

Executive Summary

Of

EIA/EMP of Proposed expansion of manufacturing of M.S. Billets from 20,000 TPM (2,40,000 TPA) and TMT Bars from 20,000 TPM (2,40,000) TO M.S. Billets: 60,000 TPM (7,20,000 TPA) and TMT Bars/ Channels/ Angels/ Beam/ Structure/ Rod/Wire Rod: 60,000 TPM (7,20,000 TPA)

Proponent

*M/s Guardian Casting Pvt Ltd,
Gat. No. 57(pt),116,120, 135(pt), and Gat. No. 92/1 Abitghar,
Tal. Wada & Dist. Palghar*

By

***Pollution & Ecology Control Services
NAGPUR***

Environmental Consultant

Pollution and Ecology Control Services
Accreditation no.: NABET/EIA/2023/SA 0165 valid upto 16th October 2022

EXECUTIVE SUMMARY

1.0 INTRODUCTION

M/s. Guardian Casting Private Limited has proposed expansion project for manufacturing of M.S. Billets from 20,000 TPA to 60,000 TPA and TMT Bars/Channels/Angels/Beam/Structure/ Rod/Wire Rod from 20,000 TPA to 60,000 TPA, at village- Abitghar, Tehsil-Wada, District- Palghar, Maharashtra. The proponent made an online application on 11th March 2022 along with Form-1, Pre-feasibility report and other documents for Terms of Reference (TORs) for undertaking detailed EIA study. Standard ToR was granted vide letter file no. SIA/MH/IND/73436/2022 on 15th March, 2022 for undertaking EIA study for the proposed expansion. As per Environmental Impact Assessment Notification dated 14th September, 2006 and subsequent amendment thereof, the proposed expansion project falls under Category “B1” Schedule 3(a) Metallurgical Industries and requires Environmental Clearance (EC).

Project at Glance

Sr. No.	Description	Details			
1	Nature of the project	Proposed Expansion of Manufacturing of M.S. Billets, TMT Bars/Channels/Angels/Beam/Structure/Road/Wire Rod			
2	Production Capacity		Existing capacity (TPA)	Proposed capacity (TPA)	Total capacity after expansion (TPA)
		M.S. billets	20,000	40,000	60,000
		TMT Bars/ Channels/Angels/ Beam/ Structure /Rod/Wire Rod	20,000	40,000	60,000
3	Raw Material Requirement	The total raw material requirement for project is given in table below:			
		Sr. No.	Raw Material	Requirement (TPA)	
		1.	Scrap	55200	
		2.	Sponge Iron	13800	
		3.	Alloys	900	
		4.	Billets in Hot Charged State for Rolling Mill	60,000	

4	Water requirement & Source	Existing: 150 KLD Proposed: 300 KLD Total: 450 KLD Source – Bore Well
5	Power requirement & Source	Existing: 15 MWA Proposed: 50 MWA Total after expansion: 65 MWA Source: State Electricity Board
6	Land for proposed plant	Total land is 6.24 ha. of Private Land at village Abitghar for Manufacturing of M.S Billets and TMT Bars
7	Total manpower	Existing:484 nos. proposed: 370 nos. Total After Expansion:854 nos.
9	Estimated Cost of the project	Existing: Rs. 17.5 Crores Proposed: Rs. 130 Crores Total: Rs, 147.5 Crores

