Executive Summary

of

EXPANSION OF FERRO ALLOYS PLANT BY THERMITE PROCESS
(Brownfield Project)

At
Plot No. A-19, MIDC Butibori, Tehsil Hingna, District Nagpur,
State Maharashtra.

Project Proponent
Team Ferro Alloys Private Limited.

Environmental Consultant
Pollution and Ecology Control Services
Accreditation no.: QCI/NABET/EIA/1720/RA0101
Extension Letter: QCI/NABET/ENV/ACO/21/2133 dated 17th November, 2021

1.0 INTRODUCTION

The proposed project attract the provisions of EIA Notification, 2006 and falling under Category "A" of Schedule, 3 (a) Metallurgical Industries (Ferrous and Non-ferrous). The project proponent made online application on 4th November 2021 along with Form-1, Pre-feasibility report and other documents for proposing Terms of Reference (TORs) for undertaking detailed EIA study. Standard ToRs was granted vide letter No.IA-J-11011/468/2021-IA-II(IND-I) dated 16.11.2021 for undertaking EIA study for proposed project of Expansion of Ferro Alloys Plant by Thermite Process at Plot No. A-19, MIDC Butibori, Tehsil Hingna, District Nagpur, State Maharashtra.

Project at a Glance

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<tr><th>Sr. No.</th><th>Description</th><th>Details</th></tr>
<tr><td>1</td><td>Nature of the project</td><td>Expansion of Ferro Alloys Plant by Thermite Process</td></tr>
<tr><td>2</td><td>Production Capacity</td><td>
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<tr><th>Sr. No</th><th>Product</th><th>Existing Capacity (TPM)</th><th>Proposed capacity (TPM)</th><th>Total After Expansion (TPM)</th></tr>
<tr><td>01</td><td>Medium Carbon Ferro Manganese</td><td>100</td><td rowspan="2">(-200)</td><td rowspan="2">400</td></tr>
<tr><td>02</td><td>Low Carbon Ferro Manganese</td><td>500</td></tr>
<tr><td>03</td><td>Ferro Titanium</td><td>50</td><td>-</td><td>50</td></tr>
<tr><td>04</td><td>Ferro Molybdenum</td><td>50</td><td>200</td><td>250</td></tr>
<tr><td>05</td><td>Moly oxide Briquette</td><td>0</td><td>200</td><td>200</td></tr>
<tr><td>06</td><td>Low Carbon Ferro Chrome</td><td>0</td><td>100</td><td>100</td></tr>
<tr><td>07</td><td>Ferro Vanadium</td><td>0</td><td>50</td><td>50</td></tr>
<tr><td>08</td><td>Vanadium Pentoxide</td><td>0</td><td>50</td><td>50</td></tr>
<tr><td colspan="2">Total</td><td>700</td><td>400</td><td>1100</td></tr>
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</td></tr>
<tr><td>3</td><td>Water requirement</td><td>The total water requirement will be 65 KLD
Source: MIDC</td></tr>
<tr><td>4</td><td>Power requirement & Source</td><td>The power required for the proposed project will be 500 KW which will be sourced from MSEDCL.</td></tr>
<tr><td>5</td><td>Land</td><td>Total Land in Possession: 1.09 ha</td></tr>
<tr><td>6</td><td>Total manpower after commissioning of the unit.</td><td>Proposed Man Power: 95</td></tr>
<tr><td>7</td><td>Estimated Cost of the project</td><td>Rs. 953.50 lakhs</td></tr>
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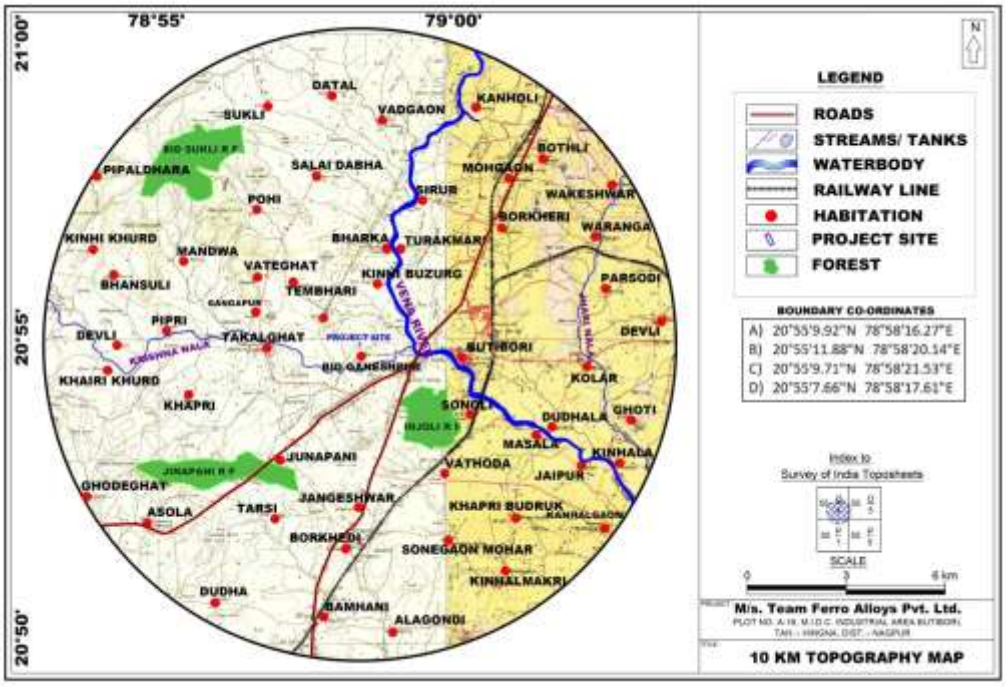


