarding transportation.

The onsite emergency plan structure is presented in Figure below ;



7.5 Off-Site Emergency Preparedness Plan

The task of preparing the Off-Site Emergency Plan lies with the district collector, however the off-site plan will be prepared with the help of the local district authorities. However, it can be observed from the risk modeling that the damage contours will be within the plant boundary and therefore on-site emergency plan has more significance. The off-site emergency preparedness plan should be based on the following guidelines.

Off-site emergency plan follows the on-site emergency plan. When the consequences of an emergency situation go beyond the plant boundaries, it becomes an off-site emergency. Off-site emergency is essentially the responsibility of the public administration. However, the factory management will provide the public administration with the technical information relating to the nature, quantum and probable consequences on the neighboring population.

The off-site plan in detail will be based on those events, which are most likely to occur, but other less likely events, which have severe consequence, will also be considered. Incidents which have very severe consequences yet have a small probability of occurrence should also be considered during the preparation of the plan. However, the key feature of a good off-site emergency plan is flexibility in its application to emergencies other than those specifically included in the formation of the plan.

The roles of the various parties who will be involved in the implementation of an off-site plan are described below. Depending on local arrangements, the responsibility for the off-site plan should be either rest with the works management or, with the local authority. Either way, the plan should identify an emergency co-ordinating officer, who would take the overall command of the off-site activities. As with the on-site plan, an emergency control center should be setup within which the emergency co-ordinating officer can operate.

An early decision will be required in many cases on the advice to be given to people living "within range" of the accident - in particular whether they should be evacuated or told to go indoors. In the latter case, the decision can regularly be reviewed in the event of an escalation of the incident. Consideration of evacuation may include the following factors:

- a) In the case of a major fire but without explosion risk only houses close to the fire are likely to need evacuation, although a severe smoke hazard may require this to be reviewed periodically
- b) If a fire is escalating, it might be necessary to evacuate people nearby, but only if there is time; if insufficient time exists, people will be advised to stay indoors and shield themselves from the fire
- c) For release or potential release of toxic materials, limited evacuation may be appropriate down wind if there is time. The decision would depend partly on the type of housing "at risk". Conventional housing of solid construction with windows closed offers substantial protection from the effects of a toxic cloud, while shanty house, which can exist close to factories, offer little or no protection.

The major difference between releases of toxic and flammable materials is that toxic clouds are generally hazardous down to much lower concentrations and therefore hazardous over greater distances. Also, a toxic cloud drifting at, say 300 m per minute covers a large area of land very quickly. Any consideration of evacuation should take this into account. Although the plan will have sufficient flexibility built in to cover the consequences of the range of accidents identified for the on-site plan, it will cover in some detail the handling of the emergency to a particular distance from each major hazard works.

7.5.1 Aspects proposed to be considered in the Off-Site Emergency Plan

The main aspects, which will be included in the emergency plan, are:

- *Organization*

Details of command structure, warning systems, implementation procedures, emergency control centers. Names and appointments of incident controller, site main controller, their deputies and other key personnel.

- *Communications*

Identification of personnel involved, communication center, call signs, network, and lists of telephone numbers.

- *Specialized knowledge*

Details of specialist bodies, firms and people upon whom it may be necessary to call e.g. those with specialized chemical knowledge, laboratories.

- *Voluntary organizations*

Details of organizers, telephone numbers, resources etc.

- *Chemical information*

Details of the any hazardous substances stored or procedure on each site and a summary of the risk associated with them.

- *Meteorological information*

Arrangements for obtaining details of whether conditions prevailing at the time and whether forecasts.

- *Humanitarian arrangements*

Transport, evacuation centers, emergency feeding treatment of injured, first aid, ambulances and temporary mortuaries.

- *Public information*

Arrangements for (a) dealing with the media press office; (b) informing relatives, etc.

- *Assessment of Emergency Plan*

Arrangements for: (a) collecting information on the causes of the emergency; (b) reviewing the efficiency and effectiveness of all aspects of the emergency plan.

7.5.2 Role of the Emergency Co-ordinating Officer

The various emergency services should be co-ordinated by an emergency co-ordinating officer (ECO), who will be designated by the district collector. The ECO should liaise closely with the site main controller. Again depending on local arrangements, for very severe incidents with major or prolonged off-site consequences, the external control should

be passed to a senior local authority administrator or even an administrator appointed by the central or state government.

7.5.3 Role of the Local Authority

The duty to prepare the off-site plan lies with the local authorities. The emergency planning officer (EPO) appointed should carry out his duty in preparing for a whole range of different emergencies within the local authority area. The EPO should liaise with the works, to obtain the information to provide the basis for the plan. This liaison should ensure that the plan is continually kept up to date. It will be the responsibility of the EPO to ensure that all those organizations which will be involved off site in handling the emergency, know of their role and are able to accept it by having for example, sufficient staff and appropriate equipment to cover their particular responsibilities. Rehearsals for off-site plans should be organized by the EPO.

7.5.4 Role of Police

Formal duties of the police during an emergency include protecting life and property and controlling traffic movements. Their functions should include controlling bystanders evacuating the public, identifying the dead and dealing with casualties and informing relatives of death or injury.

7.5.5 Role of Fire Authorities

The control of a fire should be normally the responsibility of the senior fire brigade officer who would take over the handling of the fire from the site incident controller on arrival at the site. The senior fire brigade officer should also have a similar responsibility for other events, such as explosions and toxic release. Fire authorities in the region should be appraised about the location of all stores of flammable materials, water and foam supply points and fire-fighting equipment. They should be involved in on-site emergency rehearsals both as participants and, on occasion, as observers of exercises involving only site personnel.

7.5.6 Role of Health Authorities

Health authorities, including doctors, surgeons, hospitals, ambulances and so on, will have a vital part to play following a major accident and they will form an integral part of the emergency plan. For major fires, injuries should be the result of the effects of thermal radiation to a varying degree and the knowledge and experience to handle this in all but extreme cases may be generally available in most hospitals. For major toxic releases, the

effects vary according to the chemical in question, and the health authorities should be apprised about the likely toxic releases from the plant which will be unable then in dealing with the aftermath of a toxic release with treatment appropriate to such casualties.

Major off-site incidents are likely to require medical equipment and facilities additional to those available locally and a medical "mutual aid "scheme should exist to enable the assistance of neighboring authorities to be obtained in the event of an emergency.

7.6 Occupational Health & Safety

The proposed plant where multifarious activities are involved during construction, erection, testing, commissioning, operation and maintenance, the men, materials and machines are the basic inputs. Along with the boons, the industrialization generally brings several problems like occupational health and safety.

The industrial planner, therefore, has to properly plan and take the steps to minimize the impacts of industrialization and to ensure appropriate occupational health, safety including fire plans. All these activities again may be classified under construction and erection and operation and maintenance. The proposed safety plan is given below:

7.6.1 Occupational Health

Occupational health needs attention both during construction and erection and operation and maintenance phases. However, the problem varies both in magnitude and variety in the above phases.

▪ Construction and Erection

The occupational health problems envisaged at this stage can mainly be due to constructional accident and noise. To overcome these hazards, in addition to arrangements to reduce it within TLV's, personal protective equipment's will also be supplied to workers.

▪ Operation and Maintenance

The problem of occupational health, in the operation and maintenance phase is due to noise hearing losses. Suitable personnel protective equipment will be given to employees. The working personnel will be given the following appropriate personnel protective equipment:

- Industrial Safety Helmet
- Crash Helmets
- Face shield with replacement acrylic vision
- Zero power plain goggles with cut type filters on both ends

- Zero power goggles with cut type filters on both sides and blue color glasses
- Welders equipment for eye and face protection
- Cylindrical type earplug
- Ear muffs
- Canister Gas mask
- Self contained breathing apparatus
- Leather apron
- Aluminized fiber glass fix proximity suit with hood and gloves
- Safety belt/line man's safety belt
- Leather hand gloves
- Asbestos hand gloves
- Acid/Alkali proof rubberized hand gloves
- Canvas cum leather hand gloves with leather palm
- Lead hand glove
- Electrically tested electrical resistance hand gloves
- Industrial safety shoes with steel toe and
- Electrical safety shoes without steel toe and gumboots.

Full fledge hospital facilities will be made available round the clock for attending emergency arising out of accidents, if any. All working personnel will be medically examined at least once in every year and at the end of his term of employment. This is in addition to the pre-employment medical examination.

7.7 Safety Plan

Safety of both men and materials during construction and operation phases is of concern. The preparedness of an industry for the occurrence of possible disasters is known as emergency plan.

Keeping in view the safety requirement during construction, operation and maintenance phases at the Plant, the project proponent would formulate safety policy with the following regulations:

- To allocate sufficient resources to maintain safe and healthy conditions of work
- To take steps to ensure that all known safety factors are taken into account in the design, construction, operation and maintenance of plants, machinery and equipment
- To ensure that adequate safety instructions are given to all employees
- To provide wherever necessary protective equipment, safety appliances and clothing and to ensure their proper use

- To inform employees about materials, equipment or processes used in their work which are known to be potentially hazardous to health or safety
- To keep all operations and methods of work under regular review for making necessary changes from the point of view of safety in the light of experience and up to date knowledge
- To provide appropriate facilities for first aid and prompt treatment of injuries and illness at work
- To provide appropriate instruction, training, retraining and supervision to employees in health and safety, first aid and to ensure that adequate publicity is given to these matters
- To ensure proper implementation of fire prevention methods and an appropriate fire fighting service together with training facilities for personnel involved in this service;
- To organize collection, analysis and presentation of data on accident, sickness and incident involving personal injury or injury to health with a view to taking corrective, remedial and preventive action
- To promote through the established machinery, joint consultation in health and safety matters to ensure effective participation by all employees
- To publish/notify regulations, instructions and notices in the common language of employees
- To prepare separate safety rules for each types of occupation/processes involved in the project and
- To ensure regular safety inspection by a competent person at suitable intervals of all buildings, equipment's, work places and operations.

7.8 Safety Organization

A qualified and experienced safety officer will be appointed. The responsibilities of the safety officer includes identification of the hazardous conditions and unsafe acts of workers and advise on corrective actions, conduct safety audit, organize training programs and provide professional expert advice on various issues related to occupational safety and health. He is also responsible to ensure compliance of Safety Rules/ Statutory Provisions. Appointment of safety officers would be in accordance with the requirement of Factories Act and their duties and responsibilities would be as defined thereof.

7.9 Safety and Quality Circle

In order to fully develop the capabilities of the employees in identification of hazardous processes and improving safety and health, safety and quality circles would be constituted in each area of work. The circle would consist of 5-6 employees from that area. The circle normally will meet for about an hour every week.

7.10 Safety Training

Safety training would be provided by the Safety Officers with the assistance of faculty members called from Professional Safety Institutions and Universities. In addition to regular employees, limited contractor labors would also be provided safety training. To create safety awareness safety films would be shown to workers and leaflets would be distributed. Some precautions and remedial measures proposed to be adopted to prevent fires are:

- Compartmentation of cable galleries, use of proper sealing techniques of cable passages and crevices in all directions would help in localizing and identifying the area of occurrence of fire as well as ensure effective automatic and manual fire fighting operations
- Spread of fire in horizontal direction would be checked by providing fire stops for cable shafts
- Reliable and dependable type of fire detection system with proper zoning and interlocks for alarms are effective protection methods for conveyor galleries
- House keeping of high standard helps in eliminating the causes of fire and regular fire watching system strengthens fire prevention and fire fighting and
- Proper fire watching by all concerned would be ensured.

7.11 Health and Safety Monitoring Plan

All the potential occupational hazardous work places would be monitored regularly. The health of employees working in these areas would be monitored once in a year for early detection of any ailment due to exposure of plant operation.

7.12 Social Impact Assessment. R&R Action Plans

Public relations strategy has been developed to select employment avenues for local population; provide training to local people and later employing them in the plant as per their skill and job knowledge, purchase local goods and services; encourage local entrepreneurship around the plant, encourage women's participation in environmental conservation measures and create awareness about environmental health and pollution, encourage respect for local culture, traditions, religious beliefs and promote local folk dance, music and sports.

As there will be flow of financial and material resources, there remains a large possibility of growth of population in the business, trade, commerce and service sector. The large inflow of financial and material resources accompanied with the urban culture complete

with technological inputs as modern housing, water closets, radio, television, synthetic fibers, use of steel and aluminum, use of LPG/electricity for domestic cooking would all contribute towards changing the socioeconomic environment of the areas as this would introduce a mixed culture emphasizing urban traits in place of traditional, prevalent rural customs. The economic, cultural and technological changes are likely to induce social stress and ethical changes. All these would change the local life style.

Thus, a simple rural community may be transformed into a semi-urban complex within a short time frame. Such impacts are inevitable, that could also be felt in case of the proposed project; however, these would be attempted to be controlled and minimized by ensuring suitable human management, stable working conditions, security and the provision of adequate compensation.

Corporate Social Responsibility (CSR) OR Enterprise Social Commitment

An amount of Rs. 4.5 Lakhs (more than 2% of total project cost i.e. Rs. 223.59 lakhs,) will be incurred towards Enterprise Social Commitment. All the above amount will be spend in phase wise manner as detailed in next chapter.



CHAPTER – 8

PROJECT BENEFITS

8.1 Introduction

Establishment of any industrial project invariably results in socioeconomic changes in the surrounding areas of the project in terms of improvement in infrastructure, employment generation, medical facilities, literacy improvement etc. The influx of material and money lends to change the economic status of the community. Markets, workshops and commercial centers would develop in the area.

8.2 Improvement in the Social / Physical Infrastructure

The beneficial aspects of the projects on the socio-economic environment of the area are in the areas of employment, service, trade, commerce, public utility, literacy, social awareness, health care facilities; recreation etc. The management of M/s SSI will contribute substantially to the overall economy and social development of the area through ESC activities.

The operation zone of the ESC activities for the existing operation of rolling mill project will be extended to the nearby villages of plant site. The company will propose plans to supplement the existing governmental programs among the local population. Environmental awareness will be created among people by organizing awareness camps.

8.3 Employment Potential

A well-structured manpower is essential for uninterrupted operation and proper maintenance of plant facilities. Due to SSI existing re-rolling mill operation people are

being employed in direct mode in different capacities and approx. 50 nos. of persons are benefitted indirectly in the form of stockiest, dealers and suppliers.

8.4 Corporate Environment Responsibility (CER)

CER is a voluntary activity of a enterprise/entity/project authorities which supports social interests and environmental issues. It is the activity to contribute to the welfare of the society. CER, in fact, is about business giving back to the society. CER is the commitment of businesses to contribute for sustainable economic development of the society by working with the employees, their families, local community to improve their lives in ways for overall development.

SSI has allocated an amount of Rs. 4.5 Lakhs (2% of total project cost i.e. Rs. 223.59 Lakhs) towards Corporate Environment Responsibility as per MoEFCC OM vide F. No. 22-65/2017-IA.III Dt: 01.05.2018. All the above amount will be spend in phase wise manner as detailed under ;

CER Activities	Period of CER Activity (<i>All figures in Lakhs Rs.</i>)
	Upto Dec.'2024
1. Scholarship award to unprivileged Students (@ Rs. 5000 to 20 nos. students)	1.0
2. Skill Development of Local Youth (50 Nos.)	1.5
3. Setting up Hand pump in community areas	1.0
4. LED Lighting in streets of nearby villages	0.5
5. Arrangement of separate Toilet and urinals for boys and girls in schools	0.5
TOTAL AMOUNT	4.5

8.5 Other Tangible Benefits

The operation of existing re-rolling mill project is being adding to the state govt. treasury in terms of revenue generated in taxes due to trading of (MS Bar & TMT Bar).



CHAPTER - 9

ENVIRONMENTAL COST BENEFIT ANALYSIS

As per EIA Notification vide Gazette Notification No. S.O. 1533 Dt: 14th Sept., 2006 and amendments thereof, Appendix III, Generic Structure of EIA, SL. No. 9, "Environmental Cost Benefit Analysis" is applicable only, if the same is recommended at the Scoping stage.

As per the ToR points issued by SEIAA, Bihar vide letter Ref. No. SIA/3(a)/2244/2023 dated 28.03.2023 for the existing re-rolling mill project of M/s SSI project, the Environmental Cost Benefit Analysis is not mentioned.



CHAPTER - 10

ENVIRONMENTAL MANAGEMENT PLAN

10.1 Introduction

In view of the global concept of sustainable development, Environment Management is a crucial segment of Industrial Management. Apart from the social obligation, the industries are liable to meet a series of statutory norms laid by Government bodies. Better environment management means less waste generation, better resources management leading to cost savings. Further, it gives a better public image. Therefore, preparation of Environmental Management Plan is a must to fulfill bifocal aspect of the statutory compliance as well as that of social concern. Water needs for the proposed project is reasonably low, but generally this resource is declining. Thus, on one hand one should use it less and on the other the source should not be left polluted for others. Air environment needs to be continuously managed, because all human being needs inhalation every moment, so also is Flora and Fauna dependent on it. The biological aspects, soil and ground water are all interdependent.

Thus, there is a need of proper environmental management and a conscious plan for it.

10.2 Objectives of Environmental Management Plan

- a) To define the components of environmental management.
- b) To prepare an environmental hierarchy.
- c) To prepare a checklist for statutory compliance.
- d) To prepare environmental organization.
- e) To prepare a schedule for monitoring and compliance.

10.3 Checklist of Statutory Obligations

There are a number of environmental statutes required to be attained by the industries. The proposed project will obey the provisions of all relevant Acts, Rules, Notifications and Orders.