Location Details

S.N.	Particulars	Details																																							
1	Project Site	Gut No. 57(pt),108(pt),115,116,117,120,135(pt)and 92/1 Village – Abitghar, Tahsil – Wada, District– Palghar, Maharashtra																																							
2	Latitude / Longitude	<table border="1"> <thead> <tr> <th>Corner</th> <th>Latitude</th> <th>Longitude</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>19°35'11.78"N</td> <td>73° 9'54.97"E</td> </tr> <tr> <td>B</td> <td>19°35'11.52"N</td> <td>73° 9'45.63"E</td> </tr> <tr> <td>C</td> <td>19°35'8.63"N</td> <td>73° 9'37.99"E</td> </tr> <tr> <td>D</td> <td>19°35'13.91"N</td> <td>73° 9'36.91"E</td> </tr> <tr> <td>E</td> <td>19°35'14.04"N</td> <td>73° 9'41.02"E</td> </tr> <tr> <td>F</td> <td>19°35'16.66"N</td> <td>73° 9'37.39"E</td> </tr> <tr> <td>G</td> <td>19°35'19.20"N</td> <td>73° 9'37.42"E</td> </tr> <tr> <td>H</td> <td>19°35'19.34"N</td> <td>73° 9'40.83"E</td> </tr> <tr> <td>I</td> <td>19°35'16.82"N</td> <td>73° 9'40.89"E</td> </tr> <tr> <td>J</td> <td>19°35'16.80"N</td> <td>73° 9'45.12"E</td> </tr> <tr> <td>K</td> <td>19°35'14.40"N</td> <td>73° 9'45.37"E</td> </tr> <tr> <td>L</td> <td>19°35'13.40"N</td> <td>73° 9'54.37"E</td> </tr> </tbody> </table>	Corner	Latitude	Longitude	A	19°35'11.78"N	73° 9'54.97"E	B	19°35'11.52"N	73° 9'45.63"E	C	19°35'8.63"N	73° 9'37.99"E	D	19°35'13.91"N	73° 9'36.91"E	E	19°35'14.04"N	73° 9'41.02"E	F	19°35'16.66"N	73° 9'37.39"E	G	19°35'19.20"N	73° 9'37.42"E	H	19°35'19.34"N	73° 9'40.83"E	I	19°35'16.82"N	73° 9'40.89"E	J	19°35'16.80"N	73° 9'45.12"E	K	19°35'14.40"N	73° 9'45.37"E	L	19°35'13.40"N	73° 9'54.37"E
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3	Elevation above MSL	83 Meters																																							
4	Toposheet	47E/2, 47E/3, 47E/6																																							
5	Present landuse	Industrial land																																							
6	Nearest National Highway/State Highway	State Highway No. 35 - 2.0 Km																																							
7	Nearest Airport/ Air Strip	Chatrapati Shivaji International Airport, Mumbai:69 Kms																																							

8	Nearest Village	Abitghar: 0.5 km E
9	Forest	Reserved Forest Patch: 2.0 km (NE) Reserved Forest Patch: 7.5 km (S) Reserved Forest Patch: 7.0 km (W) Reserved Forest Patch: 6.0 km (N) Reserved Forest Patch: 7.5 km (NW)
10	Ecologically Sensitive zones like wild life sanctuaries, national parks and biospheres	No Boundary of Tansa Wildlife Sanctuary at 12.0 km away from the project site
11	Water Bodies	Tansa River: 5.5 km (SE) Vaitarna River: 6.5 km (N) Gaval Nala: 5.5 km (SE) Dongri Nala: 1 km (E) Charnavati Nala: 6.0 km (SW) Dhandela Nala: 6.5 km (N)
12	Nearby Schools	1) Z.P. School, Abitghar: 0.28 km (SE) 2) Madhyamik Vidyalay Abitghar: 0.79 km (SE) 3) Z.P.School, Chikahale : 3.64 km (NW)
13	Nearby Hospital	1) Kalyani Hospital Khupari wada, Devgaon: 6.16 km (SW) 2) Saikrupa Hospital: 6.98 km (N) 3) Rural Hospital Wada: 7.22 km (N)

2.0 PROJECT DESCRIPTION

The proposed project is for expansion of manufacturing of M.S. Billets from 20,000 TPM (2,40,000 TPA) and TMT Bars from 20,000 TPM (2,40,000) TO M.S. Billets: 60,000 TPM (7,20,000 TPA) and TMT Bars/ Channels/ Angels/ Beam/ Structure/ Rod/Wire Rod: 60,000. The production scenarios & plant configuration of the existing and proposed plant are given in following table.

Production Scenario

S.No.	Product	Existing Capacity	Proposed Capacity	Total Capacity
1	M.S. Billets	20,000 TPM (2,40,000 TPA)	40,000 TPM (4,80,000 TPA)	60,000 TPM (7,20,000 TPA)
2	TMT Bars/ Channels/ Angels/Beam/ Structure /Rod/Wire Rod	20,000 TPM (2,40,000 TPA)	40,000 TPM (4,80,000 TPA)	60,000 TPM (7,20,000 TPA)

EXISTING AND PROPOSED PLANT CONFIGURATION

S.No	Equipment /facility	Existing	Proposed	Total after expansion
1	Induction Furnace	1 x 30 TPH 1 x 15 TPH	1 x 30 TPH 1 x 40 TPH	1 x 15 TPH 2 x 30 TPH 1 x 40 TPH
2	Rolling Mill	2,40,000 TPA	4,80,000 TPA	7,20,000 TPA

PROCESS DESCRIPTION**Induction Furnace**

The company will manufacture M.S. Billets by using sponge Iron and scrap as raw materials. Silicon & manganese are added as alloying elements using medium frequency induction furnace and continues casting technology.