Source: SOI Toposheet

Topographical Map (10 km Radius)

Environmental Setting of the project

Sr No	Particulars	Details
1	Project Site	Plot No. A-19, MIDC Butibori, Tehsil Hingna, District Nagpur, State Maharashtra.
2	Latitude Longitude	A) 20°55'9.92"N 78°58'16.27"E B) 20°55'11.88"N 78°58'20.14"E C) 20°55'9.71"N 78°58'21.53"E D) 20°55'7.66"N 78°58'17.61"E
3	Elevation above MSL	276 MSL
4	Topo sheet	55 L/13, 55 P/1
5	Present land use	Industrial
6	Nearest National Highway/State Highway	SH – 3 : 1.5 Km (SE) NH – 44 : 2.0 Km (ESE)
7	Nearest Airport/ Air Strip	Dr. Babasaheb Ambedkar International Airport: 20.5 Km (NNE)
8	Nearest Railway Station	Butibori Railway Station : 4.2 Km (E)
9	Nearest Village	Bid Ganeshpur : 700m (SSE)
10	Forest	Injoli R F : 2.6 Km (ESE) Junapani R F : 5.0 Km (SSW) Bid Sukli R F: 6.0 Km (NW)
11	Ecologically Sensitive Zones like wild life sanctuaries, national parks and biospheres	None

12	Water Bodies	Vena River : 1.5 Km (NE) Krishna Nala : 1.0 Km (S) Jhari Nala : 6.0 Km (E)
13	School	1) New Dream School : 1.0 Km (SE) 2) ZP School Bori : 3.5 Km (ESE) 3) Ira International School : 3.0 Km (ENE) 4) The Dream School & Jr. Collage : 3.5 Km (ENE) 5) St Claret School : 4.0 Km (ENE)
14	Hospital	1. Rachna Hospital & Research Center : 3.0 Km (ENE) 2. Maya Hospital : 3.5 Km (ENE)
15	Major Industries in 10 km area	1) Stabplast Chemo Industries :110m (W) 2) Bramhanee Industries : 830m (WNW) 3) Amar Industries : 890m (WSW) 4) Sanghavi Industries Pvt. Ltd.: 740m (S) 5) Naman Industries : 1.5 Km (NW) 6) Aarbee Industries : 2.0 Km (NW) 7) Sharda Auto Industries Ltd.: 1.0 Km (NNE) 8) Mesons Industries : 2.0 Km (NE) 9) Swaraj Industries : 2.0 Km (WSW)

2.0 PROJECT DESCRIPTION

Team Ferro Alloys Pvt. Ltd. proposes expansion of Ferro Alloy plant at Plot No. A-19, MIDC Butibori, Tehsil Hingna District Nagpur, State Maharashtra. The production scenario of the project is given in Table below.