The checklist of these obligations, which facilitates the obedience of the laws of land are given below:

- a) Water (Prevention and Control of Pollution) Act, 1974;
- b) Water (Prevention and Control of Pollution) Cess Act, 1977;
- c) Air (Prevention and Control of Pollution) Act, 1981;
- d) Environment (Protection) Act, 1986 and amendments thereof;
- e) Environment (Protection) Rules, 1986 and amendment thereof;
- f) Hazardous and Other Wastes (Management and Transboundary Movement) Rules 2016;
- g) All the conditions laid at consent under Water Act, 1974;
- h) All the conditions laid at consent under Air Act, 1981; and
- i) EIA Notification 2006 and amendments thereof.

10.4 Environment Management Cell (EMC)

An Environment Management Cell will be developed by an effective mixing of a group of technical experts from various departments of the project to look after the all obligatory requirements and shall be responsible for the effective implementation of all environmental pollution control measures.

The cell shall be headed by the Managing Director / General Manager as shown in **Figure 10.1**. There would be three managers and three supervisors with nine workmen from different departments. A physician (to be appointed) would be a major team member. Besides, there would be a horticulturist.

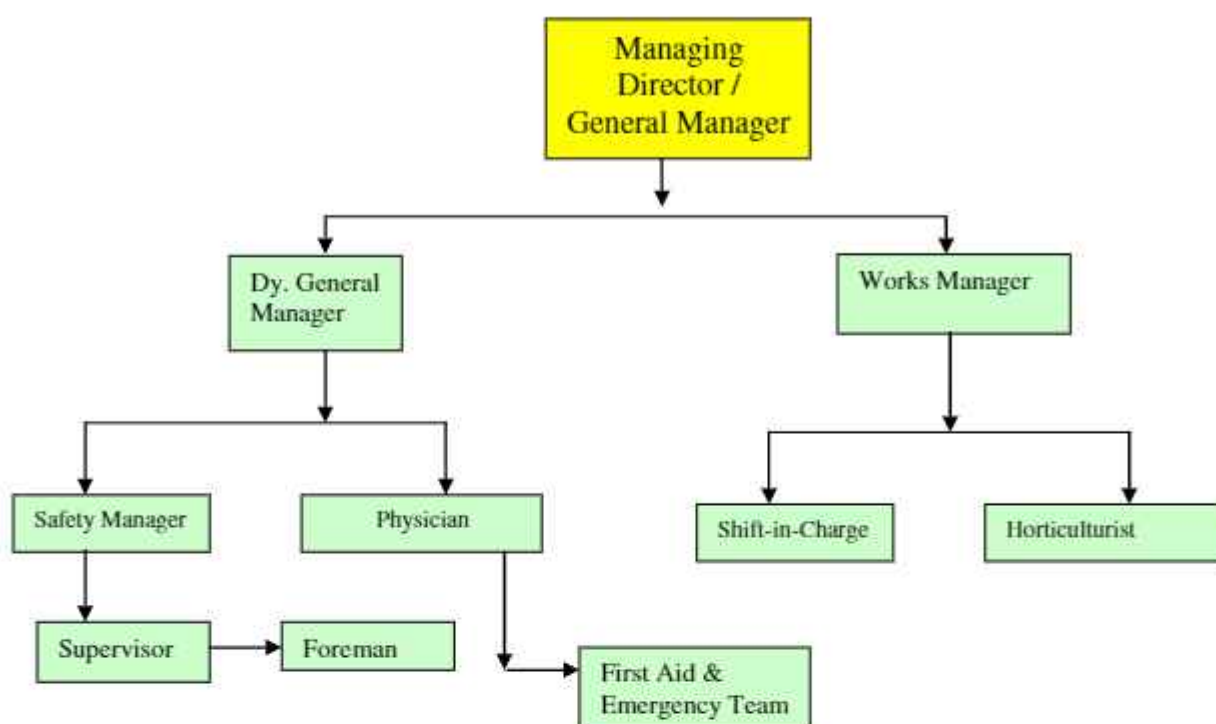


Figure 10.1: Environment Management Cell

10.5 Construction Phase Environment Management

10.5.1 Site Preparation

The development of site for erections of plant structure, office building and other allied activities shall require careful management planning as the construction activities shall be located in plain barren land owned by the project proponent. Therefore, construction site development process should incorporate certain precautions.

It is necessary to control the dust nuisance that would be created by excavation, leveling and transportation activities so that impacts on the various components of environment would be minimized.

10.5.2 Sanitation

The plant area should be provided with proper and sufficient sanitation facilities in order to maintain adequate hygiene condition of working personnel.

10.5.3 Noise

Though noise level of construction activities shall not be very high, still some specific sources of noise like welding, transportation, movement of earth movers, tractors, concrete

or asphalt mixing etc. will be carried out in a controlled manner. Neither the plant nor the workers would be exposed to excessive noise levels.

10.5.4 Construction Equipment and Waste

Transport vehicles as well as transport routes will be properly maintained during whole construction phase to minimize smoke / dust emission from vehicle exhausts and unpaved roads. Composite solid wastes including metal scrape, earthwork, other wastes, getting generated in construction process should be disposed off in safe manner.

10.5.5 Site Security

Construction site has a potential hazardous environment. To ensure that the local inhabitants and stray cattle are not exposed to these hazards, the site shall be secured by fencing and manned entry points. It will be fully illuminated during nighttime.

10.6 Operational Phase Environment Management

10.6.1 Air Environment

Presently SSI has 1 no. of rolling mill with other allied facilities like Raw material handling system, pollution control system, electrical substation along with semi-automated PLC based control for achieving higher level of efficiency in the functioning of the plant. Stack attached to Re-Heating Furnace and Coal Gasifier System. Re-rolling mill furnace is being equipped with Fume extractor followed by cyclone and Bag Filters. Gravity dust catcher and Multi Cyclone is being / shall be provided to coal gasifier system. Stack of adequate Height will be provided to heating Furnace as 24 mtr as per CPCB Norms. Meanwhile, the 2-5 m wide green belt would largely offset the change to the existing landscape and would provide visual comfort. Stack Emission results are well within the limits of BSPCB & E (P) Rules.

Source of Air pollution and control measures

Section	Source of Air Pollution	Pollutants	Air Pollution control Measures
Re-Heating Furnace	Re-Heating Furnace	PM and gases	Fume extractor followed by cyclone and Bag Filters, Stack Height will be 24 mtr as per CPCB Norms
Raw Material Handling & sizing Section	Conveyor Belt	Dust and Particulate Matter	Dust Catcher and Bag Filter

Overall Plant Area	Open Space	Fugitive Dust Emission	Pucca roads within the premises, water sprinkling in dusty areas and green belt
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SSI has one existing stack attached with fume extraction system of reheating furnace of 24 M. height for wider dispersion of pollutants. The DG set will only be used during power back-up for emergency purposes.

Moreover, SSI will install proper air pollution control device and ensure their effective operation and proper maintenance to minimize air pollution level. Proposed green belt will also act as damper for air & noise pollution. Mostly dust capturing species will be planted to further minimize the air pollution load due to operation of SSI project.

10.6.2 Fugitive Emissions

Following precautionary measures will be adopted for controlling and minimizing fugitive dust emission ;

- Water spraying will be done inside and around the factory premises for dust suppression.
- Proper maintenance and clearing of the roads inside the plant to avoid excess fugitive dust generation
- Raw materials and product disposal trucks should be covered to stop dust emission
- Monitoring of the consented parameters at ambient station
- Monitor the work zone at various stations to satisfy the corporate requirements for health and environment.

10.6.3 Water Environment

The water will be used only for cooling and domestic purposes and only domestic waste water will be generated. No industrial waste water will be generated, hence there will not be any adverse effect on the water environment by operation of the proposed project. Domestic waste water will be diverted into a septic tank followed by soak pit.

Moreover, it is proposed to implement Rain water harvesting scheme in which rain water will be stored in underground tanks. Overflow from these tanks will be discharged to

properly designed recharge pits in the ground. Thus, any excess rainwater collected, will help in recharging the groundwater.

10.6.4 Noise Environment

The following precautionary measures are to be adopted in the proposed project ;

- While purchasing the major plant equipment or machines, these machineries and equipment must meet the CPCB and MoEFCC standards. Proper care must be taken at the time of installation to insulate/enclose all the noise sources to avoid occupational exposure to the workers and also to minimize the generation of excess noise level.
- Monitor the ambient noise level and work zone noise level as per the monitoring schedules to conform the stipulated norms.
- Noise attenuation devices such as ear mufflers must be provided to the workers in the high noise exposure areas.
- Regular maintenance and greasing of equipment and machineries will further reduce the noise level inside the factory periphery.

10.6.5 Biological Environment

Special attention is required to maintain green belt in and around the factory premises.

- Adequate provisions are to be made to facilitate daily watering of all plants and lawns. Special attention provided during summer to ensure that the green belt does not suffer from water shortage.
- Development and maintenance of green belt to be considered as a priority issue.
- No outside soil is brought for any building developments.
- The emissions of particulate matter from the stacks are to be maintained within the limit of 150 mg/Nm³.

10.6.6 Socio-Economic Environment

- The operators and workers are to be trained in various aspects of ESH (Environment, Safety and Health). The managers and officers involved in Environment Management Cell shall undergo refresher workshop and up-gradation of information on various environmental issues.
- The project authorities will help in promoting the activities related to environmental awareness in nearby villages.

- The project authorities will help in promoting local people for livelihood commensurate with their will, skill and abilities.
- Project authorities have proposed to construct Dispensaries and will appoint a part time doctor for employees and to service the local people.
- Project authorities also intend to start a primary school for helping the children of the employees and surrounding village population.
- Many other welfare measures will be taken from time to time.
- Project authorities have allocated an amount of Rs. 5.6 lakhs towards Corporate Social Responsibilities.

10.7 3R's Concept of Waste Minimization, (Reuse, Recycle & Recover techniques)

10.7.1 Reuse

- End cuttings and mill scales will be generated due to operation of project of SSI.
- End cuttings and mill scales from re-rolling process and will be reuse in MS Billet production within premises.
- Slag generated during manufacturing of billet will be separated after grinding in form of 20% iron recovery and rest 80 % non-metallic ash. Carbon slag generated from coal gasifier system is being sold to brick manufacturer for reuse.

10.7.2 Recycle

- End Cuttings & Mill Scale from re-rolling mills will be recycle & reuse in MS Billet production within premises.
- Cooling Water will be recycle and reuses in closed circuit system.

10.8 Energy Conservation

Presently SSI has 1 no. of rolling mill with other allied facilities like Raw material handling system, pollution control system, electrical substation along with semi-automated PLC based control for achieving higher level of efficiency in the functioning of the plant. Stack attached to Re-Heating Furnace and Coal Gasifier System. Stack of adequate Height will be provided to heating Furnace as 24 mtr as per CPCB Norms. Meanwhile, the 2-5 m wide green belt would largely offset the

change to the existing landscape and would provide visual comfort. Stack Emission results are well within the limits of BSPCB & E (P) Rules.

Moreover, following measures will be adopted to make the proposed project more energy efficient. Specific energy conservation measures proposed are as under:

- Installation of energy efficient lightings. Use of energy saving light fittings.
- Installing low watt tube lights
- Procurement of energy efficient machineries
- Minimizing idle running of vehicle, machines and electrical appliances.
- Optimizing loads and periodic preventive maintenance & lubrication
- Awareness training & motivational programmes

10.9 Occupational Safety and Health

All precautionary methods will be adopted by the proponent to reduce the risk of exposure of employees to occupational safety and health hazards.

Pre and post medical check-ups will be done of all the employees. Employees will be regularly examined and the medical records will be maintained for each employee. Pulmonary function test and periodical medical check up will be done once in every year.

The following tests will be conducted for each worker :

- Lung Function Test
- Radiology – X-ray
- Pulmonary Function Test
- Audiometric Test
- General clinical examination with emphasis on respiratory system
- Pre employment examinations
- Periodical medical examinations at the time of employment and after completion of employment.

For the safety of workers, personnel protective appliances like hand gloves, goggles, aprons, ear mufflers, nose mask etc. will be provided. Nose mask will be provided at places, where there is possibility of dust generation.

Proper ventilation system will be provided in the process area.

10.10 Risk Assessment and Damage Control

- Design, manufacture and construction of buildings, plant and machineries will be as per National and International Codes as applicable in specific cases and laid down by statutory authorities.
- Provision of adequate access ways for movement of equipment and personnel will be made.
- Minimum of two numbers of gates for escape during disaster will be provided.
- In the vicinity of main plant entrance, there will be an emergency assembly point where plant personnel will assemble in the event of any disaster.
- Adequate numbers of Fire Fighting equipment and Fire extinguishers will be installed in the work places for emergency purpose and the Supervisors / Workers will be trained to use the equipments.
- An ambulance will be provided in the factory premises.
- A qualified Doctor and a compounder will be employed for attending to any emergency.

10.11 Green Belt

As per CPCB/ MoEF&CC guidelines 33 % area about 0.15 hectare of plant area so as to mitigate the effects of emissions from the plant. The treated waste water from the plant will be utilized for the greenbelt development. Roads for vehicular movement will be paved and adequate mitigation measures will be provided to prevent fugitive emissions. Tree density of 2500 trees per hectare with local board leaf specification will be planted

Plantation: Ecological Need and Location

Tree plantation is known for improving the aesthetic and climatological environment of the area. Properly designed green belt would help in abating air pollution up to a significant degree.

To make the proposed project complex verdant, healthy and hazard proof, requisite plantation at proper locations is needed with particular emphasis on aesthetics, protection against noise and fugitive emissions.

The locations in the proposed unit where vegetal covers are required to be provided are:

- Along the outermost boundary, wherever possible
- Along road and pathways
- On the all remaining vacant land inside the premises

Plantation Design and Plant Species

In view of the different functional requirements of the plant the pattern of plantation around the unit is discussed under curtain, avenue, field (vacant land) and ornamental plantations.

To help, restrict the movement of pollutants from inside to outside and *vice versa*, a thick green belt (5 m thickness) should be developed at the peripheral limits of the proposed units along the boundary wall. Essentially the peripheral plantation would act as a barrier to movement of pollutants and noise.

5 m thick curtain of plants, depending upon the space availability shall be planted along with the outermost boundary of the proposed units. The following species may be planted:

Botanical Name	Common Name
<i>Polyalthia pendula</i>	Ashok Pendula
<i>Delonix regia</i>	Gulmohar
<i>Tamarindus indicus</i>	Imli
<i>Jetropha curcus</i>	Ratanjot
<i>Dalbargia sisoo</i>	Sheesham
<i>Azadirachta indica</i>	Neem
<i>Emblica officinalis</i>	Amla
<i>Ficus religiosa</i>	Pipal
<i>Mangifera indica</i>	Aam

In the proposed green belt approx. 375 nos. (33 % of the total proposed green belt 0.15 ha) of trees (@ 2500 trees/ha.) will be planted in phase-wise manner during operation stage of the proposed rolling mill project.

10.12 Rain Water Harvesting Plan

It is proposed to collect all the Rain Water Falling on the Terrace through the Rain Water downtakes which shall be grouped and taken to a rain water harvesting tank with by pass arrangement for first wash rinse as well as to by pass into the storm water drain. The surface water of the Ground level shall be grouped to percolate into recharge pits all around the compound wall. The water shall recharge the ground water table.

For Harvesting the Rain Water falling on the Plot it is proposed to have Recharge Pits filled with aggregate media for percolation of Rain Water in the aquifer.

Stack emission would be monitored from stacks. Work zone environment would be monitored at sensitive points of manufacturing areas, where the fugitive emissions would be visibly more.

The ambient air quality may be monitored at four locations, with one at the proposed project as the center point and the remaining three at 120° to each other in down wind direction. The locations would change with the season and the wind pattern.

The environmental monitoring must be done as per the schedule summarized in Table 10.1 below.

Table 10.1: Environment Monitoring Schedule

Environmental Component	Frequency of Monitoring / Sampling & Location	Parameters to be covered
Ambient Air Quality Monitoring	104 samples as per NAAQS 2009 (Biweekly basis)	PM ₁₀ , PM _{2.5} , SO ₂ , NO _x , & CO
Stack Emission Monitoring	Monthly for Stack/Exhaust	Flue Gas Temp., Velocity, Volumetric Flow Rate, PM ₁₀ , PM _{2.5} , SO ₂ & NO _x and VOC's
Ambient Noise Level Monitoring	Monthly at 5 different locations	Ambient Equivalent contains noise level in dB(A) / Sound Pressure Level (Leq) at Day and Night Time
Ground Water / Drinking Water Quality	Monthly from Borewell and Drinking Water tap	pH, Turbidity, Total Dissolved Solids, Total Hardness, Calcium, Magnesium, Iron, Total residual free Chlorine, Alkalinity, Chloride, Sulphate, Nitrate, Fluoride, Coliform (MPN Value) & E.Coli
Surface Water Quality	2 stations at nearest water body (One sample from upstream and one from downstream)	pH, Turbidity, Total Suspended Solids, Total Dissolved Solids, Chloride, DO, BOD, COD, Total Hardness, Total Alkalinity, Coliform (MPN Value), Faecal Coliform & E.Coli

10.14 Environmental Management Cost

The total fiscal estimation for EMP is indicated to be Rs. 40 lakhs, details are given in Table no. 10.2.