In the Induction Melting Furnace where the iron melts at a temperature of about 1650⁰C. When the total charge gets melted into hot liquid metal then the metallurgy of steel in terms of carbon, phosphorous content, alloy elements etc. is controlled. Based upon the composition of the molten steel, additives like Silico, Manganese will be added to get the requisite composition and grade of steel. The molten steel (hot billets) from induction furnace is directly transferred to continuous casting machine then to Roller Table high Speed Conveying and to rolling line to form TMT bar.

Rolling Mill

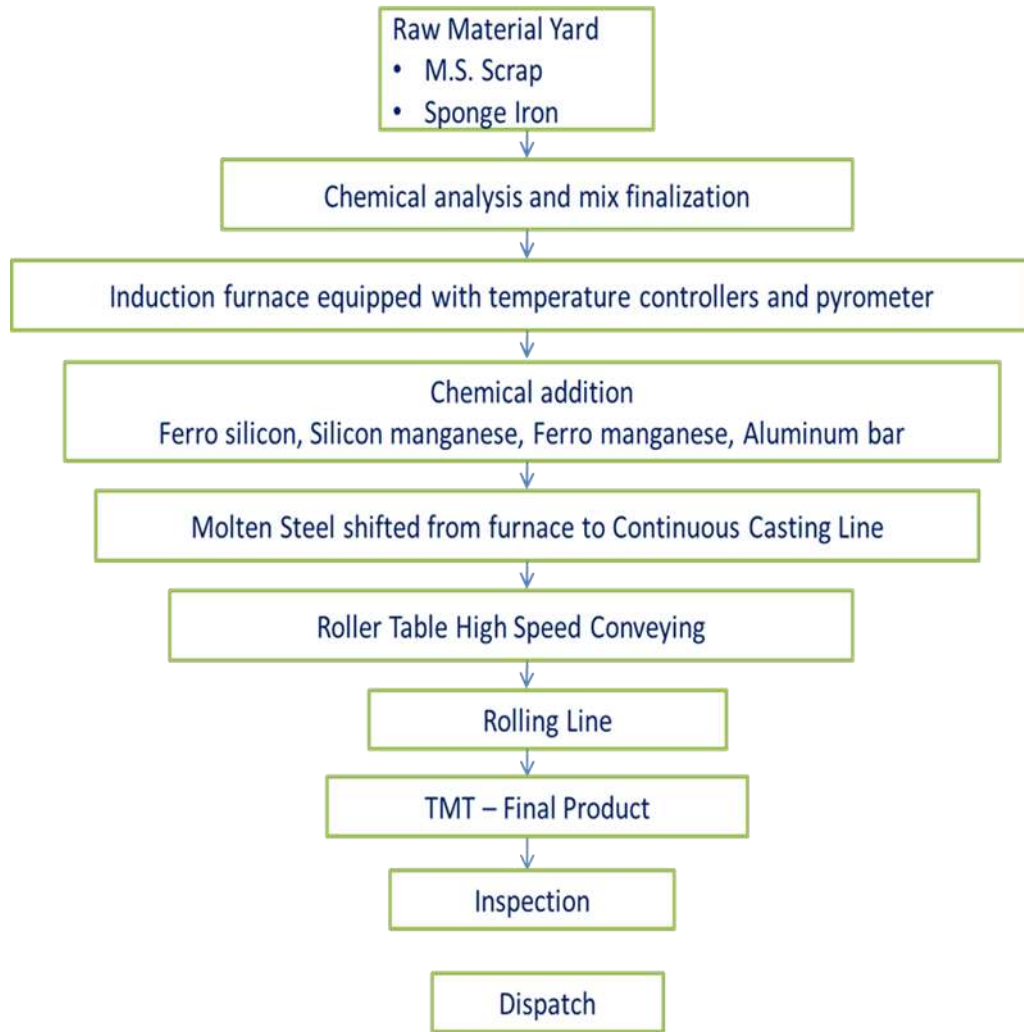
In the new project molten metal from the induction furnace will be poured directly to produce TMT bars in rolling mill bypassing the process of reheating of M.S. Billets.