Table: Production Scenario

Sr. No	Product	Existing Capacity (TPM)	Proposed capacity (TPM)	Total After Expansion (TPM)
01	Medium Carbon Ferro Manganese	100	(-200)	400
02	Low Carbon Ferro Manganese	500		
03	Ferro Titanium	50	-	50
04	Ferro Molybdenum	50	200	250
05	Moly oxide Briquette	0	200	200
06	Low Carbon Ferro Chrome	0	100	100
07	Ferro Vanadium	0	50	50
08	Vanadium Pentoxide	0	50	50
Total		700	400	1100

3.0 PROCESS DESCRIPTION

The technology for manufacturing process is proven technology of Gold Smith Exothermite Process in which oxides of metal is reduced with proper reducers.

Medium/Low Carbon Ferro Manganese:

- **Roasting of Manganese (Mn) Ore:** Mn ore received is subjected to roasting, prior to preparing the charge mix. The ore along with Wild Babool Charcoal is arranged in alternate layers in a vertical roasting furnace and ignited. The roasted Mn Ore is accumulated over the screen Grid in solid block form and small amount of ash is deposited at the bottom. The gases are passed through Multi-cyclone & bag filter to arrest the fugitive material.
- **Sizing of Mn Ore:** The roasted Mn Ore is subjected to sizing in a jaw crusher. The crusher enclosure will be provided with dust extraction system and passed through the same Multi-cyclone & bag filter to arrest the fugitive material.
- **Grinding of Mn Ore:** The sized Mn Ore is subjected to further grinding in a Pulverizer. The Pulveriser is fitted with dedicated bag filter and grinded Mn ore is collected in powdered form.
- **Mixing and Batching of Raw Material:** The powdered Mn Ore and other raw materials in desired proportion is added in the closed mixing machine and subjected to thorough mixing by rotation for obtaining homogenous mix.
- **Reaction and product separation:** After mixing the charge is collected in bins. Bins containing mixed charge are placed near to refractory lined vessels. To start the reaction initially small quantity of mixed charge is placed at the bottom of the Reactor Vessel and ignites with Magnesium Ribbon/sparkle.

  In this kind of chain reaction, continuous addition of mixed charge on the top of melt enable to degassing process and separation of liquid slag. Smelting usually last for 4 - 5 hour. After addition of complete mixed charge, Reaction Vessel is left for natural cooling for about 8-10 hours. After cooling the material is removed from the Vessel where product; Low carbon Ferro manganese and slag is found in two separate layers which is separated. The product Ferro alloy is found in the form of big buttons. Broken product will be fed to Jaw Crusher for further reduction to lumps. Slag obtained is also crushed for reuse as reactor vessel relining or sale to outside parties.

Ferro Titanium:

- **Mixing and Batching of Raw Material:** Ilmenite, Rutile and other raw materials in desired proportion is added in the closed mixing machine and subjected to thorough mixing by rotation for obtaining homogenous mix.

- **Reaction and product separation:** After mixing the charge is collected in bins. Bins containing mixed charge are placed near to refractory lined vessels. To start the reaction initially small quantity of mixed charge is placed at the bottom of the Reaction Vessel and ignites with Magnesium Ribbon/sparkle.