Table 10.2: Cost of Environmental Protection Measures

Particulars	Amount in INR, Lakhs
One Time Installation Cost	

1. Air Pollution Control System	15.0 lakh
2. Green Belt Development	5.0 lakh
3. Medical centre, PPE (Personnel Protective Equipment)	2.5 lakh
4. Fire hydrant system, Fire alarm, Water sprinklers, Gas leak detecting system	2.5 lakh
Total	25 lakh
Recurring Cost / Annum	
1. Environmental Monitoring	3.0 Lakh
2. Running Cost of Pollution Control Equipments	5.0 lakh
3. Greenbelt maintenance	2.5 lakh
4. Medical centre, PPE (Personnel Protective Equipment)	2.5 lakh
5. Fire hydrant system, Fire alarm, Water sprinklers, Gas leak detecting system	2.0 lakh
Total	15 lakh
Grand Total	40 lakh

10.15 Compliance to the CREP Guidelines

All the guidelines as mentioned in CREP for Steel plants will be followed.

Adequate Pollution Control Measures i.e. stacks attached to re-rolling mill furnace is being equipped with Fume Extraction System Dust collectors & bag filters, Gravity dust catcher and Multi Cyclone will be provided to coal gasifier system for reducing air pollution load. This will help reducing emission under the prescribed limit. For minimizing and controlling Air Pollution due to re-rolling mill project. Adequate Stack height of 24 m. will be provided for wider dispersion of pollutants. No Industrial Waste water will be generated or discharged.



CHAPTER - 11

SUMMARY & CONCLUSION

11.0 Introduction

M/s. Sri Sai Industries (SSI) is a proprietorship unit. The unit has established its re-rolling mill project in 2014 and started operation of the unit after obtaining CTO from Bihar State Pollution Control Board in 2015. The capacity of rolling mill is 9450 MT per annum (27 TPD). SSI is producing MS Flat / Angle / Channel / Square from its rolling mill unit. Mr. Laxmi Prasad is the main promoter of the company. Company is having 0.46 Ha. (4600 Sqm.) of land at near Village Dehri, Dist. Aurangabad and the factory is situated on this land parcel. Its registered office is situated at Gupta Cinema Campus, Gupta Cinema Road, Dist. Aurangabad.

As per MoEFCC Gazette Notification No. S.O. 3250(E) Dt: 20th Jul.'2022, existing rolling mills (which are being operated on CTE/CTO from BSPCB) having capacity more than 5000 TPA requires to obtain EC and also exempted from requirement of Public Consultation, providing TOR should be obtained within one year from the above referred Gazette Notification. In this connection, M/s SSI submitted an application along with filled up 'Form I' along with Pre Feasibility Report in the prescribed format to SEIAA, Bihar on 28.12.2022 for obtaining approved TOR for its proposed project, vide Proposal No. SIA/BR/IND1/412034/2022.

The above mentioned information about the project is to integrate different environmental factors into project planning and decision making by studying probable changes in the various socioeconomic and bio-physical characteristics, which shall result from the proposed project, so as to achieve ecologically sustainable development.

To identify environmental risks, reduce conflicts by promoting community participation, minimize adverse environmental impacts and keep decision makers informed thus laying base for environmentally sound project, such that the benefits shall be observed at all the stages of the project starting from conceptualization to planning, design, construction and operation stage.

11.1 Project Location and Environmental Sensitivity

<i>PARTICULARS</i>	<i>DETAILS</i>
• Location	Vill. Dehri, Poiwa Pachrukha Road, P.O. Poiwa, District Aurangabad, Bihar
• Latitude	24°44'30.44"N
• Longitude	84°25'36.45"E
• Elevation above mean sea level	115 m.
• Total Plant Area	0.46 ha
• Nearest Railway Station	Rafiganj Railway Station (25 Km.)
• Nearest Highway	NH – 19
• Nearest Major City	Aurangabad
• Nearest River	River Adar 4 km
• National Park, Reserve Forest	<i>Not exist within 10 km. radius</i>
• Wildlife Sanctuary	
• Biosphere Reserve, Hill & Valleys	

11.2 Salient Features of the Project

a)	Land requirement	:	Company is having 0.46 Ha. (4600 Sqm.) of land at near Village Dehri, Dist. Aurangabad and the factory is situated on this land parcel.
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b) Capacity	:	9450 MT/Annum	
c) Raw Material	:	MS Ingot / Billet : 9639 MT	
d) Production Details	:	MS Flat / Angle / Channel / Square	9450 MT/Annum
e) Power	:	500 KVA	
f) Source of Water	:	Bore well	
g) Water Requirement	:	8 KL/Day	
h) Total Cost of Project	:	Rs. 223.59 Lakhs (Rs. 2.23 Crores)	

11.3 Process Description

Rolling is a process of converting the shape of feed stock into desired finished section in hot condition by passing the material between a pair of grooved rolls and providing suitable draft at various stages. The whole operation has to be conducted at a particular temperature range and within a limited time span.

M. S. Ingots / Billet after shearing to definite length will be charged from one end to gas fired reheating furnace by a pusher and discharged at the other end after being heated and soaked to desired rolling temperature level of 1200°C.

M. S. Ingots/Billets will be first rolled in the 460 mm roughing mill train by following to & fro rolling using both bottom and top passes as per requirements, the bar will be then allowed to pass through 360 mm intermediate mill train over repeater located between stands. The bar coming out of 4th stand of intermediate mill shall be allowed to enter to the first finishing 260 mm mill train. 8mm hot rolled deformed bar shall be finished from the last stand of continuous mill train. 10 and 12 mm diameter bars shall be produced from preceding stands. The hot rolled deformed shall be then allowed to

pass through special water cooling pipe section for production of TMT bar. The bar thus produced will be cut to suitable length by shear and will be received at cooling bed in straight length. The bars from cooling bed shall be subsequently sheared to definite commercial length for storage/shipment. Manufacturing Process Flow Diagram for the proposed project is shown on next page. The bars from cooling bed shall be subsequently sheared to definite commercial length for storage/shipment.

11.4 Existing Baseline Environment Scenario :

Baseline environment data for all the components has been collected during the period March to May 2023. The detail findings are here as under :

[i] Meteorology :

Temperature

The average temperature was recorded to be in the range of 10.5 – 44.2 °C during the study period. The maximum reading was found to be 44.2 °C during May 23 and the minimum was found to be 10.5 °C during Mar. 23.

Relative Humidity

During the study the average relative humidity was found to be in the range of 26 – 54%. The minimum values was found during April and maximum value was found during March, 2023.

Rainfall

Minimum rainfall was 10.7 mm and the maximum rainfall was 32.5 mm.

Wind Direction and Speed

The wind is predominantly blowing from NW direction. The wind speeds are of the range of 5.1 kmph - 6.8 kmph.

[ii] Demographic Profile

Aurangabad is one of district of Bihar in India. There are 11 Taluks, 1847 villages and 6 towns in Aurangabad district.

As per the Census India 2011, Aurangabad district has 391898 households, population of 2540073 of which 1318684 are males and 1221389 are females. The population of children between age 0-6 is 455394 which is 17.93% of total population.

The sex-ratio of Aurangabad district is around 926 compared to 918 which is average of Bihar state. The total area of Aurangabad is 3305 sq.km with population density of 769 per sq.km.

Out of total population, 90.68% of population lives in Urban area and 9.32% lives in Rural area. There are 24.1% Scheduled Caste (SC) and 0.04% Scheduled Tribe (ST) of total population in Aurangabad district.

[iv] Topography and Land Use

Topography of the study area is more or less flat to uneven, with surface level variation of about 1 m. The average height of the ground surface at the proposed plant site is about 128 m. above mean sea level (MSL).

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All other parameters have been found to be within the permissible limits prescribed under the IS : 10500 :2012 for drinking water.

Surface Water Quality

The surface water can be best used for Irrigation and domestic purposes.

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To ascertain the baseline Ambient Air Quality status of the study area, monitoring of AAQ was conducted at 8 locations around the project area. Summary results are as under ;

Stn. No.	Location Name	24-hourly average concentration ($\mu\text{g}/\text{m}^3$)									
		PM ₁₀		PM _{2.5}		SO ₂		NO _x		CO (mg/m ³)	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
A 1	Project Site	58.8	68.8	30.4	40.1	5.1	6.7	8.3	18.2	0.10	0.23

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It can be observed from the above table the AAQ status around the project area is well within the limits of NAAQS, 2009.

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There are two sources from which the environment of the area can be affected if suitable control measures are not strictly applied. These are, discharge of waste water either on land or in surface water bodies and emissions from the stack. Both these two aspects have been taken into consideration while envisaging the project operation.

Adequate Pollution Control Measures i.e. Stack attached to Re-Heating Furnace and Coal Gasifier System have been taken. Gravity dust catcher and Multi Cyclone is being / shall be provided to coal gasifier system. Stack of adequate Height will be provided to heating Furnace as 24 mtr as per CPCB Norms. Meanwhile, the 2-5 m wide green belt would largely offset the change to the existing landscape and would provide visual comfort. Stack Emission results are well within the limits of BSPCB & E (P) Rules.

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Moreover, existing green belt will be made more extensive with plantation of additional Dust controlling species for controlling dust emissions.

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Only ends cutting are being generated as solid waste which is being sold to ingot manufacturer for reprocessing and carbon slag generated from coal gasifier system is being sold to brick manufacturer for reuse.

Hazardous waste: There is no hazardous waste from the plant except for used oil with approx. quantity of 30 Liters per annum, during course of production of and is also saleable to the registered recyclers in the market.

11.7 IMPACT ON SOCIO ECONOMIC STATUS

The existing project has already change socio economic condition of the nearby areas. As there is flow of financial and material resources, there remains a large possibility of growth of population in the business, trade, commerce and service sector. The large inflow of financial and material resources would contribute towards changing the socioeconomic environment of the areas as this would introduce a mixed culture emphasizing urban traits in place of traditional, prevalent rural customs. The economic, cultural and technological changes are likely to induce social stress and ethical changes. All these would change the local life style.

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A comprehensive Environmental Management Plan has been prepared under which the unit will be adopting measures in preserving the environment from degradation. Important among those are Green Belt Development Plan which would act as Noise damper also. The environmental monitoring program on all components of environment has been drawn and indicated in the EMP in detail which is a part of EIA.

SSI has adopted all measures for better environmental management. Adequate Pollution Control Measures i.e. Stack attached to Rolling Mill Furnace. Dust Collectors are provided with rolling mill furnace. Meanwhile, the 2-5 m wide green belt would largely offset the change to the existing landscape and would provide visual comfort. This will help reducing emission under the prescribed limit for minimizing and controlling because man needs inhalation every moment, so also is Flora and Fauna dependent on it. SSI has developed & maintaining green belt all around the project premises for better environmental management.

An amount of Rs. 4.5 Lakhs (2% of total project cost i.e. Rs. 223.59 lakhs) will be incurred towards Enterprise Social Commitment. All the above amount will be spend in phase wise manner.

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SSI will adopt all precautionary measures to reduce the risk of exposure of employees to occupational safety and health hazards. Pre & post medical check-ups will be done of all the employees. Employees will be regularly examined and the medical records will be maintained for each employee.

11.10 RAINWATER HARVESTING

Keeping in mind the importance of water, it is proposed to conserve water by rainwater harvesting by which the subsoil water condition / moisture content is maintained / improved to a great extent. Also it is proposed to harness rainwater from the roof area by collecting the same in a rainwater collection tank of suitable capacity and will be recharged to ground water aquifers.

11.11 CONCLUSION

- No Industrial Waste water will be generated due to operation of project.
- Ground water characteristics are also well within the limits of IS 10500:2012.
- Emissions from Stacks of existing furnaces are within the limits of E(P) Rules.

- Average Ambient Air Quality within the project premises are within the National Ambient Air Quality Standards (Nov.'2009).
- Ambient Noise Level of the project area is also well within the limits for Industrial Area.
- Generated solid wastes End Cuttings & Mill Scale from re-rolling mills will be recycle & reuse in MS Billet production within premises.
- Good green belt & landscaping is being developed and will be maintained within the premises.



CHAPTER - 12

DISCLOSURE OF CONSULTANTS

M/s Sri Sai Industries Pvt. Ltd. has engaged **PARAMARSH (Servicing Environment and Development)**, a NABET accredited EIA Consultant Organization for preparation, validating & evaluating EIA/EMP Report for obtaining Environmental Clearance for Existing Re-rolling Mill Project. (Detailed in Chapter 2 of present EIA Report).

PARAMARSH (Servicing Environment and Development), based at Lucknow, Uttar Pradesh, is associated with the industries in highly diversified activities like environmental impact assessment, engineering and consultancy services. PARAMARSH is Accredited under "EIA consultant Organizations Accreditation Scheme" of Quality Council of India, vide Certificate No. NABET/EIA/2124/RA 0224 Dt: 30.12.2021, which is valid upto 01.05.2024.

EIA Coordinator of the present project is Dr. S. Prasad, who has been approved by NABET as EIA Coordinator for Metallurgical Industries (ferrous and non ferrous), Cat. 'A' Project.

NABET Accreditation details of EIA Consultant Organization is described on next page;

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**QUALITY COUNCIL
OF INDIA**
Creating an Ecosystem for Quality



**National Accreditation Board
for Education and Training**



Certificate of Accreditation

Paramarsh Servicing Environment and Development, Lucknow

M.S.-1/10 Sector A, Sitapur Road Yojna, Ram Ram Bank Chauraha, Aliganj, Lucknow-226024

The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals including opencast / underground mining	1	1 (a) (i)	A
2	Thermal power plants	4	1 (d)	A
3	Metallurgical industries (ferrous & non-ferrous)	8	3 (a)	A
4	Cement plants	9	3 (b)	B
5	Asbestos milling and asbestos based products	12	4 (c)	A
6	Pesticides industry and pesticide specific intermediates	17	5 (b)	A
7	Synthetic organic chemicals industry	21	5 (f)	A
8	Distilleries	22	5 (g)	A
9	Pulp & paper Industry excluding manufacturing of paper from wastepaper and manufacture of paper from ready pulp without bleaching	24	5 (i)	A
10	Sugar Industry	25	5 (j)	B
11	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	B
12	Highways	34	7 (f)	B
13	Building and construction projects	38	8 (a)	B
14	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated Nov 09 2021 posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/21/2197 dated Dec 30, 2021. The accreditation needs to be renewed before the expiry date by Paramarsh Servicing Environment and Development, Lucknow following due process of assessment.



Sr. Director, NABET
Dated: Dec 30, 2021

Certificate No.
NABET/EIA/2124/RA 0224

Valid up to
May 01, 2024

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.

EXECUTIVE SUMMARY

1.0 Introduction

M/s. Sri Sai Industries (SSI) is a proprietorship unit. The unit has established its re-rolling mill project in 2014 and started operation of the unit after obtaining CTO from Bihar State Pollution Control Board in 2015. The capacity of rolling mill is 9450 MT per annum (27 TPD). SSI is producing MS Flat / Angle / Channel / Square from its rolling mill unit. Mr. Laxmi Prasad is the main promoter of the company. Company is having 0.46 Ha. (4600 Sqm.) of land at near Village Dehri, Dist. Aurangabad and the factory is situated on this land parcel. Its registered office is situated at Gupta Cinema Campus, Gupta Cinema Road, Dist. Aurangabad.

As per MoEFCC Gazette Notification No. S.O. 3250(E) Dt: 20th Jul. 2022, existing rolling mills (which are being operated on CTE/CTO from BSPCB) having capacity more than 5000 TPA requires to obtain EC and also exempted from requirement of Public Consultation, providing TOR should be obtained within one year from the above referred Gazette Notification. In this connection, M/s SSI submitted an application along with filled up 'Form I' along with Pre Feasibility Report in the prescribed format to SEIAA, Bihar on 28.12.2022 for obtaining approved TOR for its proposed project, vide Proposal No. SIA/BR/IND1/412034/2022.

The above mentioned information about the project is to integrate different environmental factors into project planning and decision making by studying probable changes in the various socioeconomic and bio-physical characteristics, which shall result from the proposed project, so as to achieve ecologically sustainable development.

To identify environmental risks, reduce conflicts by promoting community participation, minimize adverse environmental impacts and keep decision makers informed thus laying base for environmentally sound project, such that the benefits

shall be observed at all the stages of the project starting from conceptualization to planning, design, construction and operation stage.

1.1 Project Location and Environmental Sensitivity

<i>PARTICULARS</i>	<i>DETAILS</i>
• Location	Vill. Dehri, Poiwa Pachrukha Road, P.O. Poiwa, District Aurangabad, Bihar
• Latitude	24°44'30.44"N
• Longitude	84°25'36.45"E
• Elevation above mean sea level	115 m.
• Total Plant Area	0.46 ha
• Nearest Railway Station	Rafiganj Railway Station (25 Km.)
• Nearest Highway	NH – 19
• Nearest Major City	Aurangabad
• Nearest River	River Adar 4 km
• National Park, Reserve Forest	<i>Not exist within 10 km. radius</i>
• Wildlife Sanctuary	
• Biosphere Reserve, Hill & Valleys	

11.2 Salient Features of the Project

a) Land requirement	:	Company is having 0.46 Ha. (4600 Sqm.) of land at near Village Dehri, Dist. Aurangabad and the factory is situated on this land parcel.
b) Capacity	:	9450 MT/Annum

c) Raw Material	:	MS Ingot / Billet : 9639 MT	
d) Production Details	:	MS Flat / Angle / Channel / Square	9450 MT/Annum
e) Power	:	500 KVA	
f) Source of Water	:	Bore well	
g) Water Requirement	:	8 KL/Day	
h) Total Cost of Project	:	Rs. 223.59 Lakhs (Rs. 2.23 Crores)	

1.3 Process Description

Rolling is a process of converting the shape of feed stock into desired finished section in hot condition by passing the material between a pair of grooved rolls and providing suitable draft at various stages. The whole operation has to be conducted at a particular temperature range and within a limited time span.

