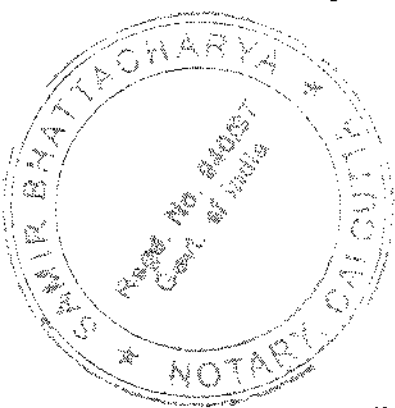


SLN 59



BEFORE THE NATIONAL GREEN TRIBUNAL
EASTERN ZONE BENCH, KOLKATA

Original Application No. 44 of 2023/EZ

BETWEEN

Rakesh Shrivastava

...Petitioner

AND

Bihar Foundry and Castings Limited & Ors.

... Respondents

REJOINDER ON BEHALF OF THE APPLICANT TO THE REPLY AFFIDAVIT
DATED JANUARY 10, 2024 FILED BY RESPONDENT NO. 3 (MINISTRY OF
ENVIRONMENT, FOREST & CLIMATE CHANGE)

Filed by:

ANUBHAV KHAUSTAGIR

Advocate

C/O Mr. Sarathi Dasgupta, Advocate

Room No. 3A, 3rd floor, "The Lords"

8, Strand Road, Kolkata - 700001

Mob.: 9748838188 / 8240431066

Email Id: anubhavkhastagir.kol@gmail.com

Enrolment No. F/200/367/2023

27 FEB 2024

BEFORE THE NATIONAL GREEN TRIBUNAL,
EASTERN ZONE BENCH

Original Application No. 44 of 2023/EZ

Between:

Rakesh Shrivastava

...Petitioner

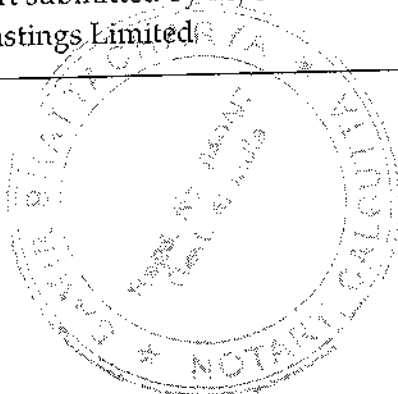
AND

Bihar Foundry and Castings Limited & Ors.

... Respondents

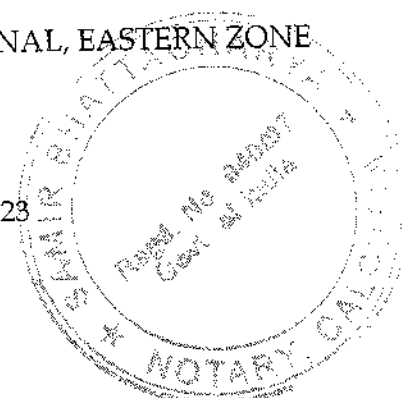
INDEX

<u>S. No.</u>	<u>Description of Documents</u>	<u>Annexure</u>	<u>Page Nos.</u>
1.	Rejoinder on behalf of the applicant to the Reply Affidavit dated January 10, 2024 submitted by the Respondent No. 3 (Ministry of Environment, Forest & Climate Change)		1 to 8
2.	A photocopy of the Office Memorandum dated January 08, 2024 issued by the Respondent No. 3	P/1	9 to 99
3.	The Environmental statement submitted by Respondent No. 1 to the Jharkhand State Pollution Control Board (the Respondent No. 4 herein) showing increase in quantity of slag and the EIA report submitted by M/s. Bihar Foundry & Castings Limited	P/2 (Colly.)	20 to 509



BEFORE THE LEARNED NATIONAL GREEN TRIBUNAL, EASTERN ZONE
BENCH, KOLKATA

Original Application No. 44 of 2023



BETWEEN:

Rakesh Shrivastava..... Applicant

AND

Bihar Foundry and Castings Ltd. & Ors. Respondents

**REJOINDER ON BEHALF OF THE APPLICANT TO THE REPLY AFFIDAVIT
DATED JANUARY 10, 2024 FILED BY RESPONDENT NO. 3 (MINISTRY OF
ENVIRONMENT, FOREST & CLIMATE CHANGE)**

I, Rakesh Shrivastava, son of late Brijraj Shrivastava, aged about 49 years, by faith - Hindu, residing at H No. 308, near Durga Mandir Tilli, Sagar. (M.P.), Pin Code: 470009, do hereby solemnly state and affirm as follows

1. That it is humbly submitted that the subject case is filed against the recommendations made by EAC Industry-I for Bihar Foundry Casting Limited (Ferro Alloys Unit) for grant of environment clearance for its ferro alloy plant as the recommendations were issued ignoring the environment laws violations being done by M/s. Bihar Foundry Casting Limited (Ferro Alloys Unit) in running its ferro alloy plant.

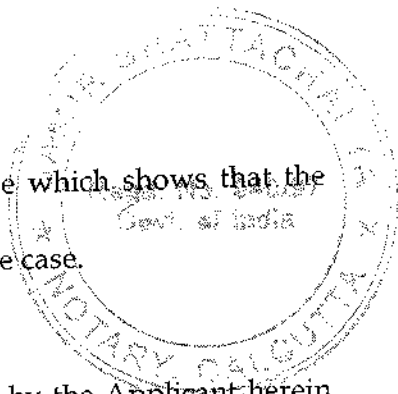
2. That the Respondent No. 3 i.e., the Ministry of Environment, Forest & Climate Change is responsible to issue environment clearance to project proponents after making sure that such grant of approval is in line with the applicable environment laws.

3. That at the outset, the applicant denies each and every contention made by Respondent No. 3 in its reply and nothing stated in the reply shall be deemed to be admitted unless specifically admitted herein.

4. That it is humbly submitted that the applicant, by way of instant Original Application being O.A. No. 44/2023/EZ, has raised several issues relating to the functions of the ferro alloy plant of M/s. Bihar Foundry Casting Limited (Ferro Alloys Unit) and lapses in the various approvals/consents issued to Bihar Foundry Casting Limited (Ferro Alloys Unit). However, the Respondent No. 3, being a competent authority, has failed to address any of the issues raised in the Original Application and has merely stated the factual aspects relating to the recommendation of EAC Industry-I to Ministry of Environment, Forest & Climate Change for Bihar Foundry Casting Limited (Ferro Alloys Unit).

5. The fact that the Petitioner herein had filed detailed complaint related to the project of Bihar Foundry Casting Limited (Ferro Alloys Unit) before Respondent No. 3 on multiple occasions has been ignored in the reply submitted

by Ministry of Environment, Forest & Climate Change which shows that the Respondent No. 3 has not provided a clear picture of the case.



6. It is further submitted that the complaints filed by the Applicant herein regarding the violation of environment norms by the M/s. Bihar Foundry & Castings Limited were not even made part of the recommendations issued by EAC-I (industries) in the recommendations issued for grant of environment clearance to M/s. Bihar Foundry and Castings Limited.

7. That it is humbly submitted that the purported Reply-Affidavit filed by Respondent No. 3 is silent on issue relating to non-issuance of environment clearance to M/s. Bihar Foundry & Castings Limited and its continued operations of the expanded units without obtaining environment clearance for the same.

8. That it is humbly submitted that even though Respondent No. 3 in para 11 of its reply has stated that an order dated January 02, 2024 has been passed by the Hon'ble Supreme Court of India staying the S.O.P dated July 07, 2021 under which the environment clearance of M/s. Bihar Foundry Casting Limited (Ferro Alloys Unit) was pending, Respondent No. 3 has failed to provide details of Office Memorandum dated January 08, 2024 issued by Respondent No. 3 itself which states the order of Hon'ble Supreme Court is self-explanatory and is

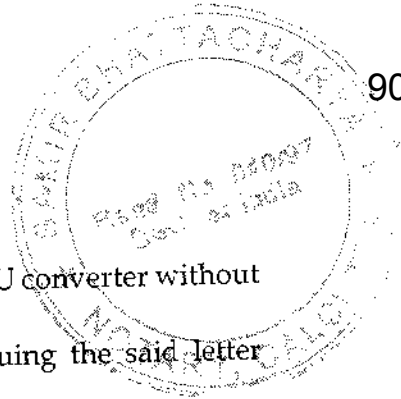
circulated to all the concerned authorities. A photocopy of the Office Memorandum dated January 08, 2024 is annexed hereto and marked as

ANNEXURE P/L.

9. That the Respondent No. 3 has failed to submit before the Learned Tribunal that due to the effect of the order passed by the Hon'ble Supreme Court of India in *Vanashakti's* case [Vanashakti vs. Union of India, WP (Civil) No. 1394/2023], the application seeking environment clearance filed by M/s. Bihar Foundry Casting Limited (Ferro Alloys Unit) for modification of its plant (which was done prior to grant of approval), has to be kept in abeyance as there is no mechanism in place at present to grant ex-post fact environment clearance.

10. That it is humbly submitted that even after being fully aware of the above fact that the environment clearance cannot be granted to M/s. Bihar Foundry Casting Limited (Ferro Alloys Unit) at this stage as there is no S.O.P in place to grant ex-post fact environment clearances in cases of industries falling under violation category, the Respondent No. 3 has cleverly left the issue to be determined by the Learned Tribunal with an intention to mislead it.

11. That it is further submitted that the Respondent No. 3 had itself vide its letter dated December 19, 2022 for revised Terms of Reference in which they had categorically directed M/s. Bihar Foundry Casting Limited (Ferro Alloys Unit)



to immediately stop its illegal construction of furnace and CLU converter without obtaining environment clearance. However, even after issuing the said letter dated December 19, 2022, the Ministry of Environment, Forest & Climate Change has not taken any step to ensure that M/s. Bihar Foundry Casting Limited (Ferro Alloys Unit) stops the illegal construction and on the other hand M/s. Bihar Foundry Casting Limited (Ferro Alloys Unit) had not only completed the illegal expansion of its ferro alloy plant but has started its operation with full capacity.

12. That it is further submitted that Respondent No. 3 has merely submitted that M/s. Bihar Foundry & Castings Limited has deposited Rs. 89.29 lakhs as penalty but has failed to provide any details as to what actions have been taken to ensure that M/s. Bihar Foundry & Castings Limited has stopped operations of the expanded units.

13. The Environmental statement (Form-V) submitted by M/s. Bihar Foundry Casting Limited (Ferro Alloys Unit) to Jharkhand State Pollution Control Board (the Respondent No. 4 herein) showing increase in quantity of slag being produced from its ferro alloy unit for Financial Year 2022-2023 and the EIA report submitted by M/s. Bihar Foundry & Castings Limited are collectively annexed hereto and marked as ANNEXURE P/2 (Colly.).

14. That it is humbly submitted that on one hand the Respondent No. 3 has failed to take any step to ensure stoppage of illegal expansion and further production of ferro alloys by M/s. Bihar Foundry Casting Limited (Ferro Alloys Unit) and on the other hand has filed the instant reply wherein it has failed to disclose such crucial information regarding the true facts of the case.

15. That considering the above, it is humbly requested that the Learned Tribunal may direct the Respondent No. 3 to immediately take action relating to stopping of the operations of the Respondent No. 1 company i.e., M/s. Bihar Foundry Casting Limited (Ferro Alloys Unit) from its illegally expanded units and submit a detailed compliance report on the actions being taken by Ministry of Environment, Forest & Climate Change to ensure protection of environment by taking appropriate steps against the said M/s. Bihar Foundry Casting Limited (Ferro Alloys Unit).

16. That it is further requested that since Respondent No. 3 has also admitted in its Reply-Affidavit that the S.O.P dated July 07, 2021 under which the application for expansion for M/s. Bihar Foundry Casting Limited (Ferro Alloys Unit) plant was being considered has been stayed, the Learned Tribunal may be pleased to direct the Respondent No. 3 to immediately take actions to ensure the stoppage of the operations and workings of M/s. Bihar Foundry Casting Limited

(Ferro Alloys Unit) till the matter relating to legality of S.O.P dated July 07, 2021 is decided finally by the Hon'ble Supreme Court of India.

17. That the statements made in the paragraphs 1 to 15 hereinabove are true to my knowledge and belief.

Rakul

Deponent

Prepared in my office,

Identified by me,

Arubhau Khosla

Advocate

F/200/367/2023

Statement of Deponent
Declared before me (JJS)
CPC/3/1987/10/02/12

27.2.24

Yamir Shrivastava
Notary, Govt. of India
Regd. No. 946/97
New Delhi, India

27 FEB 2024

9

Anx. P/405

~~Colly~~

F. No. IA3-3/4/2024-IA.III [E 230791]

Government of India

Ministry of Environment, Forest and Climate Change
(Impact Assessment Division)



Indira Paryavaran Bhawan
Aliganj, Jorbagh Road
New Delhi-110 003

Dated: 8th January, 2024

OFFICE MEMORANDUM

Sub: Stay imposed by Hon'ble Supreme Court with reference to the SOP dated 7th July 2021 and OM dated 28th January 2022 - reg.

The Ministry issued a Standard Operating Procedure (SOP) dated 7th July 2021 bearing the file number 22-21/2020-IA.III, for identification and handling of violation cases under EIA Notification 2006 in compliance to order of the Hon'ble National Green Tribunal in Appeal No. 34/2020 (WZ) titled Tanaji B. Gambhire Vs Chief Secretary, Government of Maharashtra.

2. The SoP was challenged in the Madurai Bench of the High Court of Madras in the matter W.P.(MD) No. 11757 of 2021 titled Fatima Vs Union of India and was interim stayed vide order dated 15th July 2021.

3. Subsequently, in the Order dated 9th December 2021 in the matter of Civil Appeal Nos. 7576-7577 of 2021 in Electrosteel Steels Limited Vs Union of India and Ors., the Hon'ble Supreme Court of India *inter-alia* observed the following:

"93. The interim order passed by the Madras High Court appears to be misconceived. However, this Court is not hearing an appeal from that interim order. The interim stay passed by the Madras High Court can have no application to operation of the Standard Operating Procedure to projects in territories beyond the territorial jurisdiction of Madras High Court. Moreover, final decision may have been taken in accordance with the Orders/Rules prevailing prior to 7th July, 2021."