  In this kind of chain reaction, continuous addition of mixed charge on the top of melt enable to degassing process and separation of liquid slag. Smelting usually last for 30- 35 minutes. After addition of complete mixed charge, Reaction Vessel is left for natural cooling for about 5-6 hours. After cooling the material is removed from the Vessel where product; Ferro Titanium and slag is found in two separate layers which is separated. The product is found in the form of big buttons.
- Ferro titanium is then sized into the desired sizes through machinery and labor.
- Slag obtained is also crushed for reuse as reactor vessel relining or sale to outside parties.

Ferro Molybdenum:

- Ferro molybdenum is produced by Silico- Alumino thermite process. The reactions of reduction of oxides in smelting of ferromolybdenum are given below:

  $MoO_3 + 2Al = Mo + Al_2O_3$, $2MoO_3 + 2FeSi = 2FeMo + 2SiO_2 + O2$

  $Fe_2O_3 + 2Al = 2Fe + Al_2O_3$ $2Fe2O3 + 3FeSi = 7\ Fe + 3SiO_2$
- Smelting is done with upper ignition (top-priming). The entire mixture of charge materials is poured in Sand Pit. Then a Hood is placed on the top of sand pit for proper collection of flue gases generated at the time of smelting. Upon filling the sand pit with charge materials, 2 or 3 craters are formed for ignition mixture. Upon ignition of the mixture, it ignites quickly, and the process of smelting occurs at a high speed.
- The smelting of 1000 kg of mixture takes up 5-10 minutes. With a normal run of heat, flue gases escape through the Hood. With a cold run of heat (weak uneven evolution of gases), 15-20 kg of thermite mixture with Excess reducer is given to the charge.
- At the end of smelting, when no more gases rise from the melt, hood is being removed and charge is left for natural cooling for 6-8 hrs. After cooling charged material which forms a button shape comprising slag on the top and Ferro Molybdenum at the bottom is removed from sand pit.
- Slag and Metal is separated and metal is sized as per customer's requirement for dispatch. Slag is sent for recovery of Prills of Ferro Molybdenum. After recovery of Prills, remaining slag is crushed and reused for sand pit.

Ferro Vanadium:

- Ferro Vanadium is produced by Alumino thermite process. The reactions of reduction of oxides in smelting of Ferro Vanadium are given below:

  $3V_2O_5 + 10\ Al = 6V + 5Al_2O_3$

  $2Al + Fe_2O_3 = 2Fe + Al^2O_3$
- Smelting is done with upper ignition (top-priming). The entire mixture of charge materials is poured in Holo refractory lined reaction Vessel place in vanadium Slag filled Pit. Then a Hood is placed on the top of vessel pit for proper collection of flue gases generated at the time of smelting. Upon filling the vessel with charge materials, 2 or 3 craters are formed for ignition mixture. Upon ignition of the mixture, it ignites quickly, and the process of smelting occurs at a high speed.
- The smelting of 1000 kg of mixture takes up 5-10 minutes. With a normal run of heat, flue gases escape through the Hood. With a cold run of heat (weak uneven evolution of gases), 15-20 kg of thermite mixture with Excess reducer is given to the charge.
- At the end of smelting, when no more gases rise from the melt, hood is being removed and Holo Reaction Vessel is also removed from pit. Only reacted charge is left inside the pit for natural cooling for 6-8 hrs. After cooling charged material which forms a button shape comprising slag on the top and Ferro Vanadium at the bottom is removed from sand pit.
- Slag and Metal is separated and metal is sized as per customers requirement for dispatch. Slag is sent for recovery of Prills of Ferro Vanadium. After recovery of Prills, remaining slag is crushed and reused in pit.

Low Carbon Ferro Chrome:

- High grade Chrome Ore/Concentrate will be sourced. The ore will be stored within a covered shed such that it does not come in contact with water/moisture.
- The high grade/conc. Chrome ore is taken for preheating in Electrically heated dryer. Chrome Ore is heated upto 40° C. There is no dust extraction during heating process.
- Smelting is done with upper ignition (top-priming). The entire mixture of charge materials is poured in refractory lined reaction Vessel. Then a Hood is placed on the top of vessel for proper collection of flue gases generated at the time of smelting. Upon filling the vessel with charge materials, 2 or 3 craters are formed for ignition mixture. Upon ignition of the mixture, it ignites quickly, and the process of smelting occurs at a high speed.