M. S. Ingots / Billet after shearing to definite length will be charged from one end to gas fired reheating furnace by a pusher and discharged at the other end after being heated and soaked to desired rolling temperature level of 1200°C.

M. S. Ingots/Billets will be first rolled in the 460 mm roughing mill train by following to & fro rolling using both bottom and top passes as per requirements, the bar will be then allowed to pass through 360 mm intermediate mill train over repeater located between stands. The bar coming out of 4th stand of intermediate mill shall be allowed to enter to the first finishing 260 mm mill train. 8mm hot rolled deformed bar shall be finished from the last stand of continuous mill train. 10 and 12 mm diameter bars shall be produced from preceding stands. The hot rolled deformed shall be then allowed to pass through special water cooling pipe section for production of TMT bar. The bar thus produced will be cut to suitable length by shear and will be received at cooling bed in straight length. The bars from cooling bed shall be subsequently sheared to definite commercial length for storage/shipment. Manufacturing Process Flow

Diagram for the proposed project is shown on next page. The bars from cooling bed shall be subsequently sheared to definite commercial length for storage/shipment.

1.4 Existing Baseline Environment Scenario :

Baseline environment data for all the components has been collected during the period March to May 2023. The detail findings are here as under :

[i] Meteorology :

Temperature

The average temperature was recorded to be in the range of 10.5 – 44.2 °C during the study period. The maximum reading was found to be 44.2 °C during May 23 and the minimum was found to be 10.5 °C during Mar. 23.

Relative Humidity

During the study the average relative humidity was found to be in the range of 26 – 54%. The minimum values was found during April and maximum value was found during March. 2023.

Rainfall

Minimum rainfall was 10.7 mm and the maximum rainfall was 32.5 mm.

Wind Direction and Speed

The wind is predominantly blowing from NW direction. The wind speeds are of the range of 5.1 kmph - 6.8 kmph.

[ii] Demographic Profile

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Topography of the study area is more or less flat to uneven, with surface level variation of about 1 m. The average height of the ground surface at the proposed plant site is about 128 m. above mean sea level (MSL).

[v] Water Quality

8 ground water samples & 2 surface water samples were collected & analyzed from the study area.

Ground Water Quality

All the water samples were bearing an agreeable taste. The colour of all the water samples was found to be <5 Hazen unit. Odour of all the water was unobjectionable.

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PHOTOGRAPHS OF GREEN BELT OF SRI SAI INDUSTRIES











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District Registry Office, Aurangabad

Token Number 12748

Reg. Year 2013

Serial Number 12639

Deed Number 12480

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Sig.	रामचंद्र राम 20-2-93						
Identified By	Mahagu Yadav						
Sig.	महागु यादव 28-2-93						
Claimant	Laxmi Prasad						
Sig.	Laxmi Prasad 29/3/13						
Executant	Ramchandar Ram						
Sig.							



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FIVE HUNDRED
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पाँच सौ रुपये

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५०-मोहम्मदसिंह

महंजु गाँव में
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महंजु गाँव में
३६/१-१३
महंजु गाँव में
३६/१-१३

सब डकित बेसबली ली बेकल को कलमी
मोहम्मद गाँव में डकित एत एत एत
अन्य गाँव में मोहम्मद. Ayroogabad

महंजु वि. स. स. करीब ७६/१-१३
१०५१, १०५२ कि. मी. ३२/६० प. ४६३५४६५

महंजु वि. स. स. करीब ७६/१-१३
१०५१, १०५२ कि. मी. ३२/६० प. ४६३५४६५

महंजु वि. स. स. करीब ७६/१-१३
१०५१, १०५२ कि. मी. ३२/६० प. ४६३५४६५

महंजु वि. स. स. करीब ७६/१-१३

भारत INDIA

रु. 500



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पाँच सौ रुपये

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बिहार BIHAR

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शान्तिप्रद वाक् पालं मां हरे

एत-सुग ममामल सत्तुहृद

फेडली मजदूरों का प्रत्यक्ष आग्रह.

१५५५

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महर्षि विद्यासागर विद्यापीठ, काशी, उत्तर प्रदेश -
 221005, India. Phone: +91-522-2361111, Fax: +91-522-2361112.
 E-mail: vss@vss.ac.in, vss@vss.ac.in, vss@vss.ac.in
 Website: www.vss.ac.in, www.vss.ac.in, www.vss.ac.in
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 1. 10000/-
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पञ्चांग मीमांसाकार महाराज
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INDIA NON JUDICIAL



सत्यमेव जयते

बिहार BIHAR

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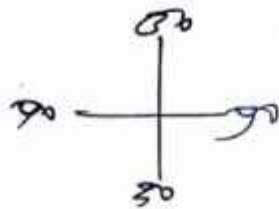
Kareem

$$\begin{array}{r} 26 \overline{) 813} \\ \underline{52} \\ 293 \\ \underline{234} \\ 59 \end{array}$$

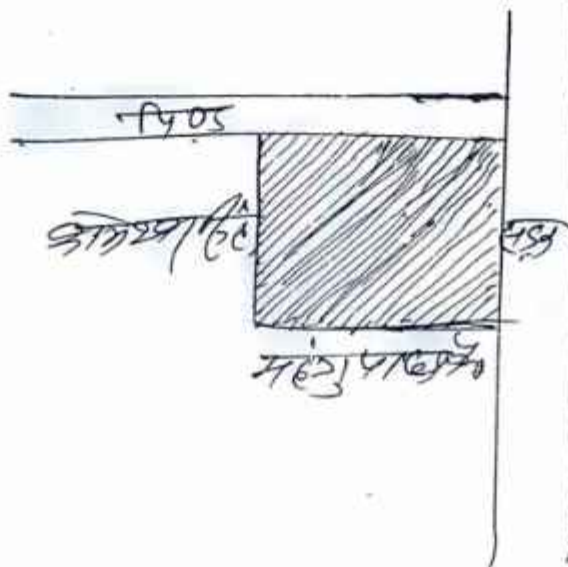
शिव मन्त्र २॥

26-2-93

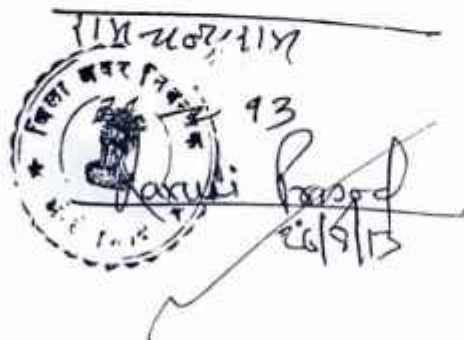
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मोहाडिहरी
 भाग नं ५८५
 भाग - ३० एकाइ
 कागज क्षेत्र १५ २०. १४५०



गणेशजी
 भाग नं ५८५
 भाग - ३० एकाइ



Endorsement of Certificate of Admissibility

Admissible under Rule 5 : duly Stamped (or exempted from or does not require stamp duty) under the Indian Stamp Act, 1899, Schedule I or I-A, No. '23'. Also admissible under section 26(a) of the B. T. Act.

Stamp duty paid under Indian Stamp Act Rs. 56400/-
Addl. Stamp duty paid under Municipal Act Rs. 0/-

Amt. Paid By N.J Stamp Paper Rs. 3000/-
Amt. paid through Bank Challan Rs. 72950/-

Registration Fee										LLR + Proc Fee	Service Charge		
FEE PAID	A1	18800	C	0	H1b	0	K1a	0	LII	0	LLR	500	200
	A8	0	D	0	H2	0	K1b	0	LIII	0	Proc.Fee	50	
	A9	0	DD	0	I	0	K1c	0	Mb	0	Total	550	
	A10	0	E	0	J1	0	K2	0	Na	0			
	B	0	H1a	0	J2	0	LI	0					
	TOTAL-										18800		
Total amount paid (Reg. fee+LLR, Proc+Service Charge) in Rs. -										19550			

Date: 29/08/2013

Registering Officer
Aurangabad

Endorsement under section 52

Presented for registration at Registration Office, Aurangabad on Thursday, 29th August 2013 by Ramchandar Ram Manki Ram by profession Agriculture. Status - Executant

11/8/2013
20-2-93

Signature/L.T.I. of Presentant

Date: 29/08/2013

Registering Officer
Aurangabad

Endorsement under section 58

Execution is admitted by those Executants and Identified by the person (Identified by 'Mahagu Yadav' age '63' Sex 'M', 'Bipat Yadav', resident of 'Vill-Bajitpur, Aurangabad'), whose Names, Photographs, Fingerprints and Signatures are affixed as such on back page / pages of the instrument.

Date : 29/08/2013

Registering Officer
Aurangabad

Endorsement of Certificate of Registration under section 60

Registered at Registration Office Aurangabad in Book 1 Volume No. 169 on pages on 48 -55 , for the year 2013 and stored in CD volume No. CD-26 year 2013 .The document no. is printed on the Front Page of the document.

Fee paid
6-300-
19/12/12

Date : 29/08/2013

Registering Officer
Aurangabad

Token No. : 12748

Year : 2013

S.No. :

12639

SCORE Ver.3.0

Deed No. : 12480

SRI SAI INDUSTRIES
VILL. DIHRI ; POIWA PACHRUKHIA ROAD
P.O. POIWA
DIST. AURANGABAD – 824 103

CORPORATE EHS POLICY

Sri Sai Industries (SSI), makes all efforts for minimizing the environmental impact in all its activities and operations. We are committed to conduct our all operations, with importance and significance to the environment, of which, we are a part of and make all possible efforts to safeguard it. Management reinforces the need to direct the collective endeavor of the employees at all levels towards sustaining and continuously improving standards of Environment, Health and Safety in a bid to attain and exceed benchmarked standards, whether regulatory or otherwise. SSI Corporate Environment policy adheres –

- To regular review the compliance related to relevant laws and regulations of EHS.
- To provide safety of workers, by providing personnel protective equipments (PPE) like Ear Muffs, Ear plugs, Safety Shoes, Safety Belts, Dust Mask, Wind Socks, Helmets, eye goggles, head bands etc. will be provided.
- To adopt 3R's Concept of Waste Minimization (Reuse, Recycle & Recover techniques) within premises for better resource utilization. To examine possibilities of efficient use of energy and its conservation
- To take account of environment, occupational health and safety aspects in planning and decision-making for operational activities, staffs & workers and surrounding communities.
- To establish and implementation of environment, health & safety standards that are scientifically tested and meet the requirement of relevant laws, regulations and codes of practice for employees and surrounding communities.
- To ensure safe handling, storage, use and disposal of all substances and materials that are classified as hazardous to health and environment.
- To provide and maintain facilities, equipment, operations and working conditions which are safe for employees, visitors and contractors at the Company's premises and also for surrounding communities as per their localized needs.
- Develop and maintain green belt and plantation in and around premises of SSI.
- To promote awareness on sound health and safe working practices among employees and surrounding communities through workshop, seminars, posters, slogans and personal meetings.
- To adopt system of regular health check-up of employees at different stages of employment, i.e. at the time of appointment, during promotions & regular check-ups as per statutory requirement.



Sri Sai Industries


Proprietor



SHIVA TEST HOUSE

(Serving since 1988)

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/1700-A-01		Dt: 05.06.2023			
a) Name and address of the Customer		SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)			
b) Details of Sample		Monitoring of Ambient Air Quality			
c) Sample Collected by		Lab Representative of Shiva Test House, Patna			
d) Sampling Location		Project Site (S1) [Lat. 24°44'30.44"N; Long 84°25'36.45"E]			
e) Analysis Start Date		03.03.2023			
f) Analysis Completion Date		29.05.2023			
Parameters (Unit)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
Method of Test	IS 5182 (P-23)	IS 5182 (P-23)	IS 5182 (P-2)	IS 5182 (P-6)	IS 5182 (P-10)
Date of Monitoring	Monitoring Results				
01.03.23	64.7	35.2	5.6	9.4	0.15
04.03.23	62.8	34.6	5.5	10.1	0.13
08.03.23	66.2	38.8	6.1	11.2	0.11
13.03.23	67.8	39.6	6.4	10.8	0.10
17.03.23	62.4	33.8	5.2	8.6	0.11
20.03.23	68.4	37.2	5.9	9.8	0.14
23.03.23	62.2	32.4	5.1	9.1	0.13
27.03.23	66.7	37.2	5.6	9.4	0.10
02.04.23	68.8	40.1	5.4	9.5	0.18
05.04.23	58.8	30.4	<5.0	8.3	0.15
09.04.23	62.6	31.4	<5.0	10.8	0.14
14.04.23	64.7	32.1	5.6	8.8	0.18
18.04.23	66.4	33.8	6.1	11.4	0.23
21.04.23	68.3	36.4	6.4	9.4	0.21
24.04.23	65.2	37.6	6.1	9.5	0.17
28.04.23	63.2	35.4	6.7	12.7	0.18
02.05.23	65.6	37.2	5.3	14.1	0.14
05.05.23	60.4	31.2	5.8	18.2	0.11
09.05.23	67.3	36.2	5.6	11.0	0.16
13.05.23	66.4	37.3	5.2	11.5	0.15
18.05.23	64.7	32.2	5.8	15.6	0.19
21.05.23	67.2	38.9	5.3	10.7	0.23
24.05.23	60.4	30.6	5.5	13.5	0.21
27.05.23	61.1	31.2	5.8	18.0	0.18
Min ^m Value	58.8	30.4	5.1	8.3	0.10
Max ^m Value	68.8	40.1	6.7	18.2	0.23
Average Value	64.7	35.0	5.7	11.3	0.16
98 th %ile	68.6	39.9	6.6	18.1	0.23
NAAQS 2009	100	60	80	80	4

Verified By : 
Technical Manager



– END OF TEST REPORT –


Authorized Signatory
Quality Manager

- This report applies only to sample tested as above.
- Total Liability of our Laboratory is limited to invoiced amount.
- Test Report endorsed only the tests and not the product certificate.
- Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

Contact us : 122-C, Aastha, Road No. 5A, Patliputra Colony, Patna – 800 013 (Bihar)

Mob.: +918676886249 ; +919431047908 Email : sthpatna1@yahoo.co.in ; info@shivatest.com

Website : www.shivatest.com ; www.shivatesthouse.com





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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/1700-A-02		Dt: 05.06.2023			
a) Name and address of the Customer		SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)			
b) Details of Sample		Monitoring of Ambient Air Quality			
c) Sample Collected by		Lab Representative of Shiva Test House, Patna			
d) Sampling Location		Dhobaul (S2) [Lat. 24°46'10.64"N; Long 84°21'11.52"E]			
e) Analysis Start Date		03.03.2023			
f) Analysis Completion Date		29.05.2023			
Parameters (Unit)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
Method of Test	IS 5182 (P-23)	IS 5182 (P-23)	IS 5182 (P-2)	IS 5182 (P-6)	IS 5182 (P-10)
Date of Monitoring	Monitoring Results				
01.03.23	74.9	38.8	9.3	14.1	0.14
04.03.23	60.9	32.5	9.8	14.9	0.11
08.03.23	76.0	40.1	8.8	13.4	0.16
13.03.23	80.5	42.2	7.2	16.8	0.11
17.03.23	74.9	37.2	8.4	22.1	0.12
20.03.23	82.6	46.2	5.4	15.9	0.15
23.03.23	88.5	45.5	8.4	12.7	0.28
27.03.23	87.5	44.2	6.6	15.2	0.34
02.04.23	75.8	45.5	9.2	14.0	0.15
05.04.23	67.5	30.2	6.6	16.1	0.21
09.04.23	75.5	39.5	5.4	22.1	0.44
14.04.23	85.2	46.1	8.8	25.1	0.26
18.04.23	81.3	32.4	7.6	26.6	0.22
21.04.23	85.5	45.5	8.6	18.5	0.18
24.04.23	74.5	32.2	5.2	31.1	0.28
28.04.23	84.6	33.0	5.8	25.9	0.26
02.05.23	88.8	45.5	6.4	28.3	0.32
05.05.23	82.2	36.1	5.8	30.3	0.28
09.05.23	74.6	38.8	8.8	26.8	0.25
13.05.23	87.2	43.3	6.6	29.0	0.30
18.05.23	88.5	46.1	5.2	29.8	0.36
21.05.23	74.5	44.2	7.4	25.1	0.34
24.05.23	71.3	36.5	8.8	28.2	0.42
27.05.23	85.5	45.3	9.2	26.4	0.37
Min ^m Value	60.9	30.2	5.2	12.7	0.11
Max ^m Value	88.8	46.2	9.8	31.1	0.44
Average Value	79.5	40.3	7.5	22.0	0.25
98 th %ile	88.7	46.2	9.6	30.7	0.43
NAAQS 2009	100	60	80	80	4

Verified By :

Technical Manager

Handwritten signature
05/06/23



— END OF TEST REPORT —

Handwritten signature
Authorized Signatory
Quality Manager

1. This report applies only to sample tested as above.
2. Total Liability of our Laboratory is limited to invoiced amount.
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4. Test Report can not be reproduced partially or full for legal/court purpose without written permission of the Laboratory.

