Executive Summary

Of

Proposed Installation of Induction Furnace & Rolling Mill for Production for 3,00,000 TPA of M.S. Billets and 2,00,000 TPA of TMT Bars/ M.S. Channel/ Angels/Beam/Structure/ Rod/ Wire Rod

Proponent

M/s. Regency TMT Private Limited

Gut No. 13/2, 13/4, 15/2, 15/3, at Village –Khupari, Tehsil – Wada, District– Palghar, Maharashtra

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. Regency TMT Private Limited has proposed Installation of induction furnace & Rolling Mill for Production for 3,00,000 TPA of M.S. Billets and 2,00,000 TPA of TMT Bars/ M.S. Channel/Angels/Beam/Structure/Rod/Wire Rod at Gut No. 13/2, 13/4, 15/3, 15/2, village-Khupari, Tehsil-Wada, District-Palghar Maharashtra. As per Environmental Impact Assessment Notification dated 14th September, 2006 and subsequent amendment thereof, the project falls under Category "B"; Schedule 3(a) Metallurgical Industries and requires Environmental Clearance (EC) from State Environmental Impact Assessment Authority, Maharashtra. The proponent made an online application on 6th June 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/77804/2022 dated on 07th June, 2022 for undertaking EIA study for the proposed Project.

Project at Glance

<table>
<tr><th>Sr. No.</th><th>Description</th><th>Details</th></tr>
<tr><td>1</td><td>Nature of the project</td><td>Proposed Installation of Induction Furnace & Rolling Mill for Production for 3,00,000 TPA of M.S. Billets and 2,00,000 TPA of TMT Bars/ M.S. Channel/ Angels/Beam/Structure/ Rod/ Wire Rod</td></tr>
<tr><td>2</td><td>Production Capacity</td><td><table><tr><th>Product</th><th>Proposed capacity (TPA)</th></tr><tr><td>M.S. Billets</td><td>3,00,000</td></tr><tr><td>TMT</td><td>2,00,000</td></tr></table></td></tr>
<tr><td>3</td><td>Raw Material Requirement</td><td>The total raw material requirement for project is given in table below:<table><tr><th>Sr. No.</th><th>Raw Material</th><th>Requirement (TPA)</th></tr><tr><td>1.</td><td>Scrap</td><td>241500</td></tr><tr><td>2.</td><td>Sponge Iron</td><td>63000</td></tr><tr><td>3.</td><td>Alloys as addictives</td><td>9000</td></tr><tr><td>4.</td><td>M.S. Billets in Molten Form</td><td>2,06,000</td></tr></table></td></tr>
<tr><td>4</td><td>Water requirement & Source</td><td>Proposed 150 KLD
Source – Ground water</td></tr>
</table>

5	Power requirement & Source	Proposed: 16 MWA Source: State Electricity Board
6	Land for proposed plant	Total land in possession is 2.549 ha. (6.30 Acre) of Private Land at village- Khupari for installation of furnace and rolling mill.
7	Total manpower requirement	Proposed: 300 nos.
9	Estimated Cost of the project	Proposed: Rs.95 Crores

Location Details

Sr No.	Particulars	Details
1	Project Site	At Gut No. 13/2, 13/4, 15/2, 15/3, Village – Khupari, Tehsil – Wada, District – Palghar, Maharashtra
2	Latitude & Longitude	A) 19°33'59.24" N 73° 5'31.75" E B) 19°34'0.69" N 73° 5'34.47" E C) 19°34'4.61" N 73° 5'32.95" E D) 19°34'6.50" N 73° 5'36.09" E E) 19°34'6.06" N 73° 5'38.38" E F) 19°34'4.14" N 73° 5'41.55" E G) 19°34'0.98" N 73° 5'39.79" E H) 19°33'58.09" N 73° 5'38.13" E I) 19°33'56.21" N 73° 5'36.26" E
3	Elevation above MSL	61 Meters
4	Toposheet	47E/2, 47E/3
5	Present landuse	Barren Land
6	Nearest National Highway/State Highway	Bhiwandi- Wada (SH 76) 1.0 Km at East direction.
7	Nearest Airport/ Air Strip	Chatrrapati Shivaji International Airport, Mumbai: 60 Km SSW direction
8	Nearest town	Wada, 10 Km.: NE