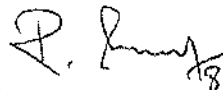
4. In this regard, the Ministry issued an OM dated 28th January, 2022 for circulating the above order of the Hon'ble Supreme Court to all the EACs and SEIAAs/SEACs. In view of the above observations of the Hon'ble Supreme Court, violation proposals

pertaining to all the States except the State of Tamil Nadu were being appraised at the Central level and the respective SEIAAs/SEACs.

5. However, the Hon'ble Supreme Court in W.P.(C) No. 1394/2023 titled Vanashakti vs. Union of India, has stayed the operation of both the Office Memoranda dated 7th July 2021 and dated 28th January 2022 issued by this Ministry.

6. The copy of the order which is self-explanatory is enclosed herewith for necessary action.

7. This is issued with the approval of the competent authority.


(Sundar Ramanathan)
Scientist E

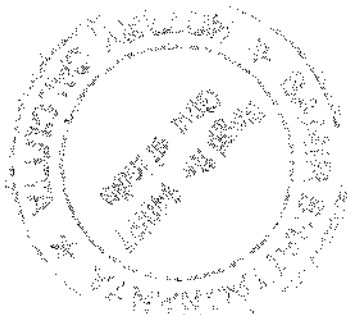
Encl: As above.

To

1. Chairperson/ Member Secretaries of all Expert Appraisal Committees
2. Chairperson/Member Secretaries of all SEIAAs/SEACs
3. All Officers of IA Division

Copy for information to

1. PS to Hon'ble MEF&CC
2. PS to Hon'ble MoS, EF&CC
3. PPS to Secretary, EF&CC
4. PPS to AS (TK)/JS (SKB)
5. Website, MoEF&CC /Guard file



ITEM NO.23

COURT NO.3

SECTION PIL-W

S U P R E M E C O U R T O F I N D I A
R E C O R D O F P R O C E E D I N G S

Writ Petition(s)(Civil) No(s). 1394/2023

VANASHAKTI

Petitioner(s)

VERSUS

UNION OF INDIA
(FOR ADMISSION
ORDERS/DIRECTIONS)

and

IA

Respondent(s)

No.257416/2023-APPROPRIATE

Date : 02-01-2024 This petition was called on for hearing today.

CORAM :

HON'BLE MR. JUSTICE B.R. GAVAI

HON'BLE MR. JUSTICE SANDEEP MEHTA

For Petitioner(s) Mr. Gopal Sankaranarayanan, Sr. Adv.
Mr. Vanshdeep Dalmia, AOR
Ms. Anisha Jian, Adv.
Ms. Tanya Shrivastava, Adv.

For Respondent(s)

UPON hearing the counsel the Court made the following
O R D E R

1. Issue notice returnable in four weeks.
2. Until further orders, there shall be stay of operation of the Office Memoranda dated 7th July, 2021 and 28th January, 2022 issued by the Ministry of Environment, Forest and Climate Change.

(ASHA SUNDRIYAL)
ASTT. REGISTRAR-cum-PS

(BEENA JOLLY)
COURT MASTER (NSH)

Signature Not Verified

Digitally signed by
ASHA SUNDRIYAL
Date: 2024.01.02
16:37:29 IST
Reason:



Ann. P/2
(Colly.)

Ref: BFCL/ENV/2023/40

Dated: 16.08.2023

To,
The Member Secretary
Jharkhand State Pollution Control Board
T.A. Division Building (Ground Floor)
HEC, Dhurwa, Ranchi-834004

Sub: Submission of Environmental Statement (Form V) of M/s Bihar Foundry & Castings Limited, Ferro Alloys Unit for the Period of 2022-2023.

Ref: (i) Environmental Clearance Letter No. - J-11011/384/2010-IA, II (I) Dated: 31.01.2011
(ii) Consent to operate Letter No. JSPCB/HO/RNC/CTO 4412165/2020/1819 dated 10/11/2020 & amendment CTO JSPCB/AUTO-RENEW/CTO/15367225/1341 dated 23.01.2023

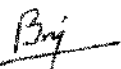
Dear Sir,

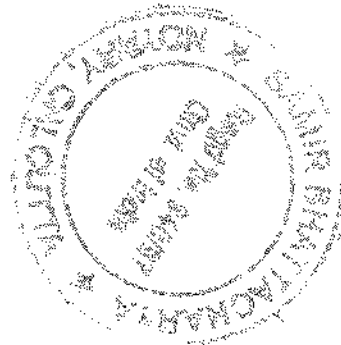
With reference to the above we are hereby submitting the environment statement (Form v) of M/s Bihar Foundry & Castings Limited, Ferro Alloys Unit for the period of 2022-2023.

This is for your perusal and necessary record

Thanking You,

Sincerely Yours,
For, Bihar Foundry & Castings Limited
Ferro Alloys Unit


(B. K. Gupta)
General Manager (Environment)



Encl. As Above.

Copy To:

1. The Addl. Principal Chief Conservator of Forests (C), Ministry of Env. Forest and Climate Change, Regional Office (ECZ), Bunglow No. A-2, Shyamali Colony, Ranchi- 834002.
2. The Regional Officer, Jharkhand State Pollution Control Board P.T.C Chowk, matwari Road, Dist- Hazaribagh.

Bihar Foundry & Castings Limited

Works :- Ramgarh Industrial Area, P.O. - Marar, Dist.- Ramgarh, Jharkhand - 829117.
Registered Office :- Main Road, Ranchi, Jharkhand - 834001.
CIN No :- U27100JH1971PLC000912 & GST No :- 20AABC81852D1Z1
Ranchi - 8825379408, 9523097635 / Ramgarh - 9934012660, 7033698983, Email :- bfcgfa@gmail.com

FORM V
(see rule 14)

Environmental Statement for the financial year ending on 31st March 2023

PART - A

- (i) Name and address of the owner / occupier of the industry operation or process : Mr. Gaurav Budhia (Director)
Bihar Foundry & Castings Limited,
Ferro Alloys Unit.
Plot No. 1405, Ramgarh Industrial Area,
Village & PO – Marar
Dist- Ramgarh, Jharkhand– 829117
- (ii) Industry Category Primary (SIC Code) : Primary metallurgical industry & Red

- (iii) Production capacity – Units :

Unit	Capacity
Ferro Alloys Silico / Manganese	96 TPD

- (iv) Year of establishment : 01.06.2014
- (v) Date of last environmental statement submitted : 06.09.2022

PART - B

Water and raw material consumption

1. Water consumption m³/day :

Purpose	Ferro Alloys Plant	Total (m3/day)
Process & Cooling	25	25
Total for Domestic use & other	10	10



S. No.	Unit	Name of products	Process water consumption per unit of product output	
			During the current financial year 2021-22	During the current financial year 2022-23
1	Ferro Alloys	Ferro Manganese / Silico Manganese	0.700 m ³	0.701 m ³

2. Raw material consumption:

Units	Name of products	Name of raw materials	Consumption of raw material per unit of output	
			During the current financial year 2021-22	During the current financial year 2022-23
Ferro Alloys	Ferro Manganese/ Silico Manganese	Manganese Ore	2.347 MT	1.70 MT
		Coke (Imported)	0.25 MT	0.30 MT
		Coal (Imported)	0.45 MT	0.32 MT
		Quartzite	0.004 MT	0.10 MT
		Carbon Electrode Paste	0.015 MT	0.02 MT
		Dolomite Chips	-	0.005 MT
		High Mno Slag	-	0.75 MT
		Mn Sinter	-	0.40 MT
		Sand Stone	-	0.0004

PART – C

Pollution discharged in to environment

(Parameter as specified in the consent issued)

(1)	Pollutants	Name of source	Quantity of pollutants discharged (Kg / day)	Concentrations of pollutants in discharged (mass/volume)	Percentage of variation from prescribed standers with reasons
(a)	Water	-	-	-	ZLD
(b)	Air	Stack 1 of SAF (3 & 4)	44.78	23.1	Complied
		Stack 2 of SAF (1 & 2)	40.19	21.8	



**PART – D
HAZARDOUS WASTES**

(As specified under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016)

Hazardous Waste	Waste Type	During the current financial year 2021-22	During the current financial year 2022-23
• From Process	Used oil	0.175 KL	0.18 KL
• b) From pollution control facilities	-	NA	NA

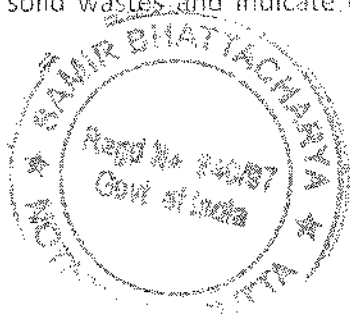
Hazardous waste disposal - Used oil being disposed in house for plant machinery lubrication.

**PART – E
SOLID WASTES**

		Total quantity (MT)	
		During the current financial year 2021-22	During the current financial year 2022-23
a) From Process	Ferro Manganese Slag	24631.600 MT	54943.090 MT
b) From pollution control facilities	Fume Extraction system with Bag Filters		
c) (1) Quantity recycled or re-utilized within the unit	-	-	-
(2) Sold	Ferro Manganese Slag	24631.600 MT	54943.090 MT
(3) Disposed	-	-	-

PART – F

Please specify the characterization (in terms of composition and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of waste.



Slag Test Report

S. No	Parameter	Unit	Results (Ferro Slag)	Results (Silico Slag)
1.	Arsenic (As)	mg/l	BDL (MDL 0.003)	BDL (MDL 0.003)
2.	Cadmium (Cd)	mg/l	BDL (MDL 0.02)	BDL (MDL 0.02)
3.	Total Chromium (Cr)	mg/l	0.31	0.19
4.	Cobalt (Co)	mg/l	0.24	0.05
5.	Copper (Cu)	mg/l	0.04	0.01
6.	Lead (Pb)	mg/l	BDL (MDL 0.02)	BDL (MDL 0.02)
7.	Manganese (Mn)	mg/l	3.63	9.46
8.	Mercury (Hg)	mg/l	BDL (MDL 0.003)	BDL (MDL 0.003)
9.	Nickel (Ni)	mg/l	0.34	0.14
10.	Zinc (Zn)	mg/l	0.29	0.06
11.	Iron (Fe)	mg/l	9.72	14.10

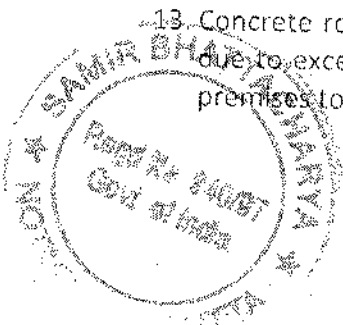
PART – G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production.

1. Jigging & Briquetting Plant - The ferro alloy slag consists some portion of valuable ferro alloy material which can be obtained in a directly saleable condition and can be sold at reasonably good market rates as compared to the main ferro alloy product. The Metal Recovery Plant is being used to recover this portion of metal from slag. Certain portion of slag is conveyed to Metal Recovery Plant (MRP) wherein it is crushed as to extract good quality Ferro Manganese from the slag waste. This process involves the following three steps;
 - Crushing and screening of metal containing slag.
 - Separation of metal from slag.
 - Re-crushing of middling to realize additional metal. The process flow of Metal in the plant, briquetting unit also provided where the dust from the bag filters and internal roads dust is converted into briquettes and will be feed to furnace.
2. Utilization of Solid waste (slag) - Solid waste (slag) after metal recovery will be used in filling of low lying areas, roads, making and other use.
3. Utilization of Bag filter dust - Bag filter dust will be sold to the nearby Plant.
4. Environment Management Cell - Environmental management cell has been established and upgraded for the management and control of environmental issues arising due to different activities in the plant. This cell being ensured



- Air pollution control & management
 - Water pollution control & management
 - Solid waste management
 - Proper operation of CEMS (Continuous Stack Emission Monitoring) and availability of online data.
 - Regular inspection for maintenance of good housekeeping.
 - All the compliances as per environment legislation which includes compliance of conditions of environment clearance consent to operate, authorization and NOC for ground water withdrawal.
5. The fume extraction system with bag filters, ID fan have been provided and the height of stack attached to the submerged arc furnace is 45 meters. The emissions level always remains below 50mg/Nm³.
 6. Environmental Monitoring - Environmental monitoring such as ambient air quality, water quality, fugitive emission monitoring, stack monitoring, noise monitoring etc. regularly done by NABL accredited laboratories empanelled and recognized by JSPCB & MOEF&CC.
 7. We have installed 60 Nos. of fixed water sprinklers & 100 Nos. of Fog nozzles in BFCL, Ferro alloys plant. Water is also sprinkled by water tankers on all the transport.
 8. Green belt development - This plant has an area of 7.18 acres. Since we have constraint of land we acquired and addition land 1.17 Ha. (2.9 Acres) by the side of the existing plant premises. Additional land outside the plant premises over an extent of 2.91 Hect. and 1.17 Ha. (2.9 Acres) has been procured. Total 3000 nos. of plants will be developed over an extent of 1.17 Ha. (2.9 Acres).
 9. Rain water harvesting structure - Rainwater harvesting system is constructed and rain water collected in the pits settle in the low level sumps to augment the ground water resources gradually. The total rain water potential of factory premises is 25196 m³.
 10. Online continuous emission monitoring system - PM 10 Analyzer is installed in this plant with connectivity to JSPCB server and data is continuously visible in public domain in the JSPCB website "www.jspcb.nic.in". PM10 values are always within the prescribed limit, i.e. 100 µg/m³.
 11. Online continuous Emission monitoring (CEMS) has been installed in Stack- 1 & 2 with connectivity to CPCB & JSPCB server and online data are continuously transmitted to JSPCB & CPCB server. This online data is also visible in public domain on website of JSPCB "www.jspcb.nic.in"
 12. Water Flowmeter - Electromagnetic flow meters with telemetry system are installed in 2 Nos. of bore wells as per CGWA Noc and the online data continuously transmitted to CGWA Portal; also a Piezometer is installed in a borewell to sense ground water level.
 13. Concrete road - The most important advantage of Concrete Road is its service life due to exceptional durability. Concrete roads are constructed in all areas of plant premises to control dust emission.



14. Road Sweeping Machine - Dust sweeping machine has been procured which removed dusts from all the transport Roads.

PART – H

Additional measures / investment proposal for environmental protection including abatement of pollution prevention of pollution.