The molten steel (hot billets) from induction furnace is directly transferred to continuous casting machine then to Roller Table high Speed Conveying and to rolling line to form TMT bars. In order to produce TMT bars water quenching is done under the controlled conditions where the surface temperature falls from 900 to 400⁰C due to the intense and uniform cooling. This makes the surface of the bar a hardened structure and the core remains the soft. This process increases the tensile strength of the material while keeping high ductility and weldability.

The manufacturing process comprise of pouring molten metal from the induction furnace directly to produce TMT bars in rolling mill by passing the process of

reheating billets but the rolling mill have to be shut down from some time for maintenance.

Meanwhile production of M.S. Billets will take place and therefore actual production of TMT bar will be 2-3% less than actual estimated production capacity.



Process Flow Chart of the Process

ADVANTAGES OF HOT BILLET ROLLING PROCESS

- No need of Re-heating the Billets
- Billets in molten condition will be directly fed to Hot Billet Rolling machine thus saving of fuel & electricity.
- No need of storing coal required in Gasifier for conventional rolling mill
- No space will be required for storage of Billets and fly ash.

- Easy handling of Process.
- No additional SPM emission as coal will not be used.
- No generation of Fly Ash.
- Less man power required.

Capital Cost

The estimated project cost of the proposed expansion project will be Rs. 130.00 Crore approx.

Budget for Implementation of Environmental Management Plan

The capital cost for environmental protection measures for proposed project will be as Rs. 730 Lacs. The annual recurring cost towards the environmental protection measures for proposed project will be Rs. 73 Lakhs.

Site Selected for the Project

The company has proposed the capacity enhancement without change in plant & machinery. M/s Guardian Casting Pvt. Ltd. has proposed expansion project of manufacturing of M.S. Billets from 20,000 TPM (2,40,000 TPA) and TMT Bars from 20,000 TPM (2,40,000) TO M.S. Billets: 60,000 TPM (7,20,000 TPA) and TMT Bars/ Channels/ Angels/ Beam/ Structure/ Rod/Wire Rod: 60,000 at Gut No. 57(pt),108 (pt),115,116,117,120,135(pt)and 92/1 Village – Abitghar, Tehsil – Wada, District– Palghar, Maharashtra.

3.0 DESCRIPTION OF THE ENVIRONMENT

Air Environment

The ambient air quality monitored at 8 locations selected based on predominant wind direction, indicated the following ranges;

PM ₁₀	: 37.5 to 87.4 $\mu\text{g}/\text{m}^3$
PM _{2.5}	: 16.7 to 39.7 $\mu\text{g}/\text{m}^3$
SO ₂	: 8.7 to 21.4 $\mu\text{g}/\text{m}^3$
NO _x	: 17.4 to 38.6 $\mu\text{g}/\text{m}^3$

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

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

Noise Environment

It has found that in the proposed expansion plant, noise levels are in the range of 38.9 – 69.4 dB (A) at all eight stations. Maximum levels of noise have recorded in day hours which are natural as our most of activities have done in day hours.

Land Environment

Total eight samples were collected and analysed for physic-chemical characteristics at selected locations in the study area to assess the existing soil conditions around the proposed project site. The relevant parameters show the following characteristics:

Water Environment

A total 16 samples including eight surface & eight ground water samples were collected and analyzed. The water samples were analyzed as per Standard Methods for Analysis of Water and Wastewater, American Public Health Association (APHA) Publication.

The data indicates that the ground water as well as the surface water quality is below the stipulated standard for drinking water (BIS 10500 – 2012). Except high concentration of total coliform in surface water, this may be due to the human activities.

Land Environment

Total eight samples were collected and analysed for physic-chemical characteristics at selected locations in the study area to assess the existing soil conditions around the proposed project site. The relevant parameters show the following characteristics:

- a) Texture of all soil samples are sandy clay loam & clay loam in Texture Classification.
- b) Colour of soil samples from agriculture is brown, redish & black in color.
- c) The bulk density of soil samples are in the range of 1.65 to 1.84 gm/cc.