- The smelting of 500 kg of mixture takes up 5-10 minutes. With a normal run of heat, flue gases escape through the Hood. With a cold run of heat (weak uneven evolution of gases), 15-20 kg of thermite mixture with Excess reducer is given to the charge.
- At the end of smelting, when no more gases rise from the melt, hood is being removed and Reaction Vessel is also removed for natural cooling for 6-8 hrs. After cooling charged material which forms a button shape comprising slag on the top and Ferro Chrome at the bottom is removed from reaction vessel.
- Slag and Metal is separated and metal is sized as per customer's requirement for dispatch. Slag is sent for recovery of Prills of Ferro Chrome.
- After recovery of Prills, remaining slag is crushed and reused in reaction vessel for relining or sale to outside parties.

The reaction is as follows:

$Cr_2O_3 + 2Al = Al_2O_3 + 2Cr$

$Fe_2O_3 + 2Al = 2Fe + Al_2O_3$

Moly Oxide Briquettes:

- Roasted Molybdenum Concentrate (Moly Oxide) is weighed and is put into a blending machine.
- A solution binder is then added to the mixer.
- The wet solution is then passed through the briquetting machine to form briquette shapes.
- The output is then dried in an Electrical heater/ dryer after which it is packed and dispatched.

Vanadium Pentoxide :

1000 kgs. of vanadium sludge is leached in a M.S. tank lined with F.R.P. after leaching with 4.00 K.L. water for 2 hrs. pH value is 12 to 14. >>>>>>> addition of hydrochloric acid (commercial grade) 400 litre to bring down the pH value to normal value 7.

Following reaction takes place during leaching.

$$V_2O_5 + 4NaOH = Na4V_2O_7 + 2H_2O$$

Here V_2O_5 of sludge associated with sodium hydroxide dissolved in water in HCl medium and form sodium vanadate.

Solid liquid Ratio is 3 : 7. If 1000 kg sludge is processed, then solid mud pH value is 7, will be 300 kgs approximately and liquid portion will be approx.. 700 kgs.

In 1000 kgs of Sludge, following element and impurities will be present as per the following ratio and percentage in original sludge. Some small percentage of impurities may intrude in the mother liquor containing Sodium Vanadate.

Capital Cost

The cost of the proposed project is Rs. 953.50 Lakhs.

Budget for Implementation of Environmental Management Plan

Total Rs. 100 lakhs as a capital investment and 9.8 lakhs as recurring cost have been earmarked for implementation of Environmental Management Plan for proposed expansion.

4.0 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} : 36.8 to 63.9 µg/m^3.

$PM_{2.5}$: 21.0 to 37.4 µg/m^3

SO_2 : 8.7 to 25.7 µg/m^3

NO_x : 11.1 to 26.3 µg/m^3

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

Water Environment

A total 13 samples including five surface & eight ground water samples were collected and analyzed. The water samples were analyzed as per Standard Methods for Analysis of Water and Wastewater, American Public Health Association (APHA) Publication.

The data indicates that the ground water as well as the surface water quality are below the stipulated standard for drinking water (BIS 10500 – 2012) except high concentration of total coli form in surface water, which may be due to the human activities.

Noise Environment

Noise levels measured at eight stations are within limit of 55.0 dB (A) for Residential Area or 75.0 dB (A) for Industrial Area as given in MoEF Gazette notification for National Ambient Noise Level Standard.