Proposals :

1. Massive Plantation.
2. Online UPS for SPM monitors.

PART – I

Any other particulars for improving the quality of the environment.

1. Housekeeping - Fixed water sprinklers have been installed by the side of transport roads and mobile water tankers also regularly move and sprinkle water in the dust prone areas. A dust sweeping machine installed on tractor regularly sweeps dust from all the transport roads.
2. Periodically health checkup - Occupational health surveillance of the workers are carried out on six monthly basis and the last time it was taken up during December 2022.
3. Environmental awareness program - World environment day celebrated every year on 5th June to inform all the employees about how to protect our environment and conserve natural resources, also organizing Poster & Slogan competition on environment day to aware employees towards Environment Conservation.
4. Provided PPEs to all workmen and staff.
 - Provided PPEs to all workmen and staff.
 - Provide safety training to all the staff and workmen.
 - Safety day program celebrated at plant premises to aware all the staff and workmen.
5. CSR program –
 - Socio- economic development activities like community development program, educational program, drinking water supply and health care etc. is being done regularly in the surrounding villages.
 - Education- Financial aid to Rinki Kumari, Khusi Khabra, School development work of A1 Public School, Utkramit Uchay Vidyalay Manua, Gumla(Jharkhand) tribble school.
 - Medical - Financial aid to Priti Pandey, Sanjay Kabra, Jay Prakash Singh Etc.
 - Infrastructure Development - Beautification work of Veer Kunwar Singh Statue.
 - CSR Expenses for the financial year 2022-23.



S. No	Expenditure Head	Amount in INR
I.	Women Empowerment	1,80,983
II.	Community Welfare	43,22,737
III.	Education	50,24,631
IV.	Health & Medical	92,70,990
V.	Sports	9,71,877
Total		1,97,71,218



BIHAR FOUNDRY & CASTINGS LIMITED

Modification-cum-Expansion of Ferro Alloy Plant (under violation)
Modification of existing 2x5 MVA SEAF's to 2x6 MVA SEAF, Modification of existing 1x7.5 MVA SEAF to 1x9 MVA SEAF, Existing 1x9.0 MVA SEAF, establishment new 1x9 MVA SEAF & new 12MT per batch CLU Converter for refining liquid HC FeMn to MC/LC FeMn

Category – A Project

at

**Plot No 1405(P), Ramgarh Industrial Area,
Marar Village, Ramgarh Tehsil & District, Jharkhand**

REVALIDATED FINAL

Environmental Impact Assessment Report

(Based on ToR letter no. J-11011/384/2010-IA II(I) dated 24.11.2020 & Amendment to ToR vide no. File No. IA-J-11011/384/2010-IA-II (IND-I) dated 19-12-2022)

Monitoring Period

1st December 2019 to 29th February 2020 & 1st May 2022 to 31th May 2022



January 2023

Prepared by



Accredited by NABET

**2nd Floor, A-Z Elite, Plot No. 197, Kavuri Hills, Guttala Begumpet Village, Madhapur,
Hyderabad -500081: Ph.No. : 040-23114270**

UNDERTAKING

I, **GAURAV BUDHIA, DIRECTOR** of **M/s. Bihar Foundry & Castings Limited (BFCL)** give this undertaking that the **Revalidated Final EIA** report has been prepared by **M/s. Pioneer Enviro Laboratories & Consultants Pvt. Ltd., Hyderabad** incorporating the **Terms of Reference (ToRs)** prescribed by **MoEF&CC, New Delhi** vide letter no. **ToR letter no. J-11011/384/2010-IAII(I) dated 24.11.2020 & Amendment to ToR** vide no. **File No. IA-J-11011/384/2010-IA-II(IND-I) dated 19th December, 2022** for our proposed **Modification-cum-Expansion of Ferro Alloy Plant** submitted under violation consisting of **Modification of existing 2x5 MVA SEAF's to 2x6 MVA SEAF, Modification of existing 1x7.5 MVA SEAF to 1x9 MVA SEAF, Existing 1x9.0 MVA SEAF, establishment new 1x9 MVA SEAF & new 12MT per batch CLU Converter for refining liquid HC FeMn to MC/LC FeMn at Plot No 1405(P), Ramgarh Industrial Area, Marar Village, Ramgarh Tehsil & District, Jharkhand.** It is here by confirmed that the data given in the EIA report are factually correct & owe the contents of this report.

Date : 12-01-2023
Place : Ramgarh

For & behalf of **Bihar Foundry & Castings Limited**

For BIHAR FOUNDRY & CASTINGS LTD.


GAURAV BUDHIA DIRECTOR
DIRECTOR

**Bihar Foundry & Castings Limited**

Works :- Ramgarh Industrial Area, P.O. :- Marar, Dist. :- Ramgarh, Jharkhand - 829117.

Registered Office :- Main Road, Ranchi, Jharkhand - 834001.

CIN No. :- U27100JH1971PLC000912 & GST No. :- 20AABCB1852D1Z1

Ranchi - 8825379408, 9523097635 / Ramgarh - 9934012660, 7033698983, Email :- bfcgfa@gmail.com

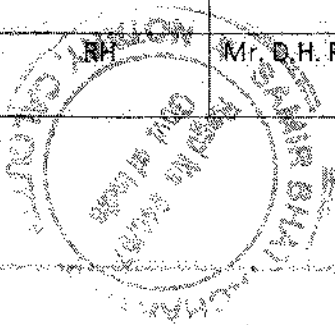
DECLARATION

Declaration by Experts contributing to the **Revalidated Final EIA** for the proposed expansion of Integrated Steel Plant by **M/s. Bihar Foundry & Castings Limited (BFCL)** at Plot No 1405(P), Ramgarh Industrial Area, Marar Village, Ramgarh Tehsil & District, Jharkhand. We, hereby, certify that we were part of the EIA team in the following capacity that developed the above EIA.

Sector	:	Metallurgical Industries (Ferrous & Non-ferrous)		
Name of EIA Coordinator (EC)	:	Mr. Y. Maheshwara Reddy	Signature	Y M Reddy
Associate to EIA coordinator	:	Mr. Shravan Goud	Signature	Shravan
Period of Involvement	:	from September 2022 to till date		
Date	:	12/01/2023		

DECLARATION BY FUNCTIONAL AREA EXPERTS INVOLVED IN THE PREPARATION OF EIA REPORT

Functional Area	Name of the Expert	Involvement (Period)	Signature
AP	Mr. Y. Maheshwara Reddy	from September 2022 to till date	Y M Reddy
WP	Mr. Y. Maheshwara Reddy	from September 2022 to till date	Y M Reddy
SW	Mr. Y. Maheshwara Reddy	from September 2022 to till date	Y M Reddy
SE	Mr. I. Durga Prasad	from September 2022 to till date	I Durga Prasad
EB	Prof. Bayyapu Reddy	from September 2022 to till date	Prof. Bayyapu Reddy
HG	Mr. E. Venkat Naresh	from September 2022 to till date	E. Venkat Naresh Kumar
GEO	Mr. E. Venkat Naresh	from September 2022 to till date	E. Venkat Naresh Kumar
SC	Prof. Bayyapu Reddy	from September 2022 to till date	Prof. Bayyapu Reddy
AQ	Mr. Y. Maheshwara Reddy	from September 2022 to till date	Y M Reddy
NV	Smt. T. Srilatha	from September 2022 to till date	T Srilatha
LU	Dr. Y. Ramamohan	from September 2022 to till date	Dr. Y. Ramamohan
BH	Mr. D.H. Patel	from September 2022 to till date	D.H. Patel



Involved as	Name of the person	Involvement (Period)	Signature
Team Member (Under FAE -AP)	Mr.K. Santhosh Kumar	from September 2022 to till date	K. Santhosh Kumar
Team Member (Under FAE -WP)	Mr.Shravan Goud	from September 2022 to till date	Shravan Goud
Team Member (Under FAE -AQ)	Mr.K. Santhosh Kumar	from September 2022 to till date	K. Santhosh Kumar
Team Member (Under FAE -EB)	Mr.Nagarjuna SRD	from September 2022 to till date	Nagarjuna SRD
Team Member (Under FAE -SE)	Mr.C. MADHU	from September 2022 to till date	C. Madhu

Declaration by the Head of the Accredited Consultant Organization

I, Y. MAHESHWARA REDDY, hereby, confirm that the above-mentioned experts prepared the EIA for M/s. Bihar Foundry & Castings Limited (BFCL) at Plot No 1405(P), Ramgarh Industrial Area, Marar Village, Ramgarh Tehsil & District, Jharkhand. I also confirm that I shall be fully accountable for any misleading information mentioned in this statement.

Signature : Y. Maheshwara Reddy
 Name : Y. Maheshwara Reddy
 Designation : Managing Director
 Organization : Pioneer Enviro Laboratories & Consultants Pvt. Ltd., Hyderabad
 Date : 12/01/2023



INDEX

S.No.	Contents	Page No.
	TOR LETTER	1-8
	TOR COMPLIANCE	i to xvii
Chapter – 1 : Introduction		
1.1	Purpose of the Report	1.1
1.2	Identification of Project & Project Proponent	1.2
1.3	Brief Description	1.8
1.3.1	Nature of the Project	1.8
1.3.2	Size of the Proposed Project	1.8
1.3.3	Location of the Project	1.9
1.3.4	Importance of Project	1.9
1.4	Scope of the Study	1.10
Chapter – 2: Project Description		
2.1	Type of Project	2.1
2.2	Need for the Project	2.1
2.3	Location of the Project	2.2
2.3.1	Environmental Setting within 10 km. radius of the plant site	2.8
2.4	Details of Land	2.17
2.5	Size / Magnitude of Operation	2.17
2.6	Proposed Schedule for Approval and Implementation	2.17
2.7	Project Cost	2.17
2.8	Technology & Process Description	2.18
2.8.1	Raw Materials	2.18
2.8.2	Raw Material Transport, Storage & Handling	2.19
2.8.3	Material Balance	2.19
2.8.4	Manufacturing Process	2.20
2.8.4.1	Ferro Alloys Manufacturing Process	2.20
2.8.4.2	Jigging & briquetting plant	2.27
2.8.5	Stack Emissions	2.27
2.8.6	Water Requirement	2.27
2.8.7	Power Requirement	2.27
2.8.8	Man Power Requirement	2.27
2.8.9	Energy Conservation Measures	2.27
2.9	Environmental Mitigation Measures	2.27
2.9.1	Air Emission Control	2.27
2.9.2	Waste Water Management	2.28
2.9.3	Noise Level Management	2.28
2.9.4	Solid Waste Management	2.29
2.9.5	Green Belt	2.29
2.10	Assessment of new & Untested Technology for the Risk of technological Failure	2.30

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

Chapter – 3: Description of Environment		
3.1	Baseline Environmental Status	3.1
3.2	Air Environment	3.2
3.2.1	Meteorology	3.2
3.2.2	Meteorological Data Recorded at project Site	3.2
3.2.3	Air Quality	3.6
3.2.3.1	Selection of Sampling Stations	3.7
3.2.3.2	Parameters Monitored	3.7
3.2.3.3	Sampling & Analytical Techniques, Instruments used for Sampling	3.7
3.3	Noise Environment	3.15
3.3.1	Reconnaissance	3.16
3.3.1.1	Background Noise	3.16
3.3.1.2	Sources of Noise	3.16
3.3.2	Community Noise	3.17
3.3.2.1	Occupational Exposure	3.18
3.3.3	Methodology Adopted for Noise Level Observation	3.18
3.3.4	Noise Level Observations in the Study Area	3.19
3.4	Water Quality Impacts	3.23
3.4.1	Surface Water Quality	3.23
3.4.2	Ground Water Quality Analysis	3.28
3.5	Land Environment	3.41
3.5.1	Geological & Hydrogeological Status of the District	3.41
3.5.2	Mineral Reserves	3.46
3.5.3	Seismic Effect	3.46
3.5.4	Land Use Pattern	3.46
3.5.5	Soil Environment	3.50
3.6	Biological Environment	3.55
3.6.1	Objectives of the study	3.55
3.6.2	Methodology of the floral and faunal study	3.55
3.6.3	Description of the project site & study area	3.56
3.6.4	Details of flora in the study area	3.57
3.6.5	Details of flora in the study area	3.58
3.6.6	Details of fauna in the study area	3.63
3.6.7	Interpretation from the above ecology & biodiversity study	3.68
3.7	Socio Economic status	3.69
CHAPTER – 4: Anticipated Environmental Impacts & Mitigation Measures		
4.1	Introduction	4.1
4.2	Air Environment	4.1
4.2.1	Impact on Topography and Climate	4.2
4.2.1.1	Impact on Topography	4.2
4.2.1.2	Impacts on Climate	4.2
4.2.2	Prediction of Impacts on Air Environment	4.2
4.2.3	Stack Height Calculation	4.6
4.3	Prediction of Impacts on Water Environment	4.15

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

4.3.1	Water Requirement	4.15
4.3.2	Wastewater	4.15
4.3.3	Impact on Surface Water Bodies	4.17
4.4	Prediction of Impacts due to Noise	4.17
4.4.1	Prediction of Impact Due to the Proposed Activity	4.17
4.4.2	Prediction of Impacts on Community	4.18
4.4.3	Prediction of Impact on Occupational Health	4.19
4.5	Prediction of Impacts on Land Environment	4.19
4.6	Prediction of Impacts Due to Vehicular Movement	4.20
4.7	Prediction of Impacts on Flora & Fauna	4.22
4.8	Prediction of Impacts on Socio Economic Environment	4.23
CHAPTER – 5: Analysis of Alternatives [Technology & Site]		
5.1	Alternative Technologies	5.1
5.2	Alternative Sites	5.1
CHAPTER – 6: Environmental Monitoring Program		
6.1	Technical Aspects	6.1
6.1.1	Methodology	6.1
6.1.2	Frequency & Locations of post project Environmental Monitoring	6.1
6.1.3	Data Analysis	6.2
6.1.4	Reporting Schedule	6.2
6.1.5	Emergency Procedures	6.2
6.1.6	Detailed Budget & Procurement Schedules	6.3
CHAPTER – 7 : Additional Studies		
7.1	Introduction	7.1
7.2	Public Consultation	7.1
7.2.1	Proceedings of public hearing	7.1
7.2.2	Public hearing notice in newspaper	7.2
7.2.4	Management response for the issues raised during public hearing & action plan	7.4
7.2.3	Public hearing photographs	7.3
7.3	social impact assessment study	7.7
7.3.1	Legislative & regulatory considerations	7.7
7.3.2	Objective	7.7
7.3.3	Scope	7.8
7.3.4	Approach & methodology	7.8
7.3.5	Socio economic study area	7.9
7.3.6	Project impact zones	7.10
7.3.7	Baseline data and analysis of surveyed villages	7.12
7.3.7.1	Desktop review / research	7.12
7.3.7.2	Field Survey	7.13
7.3.7.3	Data analysis & its interpretation	7.14
7.3.8	Socio economic status	7.19