9	Forest	Reserved forest Patches at Reserve Forest: 900 m SE Reserve Forest: 5.5 km W Reserve Forest: 1.5 km N Reserve Forest: 7.5 km N Reserve Forest: 7.5 km SE
10	Ecologically Sensitive Zones like wild life sanctuaries, national parks and biospheres	Distance of Tansa Wildlife Sanctuary from the project site is 12.5 km. Letter is attached as **Annexure III**
11	Water Bodies	Vaitarna River: 8.0 km NW Dongri Nadi: 8.5 km E Dhandela Nadi: 7.5 km NNE Tansa River: 7.5 km SE Charnavati Nadi: 5.0 km ESE
12	Nearby Hospitals	1) Kalyani Hospital Khupari: 1.2 Km 2) Dr. Kariy Hospital: 1.4 Km (ENE) 3) Lakshmi Clinic: 3.8 Km (S)
13	Near Schools	1) Z P School Jamghar: 3.5 Km (NNE) 2) National English School Kudus: 3.4 Km (S) 3) MS Collage of Pharmacy: 4.2 Km (W)
14	Nearby Temples	1) Gavdevi Temple: 780 m (NE) 2) Hanuman Temple: 3.9 Km (SSE) 3) Datta Temple: 3.5 Km (W) 4) Shiva Temple: 4.0 Km (SW) 5) Vithal Rakhumai Temple: 5.4 Km (SE)

2.0 PROJECT DESCRIPTION

The proposed project is for Installation of induction Furnace & Rolling Mill for Production for 3,00,000 TPA of M.S. Billets and 2,00,000 TPA of TMT Bars/ M.S. Channel/ Angels/Beam/Structure/ Rod/ Wire Rod at Gut No 13/2, 13/4, 15/3, 15/2, at village-Khupari, Tehsil-Wada, District-Palghar Maharashtra. The production scenarios & plant configuration of the existing and proposed plant are given in following table.

Production Scenario

S.N.	Facility	Proposed Capacity
1	M.S. Billets	3,00,000 TPA
2.	TMT Bars/ M.S.Channel/ Angels/ Beam/ Structure/ Rod/ Wire Rod	2,00,000 TPA

ROCESS DESCRIPTION

Induction Furnace

The company will manufacture M.S. Billets by using scrap and sponge Iron as raw materials. Ferro alloy 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 1650^0C. 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.