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/1700-A-03		Dt: 05.06.2023			
a) Name and address of the Customer		SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)			
b) Details of Sample		Monitoring of Ambient Air Quality			
c) Sample Collected by		Lab Representative of Shiva Test House, Patna			
d) Sampling Location		Unthu (S3) [Lat24°48'24.51"N; Long84°24'13.52"E]			
e) Analysis Start Date		03.03.2023			
f) Analysis Completion Date		29.05.2023			
Parameters (Unit)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
Method of Test	IS 5182 (P-23)	IS 5182 (P-23)	IS 5182 (P-2)	IS 5182 (P-6)	IS 5182 (P-10)
Date of Monitoring	Monitoring Results				
01.03.23	47.9	28.3	6.4	12.5	0.11
04.03.23	44.6	27.0	5.8	11.4	0.06
08.03.23	56.6	23.7	9.3	18.2	0.08
13.03.23	49.9	29.2	5.2	23.6	0.23
17.03.23	45.3	27.2	8.2	16.1	0.05
20.03.23	53.7	31.8	<5.0	17.6	0.15
23.03.23	62.2	25.1	6.4	18.4	0.16
27.03.23	40.7	24.4	7.2	22.1	0.13
02.04.23	51.3	30.6	8.2	20.0	0.18
05.04.23	52.1	31.1	5.2	19.2	0.16
09.04.23	59.5	26.1	5.2	16.3	0.10
14.04.23	50.5	30.1	<5.0	17.7	0.16
18.04.23	49.2	29.4	7.4	19.7	0.12
21.04.23	55.5	27.2	6.0	22.8	0.18
24.04.23	43.5	25.9	7.8	15.3	0.08
28.04.23	47.2	28.2	5.2	25.2	0.19
02.05.23	46.1	27.5	5.6	26.1	0.15
05.05.23	54.6	26.4	6.4	23.7	0.11
09.05.23	47.2	28.2	5.2	22.6	0.06
13.05.23	58.4	25.5	5.5	18.6	0.12
18.05.23	52.3	31.0	5.0	17.6	0.10
21.05.23	48.2	28.3	5.8	14.5	0.16
24.05.23	58.9	24.3	<5.0	11.6	0.10
27.05.23	49.5	29.3	7.8	15.3	0.20
Min ^m Value	40.7	23.7	5.0	11.4	0.05
Max ^m Value	62.2	31.8	9.3	26.1	0.23
Average Value	51.0	27.7	6.4	18.6	0.13
98 th %ile	61.0	31.5	8.9	25.7	0.22
NAAQS 2009	100	60	80	80	4

Verified By :

Technical Manager

Handwritten signature
05/06/23

– END OF TEST REPORT –



Handwritten signature
Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/1700-A-04		Dt: 05.06.2023			
a) Name and address of the Customer		SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)			
b) Details of Sample		Monitoring of Ambient Air Quality			
c) Sample Collected by		Lab Representative of Shiva Test House, Patna			
d) Sampling Location		Rajoi(S4) [Lat. 84°24'13.52"E; Long 84°28'48.92"E]			
e) Analysis Start Date		04.03.2023			
f) Analysis Completion Date		01.06.2023			
Parameters (Unit)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
Method of Test	IS 5182 (P-23)	IS 5182 (P-23)	IS 5182 (P-2)	IS 5182 (P-6)	IS 5182 (P-10)
Date of Monitoring	Monitoring Results				
02.03.23	54.5	25.5	9.3	17.9	0.18
05.03.23	48.3	29.3	8.4	15.7	0.11
09.03.23	52.1	30.7	5.9	19.8	0.11
14.03.23	54.3	32.5	6.4	13.9	0.24
18.03.23	56.9	34.9	5.8	14.2	0.12
21.03.23	59.9	33.5	<5.0	20.4	0.17
24.03.23	61.5	27.3	6.1	13.6	0.11
28.03.23	44.9	26.4	7.8	21.5	0.16
01.04.23	58.2	34.8	6.2	18.2	0.12
04.04.23	60.1	26.0	8.5	15.8	0.26
08.04.23	48.8	29.3	6.2	23.1	0.08
13.04.23	52.2	27.1	5.3	19.8	0.12
19.04.23	50.1	30.0	8.9	16.5	0.14
22.04.23	49.3	29.6	6.0	14.8	0.11
25.04.23	47.9	28.6	8.9	16.5	0.12
29.04.23	51.8	31.0	6.2	19.8	0.31
03.05.23	57.1	34.3	5.3	19.0	0.12
06.05.23	43.9	26.0	8.4	14.5	0.14
10.05.23	52.2	25.1	10.0	28.4	0.18
14.05.23	56.2	33.6	8.5	15.6	0.12
19.05.23	45.5	27.2	7.2	14.6	0.16
23.05.23	60.1	25.5	6.6	20.7	0.16
26.05.23	48.1	28.6	8.3	17.3	0.17
29.05.23	49.1	28.9	<5.0	22.2	0.34
Min ^m Value	43.9	25.1	5.9	13.6	0.08
Max ^m Value	61.5	34.9	10.2	23.1	0.34
Average Value	52.6	29.4	7.28	28.4	0.16
98 th %ile	60.9	34.9	9.1	22.8	0.33
NAAQS 2009	100	60	80	80	4

Verified By :

Technical Manager



— END OF TEST REPORT —

Shreyasee Patel
Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/1700-A-05		DI: 05.06.2023			
a) Name and address of the Customer		SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)			
b) Details of Sample		Monitoring of Ambient Air Quality			
c) Sample Collected by		Lab Representative of Shiva Test House, Patna			
d) Sampling Location		Jaipal Bigha(S5) [Lat. 24°44'25.49"N; Long. 84°30'10.36"E]			
e) Analysis Start Date		04.03.2023			
f) Analysis Completion Date		31.05.2023			
Parameters (Unit)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
Method of Test	IS 5182 (P-23)	IS 5182 (P-23)	IS 5182 (P-2)	IS 5182 (P-6)	IS 5182 (P-10)
Date of Monitoring	Monitoring Results				
02.03.23	44.3	26.9	5.2	15.9	<0.05
05.03.23	46.6	28.1	5.3	21.6	0.11
09.03.23	50.5	29.9	6.2	18.8	0.14
14.03.23	49.0	29.1	9.0	13.1	0.17
18.03.23	41.5	24.9	<5.0	16.6	0.14
21.03.23	44.3	26.2	<5.0	20.9	0.12
24.03.23	50.3	28.9	6.9	14.8	0.08
28.03.23	49.7	29.5	8.7	13.1	0.13
01.04.23	47.4	28.5	<5.0	20.2	0.08
04.04.23	45.0	27.0	5.2	18.7	0.19
08.04.23	59.7	34.9	5.3	19.4	0.06
13.04.23	48.2	28.9	5.8	23.0	0.12
19.04.23	43.5	26.0	6.1	17.3	0.10
22.04.23	55.9	30.2	7.9	12.8	<0.05
25.04.23	54.2	32.8	5.8	20.4	0.14
29.04.23	42.7	26.0	<5.0	12.2	0.12
03.05.23	48.2	28.8	8.4	12.4	0.18
06.05.23	45.0	27.1	<5.0	11.2	0.15
10.05.23	43.5	25.4	5.2	14.5	<0.05
14.05.23	51.3	31.2	6.1	12.4	0.10
19.05.23	53.4	34.1	9.0	13.5	0.13
23.05.23	50.5	30.3	5.2	12.2	0.10
26.05.23	46.6	28.1	5.3	20.4	<0.05
29.05.23	45.8	27.6	6.1	18.6	0.17
Min ^m Value	41.5	24.9	5.2	11.2	0.06
Max ^m Value	59.7	34.9	9.0	23.0	0.19
Average Value	48.2	28.8	6.5	16.4	0.13
98 th %ile	58.0	34.5	9.0	22.3	0.18
NAAQS 2009	100	60	80	80	4

Verified By :
Technical Manager

[Signature]
05/06/23



– END OF TEST REPORT –

[Signature]
Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/1700-A-06		Dt: 05.06.2023			
g) Name and address of the Customer		SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)			
a) Details of Sample		Monitoring of Ambient Air Quality			
b) Sample Collected by		Lab Representative of Shiva Test House, Patna			
c) Sampling Location		Erki Kala (S6) [Lat24°42'58.49"N; Long. 84°29'19.35"E]			
d) Analysis Start Date		04.03.2023			
e) Analysis Completion Date		31.05.2023			
Parameters (Unit)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
Method of Test	IS 5182 (P-23)	IS 5182 (P-23)	IS 5182 (P-2)	IS 5182 (P-6)	IS 5182 (P-10)
Date of Monitoring	Monitoring Results				
02.03.23	54.5	29.2	7.2	15.1	0.11
05.03.23	61.2	34.2	5.2	12.2	0.15
09.03.23	65.5	35.5	5.5	17.7	0.12
14.03.23	58.2	23.1	6.2	22.2	0.10
18.03.23	50.0	30.0	7.2	18.4	0.26
21.03.23	56.2	29.5	7.9	24.4	0.24
24.03.23	52.2	30.5	6.6	13.9	0.07
28.03.23	65.5	33.2	9.5	20.0	0.11
01.04.23	54.6	26.2	6.4	13.4	0.11
04.04.23	64.6	35.1	7.5	15.7	0.08
08.04.23	69.5	38.8	9.5	20.0	0.15
13.04.23	61.3	24.9	8.7	18.2	0.12
19.04.23	58.4	21.2	6.8	14.2	0.31
22.04.23	52.3	27.2	8.1	17.1	0.18
25.04.23	52.2	29.1	5.5	32.6	0.12
29.04.23	63.5	25.9	6.0	14.2	0.12
03.05.23	51.1	30.4	6.9	14.4	0.32
06.05.23	58.8	26.8	8.4	30.4	0.11
10.05.23	56.1	32.3	6.5	20.2	0.16
14.05.23	60.2	35.4	9.1	19.2	0.08
19.05.23	58.8	30.2	11.6	15.1	0.17
23.05.23	59.8	28.4	5.9	18.2	0.10
26.05.23	65.5	33.2	7.5	15.7	0.26
29.05.23	70.2	36.5	7.0	14.6	0.10
Min ^m Value	50.0	21.2	5.5	12.2	0.07
Max ^m Value	70.2	38.8	11.6	32.6	0.32
Average Value	59.2	30.3	7.3	18.2	0.15
98 th %ile	69.9	37.7	9.5	31.4	0.32
NAAQS 2009	100	60	80	80	4

Verified By :

Technical Manager

– END OF TEST REPORT –

Shreyasee P. d.
Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/1700-A-07		Dt: 05.06.2023			
h) Name and address of the Customer		SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)			
a) Details of Sample		Monitoring of Ambient Air Quality			
b) Sample Collected by		Lab Representative of Shiva Test House, Patna			
c) Sampling Location		Deo (S7) [Lat. 24°39'56.69"N; Long. 84°26'1.92"E]			
d) Analysis Start Date		04.03.2023			
e) Analysis Completion Date		31.05.2023			
Parameters (Unit)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
Method of Test	IS 5182 (P-23)	IS 5182 (P-23)	IS 5182 (P-2)	IS 5182 (P-6)	IS 5182 (P-10)
Date of Monitoring	Monitoring Results				
02.03.23	45.0	28.8	8.9	16.6	0.17
05.03.23	61.2	34.5	7.4	18.8	0.16
09.03.23	67.8	34.5	9.5	18.2	0.21
14.03.23	56.4	30.2	5.2	17.5	0.14
18.03.23	52.2	25.5	9.7	15.1	0.37
21.03.23	60.1	31.1	8.4	13.1	0.22
24.03.23	58.5	32.2	5.6	10.6	0.23
28.03.23	38.4	22.9	5.8	16.5	0.16
01.04.23	58.8	32.6	6.2	14.9	0.12
04.04.23	62.3	35.5	5.1	21.2	0.23
08.04.23	61.1	34.5	7.8	12.1	0.08
13.04.23	56.6	31.8	8.5	13.2	0.08
19.04.23	46.2	27.6	9.4	14.6	0.13
22.04.23	42.7	25.5	6.2	16.9	0.26
25.04.23	40.8	24.4	7.4	30.4	0.13
29.04.23	64.5	34.5	5.2	18.7	0.29
03.05.23	56.8	25.9	5.1	19.4	0.22
06.05.23	61.2	35.8	5.6	17.6	0.17
10.05.23	48.9	30.2	6.2	16.8	0.15
14.05.23	61.5	33.2	8.9	23.8	0.15
19.05.23	59.8	29.1	8.4	29.2	0.11
23.05.23	45.3	26.6	6.6	21.4	0.14
26.05.23	56.5	32.5	6.0	16.1	0.14
29.05.23	46.5	27.5	5.6	14.8	0.11
Min ^m Value	38.4	22.9	5.1	10.6	0.08
Max ^m Value	67.8	35.8	9.7	30.4	0.37
Average Value	54.5	30.3	7.0	17.8	0.17
98 th %ile	66.3	35.7	9.6	29.8	0.33
NAAQS 2009	100	60	80	80	4

Verified By :

Technical Manager



– END OF TEST REPORT –

Shreyasee P. S.

Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/1700-A-08		Dt: 05.06.2023			
i) Name and address of the Customer		SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)			
a) Details of Sample		Monitoring of Ambient Air Quality			
b) Sample Collected by		Lab Representative of Shiva Test House, Patna			
c) Sampling Location		Aurangabad(S8) [Lat. 24°44'55.54"N; Long. 84°21'58.56"E]			
d) Analysis Start Date		04.03.2023			
e) Analysis Completion Date		31.05.2023			
Parameters (Unit)	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)	CO (mg/m ³)
Method of Test	IS 5182 (P-23)	IS 5182 (P-23)	IS 5182 (P-2)	IS 5182 (P-6)	IS 5182 (P-10)
Date of Monitoring	Monitoring Results				
02.03.23	72.2	38.2	10.0	20.9	0.21
05.03.23	81.2	45.2	7.7	24.5	0.35
09.03.23	77.2	38.6	8.0	28.8	0.20
14.03.23	80.1	41.1	9.5	20.1	0.29
18.03.23	70.5	39.4	10.8	22.4	0.40
21.03.23	74.6	38.3	7.5	24.5	0.18
24.03.23	67.2	37.2	9.7	18.5	0.12
28.03.23	80.1	41.1	8.7	26.5	0.16
01.04.23	88.2	45.2	6.1	23.2	0.22
04.04.23	78.0	40.1	11.3	20.3	0.14
08.04.23	72.2	36.2	8.4	14.3	0.10
13.04.23	79.5	39.2	12.1	24.8	0.39
19.04.23	83.1	42.2	7.2	32.2	0.28
22.04.23	71.5	35.9	10.0	20.9	0.32
25.04.23	65.4	37.2	12.1	24.8	0.12
29.04.23	76.2	36.1	7.4	25.4	0.36
03.05.23	61.2	33.2	10.4	21.7	0.08
06.05.23	76.5	45.1	8.3	14.6	0.20
10.05.23	64.5	33.2	11.7	24.0	0.33
14.05.23	74.8	38.1	9.1	19.3	0.27
19.05.23	84.5	43.1	13.0	17.7	0.17
23.05.23	90.1	47.8	7.4	16.2	0.29
26.05.23	79.5	40.1	8.2	28.0	0.16
29.05.23	73.2	39.1	13.2	35.4	0.12
Min ^m Value	61.2	33.2	6.1	14.3	0.08
Max ^m Value	90.1	47.8	13.2	35.4	0.40
Average Value	75.9	39.6	9.49	22.8	0.23
98 th %ile	89.2	46.6	14.0	30.6	0.40
NAAQS 2009	100	60	80	80	4

Verified By :
Technical Manager

[Signature]
05/06/23



– END OF TEST REPORT –

[Signature]
Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/160-N-01	Dt: Dt: 10.04.2023			
a) Name and address of the Customer	SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)			
b) Details of Sample	Ambient Noise Level			
c) Sample Collected by	Lab Representative of Shiva Test House, Patna			
d) Sampling Location	Project Site (N1) [Lat. 24°44'30.44"N; Long 84°25'36.45"E]			
e) Sampling Date	02/03.04.2023			
f) Analysis Start Date	04.04.2023			
g) Analysis Completion Date	05.04.2023			
Parameters	Unit	Test Method	Result	CPCB Standards (Indl. Area)
Day Time Leq	dB(A)	IS 9989	58.8	75
Night Time Leq	dB(A)	IS 9989	37.2	70



Verified By :
Technical Manager

[Signature]
10/04/23

[Signature]
Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/160-N-02	Dt: Dt: 10.04.2023			
h) Name and address of the Customer	SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)			
a) Details of Sample	Ambient Noise Level			
b) Sample Collected by	Lab Representative of Shiva Test House, Patna			
c) Sampling Location	Dhobaul (N2) [Lat. 24°46'10.64"N; Long 84°21'11.52"E]			
d) Sampling Date	02/03.04.2023			
e) Analysis Start Date	04.04.2023			
f) Analysis Completion Date	05.04.2023			
Parameters	Unit	Test Method	Result	CPCB Standards (Comm. Area)
Day Time Leq	dB(A)	IS 9989	54.0	65
Night Time Leq	dB(A)	IS 9989	44.4	55



Verified By :
Technical Manager

[Signature]
10/04/23

– END OF TEST REPORT –

[Signature]
Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/160-N-03	Dt: Dt: 10.04.2023			
i) Name and address of the Customer	SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)			
a) Details of Sample	Ambient Noise Level			
b) Sample Collected by	Lab Representative of Shiva Test House, Patna			
c) Sampling Location	Unthu (N3) [Lat24°48'24.51"N; Long84°24'13.52"E]			
d) Sampling Date	02/03.04.2023			
e) Analysis Start Date	04.04.2023			
f) Analysis Completion Date	05.04.2023			
Parameters	Unit	Test Method	Result	CPCB Standards (Residential Area)
Day Time Leq	dB(A)	IS 9989	49.3	55
Night Time Leq	dB(A)	IS 9989	35.7	45