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

7.3.9	Conclusion	7.22
7.4	Risk assessment	7.22
7.4.1	Introduction	7.22
7.4.2	Scope of the Study	7.22
7.4.3	Fire protection system	7.23
7.4.4	Methodology of mca analysis	7.23
7.4.5	Fire & explosion and toxicity index	7.24
7.4.6	Assessment of risk at the project site	7.26
7.4.7	Risk & consequence analysis of fire	7.31
7.4.7.1	Methodology	7.31
7.5	Disaster management plan	7.32
7.5.1	Disasters	7.32
7.5.2	Objectives of disaster management of plan	7.33
7.5.3	Emergencies	7.34
7.5.3.1	General emergencies anticipated	7.34
7.5.3.2	Specific emergencies anticipated	7.34
7.5.3.3	Emergency organization	7.34
7.5.3.4	Emergency communication	7.35
7.5.3.5	Emergency Responsibilities	7.35
7.5.3.5.1	Site Controller	7.35
7.5.3.5.2	Incident Controller	7.36
7.5.3.5.3	Emergency coordinator - rescue, fire fighting	7.37
7.5.3.5.4	Emergency coordinator - medical, mutual aid, rehabilitation, transport and communication	7.37
7.5.3.5.5	Emergency coordinator – essential services	7.38
7.5.3.5.6	General responsibilities of employees during an emergency	7.38
7.5.3.6	Emergency Facilities	7.38
7.5.3.6.1	Emergency control center	7.38
7.5.3.6.2	Emergency power supply	7.39
7.5.3.6.3	Fire fighting facilities	7.39
7.5.3.6.4	Location of wind sock	7.39
7.5.3.6.5	Emergency medical facilities	7.40
7.5.3.7	Emergency Actions	7.40
7.5.3.7.1	Emergency Warning	7.40
7.5.3.7.2	Emergency Shutdown	7.40
7.5.3.7.3	Evacuation of Personnel	7.41
7.5.3.7.4	All Clear Signal	7.41
7.5.4	Off- Site Emergency	7.41
7.6	Occupational health and surveillance	7.42
7.6.1	Occupational Health	7.42
7.6.2	Construction & erection	7.42
7.6.3	Operation & maintenance	7.42
7.6.4	Occupational Health	7.43
7.7	Safety Plan	7.45
7.7.1	safety organisation	7.46

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

7.7.1.1	construction and erection phase	7.46
7.7.1.2	Operation & maintenance phase	7.46
7.7.1.3	Safety circle	7.46
7.7.2	Safety Training	7.47
7.7.3	Health and safety monitoring plan	7.47
7.8	R & R Action Plan	7.47
CHAPTER – 8: Project Benefit		
8.1	Physical Infrastructure	8.1
8.2	Social Infrastructure	8.1
8.3	Employment Potential	8.1
8.4	Socio-Economic Developmental Activities Proposed	8.1
CHAPTER – 9: Environmental Cost Benefits		
9.0	Environmental Cost Benefit Analysis	9.1
CHAPTER – 10: Environmental Management Plan		
10.1	Introduction	10.1
10.2	Management during Construction phase	10.2
10.2.1	Site Preparation	10.2
10.2.2	Water Supply & Sanitation	10.2
10.2.3	Fuel & Rest Rooms Facility	10.2
10.2.4	Noise	10.2
10.2.5	Maintenance of Vehicles	10.3
10.2.6	Waste	10.3
10.2.7	Storage of Hazardous Material	10.3
10.2.8	Land Environment	10.3
10.3	Post Construction Phase	10.3
10.3.1	Air Emission Management	10.3
10.3.1.1	Dust Extraction and Dust Suppression System	10.4
10.3.1.2	Technical Specifications of Control Systems	10.5
10.3.2	Action Plan for Control and Monitoring of Fugitive Emissions	10.5
10.3.2.1	Monitoring of Secondary Fugitive Emissions	10.6
10.3.2.2	Dust Suppression System	10.6
10.2.2.3	Internal Roads	10.6
10.3.3	Compliance on CREP Recommendations	10.7
10.3.4	Wastewater Management	10.7
10.3.5	Solid Waste Generation & its Disposal	10.8
10.3.6	Noise Level Management	10.9
10.3.7	Land Environment	10.10
10.3.8	Measures for Improvement of Ecology	10.11
10.3.8.1	Green Belt Development	10.11
10.3.9	Rainwater Harvesting	10.14
10.4	Post Project Monitoring Strategy	10.15
10.5	Costs for Environmental Protection	10.16

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

10.6	Environment Policy	10.17
CHAPTER – 11: Summary& Conclusion		
11.1	Introduction	11.1
11.1.1	Environmental Setting Within 10Km.radius of the plant site	11.2
11.1.2	Plant Configuration and Production capacity	11.3
11.1.3	Raw Materials (For expansion Project)	11.4
11.1.4	Manufacturing Process	11.5
11.1.5	Water Requirement	11.5
11.1.6	Waste Water Generation	11.5
11.2	Description of Environment	11.6
11.2.1	Ambient air quality	11.7
11.2.2	Water Quality	11.7
11.2.2.1	Surface Water Quality	11.7
11.2.2.2	Ground Water Quality	11.7
11.2.3	Noise levels	11.8
11.3	Anticipated Environmental Impacts and mitigation Measures	11.8
11.3.1	Prediction of impacts on air quality	11.8
11.3.2	Prediction of impacts on Noise Quality	11.9
11.3.3	Predicted of impacts on water environment	11.9
11.3.4	Prediction of impacts on land environment	11.10
11.3.5	Prediction of impacts on Biological environment	11.10
11.3.6	Socio - Economic Environment	11.10
11.4	Environmental Monitoring Programme	11.11
11.5	Additional Studies	11.11
11.6	Project Benefits	11.11
11.7	Environment Management plan	11.12
11.7.1	Air Environment	11.12
11.7.2	Water Environment	11.13
11.7.3	Noise Environment	11.13
11.7.4	Land Environment	11.13
11.7.5	Greenbelt Development	11.14
11.7.6	Cost for Environment Protection	11.14
CHAPTER – 12: Disclosure of Consultant		
12.0	Disclosure of Consultant Engaged	12.1

LIST OF TABLES

T.No.	Contents	Page No.
CHAPTER – 1		
1.3.1	Plant Configuration and Production Capacity	1.8
CHAPTER – 2		
2.3.1	Coordinates Of The Project Site	2.2
2.3.2	Environmental Setting	2.8

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

T.No.	Contents	Page No.
2.3.3	List of Industries Outside Ramgarh Industrial Area (Within 10 Km Radius)	2.9
2.3.4	List of Industries within 10 Km. radius (Ramgarh Industrial Park)	2.10
2.4.1	Land use Classification	2.13
2.4.2	Land Use Statement Of The Plant Area	2.13
2.5.1	Plant Configuration and Production Capacity (Existing & Proposed)	2.17
2.7.1	Break-Up Of Project Cost	2.18
2.8.1	Raw Material Requirement, Source & Mode Of Transport	2.18
2.8.2	For Ferro Manganese Manufacturing	2.19
2.8.3	For Silico Manganese Manufacturing	2.19
2.8.4	Stack Details	2.26
2.8.5	Breakup of Water Requirement	2.26
2.9.1	Air Emission Control Systems Are Proposed	2.28
2.9.2	Solid & Hazardous Waste Generation and its Management	2.29
	CHAPTER – 3	
3.2.1	Site Specific Meteorological Data	3.6
3.2.2	Techniques Used For Ambient Air Quality Monitoring	3.8
3.2.3	Ambient Air Quality Monitoring Stations	3.8
3.2.4	Summary of Ambient Air Quality Monitoring Data	3.8
3.2.5	Summary of Ambient Air Quality Monitoring Data	3.9
3.2.6	Ambient Air Quality Monitoring Stations	3.9
3.2.7	Ambient Air Quality Monitoring Station	3.11
3.2.8	Ambient Air Quality Monitoring Station	3.11
3.2.9	Ambient Air Quality Monitoring Station	3.11
3.2.10	Ambient Air Quality Monitoring Station	3.11
3.2.11	Ambient Air Quality Monitoring Station	3.12
3.2.12	Ambient Air Quality Monitoring Station	3.12
3.2.13	Ambient Air Quality Monitoring Station	3.12
3.2.14	Ambient Air Quality Monitoring Station	3.12
3.2.15	Summary of Ambient Air Quality Monitoring Data	3.15
3.3.1	Guidance for assessment of representativeness and reliability of baseline environmental attributes	3.18
3.3.2	Noise level monitoring stations	3.19
3.3.3	Equivalent day night noise level	3.19
3.3.4	Equivalent day night noise level	3.20
3.4.1	Surface Water Quality Sampling Stations	3.22
3.4.2	Surface Water Quality Analysis (during 1st Dec 2019 to 29th Feb 2020)	3.23
3.4.3	Surface Water Quality Analysis (Revalidation of data in May 2022)	3.24
3.4.4	Surface Water Quality Analysis	3.25
3.4.5	Surface Water Quality Analysis	3.26
3.4.6	Ground Water Quality Sampling Stations	3.28
3.4.7	Ground Water Quality Analysis (during 1st Dec 2019 to 29th Feb 2020)	3.31
3.4.8	Ground Water Quality Analysis	3.32
3.4.9	Ground Water Quality Analysis	3.33

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

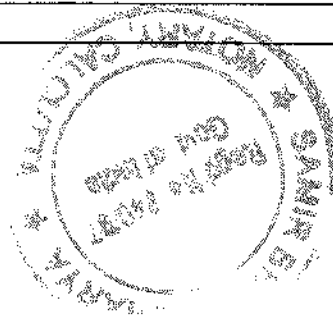
 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

T.No.	Contents	Page No.
3.4.10	Ground Water Quality Analysis	3.34
3.4.11	Ground Water Quality Analysis	3.35
3.5.1	Land use pattern area statement	3.41
3.5.2	Soil quality sampling stations	3.45
3.5.3	Soil Characteristics (during December 2019 to February 2020)	3.47
3.5.4	Soil Characteristics (in May 2022)	3.48
3.5.5	Soil Standard Classification	3.49
3.6.1	Land use of the plant area	3.52
3.6.2	List of plants found in the plant site during the study period	3.53
3.6.3	List of trees, shrubs and perennial climbers found in the buffer zone of the Plant	3.54
3.6.4	List of vertebrates other than birds either spotted or reported from the study area	3.59
3.6.5	List of birds either spotted or reported from the study area	3.60
3.6.6	List of butterflies spotted in the study area by survey team	3.61
3.6.7	List of aquatic / semi aquatic macrophytes found in and around the Rivers and Tanks	3.61
3.6.8	List of fishes from the water bodies of the buffer area	3.62
3.6.9	Interpretation From The Above Ecology & Biodiversity Study	3.63
3.7.1	Population Break Up As Per Census 2011	3.65
3.7.2	Literacy Levels Of The Population Up As Per Census 2011	3.67
3.7.3	Workers Classification As Per Census 2011 (Main & Marginal)	3.70
3.7.4	Cultivators Classification As Per Census 2011 (Main & Marginal)	3.72
3.7.5	Agricultural Labours Classification As Per Census 2011 (Main & Marginal)	3.75
3.7.6	Household Industry Workers Classification As Per Census 2011(Main & Marginal)	3.77
3.7.7	Other Workers Classification As Per Census 2011 (Main & Marginal)	3.80
3.7.8	Non Workers Classification As Per Census 2011	3.82
	CHAPTER – 4	
4.2.1	Lateral Turbulence Criteria For Initial Estimate Of Stability	4.4
4.2.2	Wind Speed Adjustments For Determining Final Estimate Of Pg Stability Category From σ_A	4.4
4.2.3	Sources of Air Pollution	4.5
4.2.4	Stack Emissions	4.6
4.2.5	Net resultant maximum concentrations during the operation of the expansion project (apcs working scenario)	4.7
4.2.6	Net resultant maximum concentrations during the operation of the expansion project & Due to Other Industries In the Area (apcs not working scenario)	4.13
4.3.1	Water Requirement & Break up for Existing & Proposed Expansion	4.15
4.3.2	Breakup Of Wastewater Generation	4.16
4.3.3	Waste water Characteristics	4.16
4.6.1	Traffic count during peak hours	4.20
4.6.2	Traffic count during peak hours	4.21
4.6.3	vehicular pcu factors	4.21
4.6.4	Pcu calculation for peak hour traffic (existing baseline scenario)	4.21

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

T.No.	Contents	Page No.
4.6.5	Pcu calculation for peak hour traffic (due to the project)	4.22
4.6.6	Level of service at study road during peak hour (after operation of the proposed project)	4.22
4.6.7	Level of Service (LOS) of the Road as per IRC 106-1990	4.22
	CHAPTER – 6	
6.1.1	Monitoring Schedule For Environmental Parameters	6.1
	CHAPTER – 7	
7.2.1	Management response for the issues raised during public hearing & action plan	7.4
7.3.1	Demographic Features Of The Villages / Towns	7.10
7.3.2	Demography of the Surveyed villages	7.14
7.3.3	Demography of vulnerable groups	7.15
7.3.4	Literacy rate in the surveyed villages	7.16
7.3.5	Work force of the surveyed villages	7.18
7.4.1	Possible risks, hazards from the plant & mitigation measures	7.25
	CHAPTER – 10	
10.3.1	Air Emission Control System Proposed	10.4
10.3.2	sources of air pollution & mitigation measures	10.4
10.3.3	Fume Extraction system design (SEAF)	10.5
10.3.4	Bag filter specifications (SEAF)	10.5
10.3.5	Solid Waste Generation & Its Disposal	10.8
10.3.6	Impacts on Geology, Hydrology & Mitigation measures	10.11
10.3.7	Plantation In Existing Plant	10.13
10.3.8	Details of Rain Water Harvesting Potential	10.15
10.3.9	Monitoring Schedule for Environmental Parameters	10.15
10.3.10	Break-Up Of Budget For Environmental Protection Measures	10.16
	CHAPTER – 11	
11.1.1	Environment Setting Within 10 Kms. Radius of the Plant Site	11.2
11.1.2	Plant Configuration And Production Capacity (Existing & Proposed)	11.3
11.1.3	Raw Material Requirement, Source & Mode of Transport	11.4
11.1.4	Break Up of Water Consumption (Existing & Proposed)	11.5
11.1.5	Wastewater Generation Break Up	11.6
11.2.1	Summary of Ambient Air Quality data	11.7
11.3.1	Net Resultant Maximum Concentrations Due to Proposed Expansion Project	11.9
11.4.1	Monitoring Schedule For Environmental Parameters	11.11
11.7.1	Proposed air emission control systems	11.12
11.7.2	Solid Waste Generation & Its Disposal	11.14