- d) Soil samples have pH values in the range of 7.0 to 8.1. The pH values are indicating nature of soil samples as neutral.
- e) Soil samples have conductivities between 0.037 to 0.109 mmhos/cm.
- f) Soil samples have Organic Matter between 0.87 to 1.98 %. These values represent average fertility of soils.
- g) Soil samples have concentration of Available Nitrogen values ranged between 299.0 to 928.5 kg/ha.
- h) Soil sample have concentration of Available Phosphorous values ranged between 56.4 to 98.5 kg/ha.
- i) Soil sample have concentration of Available Potassium values range between 81.9 to 135.4 kg/ha.

4.0 Anticipated Impacts & Mitigation Measures

Impact on Air quality

- Company shall provide dust suction system which will control fugitive emission due to material and raw material handling.
- Regular monitoring of air quality parameters.
- The vehicles transporting raw materials will be covered with tarpaulin in order to prevent dust emission during the transport.
- It would be ensured that all the vehicles in the working zone are properly maintained to keep emissions within the permissible limits.
- At loading and unloading points, arrangement for Water sprinkling will be made so that dust generation during transportation of materials will brought down to minimal.
- The finished product will be transported by the same trucks carrying raw material.
- Plantation in the plant premises will be done in the 33% of the total land.
- All the internal roads shall be concreted / asphalted to reduce the fugitive dust due to vehicular movement

Whenever, APCS is not working, then raw material feed will be stopped. Consequently, there will be no production in the unit till APCS is rectified.

Raw Material Handling / Transport System

Raw materials like Scrap, Sponge Iron etc. when transferred within the premises by road, Wagon Tripler, etc. will lead to the fugitive dust emissions. Dust is/will be generated from all the transfer points of belt conveyors. This is/will be controlled by providing bag filters at material transfer points. Dust may be generated due to carryover by wind. However, to avoid this, the raw material is/will be stored in covered shed.

Mitigation Measures

- The fumes from the proposed Induction Furnace will be extracted through fume extraction system placed over the furnace connected to Wet Scrubbers followed by stack of 30 mt height.
- During induction melting of steel scrap, lot of sparks gets generated. For the purpose of arresting sparks & flame, it is necessary to have an arrestor which arrests sparks. The device provided will be a centrifugal cyclone, which removes sparks and also collects coarser particles. The collected dust in the cyclone hopper can be drained periodically into a drum when the system is shut or a continuous motorized rotary air lock valve can be provided.
- The flue gases generated from existing Sponge Iron project are re-used to generate electricity.
- At all the points, Dust Collectors/ dust suppression systems/ESP is installed.
- Water sprinkling is being/will be done regularly to control the fugitive emissions.
- All internal roads are tarred.
- All belt conveyors are covered.
- Ambient air quality monitoring shall be carried out on regular basis to ensure the compliance with National Ambient Air Quality Standards (NAAQS). The ambient air quality within the factory premises shall not exceed the standards (PM_{10} 100 $\mu\text{g}/\text{m}^3$, $PM_{2.5}$ 60 $\mu\text{g}/\text{m}^3$ SO_2 80 $\mu\text{g}/\text{m}^3$, NO_x 80 $\mu\text{g}/\text{m}^3$ and CO 04 $\mu\text{g}/\text{m}^3$) prescribed by CPCB.

Mitigation Measures

The noise levels will not exceed the standards stipulated by Central Pollution Control Board at any point of time. The equipments will have inbuilt noise control devices.

The measured noise level produced by any equipment will not exceed 85 dB(A) at a distance of 1.0-m from its boundary in any direction under any load condition. The noise produced in valves and piping associated with handling compressible and incompressible fluids will be attenuated to 75 dB(A) at a distance of 1.0 m from the source by the use of low noise trims, baffle plate silencers/line silencers, acoustic lagging (insulation), thick-walled pipe work as and where necessary. The general mitigation for the attenuation of the noise are given below:

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

Impact on Water

The quantity of water requirement for existing plant is 150 KLD and water requirement for proposed project will be 300 KLD. Total Water Requirement for the project will be 450 KLD. Water requirement of the unit is fulfilled from Ground water (Bore well) and from Private Tankers. 60 KLD Industrial waste water will be treated in settling tank of Domestic waste water will be taken to adequately designed 30 KLD STP. The treated water will be recycled for utilization in Green Belt Development.