Verified By :
Technical Manager

[Signature]
10/04/23

– END OF TEST REPORT –

[Signature]
Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/160-N-04	Dt: Dt: 10.04.2023			
j) Name and address of the Customer	SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)			
a) Details of Sample	Ambient Noise Level			
b) Sample Collected by	Lab Representative of Shiva Test House, Patna			
c) Sampling Location	Rajoi (N4) [Lat: 84°24'13.52"E; Long 84°28'48.92"E]			
d) Sampling Date	01/02.04.2023			
e) Analysis Start Date	03.04.2023			
f) Analysis Completion Date	04.04.2023			
Parameters	Unit	Test Method	Result	CPCB Standards (Residential Area)
Day Time Leq	dB(A)	IS 9989	50.6	55
Night Time Leq	dB(A)	IS 9989	38.1	45



Verified By :
Technical Manager

[Signature]
10/04/23

– END OF TEST REPORT –

[Signature]
Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/160-N-05	Dt: Dt: 10.04.2023			
k) Name and address of the Customer	SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)			
a) Details of Sample	Ambient Noise Level			
b) Sample Collected by	Lab Representative of Shiva Test House, Patna			
c) Sampling Location	Jaipal Bigha(N5) [Lat. 24°44'25.49"N; Long. 84°30'10.36"E]			
d) Sampling Date	01/02.04.2023			
e) Analysis Start Date	03.04.2023			
f) Analysis Completion Date	04.04.2023			
Parameters	Unit	Test Method	Result	CPCB Standards (Residential Area)
Day Time Leq	dB(A)	IS 9989	51.9	55
Night Time Leq	dB(A)	IS 9989	37.0	45



Verified By :
Technical Manager

Signature
10/04/23

Signature
Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/160-N-06	Dt: Dt: 10.04.2023			
I) Name and address of the Customer	SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)			
a) Details of Sample	Ambient Noise Level			
b) Sample Collected by	Lab Representative of Shiva Test House, Patna			
c) Sampling Location	Erki Kala (N6) [Lat24°42'58.49"N; Long. 84°29'19.35"E]			
d) Sampling Date	01/02.04.2023			
e) Analysis Start Date	03.04.2023			
f) Analysis Completion Date	04.04.2023			
Parameters	Unit	Test Method	Result	CPCB Standards (Comm. Area)
Day Time Leq	dB(A)	IS 9989	49.6	65
Night Time Leq	dB(A)	IS 9989	36.9	55



Verified By : 
Technical Manager 10/04/23


Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/160-N-07	Dt: Dt: 10.04.2023			
m) Name and address of the Customer	SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)			
a) Details of Sample	Ambient Noise Level			
b) Sample Collected by	Lab Representative of Shiva Test House, Patna			
c) Sampling Location	Deo (N7) [Lat. 24°39'56.69"N; Long. 84°26'1.92"E]			
d) Sampling Date	04/05.04.2023			
e) Analysis Start Date	06.04.2023			
f) Analysis Completion Date	07.04.2023			
Parameters	Unit	Test Method	Result	CPCB Standards (Comm. Area)
Day Time Leq	dB(A)	IS 9989	52.3	65
Night Time Leq	dB(A)	IS 9989	37.9	55



Verified By :
Technical Manager

[Signature]
10/04/23

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Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/160-N-08	Dt: Dt: 10.04.2023			
n) Name and address of the Customer	SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)			
a) Details of Sample	Ambient Noise Level			
b) Sample Collected by	Lab Representative of Shiva Test House, Patna			
c) Sampling Location	Aurangabad(N8) [Lat. 24°44'55.54"N; Long. 84°21'58.56"E]			
d) Sampling Date	04/05.04.2023			
e) Analysis Start Date	06.04.2023			
f) Analysis Completion Date	07.04.2023			
Parameters	Unit	Test Method	Result	CPCB Standards (Comm. Area)
Day Time Leq	dB(A)	IS 9989	62.9	65
Night Time Leq	dB(A)	IS 9989	47.0	55



Verified By :
Technical Manager

Handwritten signature
10/04/23

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Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/288-S-01		Dt: 25.04.2023	
a) Name and address of the Customer		SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)	
b) Details of Sample		Soil Sample (15 cm. Depth)	
c) Sample Collected by		Lab Representative of Shiva Test House, Patna	
d) Sampling Location		Project Site (S1) [Lat. 24°44'30.44"N; Long 84°25'36.45"E]	
e) Sampling Date		12.04.2023	
f) Analysis Start Date		13.04.2023	
g) Analysis Completion Date		20.04.2023	
Parameter	Test Method	Unit	Results
1. Soil Texture	Method Manual Soil Testing in India Ministry of Agriculture, Govt. of India	-	Clay
2. Particle Size Distribution			
i. Gravel		%	0.62
ii. Sand		%	5.6
iii. Silt		%	10.0
iv. Clay		%	15.0
3. Conductivity		µmhos/cm.	260.0
4. Water Holding Capacity		%	36
5. Porosity		%	8
6. pH		--	7.82
7. Available Potassium as K ₂ O		Kg/Hec.	48.0
8. Available Phosphate as P ₂ O ₅		Kg/Hec.	5.2
9. Available Nitrogen as N		Kg/Hec.	186.0
10. Organic Carbon		%	0.24



Verified By :
Technical Manager

[Signature]
25/04/23

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/288-S-02	Dt: 25.04.2023		
h) Name and address of the Customer	SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)		
a) Details of Sample	Soil Sample (15 cm. Depth)		
b) Sample Collected by	Lab Representative of Shiva Test House, Patna		
c) Sampling Location	Unthu (S2) [Lat24°48'24.51"N; Long84°24'13.52"E]		
d) Sampling Date	12.04.2023		
e) Analysis Start Date	13.04.2023		
f) Analysis Completion Date	20.04.2023		
Parameter	Test Method	Unit	Results
1. Soil Texture	Method Manual Soil Testing in India Ministry of Agriculture, Govt. of India	-	Clay Loam
2. Particle Size Distribution			
v. Gravel		%	0.52
vi. Sand		%	16.0
vii. Silt		%	15.0
viii. Clay		%	18.0
3. Conductivity		µmhos/cm.	264.0
4. Water Holding Capacity		%	64
5. Porosity		%	14
6. pH		--	7.88
7. Available Potassium as K ₂ O		Kg/Hec.	70.0
8. Available Phosphate as P ₂ O ₅		Kg/Hec.	7.4
9. Available Nitrogen as N		Kg/Hec.	212.0
10. Organic Carbon		%	0.36



Verified By : *[Signature]*
Technical Manager

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Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/288-S-03	Dt: 25.04.2023		
i) Name and address of the Customer	SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)		
a) Details of Sample	Soil Sample (15 cm. Depth)		
b) Sample Collected by	Lab Representative of Shiva Test House, Patna		
c) Sampling Location	Jaipal Bigha(S3) [Lat. 24°44'25.49"N; Long. 84°30'10.36"E]		
d) Sampling Date	12.04.2023		
e) Analysis Start Date	13.04.2023		
f) Analysis Completion Date	20.04.2023		
Parameter	Test Method	Unit	Results
1. Soil Texture	Method Manual Soil Testing in India Ministry of Agriculture, Govt. of India	-	Loam
2. Particle Size Distribution			
ix. Gravel		%	0.36
x. Sand		%	10.0
xi. Silt		%	20.0
xii. Clay		%	12.0
3. Conductivity		µmhos/cm.	240.0
4. Water Holding Capacity		%	58
5. Porosity		%	10
6. pH		--	7.56
7. Available Potassium as K ₂ O		Kg/Hec.	52.0
8. Available Phosphate as P ₂ O ₅		Kg/Hec.	6.6
9. Available Nitrogen as N		Kg/Hec.	196.0
10. Organic Carbon		%	0.40



Verified By :
Technical Manager

[Signature]
25/4/23

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/288-S-04		Dt: 25.04.2023	
j) Name and address of the Customer		SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)	
a) Details of Sample		Soil Sample (15 cm. Depth)	
b) Sample Collected by		Lab Representative of Shiva Test House, Patna	
c) Sampling Location		Deo (S4) [Lat. 24°39'56.69"N; Long. 84°26'1.92"E]	
d) Sampling Date		12.04.2023	
e) Analysis Start Date		13.04.2023	
f) Analysis Completion Date		20.04.2023	
Parameter	Test Method	Unit	Results
1. Soil Texture	Method Manual Soil Testing in India Ministry of Agriculture, Govt. of India	-	Sandy
2. Particle Size Distribution			
xiii. Gravel		%	0.42
xiv. Sand		%	22.0
xv. Silt		%	16.0
xvi. Clay		%	18.0
3. Conductivity		µmhos/cm.	248.0
4. Water Holding Capacity		%	44
5. Porosity		%	8
6. pH		--	7.52
7. Available Potassium as K ₂ O		Kg/Hec.	64.0
8. Available Phosphate as P ₂ O ₅		Kg/Hec.	10.2
9. Available Nitrogen as N		Kg/Hec.	210.0
10. Organic Carbon		%	0.28



Verified By :
Technical Manager

[Signature]
25/4/23

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Quality Manager

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TEST REPORT

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j) Name and address of the Customer		SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)	
a) Details of Sample		Soil Sample (15 cm, Depth)	
b) Sample Collected by		Lab Representative of Shiva Test House, Patna	
c) Sampling Location		Deo (S4) [Lat. 24°39'56.69"N; Long. 84°26'1.92"E]	
d) Sampling Date		12.04.2023	
e) Analysis Start Date		13.04.2023	
f) Analysis Completion Date		20.04.2023	
Parameter	Test Method	Unit	Results
1. Soil Texture	Method Manual Soil Testing in India Ministry of Agriculture, Govt. of India	-	Sandy
2. Particle Size Distribution			
xiii. Gravel		%	0.42
xiv. Sand		%	22.0
xv. Silt		%	16.0
xvi. Clay		%	18.0
3. Conductivity		µmhos/cm.	248.0
4. Water Holding Capacity		%	44
5. Porosity		%	8
6. pH		--	7.52
7. Available Potassium as K ₂ O		Kg/Hec.	64.0
8. Available Phosphate as P ₂ O ₅		Kg/Hec.	10.2
9. Available Nitrogen as N		Kg/Hec.	210.0
10. Organic Carbon	%	0.28	



Verified By :
Technical Manager

[Signature]
25/4/23

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Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/288-S-05	Dt: 25.04.2023		
k) Name and address of the Customer	SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)		
a) Details of Sample	Soil Sample (15 cm. Depth)		
b) Sample Collected by	Lab Representative of Shiva Test House, Patna		
c) Sampling Location	Aurangabad(S5) [Lat. 24°44'55.54"N; Long. 84°21'58.56"E]		
d) Sampling Date	12.04.2023		
e) Analysis Start Date	13.04.2023		
f) Analysis Completion Date	20.04.2023		
Parameter	Test Method	Unit	Results
1. Soil Texture	Method Manual Soil Testing in India Ministry of Agriculture, Govt. of India	-	Clay Loam
2. Particle Size Distribution			
xvii. Gravel		%	0.55
xviii. Sand		%	5.0
xix. Silt		%	12.0
xx. Clay		%	16.0
3. Conductivity		µmhos/cm.	256.0
4. Water Holding Capacity		%	72
5. Porosity		%	18
6. pH		—	7.89
7. Available Potassium as K ₂ O		Kg/Hec.	66.0
8. Available Phosphate as P ₂ O ₅		Kg/Hec.	8.0
9. Available Nitrogen as N		Kg/Hec.	230.0
10. Organic Carbon		%	0.32



Verified By :

Technical Manager

[Signature]
25/4/23

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Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/SW-01	Dt: 20.03.2023		
a) Name and address of the Customer	SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)		
b) Details of Sample	Surface Water Sample		
c) Sample Collected by	Lab Representative of Shiva Test House, Patna		
d) Sampling Location	River Adari (Upstream) (SW1) [Lat. 24°48'32.52"N; Long. 84°22'22.24"E]		
e) Sampling Date	13.03.2023		
f) Analysis Start Date	14.03.2023		
g) Analysis Completion Date	18.03.2023		
Parameter	Test Method	Unit	Results
1. pH	IS 3025 (Part-11)	---	7.12
2. Electrical Conductivity	IS 3025 (Part-14)	µmhos/cm.	0.36
3. Dissolved Oxygen	IS 3025 (Part-38)	mg/l.	5.4
4. Turbidity, NTU	IS 3025 (Part-10)	NTU	5.6
5. Total Dissolved Solids	IS 3025 (Part-16)	mg/l.	192.0
6. Total Hardness as CaCO ₃	IS 3025 (Part-21)	mg/l.	148.0
7. Calcium Hardness as Ca	IS 3025 (Part-40)	mg/l.	32.8
8. Magnesium Hardness as Mg	IS 3025 (Part-46)	mg/l.	16.0
9. Total Alkalinity as CaCO ₃	IS 3025 (Part-23)	mg/l.	124.0
10. Chloride as Cl	IS 3025 (Part-32)	mg/l.	28.0
11. Sulphate as SO ₄	IS 3025 (Part-24)	mg/l.	24.8
12. Fluoride as F	APHA 4500 (F D)	mg/l.	0.38
13. Sodium as Na	APHA 3500 (Na B)	mg/l.	56.0
14. Potassium as K	APHA 3500 (K B)	mg/l.	2.8
15. Boron as B	APHA 4500 (B B)	mg/l.	0.10
16. Total Phosphate as P	APHA (4500-P-D)	mg/l.	0.32
17. BOD (3 days at 27°C)	IS 3025 (Part-44)	mg/l.	2.4
18. COD	IS 3025 (Part-58)	mg/l.	20.0
19. Ammonical Nitrogen as N	IS 3025 (Part-34)	mg/l.	1.1
20. Total Kjeldahl Nitrogen as N	APHA (4500 N org)	mg/l.	2.8
21. Total Coliform	IS 1622	MPN/100 ml.	1600

Verified By :
Technical Manager

[Signature]
20/03/23



— END OF TEST REPORT —

[Signature]
Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/SW-02	Dt: 20.03.2023		
a) Name and address of the Customer	SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)		
b) Details of Sample	Surface Water Sample		
c) Sample Collected by	Lab Representative of Shiva Test House, Patna		
d) Sampling Location	River Adari (Downstream) (SW2) [Lat. 24°46'5.75"N; Long. 84°23'17.09" E]		
e) Sampling Date	14.03.2023		
f) Analysis Start Date	15.03.2023		
g) Analysis Completion Date	19.03.2023		
Parameter	Test Method	Unit	Results
1. pH	IS 3025 (Part-11)	---	7.04
2. Electrical Conductivity	IS 3025 (Part-14)	µmhos/cm.	0.39
3. Dissolved Oxygen	IS 3025 (Part-38)	mg/l.	5.2
4. Turbidity, NTU	IS 3025 (Part-10)	NTU	5.8
5. Total Dissolved Solids	IS 3025 (Part-16)	mg/l.	208.0
6. Total Hardness as CaCO ₃	IS 3025 (Part-21)	mg/l.	156.0
7. Calcium Hardness as Ca	IS 3025 (Part-40)	mg/l.	34.4
8. Magnesium Hardness as Mg	IS 3025 (Part-46)	mg/l.	17.0
9. Total Alkalinity as CaCO ₃	IS 3025 (Part-23)	mg/l.	136.0
10. Chloride as Cl	IS 3025 (Part-32)	mg/l.	32.0
11. Sulphate as SO ₄	IS 3025 (Part-24)	mg/l.	26.2
12. Fluoride as F	APHA 4500 (F D)	mg/l.	0.42
13. Sodium as Na	APHA 3500 (Na B)	mg/l.	62.0
14. Potassium as K	APHA 3500 (K B)	mg/l.	3.2
15. Boron as B	APHA 4500 (B B)	mg/l.	0.11
16. Total Phosphate as P	APHA (4500-P-D)	mg/l.	0.38
17. BOD (3 days at 27°C)	IS 3025 (Part-44)	mg/l.	2.8
18. COD	IS 3025 (Part-58)	mg/l.	28.0
19. Ammonical Nitrogen as N	IS 3025 (Part-34)	mg/l.	1.7
20. Total Kjeldahl Nitrogen as N	APHA (4500 N org)	mg/l.	3.4
21. Total Coliform	IS 1622	MPN/100 ml.	2100

Verified By :
Technical Manager

Handwritten signature
20/03/23



— END OF TEST REPORT —

Handwritten signature
Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/206-GW-01		Dt: 20.04.2023		
a) Name and address of the Customer		SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)		
b) Details of Sample		Ground Water Sample		
c) Sample Collected by		Lab Representative of Shiva Test House, Patna		
d) Sampling Location		Project Site (GW1)[Lat. 24°44'30.44"N; Long 84°25'36.45"E]		
e) Sampling Date		10.04.2023		
f) Analysis Start Date		11.04.2023		
g) Analysis Completion Date		18.04.2023		
Parameters	Requirement as per IS 10500 : 2012		Method of Test	Results in mg/l, except Colour, Odour, Taste, Turbidity, & pH
	Acceptable Limit	Permissible Limit in the absence of alternative source		
1. Colour, Hazen Unit	5.0	15.0	IS 3025 (Part-4)	< 5.00
2. Odour	Agreeable		IS 3025 (Part-5)	Agreeable
3. Taste	Agreeable		IS 3025 (Part-7)	Agreeable
4. Turbidity	1.0	5.0	IS 3025 (Part-10)	<1.0
5. pH	6.5 to 8.5	No Relaxation	IS 3025 (Part-11)	8.01
6. Total Dissolved Solids, mg/l.	500.0	2000.0	IS 3025 (Part-16)	892.0
7. Total hardness as CaCO ₃ , mg/l.	200.0	600.0	IS 3025 (Part-21)	488.0
8. Calcium as Ca, mg/l.	75.0	200.0	IS 3025 (Part-40)	64.1
9. Magnesium as Mg, mg/l.	30.0	100.0	IS 3025 (Part-46)	79.7
10. Total Alkalinity as CaCO ₃ , mg/l.	200	600.0	IS 3025 (Part-23)	324.0
11. Residual Free Chlorine, mg/l.	0.2	1	IS 3025 (Part-26)	<0.1
12. Chloride as Cl, mg/l.	250.0	1000.0	IS 3025 (Part-32)	164.0
13. Sulphate as SO ₄ , mg/l.	200.00	400.00	IS 3025 (Part-24)	26.4
14. Fluoride as F, mg/l.	1.0	1.5	APHA 4500 (F D)	0.30
15. Nitrate as NO ₃ , mg/l.	45.00	No relaxation	IS 3025 (Part-34)	42.0
16. Boron as 'B', mg/l.	0.5	2.4	APHA 4500 B B	<0.05
17. Iron as Fe, mg/l.	1.0	No relaxation	APHA 3500 Fe B	0.38
18. Copper as Cu, mg/l.	0.05	1.50	APHA (3111 B)	< 0.05
19. Zinc as Zn, mg/l.	5.00	15.00	APHA (3111 B)	0.40
20. Chromium as Cr, mg/l.	0.05	No Relaxation	APHA (3111 B)	< 0.05
21. Arsenic as As, mg/l.	0.01	No Relaxation	APHA (3114 B)	< 0.01
22. Manganese as Mn, mg/l.	0.1	0.3	APHA 3111 B	<0.01