FIGURES

F.No.	Contents	Page No.
	CHAPTER – 2	
2.1	Coordinates Of The Project Site On Topo Map	2.3
2.2	Google Earth Image Showing Plant Site	2.4
2.3	Existing Plant Photographs	2.5
2.4	General Location Map Showing Plant	2.11
2.5	Topographical Map	2.12
2.6	Pie Diagram showing Land Use Statement	2.14
2.7	Plant Layout of Industrial Area ,Ramgarh	2.15
2.8	Plant Layout	2.16
2.9	Schematic Diagram showing Ferro Alloys Manufacturing Process	2.24
2.10	Schematic Diagram showing Pellet Jigging Process	2.25
	CHAPTER – 3	
3.1	wind rose at site (1 st December 2019 to 29 th February 2020)	3.4
3.2	wind rose at site (1 st May 2022 to 31 st may 2022)	3.5
3.3	Map Showing Noise Level Monitoring Stations	3.22
3.4	Map Showing Groundwater Sampling Locations	3.29
3.5	Hydrological map of Ramgarh District	3.37
3.6	Water levels (Pre-Monsoon)	3.38
3.7	Water levels (Post-Monsoon)	3.39
3.8	Drainage Map 10km Radius	3.40
3.9	Pie Chart of LULC Statement	3.42
3.10	Satellite Imagery	3.43
3.11	Land Use/ Land Cover Map	3.44
3.12	Map Showing Soil Quality Sampling Locations	3.46
	CHAPTER-4	
4.1	Net resultant GLC of PM Due to Project	4.8
4.2	Net resultant GLC of PM Due to Vehicular Emissions	4.9
4.3	Net resultant GLC of NO ₂ Due to Project	4.10
4.4	Net resultant GLC of NO ₂ Due to Vehicular Emissions	4.11
4.5	Net resultant GLC of CO Due to Vehicular Emissions	4.5
4.6	Net resultant GLC of PM Due to Project (Without Air pollution Control systems)	4.14
	CHAPTER – 10	
10.1	Fume Extraction System With Bag House	10.6
10.2	Figure	10.18



LIST OF ANNEXURES

Annexure No.	Annexure details
Annexure – 1	Credible action initiated by State PCB for Violation
Annexure – 2	Compliance to conditions as situated in SPA
Annexure – 3	Letter submitted for CTO Name change
Annexure – 4	A copy of NOC from CGWA
Annexure – 5	Water Permission issued by DVRRC
Annexure – 6	EC issued for existing plant
Annexure – 7	CCR issued by IRO, MOEF&CC, Ranchi
Annexure – 8	Lease deeds for 7.18 Acres
Annexure – 9	One month AAQ data
Annexure – 10	Health Reports of workers
Annexure – 11	Proceedings of Public hearing & Action Plan

ABBREVIATIONS

MoEF&CC	Ministry of Environment, Forest & Climate Change
EIA	Environmental Impact Assessment
EC	Environmental Clearance
EMP	Environmental Management Plan
MTPA	Million Tons Per Annum
BSSPL	B.S. Sponge Pvt. Ltd.
CTE	Consent to Establish
CTO	Consent to Operate
MW	Mega Watts
TOR	Terms of Reference
Std.Tor	Standard TOR
Add. TOR	Additional ToR
Spec. TOR	Specific ToR
NABET	National Accreditation Board for Education and Training
DRI	Direct Reduced Iron
SMS	Steel Melting Shop
WHRB	Waste Heat Recovery Boiler
CFBC	Circulated Fluidized Bed Combustion
IF	Induction Furnace

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

TPA	Tons Per Annum
TPD	Tons Per Day
Gol	Govt. of India
Ha.	Hectares
Ac.	Acres
SIPB	State Investment Promotion Board
kVA	kilo-volt-ampere
Kwh	Kilowatt Hour
CGWA	Central Ground Water Authority
MW	Megawatt
OSHA	Occupational Safety and Health Administration
D.G. set.	Diesel Generator Set
dba	Decibels
KL	Kilo Liters
GEL	Global Enviro Labs
IMD	India Meteorological Department
PM	Particulate Matter,
SO ₂	Sulphur Di-oxide
NO _x	Oxides of Nitrogen
CO	Carbon Monoxide
NAAQS	National Ambient Air Quality Standards
Ldn	day night sound level
Leq	equivalent noise levels
Ld	day sound level
Ln	night sound level
mg/l	Milligram Per Litre
bgl	Below ground level
CGWB	Central Ground Water Board
MSL	Mean Sea Level
LULC	Land Use & Land Cover
RET	Rare or endangered or the threatened
IUCN	International Union for Conservation of Nature
REET	rare or endangered or endemic or threatened
TCLP	Toxic Chemical Leachability Potential
USEPA	United States Environment Protection Agency
CPCB	Central Pollution Control Board
APCS	Air Pollution Control Systems
KLD	Kilo Liters per Day
PCU	Passenger Car units

BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

CER	Corporate Environment Responsibility
SPCB	State pollution Control Board
CECB	Chhattisgarh Environment Conservation Board
CUM	Cubic Meters



F. No. J-11011/384/2010-IAII(I)
Government of India
Ministry of Environment, Forest and Climate Change
(Impact Assessment Division)

Indira Paryavaran Bhawan
Jor Bagh Road, Aliganj,
New Delhi - 110003
E-mail: dirind-moefcc@gov.in
Tel: 011-24695368

Dated: 24th November, 2020

To

Shri. Gaurav Budhia,
Director,
M/s. Bihar Foundry & Casting Limited,
Main Road, Ranchi-834001 (Jharkhand)
Email: biharfoundry2020@gmail.com

Subject: Modification-cum-Expansion in existing Ferro Alloys Plant by M/s. Bihar Foundry & Casting Limited located at Ramgarh Industrial Area, Survey Plot No 1405(P), Village - Marar, Ramgarh, Jharkhand - Prescribing of Terms of Reference (ToR) - regarding.

Sir,

1. This refers to the online application of M/s. Bihar Foundry & Casting Limited made vide proposal no. IA/JH/IND/172815/2020 dated 12/09/2020 along with the application in prescribed format (Form-I), copy of pre-feasibility report and proposed ToRs for undertaking detailed EIA study as per the EIA Notification, 2006 for the project mentioned above. The proposed project activity is listed at S. No. 3(a) Metallurgical industries (ferrous & non-ferrous) under Category "A" of the schedule of the EIA Notification, 2006 and appraised at Central Level.

2. The proposal cited above was considered in 24th meeting of the Re-constituted EAC (Industry-I) held during 27-29th October, 2020. The EAC proceedings of the proposal is given as below.

Details submitted by the project proponent

3. M/s. Bihar Foundry & Casting Limited located at Notified Ramgarh Industrial Area, Survey Plot No 1405(P), Village - Marar, Ramgarh (JHK) - 829117 proposes to expand the existing unit for manufacturing of Ferro Alloys SiMn / FeMn based on Sub Merged Arc (SAF) technology.
4. The project was earlier accorded environmental clearance vide letter number J-11011/384/2010-IA.II(I) dated 31/10/2011. Consent to Operate was accorded by Jharkhand State Pollution Control Board vide Ir. no. B-42, validity of CTO is up to 31/12/2020.
5. The proposed unit will be located at Plot No 1405(P), Village - Marar, Taluka: Mandu, District: Ramgarh, State: Jharkhand, - 829117.
6. The land area acquired for the proposed plant is 3.1 ha which is a Government Land. No forest land is involved. The entire land has been acquired for the project. Of the total area 1.05 ha (33 %) land will be used for green belt development.
7. No national park/ wildlife sanctuary/biosphere reserve/ tiger reserve/ elephant reserve etc. are reported to be located in the core and buffer zone of the project. The area also does not report to form corridor for Schedule-I fauna.

Terms of Reference for project titled "Modification-cum-Expansion in existing Ferro Alloys Plant of M/s. Bihar Foundry & Casting Limited at Notified Ramgarh Industrial Area, Survey Plot No 1405(P), Village - Marar, Ramgarh, Jharkhand"

8. Total project cost is approx Rs. 50 Crores. Proposed employment generation from proposed project will be 350 direct employment and 355 indirect employment.
9. The targeted production capacity of the SiMn -165TPD (58,575TPA) or HC/MC/LC FeMn - 265TPD (94,075TPA) depend on market scenario / demand. The ore for the plant would be procured from market sources. The ore transportation will be done through Import / Other Sources (Rail/Road/Conveyor).
10. The existing and the proposed production details are as below:

Existing Ferro Alloys units as per EC & Production	Proposal (Modification-cum-Expansion)	Final Plant Configuration & Capacity
2x5+1x7.5+1x9 MVA SAF (Submerge Arc Furnaces) Ferro Alloys SiMn/FeMn - 96TPD (34,080TPA)	1. Modification of existing 2x5 MVA SAF's to 2x6 MVA SAF's by change in transformer capacity 2. Modification of existing 1x7.5 MVA SAF to 1x9 MVA SAF by change in transformer capacity 3. New 1x9 MVA SAF 4. New 12MT per batch CLU(Creusot-Loire-Uddeholm) Converter for refining liquid HC FeMn to MC/LC FeMn 5. Matching associate facilities for operations	2x6+ 3x9 MVA SAF's + 1x12T per batch CLU Converter with matching associate facilities Product Mix SiMn - 165 TPD (58,575TPA) or HC/MC/LC FeMn - 265 TPD (94,075TPA) depend on market scenario/demand

11. The electricity load of 22.5 MW will be procured from DVC. Company has also proposed to install zero DG Set.
12. Proposed raw material and fuel requirement for project are 662.5 TPD Manganese Ore & 198.7 TPD coke. The requirement would be fulfilled by market sources as well as Imports. Fuel consumption will be mainly electricity from DVC.
13. Water Consumption for the proposed project will be 50 KLD additional and waste water generation will be recycled. Domestic waste water will be treated and industrial waste water generated will be treated and reused for cooling.
14. The proponent has mentioned that there is no court case or violation under EIA Notification to the project or related activity.

Observations of the Committee

15. The Committee noted the following:
- The proposal is to upgrade existing 5 T, 7 T EAF to 6 T and 9 T respectively and install one more 9 MVA SAF thus making the complex to have 2x6+ 3x 9 MVA SAF Complex.
 - Plant was installed after obtaining EC from MoEFCC during Oct 2011. CTO is valid till Dec 2020.
 - Land area is 7.76 acres with green belt area as 1.09 acres.
 - Water would be sourced from Damodar River.

Recommendations of the Committee

16. After deliberations, the Committee recommended the project proposal for prescribing following specific ToRs for undertaking detailed EIA and EMP study in addition to the generic ToR enclosed at Annexure-1 read with additional ToRs at Annexure-2:
 - i. Only surface Water shall be used. Ground water abstraction shall not be permitted.
 - ii. 100 % water consumed annually shall be recharged through water harvesting.
 - iii. PM level from chimneys shall be maintained at < 30 mg/Nm³ and Power plant emission norms of SO₂ and NO_x less than 100 Mg/Nm³ shall be adhered to.
 - iv. All Plant roads and approach road to plant shall be made paved and industrial vacuum cleaners shall be used to keep the plant clean and free of fugitive emissions.
 - v. The dust collected from roads, plant floors and APCDs shall be recycled to pellet plant.
 - vi. 100 % of the slag generated through the process shall be utilized.
 - vii. Plant shall operate on ZLD.
 - viii. 4th hole extraction system shall be installed on SAF for control of dust emission.
 - ix. Briquetting and Jigging plant shall be installed.
 - x. No Ferro Chrome production without prior Environment Clearance from MoEF&CC.
 - xi. AOD (Argon Oxygen Decarburization) Converter shall have secondary fume extraction facility.

Decision of MoEF&CC

17. The undersigned is directed to inform that Ministry of Environment, Forest and Climate Change has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the Expert Appraisal Committee (Industry-1) hereby decided to accord above-said specific ToRs, in addition to the standard ToRs and Sector Specific ToRs as enclosed at Annexure 1 read with additional ToRs at Annexure-2 for carrying out detailed EIA/EMP for the above project.
18. It is requested that the draft EIA Report may be prepared in accordance with the above mentioned specific ToRs and enclosed generic ToRs and additional ToRs and thereafter further necessary action including conduct of public consultation may be taken for obtaining Environment Clearance in accordance with the procedure prescribed under the EIA Notification, 2006 as amended.
19. The ToRs are valid for a period of four years from today i.e., 24/11/2020 and will expire on 23/11/2024 as per the Ministry's Notification S.O. 751 (E) dated 17/02/2020.
20. This issues with the approval of the Competent Authority.

(A.K. Agrawal)
Director

Copy to:-

1. Secretary, Department of Environment, Government of Jharkhand Secretariat Ranchi.
2. Regional Officer, Ministry of Environment, Forest and Climate Change, Regional Office (ECZ), Bunglow No. A-2, Shyamali Colony, Ranchi-834002.
3. Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
4. Chairman, Jharkhand State Pollution Control Board, H.E.C., Dhurwa, Ranchi-834004 (Jharkhand).
5. Member Secretary, Central Ground Water Authority, West Block-II, Wing-3, Sector I, R.K. Puram, New Delhi-110086.
6. District Collector, Ramgarh District, Jharkhand.
7. Guard File / Record file / Monitoring file.
8. MOEF&CC Website.