Area Code	**Category of Area**	**Limits in dB(A) Leq**	
		Day time	**Night time**
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone**	50	40

****** Silence zone is defined as area up to 100 meters around premises of hospitals, educational institutions and courts. Use of vehicle horns, loud speakers and bursting of crackers are banned in these zones

Land Environment

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

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

The observations of soil characteristics are discussed parameter wise below;

a) Texture of all soil samples are clay loam, sandy loam and sandy clay loam in Texture Classification.
b) Colour of soil samples is gray and brown in colour.
c) The bulk density of soil samples are in the range of 1.49 to 2.75 gm/cc.
d) Soil samples from have pH values between 7.3 to 7.6.
e) Soil samples have conductivities between 0.036 to 0.069 mmhos/cm.
f) Soil samples have Organic Matter between 0.29 to 0.84 %.
g) Soil samples have concentration of Available Nitrogen values ranged between 111.3 to 217.1 kg/ha.
h) Soil sample have concentration of Available Phosphorous values ranged between 20.3 to 38.2 kg/ha.

i) Soil sample have concentration of Available Potassium values range between - 108.0 to 173.0 kg/ha.

Characteristic of Agricultural land soil is a little deficient in Nitrogen nutrients concentration and have low organic matter.

5.0 Anticipated Impacts & Mitigation Measures

The present baseline concentrations were monitored in the EIA study. The additional emissions are mainly from furnace during operation of thermite process.

The proposed project activity will result in air emissions from the following areas.

a) Raw material Handling and storage area

b) Vessels (Ferro Alloys)

c) Transportation

Mitigation Measures

- Bag filter of Capacity 35000 m^3/Hr will be installed.
- All internal roads are tarred.
- Stack is well equipped with continuous emission monitoring system along with remote calibration facility for gaseous parameters.
- Fugitive as well 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$\mu g/m^3$ and NO_x 80 $\mu g/m^3$ prescribed by CPCB.
- Water sprinklers will be installed to control dust emission.

Impact on Noise Levels and Mitigation Measures

During operation, the major noise generating sources are crushing mill, auto loading section, electric motors etc. These sources will be located far off from each other. Under any circumstances the noise level from each of these sources will not exceed 75 dB (A). Noise levels generated in the project site will be confined to the noise generating plant units hence the impact of noise levels on surroundings will be insignificant

Mitigation Measures

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

- ❖ 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
- ❖ 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 and mitigation Measures

Total water requirement for the proposed project will be about 65 KLD. Water requirement for the project will be sourced from MIDC.

The Team Ferro Alloys Private Limited is committed to ZERO Discharge of waste water. No use of water in the manufacturing process. However water will be used for washing of chrome ore. Water will be kept in closed circuit, but on increase in impurities it will be treated in the designated Effluent treatment plant again reused for washing, scrubbing and sprinkling. The storm water drains will be segregated and channelized to water harvesting area.

Solid Waste Generation

The solid waste generation and utilization from the Team Ferro Alloys Private Limited is given below

Solid Waste Quantity and Disposal for Proposed plant

Solid Waste generation	Quantity (TPA)	Method of Disposal
Ferro Manganese	5136	Used for relining vessel or is sold.
Ferro Titanium	574.8	Used for relining vessel or is sold.
Ferro Molybdenum	2976	Used for relining vessel or is sold.
Ferro Chrome	1788	Used for relining vessel or is sold.
Ferro Vanadium	552	Used for relining vessel or is sold.
Mud from Aluminium Sludge processing	1002	Sold as soil booster for agriculture
Sludge from ETP	840	After processing will be sold as slacked lime
TOTAL	**12868.8**	

Impact on Socio-Economic Environment Socio Economic Environment

Team Ferro Alloys Private Limited is providing direct employment 95 workers. The local persons have been 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.

6.0 Environmental Monitoring Programme

Team Ferro Alloys Pvt Ltd is carrying out the Environmental Monitoring on regular basis. The methodologies adopted for environmental monitoring 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.