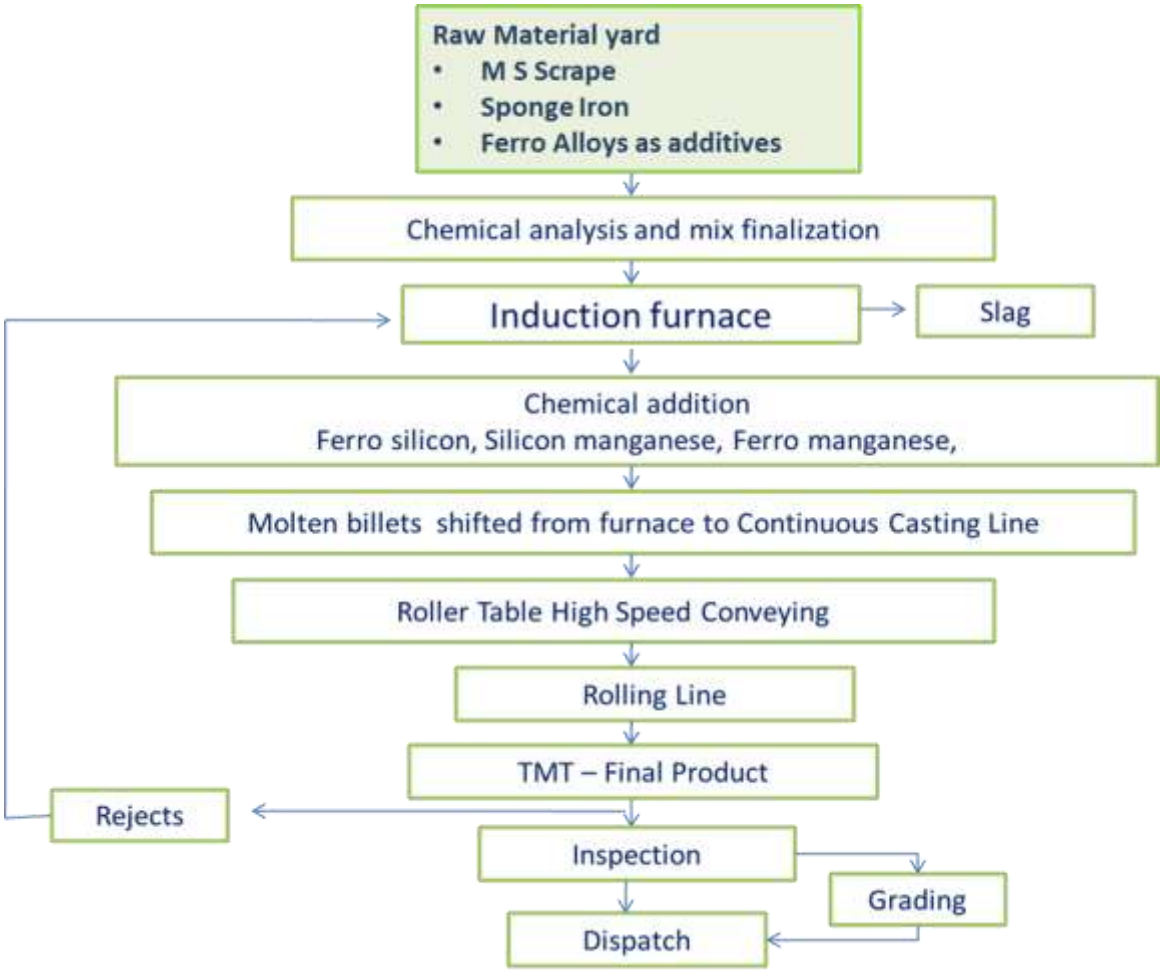
Rolling Mill

In this 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 400^0C 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 project will be Rs. 95 Crores approx.

Budget for Implementation of Environmental Management Plan

The Project cost is Rs 95 Cr. The breakup of project cost is given in following **Table**. Total Rs. 750 lakhs as a capital investment and 75.0 lakhs as recurring cost have been earmarked for implementation of Environmental Management Plan for proposed project.

Site Selected for the Project

M/s. Regency TMT Private Limited has proposed project for Installation of induction Furnace & Rolling Mill for Production for 3,00,000 TPA of M.S. Billets and 2,00,000 TPA of TMT Bars/ M.S. Channel/ Angels/Beam/Structure/ Rod/ Wire Rod at Gut No. 13/2, 13/4, 15/3, 15/2, at village-Khupari, 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} : 42.1 to 84.8µg/m^3

$PM_{2.5}$: 20.9 to 44.3 µg/m^3

SO_2 : 11.8 to 30.6 µg/m^3

NO_x : 17.9 to 42.3 µg/m^3

Industrial Area Residential,	PM_{10}	$PM_{2.5}$	SO_2	NOx	CO
Rural Area (CPCB Norms)	100 µg/m^3	60 µg/m^3	80 µg/m^3	80 µg/m^3	2 mg/m^3

The concentrations of PM_{10}, $PM_{2.5}$, SO_2 and NO_x were found within the National Ambient Air Quality Standards (NAAQ).