(A.K. Agrawal)
Director

Terms of Reference for project titled "Modification-cum-Expansion in existing Ferro Alloy Plant of M. Bharat Foundry & Casting Limited at Notified Ramgarh Industrial Area, Survey Plot No 1405(P), Village - Morar, Ramgarh, Jharkhand"

ANNEXURE - I**GENERIC TERMS OF REFERENCE (ToR) IN RESPECT OF INDUSTRY SECTOR**

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. If expansion project, 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, 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 contract)
 - viii. The project proponent shall furnish the requisite documents from the competent authority in support of drawl of ground water and surface water and supply of electricity.
 - ix. Process description along with major equipment and machineries, process flow sheet (Quantitative) from raw material to products to be provided.
 - x. Hazard identification and details of proposed safety systems.
 - xi. 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, Forest and Climate Change 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/PCC 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 covering village, Taluka/Tehsil, District and State, Justification for selecting the site, whether other sites were considered.
 - 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)
 - iii. Co-ordinates (lat-long) of all four corners of the site.
 - iv. Google map-Earth downloaded of the project site.
 - v. 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.

- vi. Photographs of the proposed and existing (if applicable) plant site. If existing, show photographs of plantation/greenbelt, in particular.
- vii. Land use 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)
- viii. A list of major industries with name and type within study area (10km radius) shall be incorporated. Land use details of the study area
- ix. Geological features and Geo-hydrological status of the study area shall be included.
- x. 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)
- xi. Status of acquisition of land. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land.
- xii. R&R details in respect of land in line with state Government policy

5. **Forest and wildlife related issues (if applicable):**

- i. Permission and approval for the use of forest land (forestry clearance), if any, and recommendations of the State Forest Department. (if applicable).
- ii. Land use map based on High resolution satellite imagery (GPS) of the proposed site delineating the forestland (*in case of projects involving forest land more than 40 ha*).
- iii. Status of Application submitted for obtaining the stage I forestry clearance along with latest status shall be submitted.
- iv. The projects to be located within 10 km of the National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals, the project proponent shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-à-vis the project location and the recommendations or comments of the Chief Wildlife Warden thereon.
- v. Wildlife Conservation Plan duly authenticated by the Chief Wildlife Warden of the State Government for conservation of Schedule I fauna, if any exists in the study area.
- vi. Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972, to the Standing Committee of the National Board for Wildlife.

6. **Environmental Status**

- i. Determination of atmospheric inversion level at the project site and site-specific micro-meteorological data using temperature, relative humidity, hourly wind speed and direction and rainfall.
- ii. AAQ data (except monsoon) at 8 locations for PM₁₀, PM_{2.5}, SO₂, NO_x, CO and other parameters relevant to the project shall be collected. The monitoring stations shall be based CPCB guidelines and take into account the pre-dominant wind direction, population zone and sensitive receptors including reserved forests.
- iii. Raw data of all AAQ measurement for 12 weeks of all stations as per frequency given in the NAQOM Notification of Nov. 2009 along with – min., max., average and 98% values for each of the AAQ parameters from data of all AAQ stations should be provided as an annexure to the EIA Report.
- iv. Surface water quality of nearby River (60m upstream and downstream) and other surface drains at eight locations as per CPCB/MoEF&CC guidelines.
- v. Whether the site falls near to polluted stretch of river identified by the CPCB/MoEF&CC.
- vi. Ground water monitoring at minimum at 8 locations shall be included.
- vii. Noise levels monitoring at 8 locations within the study area.
- viii. Soil Characteristic as per CPCB guidelines.

Terms of Reference for project titled "Modification-cum-Expansion in existing Ferro Alloys Plant of M/s. Bihar Foundry & Casting Limited at Notified Ramgarh Industrial Area, Survey Plot No. 1405(P), Village - Marar, Ramgarh, Jharkhand".

- ix. Traffic study of the area, type of vehicles, frequency of vehicles for transportation of materials, additional traffic due to proposed project, parking arrangement etc.
- x. 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.
- xi. Socio-economic status of the study area.

7. Impact Assessment 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 well 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, if the effluent is proposed to be discharged in to the local drain, then Water Quality Modelling study should be conducted for the drain water taking into consideration the upstream and downstream quality of water of the drain.
- iii. 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.
- iv. 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.
- v. Details of stack emission and action plan for control of emissions to meet standards.
- vi. Measures for fugitive emission control
- vii. Details of hazardous waste generation and their storage, utilization and disposal. Copies of MOU regarding utilization of solid and hazardous waste shall also be included. EMP shall include the concept of waste-minimization, recycle/reuse/recover techniques, Energy conservation, and natural resource conservation.
- viii. Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 2009. A detailed plan of action shall be provided.
- ix. Action plan for the 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.
- x. 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.
- xi. Total capital cost and recurring cost/annum for environmental pollution control measures shall be included.
- xii. Action plan for post-project environmental monitoring shall be submitted.
- xiii. 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.

8. Occupational health

- i. Details of existing Occupational & Safety Hazards. What are the exposure levels of above mentioned 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.
- 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 analysed data of abovementioned parameters as per age, sex, duration of exposure and department wise.
- iii. Annual report of health status of workers with special reference to Occupational Health and Safety.
- iv. Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers.

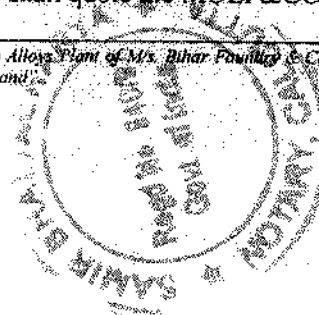
9. Corporate Environment Policy

- 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. 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.
 - iii. 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.
 - iv. 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
10. 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.
 11. To address the Public Hearing issues, the provisions contained under Ministry's Office Memorandum vide F No. 22-65/2017-IA.III dated 30/09/2020 shall be adhered to.
 12. 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.
 13. A tabular chart with index for point wise compliance of above ToRs.
 14. The ToRs prescribed shall be valid for a period of three years for submission of the EIA-EMP reports along with Public Hearing Proceedings (wherever stipulated).

The following general points shall be noted:

- i. All documents shall be properly indexed, page numbered.
- ii. Period/date of data collection shall be clearly indicated.
- iii. Authenticated English translation of all material in Regional languages shall be provided.
- iv. The letter/application for environmental clearance shall quote the MOEF&CC file No. and also attach a copy of the letter.

Terms of Reference for project titled "Modification-and-Expansion in existing Ferro Alloy Plant of M/s. Bihar Foundry & Casting Limited at Notified Rangarh Industrial Area, Survey Plot No. 1405(P), Village - Marar, Ramgarh, Jharkhand"

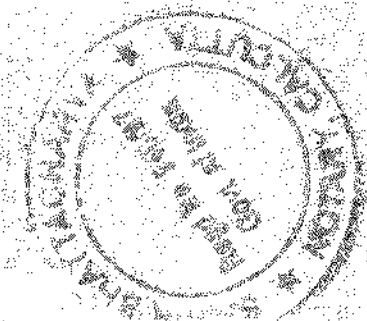


- v. The copy of the letter received from the Ministry shall be also attached as an annexure to the final EIA-EMP Report.
- vi. The index of the final EIA-EMP report must indicate the specific chapter and page no. of the EIA-EMP Report.
- vii. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MOEF&CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry shall also be followed.
- viii. The consultants involved in the preparation of EIA-EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA-EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. Name of the Consultant and the Accreditation details shall be posted on the EIA-EMP Report as well as on the cover of the Hard Copy of the Presentation material for EC presentation.
- ix. ToRs' prescribed by the Expert Appraisal Committee (Industry) shall be considered for preparation of EIA-EMP report for the project in addition to all the relevant information as per the 'Generic Structure of EIA' given in Appendix III and IIIA in the EIA Notification, 2006. Where the documents provided are in a language other than English, an English translation shall be provided. **The draft EIA-EMP report shall be submitted to the State Pollution Control Board of the concerned State for conduct of Public Hearing. The SPCB shall conduct the Public Hearing/public consultation, district-wise, as per the provisions of EIA notification, 2006. The Public Hearing shall be chaired by an Officer not below the rank of Additional District Magistrate. The issues raised in the Public Hearing and during the consultation process and the commitments made by the project proponent on the same shall be included separately in EIA-EMP Report in a separate chapter and summarised in a tabular chart with financial budget (capital and revenue) along with time-schedule of implementation for complying with the commitments made. The final EIA report shall be submitted to the Ministry for obtaining environmental clearance.**



ANNEXURE-2ADDITIONAL ToRs FORMETALLURGICAL INDUSTRY (FERROUS AND 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. Emission from sulphuric acid plant and sulphur muck management.
3. Details on installation of Continuous Emission Monitoring System with recording with proper calibration system
4. Details on toxic metals including fluoride emissions
5. Details on stack height.
6. Details on ash disposal and management
7. Complete process flow diagram describing process of lead/zinc/copper/ aluminium, etc.
8. Details on smelting, thermal refining, melting, slag fuming, and Waelz kiln operation
9. Details on Holding and de-gassing of molten metal from primary and secondary aluminium, materials pre-treatment, and from melting and smelting of secondary aluminium
10. Details on toxic metal content in the waste material and its composition and end use (particularly of slag).
11. Trace metals in waste material especially slag.
12. Plan for trace metal recovery
13. Trace metals in water

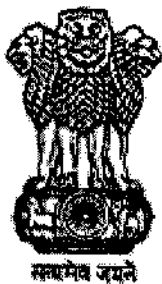


Executive Summary

Executive summary of the report in about 8-10 pages incorporating the following:

- i. Project name and location (Village, Dist, State, Industrial Estate (if applicable))
- ii. Products and capacities. If expansion proposal, then existing products with capacities and reference to earlier EC.
- iii. Requirement of land, raw material, water, power, fuel, with source of supply (Quantitative)
- iv. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes. Materials balance shall be presented.
- v. Measures for mitigating the impact on the environment and mode of discharge or disposal.
- vi. Capital cost of the project, estimated time of completion
- vii. Site selected for the project – Nature of land – Agricultural (single/double crop), barren, Govt/private land, status of acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest, eco-sensitive zones, accessibility. (note – in case of industrial estate this information may not be necessary)
- viii. Baseline environmental data – air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
- ix. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
- x. Likely impact of the project on air, water, land, flora-fauna and nearby population
- xi. Emergency preparedness plan in case of natural or in plant emergencies
- xii. Issues raised during public hearing (if applicable) and response given
- xiii. CSR plan with proposed expenditure.
- xiv. Occupational Health Measures
- xv. Post project monitoring plan





File No. IA-J-11011/384/2010-IA-II(IND-I)
Government of India
Ministry of Environment, Forest and Climate Change
(Impact Assessment Division)

Indira Paryavaran Bhawan
 Vayu Wing, 3rd Floor, Jorbagh Road,
 New Delhi - 110003

Dated: 19th December, 2022

To,

M/S Bihar foundry and casting Limited,
 Plot No.0 1405, Ramgarh Industrial Area,
 Marar Village, Ramgarh, Jharkhand – 829 117
 Email: bfclferroalloys@gmail.com

Subject: Modification cum Expansion of Ferro Alloy Plant of existing 2x5 MVA SEAF's to 2x6 MVA SEAF, Modification of existing 1x7.5 MVA SEAF to 1x9 MVA SEAF, Existing 1x9.0 MVA SEAF, New 1x9 MVA SEAF & New 12MT per batch CLU Converter for refining liquid HC FeMn to MC/LC FeMn by M/s Bihar Foundry and Casting Limited, located at Plot No.0 1405, Ramgarh Industrial Area, Village Marar, District Ramgarh, Jharkhand – Consideration for Modification of TOR under SOP dated 07.07.2021 (Violation Case)– regarding.

Sir,

This has reference to your proposal No. IA/JH/IND1/400084/2022 dated 21.10.2022 along with Form-1 and copy of PFR seeking amendment in Terms of Reference accorded by the Ministry vide letter no. J-11011/384/2010-IAII(I) dated 24.11.2020.

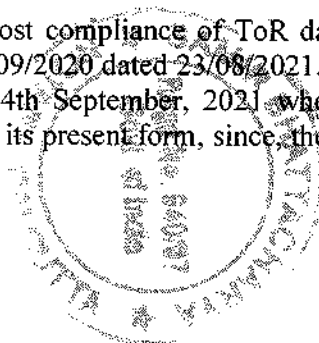
2. The proposal was considered by the EAC (Industry 1) in its 16th meeting held during 3rd November, 2022. The proposed project activity is listed at S. No. 3(a) Metallurgical Industries (ferrous & non-ferrous) under Category "A" of the schedule of the EIA Notification and appraised at central level. The EAC proceeding of the said meeting is furnished as below. The minutes of the meeting and all the project documents are available on PARIVESH portal which can be accessed at <https://parivesh.nic.in>

Details submitted by Project proponent

3. M/s. Bihar Foundry and Casting Limited had earlier applied for grant of ToR vide proposal no. IA/JH/IND/172815/2020 dated 12/09/2020 for expansion of the existing unit for manufacturing of Ferro Alloys SiMn / FeMn based on Sub Merged Arc (SAF) technology. Accordingly, Terms of Reference was issued vide letter no. J-11011/384/2010-IAII(I) dated 24.11.2020.

4. The instant proposal of M/S Bihar Foundry & Castings Limited located at Plot No.0 1405, Ramgarh Industrial Area, Village Marar, District Ramgarh, Jharkhand is for seeking modification in ToR dated 24.11.2020 for appraisal of proposal under violation category as per the provisions contained in the MoEF&CC Standard Operating Procedures dated 07.07.2021 pertaining to consideration of violation cases as PP has reported that the company has constructed 5th Furnace i.e., New 1 x 9 MVA SAF & CLU converter is under construction without prior environmental clearance. PP is ready to comply all the points of TOR for Violation Project and follow SOP dated 07.07.2021 for handling of Violation cases under EIA notification 2006.