7.0 Additional Studies

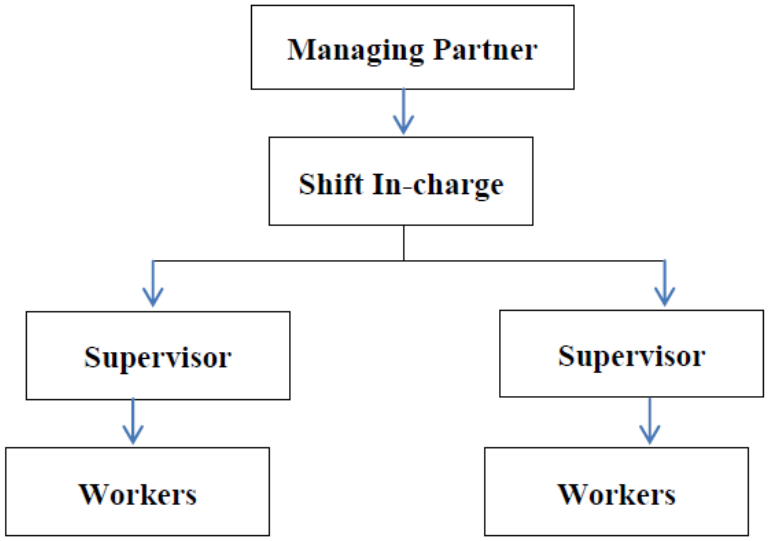
The additional studies as per the ToR issued by MoEF&CC are Public Consultation, Risk Assessment, & Disaster Management Plan.

8.0 Project Benefits

As per the Office Memorandum No. 22-65/2017-IA.III dated 20th October 2020 based on the need of the local people, Local Gram Panchayat and District authorities, CER will be spent.

9.0 Environmental Management Plan

Environmental issues particularly in the operations (equipment, recycling of water) will be looked after by the Managing Partner and shift incharge. The reporting mechanism in case any deviation in the implementation of environmental conditions as below:



Environmental Management Cell

The following mitigation measures will be undertaken for the proposed project

AIR POLLUTION

The sources of air pollution are Reaction vessels, raw material handling system, material transportation. Bag filter with adequate stack height is proposed for proper dispersion of flue gases.

The following Environmental Management Plan will be implemented to control air emissions.

Action Plan to Control of fumes

- Bag Filters and Dust collector followed by a stack height of 18 m will be installed.
- Fugitive emission from material unloading operations, material transfer points will be controlled fully with total enclosure.
- The monitoring frequency of air quality shall be as per the consent issued by State Pollution Control Board and reports shall be submitted as part of compliance. The records will be maintained.
- Plantation will be carried out in premises to control fugitive emissions & gaseous pollutants to keep clean and healthy environment.

WATER POLLUTION

The Team Ferro Alloys Private Limited is committed to ZERO Discharge of waste water. No use of water in the manufacturing process. However water will be used for washing of chrome ore. Water will be kept in closed circuit, but on increase in impurities it will be treated in the designated Effluent treatment plant again reused for washing, scrubbing and sprinkling.

The storm water drains will be segregated and channelized to water harvesting area.

NOISE POLLUTION

- By providing padding at various locations to avoid sharp noise due to crushing activity.
- Other than the regular maintenance of the various equipment, ear plugs/muffs are recommended for the personnel working close to the noise generating units;
- The insulation provided for prevention of loss of heat and personnel safety will also act as noise reducers.

SOLID WASTE DISPOSAL AND MANAGEMENT

The slag generated from the ferro alloys plant will be used for relining vessel or will be sold. Mud from Aluminium Sludge processing will be sold as soil booster for agriculture.

GREEN BELT DEVELOPMENT

Green belt will be developed within the Plant premises covering a total area of about 3617 sq mt (0.36 Ha) (33%) of total Plant area. The plantation work for green belt development will be carried out as per CPCB guidelines, local species would be preferred. A green belt or tree plantation around the proposed plant shall help to arrest the effects of particulate matter in the area besides playing a major role in environmental conservation efforts. At present 100 trees are planted inside the plant premises and about 800 trees will be planted in the Plant premises. Greenbelt will be developed with local trees. Main species of the trees are Ashoka, Aam, Neem, Gulmohar, Badam etc.

10.0 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.