Impact on Terrestrial ecology

There is no National Park, Wildlife sanctuary, Biosphere reserves and protected forest within 10 km of the plant area. No schedule- I species were recorded in the core and buffer zone of plant area during the biodiversity assessment. There may be an impact on the biological environment of the area due to operation of plant, if proper care will not be taken:

- Particulate matter emissions and fugitive emissions due to transportation activity & material handling may degrade the soil quality of surrounding environment that may affect the biodiversity of surrounding environment.
- Fugitive emissions (dust) may impact the terrestrial flora. The settlement of dust on the laminar surface of plants can impede the efficiency of photosynthesis and thereby, affect the productivity of plants. In some of the plant, it may also smother the leaf surface blocking stomata, resulting in reduced transpiration.

The present running plant has no significant impact on surrounding ecology and biodiversity as following mitigation measures have been / will be adopted:

- Greenbelt development and plantation in and around the plant site.
- Using paved roads for transportation to minimize fugitive emissions.
- Transporting material in truck covered with tarpaulin and storing it under covered facilities.
- Transport vehicles and machinery will be properly maintained and periodically checked for pollution level to reduce noise and gaseous emission in the surrounding environment.

Solid Waste Generation

The solid waste generated and its mitigation measures are as follows: -

Existing and Proposed Solid waste Generation

Sr. No.	Solid Waste	Existing Quantity (TPM)	Proposed Quantity (TPM)	Total Quantity (TPM)	Mitigation Measures
1	Slag	800	1600	2400	Slag will be sold to authorized vendors
2	Tail Cutting	400	800	1200	Sale to Authorized party/ Reused as raw material in own induction Furnaces

Impact on Socio-Economic Environment

M/s Guardian Casting Pvt. Ltd. is providing direct employment 370 nos. workers for proposed expansion project. The local persons will be given preference in employment as per the qualification and technical competencies. In order to mitigate the adverse impacts likely to arise in the proposed project activities and also to minimize the apprehensions to the local people, it is necessary to formulate an affective EMP for smooth initiation and functioning of the project. The suggestions are given below:

- ❖ Communication with the local people will be established regular basis by project authority to provide an opportunity for local youth.
- ❖ Project authorities will undertake regular environmental awareness program on environmental management
- ❖ Job opportunities are the most demanding factor, the local people as per their education will be employed.
- ❖ For social welfare activities to be undertaken by the project authorities, collaboration should be sought with the local administration, gram panchayat, block development office etc. for better coordination.

The overall impact on the socio-economic environment will be significant.

5.0 Environmental Monitoring Programme

M/s Guardian Casting Pvt. Ltd. is carrying out the environmental monitoring on regular basis in existing unit and the methodologies adopted are in accordance with the CPCB guidelines.

The environmental monitoring locations are selected where environmental impacts are likely to occur due to the operation of existing and proposed project as the main scope of monitoring program is to track, timely and regularly, the change in environmental conditions and to take timely action and adopt mitigation measures for protection of environment.

Ambient Air Quality Monitoring

Ambient air quality monitoring in and around the plant is also being carried out by NABL accredited lab Ultimate Environmental Solutions on regular basis and reports are being submitted to CECB regularly.

Water Quality Monitoring

Surface and Ground water quality samples are being collected and analyzed by NABL accredited lab, samples are collected from different locations on quarterly basis and analyzed. Reports are being submitted to CSPCB, CPCB and MoEF.

The plant is maintaining zero liquid discharge and as per guidelines issued by CPCB.

Noise Environment

Noise levels are being monitored at various locations of the plant premises for day and night time as per the CPCB guidelines.

Fugitive emission

Monitoring of ground level dust concentration/Fugitive emission along with gaseous pollutants viz SO₂, NO_x are being carried out periodically. Dust concentration and gaseous emission levels from all the fugitive sources being regularly monitored.

Necessary control measures are being adopted to keep the secondary fugitive emission within limits.

Same practice will be continued after proposed expansion project.

6.0 Additional Studies

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

7.0 Project Benefits

The estimated project cost of the proposed expansion project will be Rs. 130.00 Crore approx. The budgetary provision for EMP will be as Rs 730 lacs and Operation & Maintenance Cost will be 73.0 Lacs/year.