5. Reason for seeking amendment in ToR: Post compliance of ToR dated 24.11.2020, the PP had applied for EC vide proposal no. IA/JH/IND/223909/2020 dated 23/08/2021. The proposal was appraised by the EAC in its 44th meeting held on 13 – 14th September, 2021 wherein after deliberations, the Committee recommended to return the proposal in its present form, since, the proposal attracts provisions



of S.O. 804 (E) issued by MoEF&CC dated 14.03.2017 and OM, dated 07.07.2021 regarding SOP for identification and handling for the projects under Violation, as the company has constructed 5th Furnace i.e., New 1 x 9 MVA SAF & CLU converter is under construction without prior environmental clearance.

6. The existing project was accorded environmental clearance vide Ir. no. J-11011/384/2010-IA.II(I) dated 31/10/2011. Consent to Operate renewal for the existing unit was accorded by Jharkhand State Pollution Control Board in the name of M/s. Gautam Ferro Alloys (Unit of BFCL) vide Ir. no. Ref no JSPCB/HO/RNC/CTO/4412165/2020/1819 dated 10/11/2020. The validity of CTO is up to 31/12/2025. PP has submitted that they have submitted a request letter to JSPCB for name Change in CTO which is under process.

7. Implementation status of the existing EC:

S No	Facilities As per EC dated 31/10/2011	Implementation Status as on 24/11/2020	Production as per CTO
1	Ferro Alloys Plant of 96 TPD (2x5 MVA SAF's and 1x7.5+1x9 MVA SAF's with Jigging unit and Micro Pelletizing facility)	Ferro Alloy Plant of 96 TPD	96 TPD

8. The unit configuration and capacity of existing and proposed project is given as below:

S No	Name	Existing Units		Proposed Units (Modification-Cum-expansion)		Total (Existing + Proposed)	
		Configuration	Production TPA	Configuration	Production TPA	Configuration	Production TPA
1	Ferro Alloy unit	2x5+1x7.5 +1x9 MVA SAF With Jigging unit and Micro Pelletizing facility	34,080 (96 TPD) (SiMn / FeMn)	Modification of existing 2x5 MVA to 2x6 MVA SEAFs Modification of existing 1x7.5 MVA to 1x9 MVA SEAF Existing 1x9 MVA SEAF New 1x9 MVA SEAF* New 12MT per batch CLU Converter for refining liquid HC FeMn to	SiMn- 24,495 TPA (69 TPD) (or) FeMn- 59,995 TPA (169 TPD)	2x6 MVA + 3x9 MVA SEAFs + 12MT CLU Converter With Jigging unit and Micro Pelletizing facility	SiMn- 58,575 TPA (165 TPD) (or) HC/MC/LC FeMn-94,075 TPA (265 TPD)

S No	Name	Existing Units		Proposed Units (Modification-Cum-expansion)		Total (Existing + Proposed)	
		Configuration	Production TPA	Configuration	Production TPA	Configuration	Production TPA
				MC/LC FeMn			

Note:

** PP has reported that they have constructed 5th Furnace i.e New 1 x 9 MVA SAF & CLU converter is under construction (hence PP is applying a Fresh Application for E.C. under Violation as per SOP dated 07.07.2021)*

9. The total water requirement for existing plant is 35 m³/day which is being met from Groundwater source. NOC from CGWA has been obtained to abstract ground water of 35 m³/day for industrial use vide letter No. CGWA/NOC/IND/ORIG/2021/10628 dated 02/01/2021 which is valid upto 01/01/2024. The total water requirement for the expansion project is estimated as 148 m³/day, which will be met from the Damodar River (Tenughat Reservoir) for which WRD, Govt. of Jharkhand has given a Recommendation letter.

10. Total power consumption is 33 MW, in which meet from DVC 28.5 MW & 4.5 MW from Captive power plant of adjacent unit of BFCL.

11. The capital cost of the project is Rs. 89.3 Crores. Employment generation from proposed project will be 250 nos. through direct employment and 500 nos. through indirect employment.

12. It has been reported by PP that there is no court case is pending related to the project, however, there is a violation under EIA Notification, 2006 related to the project under consideration. The PP has started installation of the 5th Submerged Arc Furnace of 1x9 MVA & CLU converter without completing the process of Environment Clearance because of the following reasons:

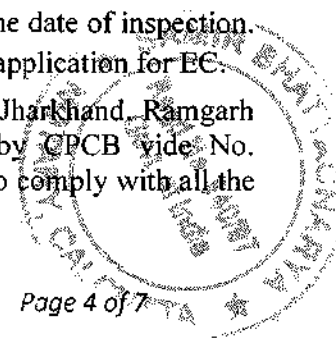
- Due to COVID restrictions and social lockdown wherein all the physical activities were restricted, PP could not move ahead with the study, interaction with officials and accordingly could not complete the process of EC due to delay from their end.
- PP has also given a completion date of 31st Dec 2021 for 5th furnace project to their consortium of banks.
- If the completion date is exceeded by a period of 6 months, the loan account will slip into a NPA (Non-Performing Asset) category.
- This situation would have led to bankruptcy of their company as well.
- Thus, to avoid such situation, installation/completion of the 5th furnace has been completed along with CLU converter.

Deliberation by the Committee

13. The EAC noted the following

- The instant proposal is for Modification cum Expansion of Ferro Alloy Plant of existing 2x5 MVA SEAF's to 2x6 MVA SEAF, Modification of existing 1x7.5 MVA SEAF to 1x9 MVA SEAF, Existing 1x9.0 MVA SEAF, New 1x9 MVA SEAF & New 12MT per batch CLU Converter for refining liquid HC FeMn to MC/LC FeMn.

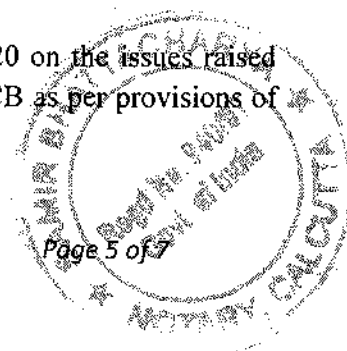
- ii. The EAC noted that M/s. Bihar Foundry & Casting Limited had earlier obtained ToR vide letter dated 24.11.2020 for expansion of the existing unit for manufacturing of Ferro Alloys SiMn / FeMn based on Sub Merged Arc (SAF) technology. Post compliance of ToR, PP applied for EC vide proposal no. IA/JH/IND/223909/2020 dated 23/08/2021 wherein the EAC in its 44th meeting held on 13 – 14th September, 2021 recommended to return the proposal in its present form due to shortcomings.
- iii. The project proponent in the instant application has applied for fresh ToR and decided to come before the committee for appraisal of proposal under violation category as per the provisions contained in the MoEF&CC Standard Operating Procedures dated 07.07.2021 pertaining to consideration of violation cases as PP has reported that they have constructed 5th Furnace i.e. New 1x9 MVA SAF & CLU converter is under construction without prior environmental clearance.
- iv. PP has also reported that the Public Hearing for the project was already held on 15/03/2021.
- v. The EAC noted that it is a fit case of violation and to be apprised based on the provisions of the SOP dated 07.07.2021 [Violation Cases]. The Project proponent has to comply all the procedure as laid down in the SOP dated 07.07.2021.
- vi. The EAC has also advised that the Consultant should properly guide to the PP so that such violation has not arisen by the PP.
- vii. The EAC also took into consideration the request of PP submitted through written representation vide letter dated 03.11.2022 for appraisal of the instant proposal as modification/ amendment in TOR granted vide letter No. J-11011/384/2010-IAII(I) dated 24.11.2020 under violation category instead of issuance of fresh TOR.
- viii. Baseline data was earlier collected by previous Consultant M/s. Ampl Environ Pvt Ltd. Hyderabad from 1st December 2019 to 29th February 2020. Subsequently the baseline data has been collected for further period of one month i.e. in May 2022 for Re-validation of Baseline data for preparation of EIA report by M/s. Pioneer Enviro Laboratories & Consultants Pvt. Ltd.
 - In pursuance to MoEF&CC O.M. vide F. No. IA3-22/10/2022-IA.III, dated 8th June 2022, the baseline data shall not be more than three years old at the time of submission of application for consideration of EC. Also, at the time of application for EC, in case baseline data is older than three years, but less than five years old in the case of River valley and HEP Projects, or less than four years old in the case of other projects, the same shall be considered, subject to the condition that it is revalidated with one season fresh non-monsoon data collected after three years of the initial baseline data. The Committee advised the PP to take note of it while submitting the application for EC and if the application is not submitted within the timelines, fresh baseline data for three months shall be collected in pursuance to Ministry's Guidelines.
 - In pursuance to Ministry's OM No. IA3-22/10/2022-IA.III [E 1772581], dated 8th June, 2022 pertaining to Certified Compliance Report (CCR) of the Integrated Regional Office of the Ministry of Environment, Forest and Climate Change/ or concerned authority on the status of compliance of conditions stipulated in all the existing environment clearances including amendments shall be provided. A Certified Compliance Report (CCR) issued by the concerned Authority shall be valid for a period of one year from the date of inspection. The Committee advised the PP to take note of it while submitting the application for EC.
- ix. Further, the EAC observed that the project falls in the Ramgarh district of Jharkhand. Ramgarh is declared as Severely Polluted area (SPA) with CEPI index 65.11 by CPCB vide No. B29012/ESS(CPA)/2015-16/ dated 26th April 2016. The EAC advised PP to comply with all the conditions applicable to CEPI.



- x. Existing EC as well as instant ToR application is in the name of M/s. Bihar Foundry and Castings Limited whereas the Consents obtained from JSPCB is in the name M/s. Gautam Ferro Alloys (Unit of BFCL). PP informed that that they have submitted a request letter to JSPCB for name Change in CTO which is under process.

Recommendations of the Committee

14. After deliberations, the Committee recommended the project proposal for modification in TOR letter No. J-11011/384/2010-IAII(I) dated 24.11.2020 w.r.t. appraisal of proposal under violation category as per the provisions contained in the MoEF&CC Standard Operating Procedures dated 07/07/2021 pertaining to consideration of violation cases. All the terms and conditions stipulated in ToR letter no. J-11011/384/2010-IAII(I) dated 24.11.2020 shall remain the same with stipulation of the following specific conditions:
- i. The State Government/SPCB shall take action against the project proponent under the provisions of the Environment (Protection) Act, 1986, and further no consent to operate to be issued till the project is granted EC.
 - ii. Assessment of ecological damage with respect to air, water, land and other environmental attributes. The collection and analysis of data shall be done by an environmental laboratory duly notified under the Environment (Protection) Act, 1986, or an environmental laboratory accredited by NABL, or a laboratory of a Council of Scientific and Industrial Research (CSIR).
 - iii. Preparation of EMP comprising remediation plan and natural and community resource augmentation plan corresponding to the ecological damage assessed and economic benefits derived due to violation.
 - iv. The remediation plan and the natural and community resource augmentation plan to be prepared as an independent chapter (13) in the EIA report by the accredited consultants.
 - v. Budget of remediation plan and natural and community resource augmentation plan corresponding to the ecological damage shall be completed within three years and to be prepared accordingly.
 - vi. The project proponent shall require to submit a bank guarantee equivalent to the amount of remediation plan and natural and community resource augmentation plan with the SPCB prior to the grant of EC. The quantum shall be recommended by the EAC and finalized by the regulatory authority.
 - vii. Project proponent shall implement penalty provisions i.e., 1% of project cost attributable to the expansion, incurred up to the date of filing of application along with the EIA/EMP report as contained in the paragraph 12 of the Standard Operating Procedure dated 7/07/2021 shall be complied with.
 - viii. In pursuance to MoEF&CC OM's dated 31st October, 2019 & 30th December, 2019 issued in compliance of the order of Hon'ble NGT in OA No. 1038/2018 dated 19th August, 2019, the compliance of all the conditions applicable to CEPI shall be prepared. Greenbelt shall be planned in 40% of the project area. CER allocation shall be 1.5 times of the normal calculated amount.
 - ix. The project proponent shall obtain name change in Consents (CTE/CTO) for the existing project in the name of M/s. Bihar Foundry and Castings Limited.
 - x. The PP shall submit the Action Plan as per Ministry's OM dated 30.09.2020 on the issues raised during the PH. In this instant case the PH was already conducted by the SPCB as per provisions of the EIA Notification, 2006.



xi. The validity of the TOR will be counted from the earlier granted TOR by the Ministry.

Decision of MoEF&CC

15. The Ministry of Environment, Forest and Climate Change (MoEF&CC) has considered the aforesaid proposal based on the recommendations of the Expert Appraisal Committee (Industry 1) and hereby decided to grant amendment in the ToR dated 24.11.2020 w.r.t. appraisal of proposal under violation category as per the provisions contained in the MoEF&CC Standard Operating Procedures dated 07/07/2021 pertaining to consideration of violation cases with **stipulation of the specific conditions at Para 14 above and the following condition:**

The construction/ operation of 5th Furnace which has been constructed/ under construction without prior EC shall be stopped immediately till EC is granted. PP should also ensure that PH has been conducted strictly as per plant configuration provided in the EIA & EMP report/ modified ToR. SPCB shall ensured the same.

16. All other terms and conditions mentioned in the earlier TOR letter J-11011/384/2010-IAII(I) dated 24.11.2020 shall remain unchanged.