Verified By :
Technical Manager

[Signature]
20/04/23

– END OF TEST REPORT –

[Signature]
Authorized Signatory
Quality Manager

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TEST REPORT

Parameters	Requirement as per IS 10500 : 2012		Method of Test	Results in mg/l. except Colour, Odour, Taste, Turbidity, & pH
	Acceptable Limit	Permissible Limit in the absence of alternative source		
23. Mercury as Hg, mg/l.	0.001	No Relaxation	APHA 3112 B	<0.001
24. Cadmium as Cd, mg/l.	0.003	No Relaxation	APHA 3111 B	<0.001
25. Selenium as Se, mg/l.	0.01	No Relaxation	APHA 3111 B	<0.01
26. Cyanide as CN, mg/l.	0.05	No Relaxation	IS 3025 (Part-27)	<0.01
27. Lead as Pb, mg/l.	0.01	No Relaxation	APHA 3111 B	<0.01
28. Aluminium as Al, mg/l.	0.03	0.2	APHA 3111 D	<0.01
29. Anionic Detergent, mg/l.	0.2	1.0	APHA	<0.1
30. Mineral Oil, mg/l.	0.5	No Relaxation	APHA	<0.1
31. Phenolic Compound as C ₆ H ₅ OH, mg/l.	0.001	0.002	APHA 6431 B	<0.001
32. Total Coliform, CFU/100 ml.	Shall not be detectable in 100 ml.		IS 15185 : 2016	Absent
33. E.coli, CFU/100 ml.			IS 15185 : 2016	Absent



Verified By :
Technical Manager

[Signature]
22/04/23

[Signature]
Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/206-GW-03		Dt: 20.04.2023		
a) Name and address of the Customer		SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)		
b) Details of Sample		Ground Water Sample		
c) Sample Collected by		Lab Representative of Shiva Test House, Patna		
d) Sampling Location		Unthu (GW3) [Lat24°48'24.51"N; Long84°24'13.52"E]		
e) Sampling Date		10.04.2023		
f) Analysis Start Date		11.04.2023		
g) Analysis Completion Date		16.04.2023		
Parameters	Requirement as per IS 10500 : 2012		Method of Test	Results in mg/l. except Colour, Odour, Taste, Turbidity, & pH
	Acceptable Limit	Permissible Limit in the absence of alternative source		
1. Colour, Hazen Unit	5.0	15.0	IS 3025 (Part-4)	< 5.00
2. Odour	Agreeable		IS 3025 (Part-5)	Agreeable
3. Taste	Agreeable		IS 3025 (Part-7)	Agreeable
4. Turbidity	1.0	5.0	IS 3025 (Part-10)	< 1.0
5. pH	6.5 to 8.5	No Relaxation	IS 3025 (Part-11)	7.87
6. Total Dissolved Solids, mg/l.	500.0	2000.0	IS 3025 (Part-16)	583.0
7. Total hardness as CaCO ₃ , mg/l.	200.0	600.0	IS 3025 (Part-21)	386.0
8. Calcium as Ca, mg/l.	75.0	200.0	IS 3025 (Part-40)	78.5
9. Magnesium as Mg, mg/l.	30.0	100.0	IS 3025 (Part-46)	46.2
10. Total Alkalinity as CaCO ₃ , mg/l.	200	600.0	IS 3025 (Part-23)	288.0
11. Residual Free Chlorine, mg/l.	0.2	1	IS 3025 (Part-26)	<0.1
12. Chloride as Cl, mg/l.	250.0	1000.0	IS 3025 (Part-32)	48.0
13. Sulphate as SO ₄ , mg/l.	200.00	400.00	IS 3025 (Part-24)	23.2
14. Fluoride as F, mg/l.	1.0	1.5	APHA 4500 (F D)	0.18
15. Nitrate as NO ₃ , mg/l.	45.00	No relaxation	IS 3025 (Part-34)	22.4
16. Boron as 'B', mg/l.	0.5	2.4	APHA 4500 B B	<0.05
17. Iron as Fe, mg/l.	1.0	No relaxation	APHA 3500 Fe B	0.52
18. Copper as Cu, mg/l.	0.05	1.50	APHA (3111 B)	< 0.05
19. Zinc as Zn, mg/l.	5.00	15.00	APHA (3111 B)	0.42
20. Chromium as Cr, mg/l.	0.05	No Relaxation	APHA (3111 B)	< 0.05
21. Arsenic as As, mg/l.	0.01	No Relaxation	APHA (3114 B)	< 0.01
22. Manganese as Mn, mg/l.	0.1	0.3	APHA 3111 B	<0.01

Verified By :

Technical Manager

[Signature]
20/04/23



– END OF TEST REPORT –

[Signature]
Authorized Signatory
Quality Manager

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TEST REPORT

Parameters	Requirement as per IS 10500 : 2012		Method of Test	Results in mg/l. except Colour, Odour, Taste, Turbidity, & pH
	Acceptable Limit	Permissible Limit in the absence of alternative source		
23. Mercury as Hg, mg/l.	0.001	No Relaxation	APHA 3112 B	<0.001
24. Cadmium as Cd, mg/l.	0.003	No Relaxation	APHA 3111 B	<0.001
25. Selenium as Se, mg/l.	0.01	No Relaxation	APHA 3111 B	<0.01
26. Cyanide as CN, mg/l.	0.05	No Relaxation	IS 3025 (Part-27)	<0.01
27. Lead as Pb, mg/l.	0.01	No Relaxation	APHA 3111 B	<0.01
28. Aluminium as Al, mg/l.	0.03	0.2	APHA 3111 D	<0.01
29. Anionic Detergent, mg/l.	0.2	1.0	APHA	<0.1
30. Mineral Oil, mg/l.	0.5	No Relaxation	APHA	<0.1
31. Phenolic Compound as C ₆ H ₅ OH, mg/l.	0.001	0.002	APHA 6431 B	<0.001
32. Total Coliform, CFU/100 ml.	Shall not be detectable in 100 ml.		IS 15185 : 2016	Absent
33. E.coli, CFU/100 ml.			IS 15185 : 2016	Absent



Verified By :
Technical Manager

[Signature]
20/04/23

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[Signature]
Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/206-GW-02		Dt: 20.04.2023		
a) Name and address of the Customer		SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)		
b) Details of Sample		Ground Water Sample		
c) Sample Collected by		Lab Representative of Shiva Test House, Patna		
d) Sampling Location		Dhobaul (GW2) [Lat. 24°46'10.64"N; Long 84°21'11.52"E]		
e) Sampling Date		10.04.2023		
f) Analysis Start Date		11.04.2023		
g) Analysis Completion Date		16.04.2023		
Parameters	Requirement as per IS 10500 : 2012		Method of Test	Results in mg/l. except Colour, Odour, Taste, Turbidity, & pH
	Acceptable Limit	Permissible Limit in the absence of alternative source		
1. Colour, Hazen Unit	5.0	15.0	IS 3025 (Part-4)	< 5.00
2. Odour	Agreeable		IS 3025 (Part-5)	Agreeable
3. Taste	Agreeable		IS 3025 (Part-7)	Agreeable
4. Turbidity	1.0	5.0	IS 3025 (Part-10)	1.12
5. pH	6.5 to 8.5	No Relaxation	IS 3025 (Part-11)	7.94
6. Total Dissolved Solids, mg/l.	500.0	2000.0	IS 3025 (Part-16)	736
7. Total hardness as CaCO ₃ , mg/l.	200.0	600.0	IS 3025 (Part-21)	440.0
8. Calcium as Ca, mg/l.	75.0	200.0	IS 3025 (Part-40)	80.1
9. Magnesium as Mg, mg/l.	30.0	100.0	IS 3025 (Part-46)	58.3
10. Total Alkalinity as CaCO ₃ , mg/l.	200	600.0	IS 3025 (Part-23)	312.0
11. Residual Free Chlorine, mg/l.	0.2	1	IS 3025 (Part-26)	<0.1
12. Chloride as Cl, mg/l.	250.0	1000.0	IS 3025 (Part-32)	52.0
13. Sulphate as SO ₄ , mg/l.	200.00	400.00	IS 3025 (Part-24)	25.2
14. Fluoride as F, mg/l.	1.0	1.5	APHA 4500 (F D)	0.24
15. Nitrate as NO ₃ , mg/l.	45.00	No relaxation	IS 3025 (Part-34)	22.2
16. Boron as 'B', mg/l.	0.5	2.4	APHA 4500 B B	<0.05
17. Iron as Fe, mg/l.	1.0	No relaxation	APHA 3500 Fe B	0.44
18. Copper as Cu, mg/l.	0.05	1.50	APHA (3111 B)	< 0.05
19. Zinc as Zn, mg/l.	5.00	15.00	APHA (3111 B)	0.41
20. Chromium as Cr, mg/l.	0.05	No Relaxation	APHA (3111 B)	< 0.05
21. Arsenic as As, mg/l.	0.01	No Relaxation	APHA (3114 B)	< 0.01
22. Manganese as Mn, mg/l.	0.1	0.3	APHA 3111 B	<0.01

Verified By :
Technical Manager

[Signature]
20/04/23



– END OF TEST REPORT –

[Signature]
Authorized Signatory
Quality Manager

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TEST REPORT

Parameters	Requirement as per IS 10500 : 2012		Method of Test	Results in mg/l. except Colour, Odour, Taste, Turbidity, & pH
	Acceptable Limit	Permissible Limit in the absence of alternative source		
23. Mercury as Hg, mg/l.	0.001	No Relaxation	APHA 3112 B	<0.001
24. Cadmium as Cd, mg/l.	0.003	No Relaxation	APHA 3111 B	<0.001
25. Selenium as Se, mg/l.	0.01	No Relaxation	APHA 3111 B	<0.01
26. Cyanide as CN, mg/l.	0.05	No Relaxation	IS 3025 (Part-27)	<0.01
27. Lead as Pb, mg/l.	0.01	No Relaxation	APHA 3111 B	<0.01
28. Aluminium as Al, mg/l.	0.03	0.2	APHA 3111 D	<0.01
29. Anionic Detergent, mg/l.	0.2	1.0	APHA	<0.1
30. Mineral Oil, mg/l.	0.5	No Relaxation	APHA	<0.1
31. Phenolic Compound as C ₆ H ₅ OH, mg/l.	0.001	0.002	APHA 6431 B	<0.001
32. Total Coliform, CFU/100 ml.	Shall not be detectable in 100 ml.		IS 15185 : 2016	Absent
33. E.coli, CFU/100 ml.			IS 15185 : 2016	Absent



Verified By :
Technical Manager

[Signature]
20/04/23

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[Signature]
Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/206-GW-04		Dt: 20.04.2023		
a) Name and address of the Customer		SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)		
b) Details of Sample		Ground Water Sample		
c) Sample Collected by		Lab Representative of Shiva Test House, Patna		
d) Sampling Location		Rajoi (GW4) [Lat. 84°24'13.52"E; Long 84°28'48.92"E]		
e) Sampling Date		10.04.2023		
f) Analysis Start Date		11.04.2023		
g) Analysis Completion Date		16.04.2023		
Parameters	Requirement as per IS 10500 : 2012		Method of Test	Results in mg/l. except Colour, Odour, Taste, Turbidity, & pH
	Acceptable Limit	Permissible Limit in the absence of alternative source		
1. Colour, Hazen Unit	5.0	15.0	IS 3025 (Part-4)	< 5.00
2. Odour	Agreeable		IS 3025 (Part-5)	Agreeable
3. Taste	Agreeable		IS 3025 (Part-7)	Agreeable
4. Turbidity	1.0	5.0	IS 3025 (Part-10)	1.18
5. pH	6.5 to 8.5	No Relaxation	IS 3025 (Part-11)	7.93
6. Total Dissolved Solids, mg/l.	500.0	2000.0	IS 3025 (Part-16)	626.0
7. Total hardness as CaCO ₃ , mg/l.	200.0	600.0	IS 3025 (Part-21)	408.0
8. Calcium as Ca, mg/l.	75.0	200.0	IS 3025 (Part-40)	82.2
9. Magnesium as Mg, mg/l.	30.0	100.0	IS 3025 (Part-46)	56.4
10. Total Alkalinity as CaCO ₃ , mg/l.	200	600.0	IS 3025 (Part-23)	256.0
11. Residual Free Chlorine, mg/l.	0.2	1	IS 3025 (Part-26)	<0.1
12. Chloride as Cl, mg/l.	250.0	1000.0	IS 3025 (Part-32)	64.0
13. Sulphate as SO ₄ , mg/l.	200.00	400.00	IS 3025 (Part-24)	32.8
14. Fluoride as F, mg/l.	1.0	1.5	APHA 4500 (F D)	0.22
15. Nitrate as NO ₃ , mg/l.	45.00	No relaxation	IS 3025 (Part-34)	28.3
16. Boron as 'B', mg/l.	0.5	2.4	APHA 4500 B B	<0.05
17. Iron as Fe, mg/l.	1.0	No relaxation	APHA 3500 Fe B	0.82
18. Copper as Cu, mg/l.	0.05	1.50	APHA (3111 B)	< 0.05
19. Zinc as Zn, mg/l.	5.00	15.00	APHA (3111 B)	0.46
20. Chromium as Cr, mg/l.	0.05	No Relaxation	APHA (3111 B)	< 0.05
21. Arsenic as As, mg/l.	0.01	No Relaxation	APHA (3114 B)	< 0.01
22. Manganese as Mn, mg/l.	0.1	0.3	APHA 3111 B	<0.01

Verified By :
Technical Manager

[Signature]
20/04/23



– END OF TEST REPORT –

[Signature]
Authorized Signatory
Quality Manager

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TEST REPORT

Parameters	Requirement as per IS 10500 : 2012		Method of Test	Results in mg/l. except Colour, Odour, Taste, Turbidity, & pH
	Acceptable Limit	Permissible Limit in the absence of alternative source		
23. Mercury as Hg, mg/l.	0.001	No Relaxation	APHA 3112 B	<0.001
24. Cadmium as Cd, mg/l.	0.003	No Relaxation	APHA 3111 B	<0.001
25. Selenium as Se, mg/l.	0.01	No Relaxation	APHA 3111 B	<0.01
26. Cyanide as CN, mg/l.	0.05	No Relaxation	IS 3025 (Part-27)	<0.01
27. Lead as Pb, mg/l.	0.01	No Relaxation	APHA 3111 B	<0.01
28. Aluminium as Al, mg/l.	0.03	0.2	APHA 3111 D	<0.01
29. Anionic Detergent, mg/l.	0.2	1.0	APHA	<0.1
30. Mineral Oil, mg/l.	0.5	No Relaxation	APHA	<0.1
31. Phenolic Compound as C ₆ H ₅ OH, mg/l.	0.001	0.002	APHA 6431 B	<0.001
32. Total Coliform, CFU/100 ml.	Shall not be detectable in 100 ml.		IS 15185 : 2016	Absent
33. E.coli, CFU/100 ml.			IS 15185 : 2016	Absent



Verified By :
Technical Manager

[Signature]
20/04/23

— END OF TEST REPORT —

[Signature]

Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/206-GW-05		Dt: 20.04.2023		
a) Name and address of the Customer		SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)		
b) Details of Sample		Ground Water Sample		
c) Sample Collected by		Lab Representative of Shiva Test House, Patna		
d) Sampling Location		Jaipal Bigha (GW5) [Lat. 24°44'25.49"N; Long. 84°30'10.36"E]		
e) Sampling Date		11.04.2023		
f) Analysis Start Date		12.04.2023		
g) Analysis Completion Date		17.04.2023		
Parameters	Requirement as per IS 10500 : 2012		Method of Test	Results in mg/l. except Colour, Odour, Taste, Turbidity, & pH
	Acceptable Limit	Permissible Limit in the absence of alternative source		
1. Colour, Hazen Unit	5.0	15.0	IS 3025 (Part-4)	< 5.00
2. Odour	Agreeable		IS 3025 (Part-5)	Agreeable
3. Taste	Agreeable		IS 3025 (Part-7)	Agreeable
4. Turbidity	1.0	5.0	IS 3025 (Part-10)	<1.0
5. pH	6.5 to 8.5	No Relaxation	IS 3025 (Part-11)	8.13
6. Total Dissolved Solids, mg/l.	500.0	2000.0	IS 3025 (Part-16)	546.0
7. Total hardness as CaCO ₃ , mg/l.	200.0	600.0	IS 3025 (Part-21)	376.0
8. Calcium as Ca, mg/l.	75.0	200.0	IS 3025 (Part-40)	72.1
9. Magnesium as Mg, mg/l.	30.0	100.0	IS 3025 (Part-46)	47.6
10. Total Alkalinity as CaCO ₃ , mg/l.	200	600.0	IS 3025 (Part-23)	278.0
11. Residual Free Chlorine, mg/l.	0.2	1	IS 3025 (Part-26)	<0.1
12. Chloride as Cl, mg/l.	250.0	1000.0	IS 3025 (Part-32)	66.0
13. Sulphate as SO ₄ , mg/l.	200.00	400.00	IS 3025 (Part-24)	28.6
14. Fluoride as F, mg/l.	1.0	1.5	APHA 4500 (F D)	0.26
15. Nitrate as NO ₃ , mg/l.	45.00	No relaxation	IS 3025 (Part-34)	24.2
16. Boron as 'B', mg/l.	0.5	2.4	APHA 4500 B B	<0.05
17. Iron as Fe, mg/l.	1.0	No relaxation	APHA 3500 Fe B	0.56
18. Copper as Cu, mg/l.	0.05	1.50	APHA (3111 B)	< 0.05
19. Zinc as Zn, mg/l.	5.00	15.00	APHA (3111 B)	0.43
20. Chromium as Cr, mg/l.	0.05	No Relaxation	APHA (3111 B)	< 0.05
21. Arsenic as As, mg/l.	0.01	No Relaxation	APHA (3114 B)	< 0.01
22. Manganese as Mn, mg/l.	0.1	0.3	APHA 3111 B	<0.01

Verified By :

Technical Manager

[Signature]
20/04/23



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[Signature]

Authorized Signatory
Quality Manager

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TEST REPORT

Parameters	Requirement as per IS 10500 : 2012		Method of Test	Results in mg/l. except Colour, Odour, Taste, Turbidity, & pH
	Acceptable Limit	Permissible Limit in the absence of alternative source		
23. Mercury as Hg, mg/l.	0.001	No Relaxation	APHA 3112 B	<0.001
24. Cadmium as Cd, mg/l.	0.003	No Relaxation	APHA 3111 B	<0.001
25. Selenium as Se, mg/l.	0.01	No Relaxation	APHA 3111 B	<0.01
26. Cyanide as CN, mg/l.	0.05	No Relaxation	IS 3025 (Part-27)	<0.01
27. Lead as Pb, mg/l.	0.01	No Relaxation	APHA 3111 B	<0.01
28. Aluminium as Al, mg/l.	0.03	0.2	APHA 3111 D	<0.01
29. Anionic Detergent, mg/l.	0.2	1.0	APHA	<0.1
30. Mineral Oil, mg/l.	0.5	No Relaxation	APHA	<0.1
31. Phenolic Compound as C ₆ H ₅ OH, mg/l.	0.001	0.002	APHA 6431 B	<0.001
32. Total Coliform, CFU/100 ml.	Shall not be detectable in 100 ml.		IS 15185 : 2016	Absent
33. E.coli, CFU/100 ml.			IS 15185 : 2016	Absent



Verified By :
Technical Manager

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20/04/23

— END OF TEST REPORT —

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Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/206-GW-06		Dt: 20.04.2023		
a) Name and address of the Customer		SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)		
b) Details of Sample		Ground Water Sample		
c) Sample Collected by		Lab Representative of Shiva Test House, Patna		
d) Sampling Location		Erki Kala (GW6) [Lat24°42'58.49"N; Long. 84°29'19.35"E]		
e) Sampling Date		11.04.2023		
f) Analysis Start Date		12.04.2023		
g) Analysis Completion Date		17.04.2023		
Parameters	Requirement as per IS 10500 : 2012		Method of Test	Results in mg/l. except Colour, Odour, Taste, Turbidity, & pH
	Acceptable Limit	Permissible Limit in the absence of alternative source		
1. Colour, Hazen Unit	5.0	15.0	IS 3025 (Part-4)	< 5.00
2. Odour	Agreeable		IS 3025 (Part-5)	Agreeable
3. Taste	Agreeable		IS 3025 (Part-7)	Agreeable
4. Turbidity	1.0	5.0	IS 3025 (Part-10)	<1.0
5. pH	6.5 to 8.5	No Relaxation	IS 3025 (Part-11)	7.26
6. Total Dissolved Solids, mg/l.	500.0	2000.0	IS 3025 (Part-16)	664.0
7. Total hardness as CaCO ₃ , mg/l.	200.0	600.0	IS 3025 (Part-21)	428.0
8. Calcium as Ca, mg/l.	75.0	200.0	IS 3025 (Part-40)	88.1
9. Magnesium as Mg, mg/l.	30.0	100.0	IS 3025 (Part-46)	50.5
10. Total Alkalinity as CaCO ₃ , mg/l.	200	600.0	IS 3025 (Part-23)	248.0
11. Residual Free Chlorine, mg/l.	0.2	1	IS 3025 (Part-26)	<0.1
12. Chloride as Cl, mg/l.	250.0	1000.0	IS 3025 (Part-32)	74.0
13. Sulphate as SO ₄ , mg/l.	200.00	400.00	IS 3025 (Part-24)	22.4
14. Fluoride as F, mg/l.	1.0	1.5	APHA 4500 (F D)	0.22
15. Nitrate as NO ₃ , mg/l.	45.00	No relaxation	IS 3025 (Part-34)	34.4
16. Boron as 'B', mg/l.	0.5	2.4	APHA 4500 B B	<0.05
17. Iron as Fe, mg/l.	1.0	No relaxation	APHA 3500 Fe B	0.48
18. Copper as Cu, mg/l.	0.05	1.50	APHA (3111 B)	< 0.05
19. Zinc as Zn, mg/l.	5.00	15.00	APHA (3111 B)	0.38
20. Chromium as Cr, mg/l.	0.05	No Relaxation	APHA (3111 B)	< 0.05
21. Arsenic as As, mg/l.	0.01	No Relaxation	APHA (3114 B)	< 0.01
22. Manganese as Mn, mg/l.	0.1	0.3	APHA 3111 B	<0.01

Verified By :

Technical Manager

Handwritten signature
20/04/23



— END OF TEST REPORT —

Handwritten signature
Authorized Signatory
Quality Manager

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TEST REPORT

Parameters	Requirement as per IS 10500 : 2012		Method of Test	Results in mg/l. except Colour, Odour, Taste, Turbidity, & pH
	Acceptable Limit	Permissible Limit in the absence of alternative source		
23. Mercury as Hg, mg/l.	0.001	No Relaxation	APHA 3112 B	<0.001
24. Cadmium as Cd, mg/l.	0.003	No Relaxation	APHA 3111 B	<0.001
25. Selenium as Se, mg/l.	0.01	No Relaxation	APHA 3111 B	<0.01
26. Cyanide as CN, mg/l.	0.05	No Relaxation	IS 3025 (Part-27)	<0.01
27. Lead as Pb, mg/l.	0.01	No Relaxation	APHA 3111 B	<0.01
28. Aluminium as Al, mg/l.	0.03	0.2	APHA 3111 D	<0.01
29. Anionic Detergent, mg/l.	0.2	1.0	APHA	<0.1
30. Mineral Oil, mg/l.	0.5	No Relaxation	APHA	<0.1
31. Phenolic Compound as C ₆ H ₅ OH, mg/l.	0.001	0.002	APHA 6431 B	<0.001
32. Total Coliform, CFU/100 ml.	Shall not be detectable in 100 ml.		IS 15185 : 2016	Absent
33. E.coli, CFU/100 ml.			IS 15185 : 2016	Absent



Verified By :
Technical Manager

[Signature]
20/04/23

— END OF TEST REPORT —

[Signature]

Authorized Signatory
Quality Manager

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TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/206-GW-07		Dt: 20.04.2023		
a) Name and address of the Customer		SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)		
b) Details of Sample		Ground Water Sample		
c) Sample Collected by		Lab Representative of Shiva Test House, Patna		
d) Sampling Location		Deo (GW7) [Lat. 24°39'56.69"N; Long. 84°26'1.92"E]		
e) Sampling Date		11.04.2023		
f) Analysis Start Date		12.04.2023		
g) Analysis Completion Date		17.04.2023		
Parameters	Requirement as per IS 10500 : 2012		Method of Test	Results in mg/l. except Colour, Odour, Taste, Turbidity, & pH
	Acceptable Limit	Permissible Limit in the absence of alternative source		
1. Colour, Hazen Unit	5.0	15.0	IS 3025 (Part-4)	< 5.00
2. Odour	Agreeable		IS 3025 (Part-5)	Agreeable
3. Taste	Agreeable		IS 3025 (Part-7)	Agreeable
4. Turbidity	1.0	5.0	IS 3025 (Part-10)	1.34
5. pH	6.5 to 8.5	No Relaxation	IS 3025 (Part-11)	7.84
6. Total Dissolved Solids, mg/l.	500.0	2000.0	IS 3025 (Part-16)	648.0
7. Total hardness as CaCO ₃ , mg/l.	200.0	600.0	IS 3025 (Part-21)	448.0
8. Calcium as Ca, mg/l.	75.0	200.0	IS 3025 (Part-40)	80.1
9. Magnesium as Mg, mg/l.	30.0	100.0	IS 3025 (Part-46)	60.3
10. Total Alkalinity as CaCO ₃ , mg/l.	200	600.0	IS 3025 (Part-23)	260.0
11. Residual Free Chlorine, mg/l.	0.2	1	IS 3025 (Part-26)	<0.1
12. Chloride as Cl, mg/l.	250.0	1000.0	IS 3025 (Part-32)	68.0
13. Sulphate as SO ₄ , mg/l.	200.00	400.00	IS 3025 (Part-24)	28.8
14. Fluoride as F, mg/l.	1.0	1.5	APHA 4500 (F D)	0.28
15. Nitrate as NO ₃ , mg/l.	45.00	No relaxation	IS 3025 (Part-34)	26.2
16. Boron as 'B', mg/l.	0.5	2.4	APHA 4500 B B	<0.05
17. Iron as Fe, mg/l.	1.0	No relaxation	APHA 3500 Fe B	0.74
18. Copper as Cu, mg/l.	0.05	1.50	APHA (3111 B)	< 0.05
19. Zinc as Zn, mg/l.	5.00	15.00	APHA (3111 B)	0.41
20. Chromium as Cr, mg/l.	0.05	No Relaxation	APHA (3111 B)	< 0.05
21. Arsenic as As, mg/l.	0.01	No Relaxation	APHA (3114 B)	< 0.01
22. Manganese as Mn, mg/l.	0.1	0.3	APHA 3111 B	<0.01

Verified By :
Technical Manager

[Signature]
20/04/23



– END OF TEST REPORT –

[Signature]
Authorized Signatory
Quality Manager

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TEST REPORT

Parameters	Requirement as per IS 10500 : 2012		Method of Test	Results in mg/l. except Colour, Odour, Taste, Turbidity, & pH
	Acceptable Limit	Permissible Limit in the absence of alternative source		
23. Mercury as Hg, mg/l.	0.001	No Relaxation	APHA 3112 B	<0.001
24. Cadmium as Cd, mg/l.	0.003	No Relaxation	APHA 3111 B	<0.001
25. Selenium as Se, mg/l.	0.01	No Relaxation	APHA 3111 B	<0.01
26. Cyanide as CN, mg/l.	0.05	No Relaxation	IS 3025 (Part-27)	<0.01
27. Lead as Pb, mg/l.	0.01	No Relaxation	APHA 3111 B	<0.01
28. Aluminium as Al, mg/l.	0.03	0.2	APHA 3111 D	<0.01
29. Anionic Detergent, mg/l.	0.2	1.0	APHA	<0.1
30. Mineral Oil, mg/l.	0.5	No Relaxation	APHA	<0.1
31. Phenolic Compound as C ₆ H ₅ OH, mg/l.	0.001	0.002	APHA 6431 B	<0.001
32. Total Coliform, CFU/100 ml.	Shall not be detectable in 100 ml.		IS 15185 : 2016	Absent
33. E.coli, CFU/100 ml.			IS 15185 : 2016	Absent



Verified By :
Technical Manager

[Signature]
20/04/23

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Contact us : 122-C, Aastha, Road No. 5A, Patliputra Colony, Patna - 800 013 (Bihar)
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SHIVA TEST HOUSE

(Serving since 1988)

RECOGNISED AS ENVIRONMENTAL LABORATORY BY MOEFCC, GOVT. OF INDIA, UNDER ENVIRONMENT (PROTECTION) ACT 1986, DEPTT. OF INDUSTRY, FORESTS & ENVIRONMENT, GOVT. OF BIHAR AND BIHAR STATE POLLUTION CONTROL BOARD

TEST REPORT

Report No. STH/TR/SSI/23-24/EIA/206-GW-08	Dt: 20.04.2023			
a) Name and address of the Customer	SRI SAI INDUSTRIES Re-rolling Mill Project Mauza : Dehri ; Poiwa Pachrukha Road P.O.: Poiwa Dist. Aurangabad – 824103 (Bihar)			
b) Details of Sample	Ground Water Sample			
c) Sample Collected by	Lab Representative of Shiva Test House, Patna			
d) Sampling Location	Aurangabad(GW8) [Lat. 24°44'55.54"N; Long. 84°21'58.56"E]			
e) Sampling Date	11.04.2023			
f) Analysis Start Date	12.04.2023			
g) Analysis Completion Date	17.04.2023			
Parameters	Requirement as per IS 10500 : 2012		Method of Test	Results in mg/l. except Colour, Odour, Taste, Turbidity, & pH
	Acceptable Limit	Permissible Limit in the absence of alternative source		
1. Colour, Hazen Unit	5.0	15.0	IS 3025 (Part-4)	< 5.00
2. Odour	Agreeable		IS 3025 (Part-5)	Agreeable
3. Taste	Agreeable		IS 3025 (Part-7)	Agreeable
4. Turbidity	1.0	5.0	IS 3025 (Part-10)	1.0
5. pH	6.5 to 8.5	No Relaxation	IS 3025 (Part-11)	8.05
6. Total Dissolved Solids, mg/l.	500.0	2000.0	IS 3025 (Part-16)	901
7. Total hardness as CaCO ₃ , mg/l.	200.0	600.0	IS 3025 (Part-21)	492
8. Calcium as Ca, mg/l.	75.0	200.0	IS 3025 (Part-40)	65.7
9. Magnesium as Mg, mg/l.	30.0	100.0	IS 3025 (Part-46)	79.7
10. Total Alkalinity as CaCO ₃ , mg/l.	200	600.0	IS 3025 (Part-23)	328
11. Residual Free Chlorine, mg/l.	0.2	1	IS 3025 (Part-26)	<0.1
12. Chloride as Cl, mg/l.	250.0	1000.0	IS 3025 (Part-32)	188
13. Sulphate as SO ₄ , mg/l.	200.00	400.00	IS 3025 (Part-24)	28.2
14. Fluoride as F, mg/l.	1.0	1.5	APHA 4500 (F D)	0.34
15. Nitrate as NO ₃ , mg/l.	45.00	No relaxation	IS 3025 (Part-34)	44.4
16. Boron as 'B', mg/l.	0.5	2.4	APHA 4500 B B	<0.05
17. Iron as Fe, mg/l.	1.0	No relaxation	APHA 3500 Fe B	0.64
18. Copper as Cu, mg/l.	0.05	1.50	APHA (3111 B)	< 0.05
19. Zinc as Zn, mg/l.	5.00	15.00	APHA (3111 B)	0.52
20. Chromium as Cr, mg/l.	0.05	No Relaxation	APHA (3111 B)	< 0.05
21. Arsenic as As, mg/l.	0.01	No Relaxation	APHA (3114 B)	< 0.01
22. Manganese as Mn, mg/l.	0.1	0.3	APHA 3111 B	<0.01

Verified By :

Technical Manager

[Signature]
20/04/23



— END OF TEST REPORT —

[Signature]
Authorized Signatory
Quality Manager

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TEST REPORT

Parameters	Requirement as per IS 10500 : 2012		Method of Test	Results in mg/l. except Colour, Odour, Taste, Turbidity, & pH
	Acceptable Limit	Permissible Limit in the absence of alternative source		
23. Mercury as Hg, mg/l.	0.001	No Relaxation	APHA 3112 B	<0.001
24. Cadmium as Cd, mg/l.	0.003	No Relaxation	APHA 3111 B	<0.001
25. Selenium as Se, mg/l.	0.01	No Relaxation	APHA 3111 B	<0.01
26. Cyanide as CN, mg/l.	0.05	No Relaxation	IS 3025 (Part-27)	<0.01
27. Lead as Pb, mg/l.	0.01	No Relaxation	APHA 3111 B	<0.01
28. Aluminium as Al, mg/l.	0.03	0.2	APHA 3111 D	<0.01
29. Anionic Detergent, mg/l.	0.2	1.0	APHA	<0.1
30. Mineral Oil, mg/l.	0.5	No Relaxation	APHA	<0.1
31. Phenolic Compound as C ₆ H ₅ OH, mg/l.	0.001	0.002	APHA 6431 B	<0.001
32. Total Coliform, CFU/100 ml.	Shall not be detectable in 100 ml.		IS 15185 : 2016	Absent
33. E.coli, CFU/100 ml.			IS 15185 : 2016	Absent



Verified By :
Technical Manager

[Signature]
20/04/23

— END OF TEST REPORT —

[Signature]

Authorized Signatory
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