Noise Environment

It has found that in the proposed plant, noise levels are in the range of 39.3 – 70.7 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 Clay Loam & Sandy Clay Loam in Texture Classification.
b) Colour of soil samples from agriculture is Redish, Brown & Black in color.
c) The bulk density of soil samples are in the range of 1.26 to1.28 gm/cc.
d) Soil samples have pH values in the range of 7.0 to 7.50. The pH values are indicating nature of soil samples as neutral.
e) Soil samples have conductivities between 0.024 to 0.142 mmhos/cm.
f) Soil samples have Organic Matter between 0.97 to 1.79 %. These values represent average fertility of soils.
g) Soil samples have concentration of Available Nitrogen values ranged between 291.8 to 712.5 kg/ha.
h) Soil sample have concentration of Available Phosphorous values ranged between 55.8 to 91.9 kg/ha.
i) Soil sample have concentration of Available Potassium values range between 269.2 to 621.1 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 bag Filter which will be 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 $\mu g/m^3$, $PM_{2.5}$ 60 $\mu g/m^3$ SO_2 80$\mu g/m^3$, NO_x 80 $\mu g/m^3$ and CO 04 $\mu g/m^3$) prescribed by CPCB.

Impact on Water

The total water requirement for the proposed project is 150 KLD. There will not be any impact on the water quality as the water system is in close loop used for cooling rolls in the process. The sewage generated from the proposed facility will be treated in Packaged Type STP.

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 for proposed project will be 12000 TPA Slag@4 % from Induction Furnace will be sold to brick manufacturers. 6000 TPA @3% of tail cutting will be generated from rolling mill which will be utilized in induction furnace.

Impact on Socio-Economic Environment

M/s. Regency TMT Private Limited would aid in the overall social and economic development of the region. The proposed project will give employment to about employment to 300 people of local area. In order to mitigate the adverse impacts likely to arise in the proposed 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. Regency TMT Private Limited 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 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 Environlytical 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 MPCB, 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 SO_2, NOx 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 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 project will be Rs. 95.00 Crore approx. The budgetary provision for EMP will be as Rs 750 lacs and Operation & Maintenance Cost will be Rs. 75.0 Lacs/year.

Environment Management Cost for Proposed Project

SR. NO	COMPONENT	DESCRIPTION	Capital Cost Rs. in Lacs	Operation & Maintenance Cost Rs. in Lacs
1.	Air Pollution Control	Bag filter along with Fume extraction system	450.0	45.0
2	Online stack monitoring system	CEMS	90.0	9.0
3.	Water Pollution Control	Packaged type STP for domestic water treatment	45.0	4.5
4	Solid Waste Management	Slag Crusher, Handling and Disposing	120.0	12.0
5.	Green Belt	Plantation	30.0	3.0
6.	Monitoring & analysis by MOEF /NABL accredited laboratories	Air, Water & Wastewater, Noise, soil and Solid & Hazardous wastes	15.0	1.5
	Total		**750.0**	**75.0**

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. Regency TMT Private Limited.

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

The total water requirement for the proposed project is 150 KLD. There will not be any impact on the water quality as the water system is in close loop used for cooling rolls in the process. The sewage generated from the proposed facility will be treated in Packaged Type STP.

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 solid waste for proposed project will be 12000 TPA Slag@4 % from Induction Furnace will be sold to brick manufacturers. 6000 TPA @3% of tail cutting will be generated from rolling mill which will be utilized 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. Avenue plantation within the plant and green belt development will be done. M/s. Regency TMT Private Limited is having 2.549ha of Pvt. land out of which 0.841 ha (8411.7 sq.m.) land will be developed as green belt (33%). 2102 nos. trees will be planted @2500 trees/ha. 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 Project. 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.