Environment Management Cost for Proposed Project

SR. NO	COMPONENT	DESCRIPTION	CAPITAL COST RS. IN LACS	OPERATION & MAINTENANCE COST RS. IN LACS/YEAR
1.	Air Pollution Control	Bag filter along with Fume extraction system bag filter	450.0	45.0
2	Online stack monitoring system	Continuous Emission Monitoring System (CEMS)	45.0	4.5
3.	Water Pollution Control	Packaged type STP for domestic water treatment	35.0	3.5
4.	Solid Waste Management	Handling and disposing	140	14
5.	Green Belt	Plantation	20.0	2.0
6.	Environmental Monitoring by accredited MOEF and NABL approved lab	Air Quality, Water and Wastewater Quality, Noise Level, Soil Quality	40.0	4.0
Total			730.0	73.0

8.0 Environmental Management Cell

A separate environmental management cell is established to implement the management plan. The Environmental Cell is functioning under the control of the General Manager along with the EMS team of the company to monitor the environmental measures. The Environmental Management cell for M/s Guardian Casting Pvt. Ltd.

The cell is responsible for monitoring ambient air quality, stack emission, ambient noise in the plant and vicinity, waste water quality and discharge, quality of water bodies receiving effluent, workplace air quality and maintenance of analytical instruments. Additional responsibilities of the cell include the following:

- Conducting annual environmental audit and submit audit report to State Pollution Control Board
- Submission of all statutory reports and returns

- Conduct regular training programs to educate plant personnel on environmental awareness
- Inform the management regularly about conclusions/results of monitoring and recommend environmental protection measures.

The following mitigation measures will be undertaken for the proposed project:

AIR POLLUTION

- Company shall provide dust suction system which will control fugitive emission due to material and raw material handling.
- Regular monitoring of air quality parameters.
- The vehicles transporting raw materials will be covered with tarpaulin in order to prevent dust emission during the transport.
- It would be ensured that all the vehicles in the working zone are properly maintained to keep emissions within the permissible limits.
- At loading and unloading points, arrangement for Water sprinkling will be made so that dust generation during transportation of materials will brought down to minimal.
- The finished product will be transported by the same trucks carrying raw material.
- Plantation in the plant premises will be done in the 33% of the total land.
- All the internal roads shall be concreted / asphalted to reduce the fugitive dust due to vehicular movement
- Whenever, APCS is not working, then raw material feed will be stopped. Consequently, there will be no production in the unit till APCS is rectified.

WATER POLLUTION

60 KLD Industrial waste water will be treated in settling tank of Domestic waste water will be taken to adequately designed 30 KLD STP. The treated water will be recycled for utilization in Green Belt Development.

NOISE POLLUTION

The general mitigation measures are to be adopted in the proposed project are given below:

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

SOLID WASTE MANAGEMENT

The Slag of 800 TPM from existing Induction Furnace and 1600 TPM from proposed expansion will be sold to authorized vendors/brick manufacturing unit. Tail cutting (400 TPM from existing and 800 TPM from proposed rolling mill unit) is being/will be generated from rolling mill and reused in induction furnace.

GREEN BELT DEVELOPMENT

The plantation helps to capture the fugitive emissions and attenuate the noise apart from improving the aesthetics quality of the region. The total number of existing trees planted are 270 nos. Avenue plantation within the plant and green belt development will be done. Guardian Casting Private Limited is having 6.24 ha of Pvt. Ltd. land out of which 2.05 ha (20500 sq.m) land will be developed as green belt (33%). The proposed tree planted will be 5125 nos. (i.e.,33%). The plantation will be done in a phased manner simultaneously to commencement of operation of the Plant. Greenbelt will be developed with local trees.

9.0 Conclusion

It can be concluded that there would be negligible impact in the buffer zone due to the proposed expansion. The project shall contribute to the socio-economic development, strengthening of infrastructural facilities like medical, educational etc. The plant shall be operated keeping "Sustainable Development" of the region in mind.

Further, management is committed to contribute towards improving socio-economic status of the surrounding local community.

Environmental monitoring is a successful tool for the management for implementation of adequate & effective environmental measures. It also helps the management to take mid-course correction, if required based on the environmental monitoring results. Considering the above overwhelming positive impact on the community, there shall be overall development of the area.