17. The PP shall obtain fresh Terms of Reference in case of change in scope of the project if any.

18. This issues with the approval of the Competent Authority.



(Dr. R. B. Lal)

Scientist 'E'/Additional Director

Tele-fax: 011-20819346

Email-rb.lal@nic.in

Copy to: -

1. The Additional Chief Secretary, Environment & Forests Department, Government of Jharkhand, Secretariat, Nepal House, Doranda, Ranchi-834001.
2. Principal Chief Conservator of Forests and HoFF, Van Bhawan Jharkhand Sate at-Doranda P.O. Doranda, Ranchi-834002 Jharkhand.
3. The Director General of Forest, Ministry of Environment, Forest and Climate Change, New Delhi.
4. The Regional Officer, Ministry of Env., Forest and Climate Change, Integrated Regional Office, Bunglow No. A-2, Shyamali Colony, Ranchi-834002.
5. The Member Secretary, Central Pollution Control Board Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi – 32
6. The Member Secretary, Jharkhand Pollution Control Board, Town Administrative Building, HEC, Dhurwa, Ranchi- 824004.- **The construction/ operation of 5th Furnace which has been constructed/ under construction without prior EC shall be stopped immediately till EC is granted. PP should also ensure that PH has been conducted strictly as per plant configuration provided in the EIA & EMP report/ modified ToR. SPCB shall ensured the same.**
7. Member Secretary, Central Ground Water Authority, Jamnagar House, 18/11, Man Singh Road Area, New Delhi, Delhi 110001

8. Monitoring Cell, Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi
9. District Collector, Giridih, Jharkhand
10. Guard File/Monitoring File/ Parivesh Portal /Record File



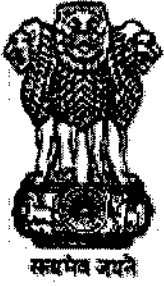
(Dr. R. B. Lal)

Scientist 'E'/Additional Director

Tele-fax: 011-20819346

Email-rb.lal@nic.in





F. No. IA-J-11011/384/2010-IA-II(IND-I)

**Government of India
Ministry of Environment, Forest and Climate Change
(Impact Assessment Division)**

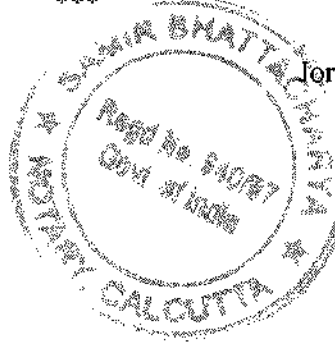
By Speed Post/Online

Indira Paryavaran Bhawan
Jorbagh Road, New Delhi - 110003

Dated: 19th December, 2022

To,

**The Additional Chief Secretary,
Environment & Forests Department,
Government of Jharkhand, Secretariat,
Nepal House, Doranda, Ranchi-834001**



Sub: Modification cum Expansion of Ferro Alloy Plant of existing 2x5 MVA SEAF's to 2x6 MVA SEAF, Modification of existing 1x7.5 MVA SEAF to 1x9 MVA SEAF, Existing 1x9.0 MVA SEAF, New 1x9 MVA SEAF & New 12MT per batch CLU Converter for refining liquid HC FeMn to MC/LC FeMn by M/s Bihar Foundry and Casting Limited, located at Plot No.0 1405, Ramgarh Industrial Area, Village Marar, District Ramgarh, Jharkhand - credible action taken against the Project Proponent u/s 19 of the E(P) Act, 1986, as per SOP dated 07.07.2021 – regarding.

Sir,

This has reference to a proposal No. IA/JH/IND1/400084/2022 dated 21.10.2022 for Amendment in Terms of Reference to the project for Expansion of Ferro Alloy Plant of existing 2x5 MVA SEAF's to 2x6 MVA SEAF, Modification of existing 1x7.5 MVA SEAF to 1x9 MVA SEAF, Existing 1x9.0 MVA SEAF, New 1x9 MVA SEAF & New 12MT per batch CLU Converter for refining liquid HC FeMn to MC/LC FeMn by M/s Bihar Foundry and Casting Limited, located at Plot No.0 1405, Ramgarh Industrial Area, Village Marar, District Ramgarh, Jharkhand, as per the provisions of Ministry's OM dated 07.07.2021.

2. The Ministry has issued SOP vide an OM dated 07.07.2021 for appraisal of projects for grant of terms of reference/environmental clearance, which have started the work on site, expanded the production beyond the limit of environmental clearance, or changed the product mix without obtaining prior environmental clearance under the EIA Notification, 2006. As per the above said Notification, in cases of violation, action is to be taken against the project proponent by the respective State Government or the State Pollution Control Board under the provisions of the Environment (Protection) Act, 1986 and further, no consent to operate or occupancy certificate to be issued till the project is granted environmental clearance.

3. The proposed project activity is listed at schedule no. 3(a) Metallurgical Industries (ferrous & non-ferrous) under Category "A" of the schedule of the EIA Notification, 2006 and appraised at Central Level.

4. Based on the recommendations of EAC, M/s. Bihar Foundry & Casting Limited was granted ToR vide letter no. 11011/384/2010-IAII(I) dated 24.11.2020 for Expansion of Ferro Alloy Plant of existing 2x5 MVA SEAF's to 2x6 MVA SEAF, Modification of existing 1x7.5 MVA SEAF to 1x9 MVA SEAF, Existing 1x9.0 MVA SEAF, New 1x9 MVA SEAF & New 12MT per batch CLU Converter for refining liquid HC FeMn to MC/LC FeMn.

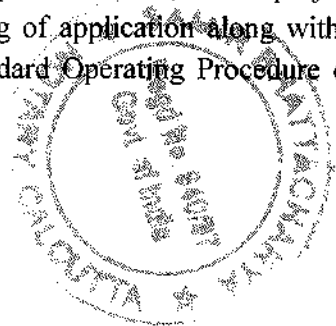
5. Post compliance of ToR, PP applied for EC vide proposal no. IA/JH/IND/223909/2020 dated 23/08/2021 wherein the EAC in its 44th meeting held on 13 – 14th September, 2021 recommended to return the proposal in its present form due to shortcomings.

6. Consequently, the instant proposal for modification of ToR dated 24.11.2020 was considered by the EAC in its 16th meeting held during 3rd November, 2022 under violation category as per the provisions contained in the MoEF&CC Standard Operating Procedures (SOP) dated 07/07/2021 pertaining to consideration of violation cases as the PP has reported that the company has constructed 5th Furnace i.e., New 1 x 9 MVA SAF & CLU converter is under construction without prior environmental clearance.

7. Based on the deliberations made by the EAC, the project proponent vide letter dated 03.11.2022 through email dated 03.11.2022 has requested that instead of appraising the instant proposal for fresh ToR, the said proposal be appraised as modification/ amendment in TOR granted vide letter No. J-11011/384/2010-IAII(I) dated 24.11.2020 under violation category as per the provisions contained in the MoEF&CC Standard Operating Procedures dated 07/07/2021 pertaining to consideration of violation cases.

8. After deliberations, the Committee recommended the project proposal for **modification in TOR letter No. J-11011/384/2010-IAII(I) dated 24.11.2020** w.r.t. appraisal of proposal under violation category as per the provisions contained in the MoEF&CC Standard Operating Procedures dated 07/07/2021 pertaining to consideration of violation cases. All the terms and conditions stipulated in ToR letter no. J-11011/384/2010-IAII(I) dated 24.11.2020 shall remain the same with stipulation of the following specific conditions:

- i. The State Government/SPCB shall take action against the project proponent under the provisions of the Environment (Protection) Act, 1986, and further no consent to operate to be issued till the project is granted EC.
- ii. Assessment of ecological damage with respect to air, water, land and other environmental attributes. The collection and analysis of data shall be done by an environmental laboratory duly notified under the Environment (Protection) Act, 1986, or an environmental laboratory accredited by NABL, or a laboratory of a Council of Scientific and Industrial Research (CSIR).
- iii. Preparation of EMP comprising remediation plan and natural and community resource augmentation plan corresponding to the ecological damage assessed and economic benefits derived due to violation.
- iv. The remediation plan and the natural and community resource augmentation plan to be prepared as an independent chapter (13) in the EIA report by the accredited consultants.
- v. Budget of remediation plan and natural and community resource augmentation plan corresponding to the ecological damage shall be completed within three years and to be prepared accordingly.
- vi. The project proponent shall require to submit a bank guarantee equivalent to the amount of remediation plan and natural and community resource augmentation plan with the SPCB prior to the grant of EC. The quantum shall be recommended by the EAC and finalized by the regulatory authority.
- vii. Project proponent shall implement penalty provisions i.e., 1% of project cost attributable to the expansion, incurred up to the date of filing of application along with the EIA/EMP report as contained in the paragraph 12 of the Standard Operating Procedure dated 7/07/2021 shall be complied with.



- viii. In pursuance to MoEF&CC OM's dated 31st October, 2019 & 30th December, 2019 issued in compliance of the order of Hon'ble NGT in OA No. 1038/2018 dated 19th August, 2019, the compliance of all the conditions applicable to CEPI shall be prepared. Greenbelt shall be planned in 40% of the project area. CER allocation shall be 1.5 times of the normal calculated amount.
 - ix. The project proponent shall obtain name change in Consents (CTE/CTO) for the existing project in the name of M/s. Bihar Foundry and Castings Limited.
 - x. The PP shall submit the Action Plan as per Ministry's OM dated 30.09.2020 on the issues raised during the PH. In this instant case the PH was already conducted by the SPCB as per provisions of the EIA Notification, 2006.
 - xi. The validity of the TOR will be counted from the earlier granted TOR by the Ministry.
9. The matter was examined in the Ministry and the undersigned has been directed to request the State Government/SPCB to take the credible action against the Project Proponent u/s 19 of the E(P) Act, 1986, as per SOP dated 07.07.2021. Further, the construction/ operation of 5th Furnace which has been constructed/ under construction without prior EC shall be stopped immediately till EC is granted. PP should also ensure that PH has been conducted strictly as per plant configuration provided in the EIA & EMP report/ modified ToR. SPCB shall ensured the same and submit the compliance report in this regard.
10. This issues with approval of the competent authority.



(Dr. R. B. Lal)

Scientist 'E'/Additional Director

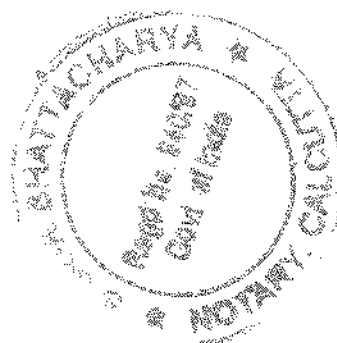
Tele-fax: 011-24695362

Email-rb.lal@nic.in

Copy to:-

1. The Member Secretary, Jharkhand Pollution Control Board, Town Administrative Building, HEC, Dhurwa, Ranchi- 824004. (JPCB shall submit the proof of credible action taken against the Project Proponent u/s 19 of the E(P) Act, 1986.)-The construction/ operation of 5th Furnace which has been constructed/ under construction without prior EC shall be stopped immediately till EC is granted. PP should also ensure that PH has been conducted strictly as per plant configuration provided in the EIA & EMP report/ modified ToR. SPCB shall ensured the same and submit the compliance report in this regard.
2. M/S Bihar foundry and casting Limited, Plot No.0 1405, Ramgarh Industrial Area, Marar Village, Ramgarh, Jharkhand - 829117. Email: bfelferroalloys@gmail.com – The construction/ operation of 5th Furnace which has been constructed/ under construction without prior EC shall be stopped immediately till EC is granted. PP should also ensure that PH has been conducted strictly as per plant configuration provided in the EIA & EMP report/ modified ToR.

Copy for information to: -



1. The Regional Officer, Ministry of Env., Forest and Climate Change, Integrated Regional Office, Bungalow No. A-2, Shyamali Colony, Ranchi-834002.
2. The Chairman, Central Pollution Control Board, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
3. Guard File/Monitoring File/Website/Record File/Parivesh Portal.



(Dr. R. B. Lal)
Scientist 'E'/Additional Director
Tele-fax: 011-24695362
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TORs COMPLIANCE

Compliance made on **TOR letter** issued by Ministry of Environment, Forest and Climate Change (MoEF&CC)

Vide letter No. J-11011/384/2010-IA II (I) dated 24/11/2020 & Amendment to ToR Letter vide no. IA-J-11011/384/2010-IA-

II(IND-I) dated 19th December 2022

SPECIFIC TORs (as per Amendment to ToR letter)

TOR No.	TOR Points	TOR Compliance
i.	The State Government/SPCB shall take action against the project proponent under the provisions of the Environment (Protection) Act, 1986, and further no consent to operate to be issued till the project is granted EC.	State Government/SPCB has initiated action against violation. Please refer to ANNEXURE # 1
ii.	Assessment of ecological damage with respect to air, water, land and other environmental attributes. The collection and analysis of data shall be done by an environmental laboratory duly notified under the Environment (Protection) Act, 1986, or an environmental laboratory accredited by NABL, or a laboratory of a Council of Scientific and Industrial Research (CSIR).	The collection and analysis of data has been carried out by NABL accredited Laboratory.
iii.	Preparation of EMP comprising remediation plan and natural and community resource augmentation plan corresponding to the ecological damage assessed and economic benefits derived due to violation.	Please refer to CHAPTER -13 of EIA report for EMP comprising remediation plan and natural and community resource augmentation plan corresponding to the ecological damage assessed and economic benefits derived due to violation.
iv.	The remediation plan and the natural and community resource augmentation plan to be prepared as an independent chapter (13) in the EIA report by the accredited consultants.	Prepared & enclosed as CHAPTER -13 of EIA report
v.	Budget of remediation plan and natural and community resource augmentation plan corresponding to the ecological damage shall be completed within three years and to be prepared accordingly.	Please refer to CHAPTER -13 of EIA report for EMP comprising remediation plan and natural and community resource augmentation plan corresponding to the ecological damage

BIHAR FOUNDRY & CASTING LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No.	TOR Points	TOR Compliance
vi.	The project proponent shall require to submit a bank guarantee equivalent to the amount of remediation plan and natural and community resource augmentation plan with the SPCB prior to the grant of EC. The quantum shall be recommended by the EAC and finalized by the regulatory authority.	assessed and economic benefits derived due to violation. Noted and assured the same.
vii.	Project proponent shall implement penalty provisions i.e., 1% of project cost attributable to the expansion, incurred up to the date of filing of application along with the EIA/EMP report as contained in the paragraph 12 of the Standard Operating Procedure dated 7/07/2021 shall be complied with.	As per above, the cost of the construction of SAF and CLU convertor Rs.1817.80 lakhs and 7111.80 lakhs respectively totalling Rs. 8929.6 lakhs. 1% of it is Rs. 89.296 lakhs. Calculation of bank guarantee amount as per Notification No. S.O. 804(E), dated 14-03-2017 will be Rs. 89.296 Lakhs (after approval of EAC - Industry) as per details given here-in-above and the Penalty to be paid to SPCB as per as per Notification dated 07-07-2021. The Bank guarantee shall be given for a period of 3 years, with the Jharkhand State Pollution Control Board which will be released after successful implementation of the remediation plan and natural and community resource augmentation plan and after recommendation by Regional Office of the Ministry/ Expert Appraisal Committee, MoEF&CC.
viii.	In pursuance to MoEF&CC OMs dated 31st October, 2019 & 30th December, 2019 issued in compliance of the order of Hon'ble NGT in OA No. 1038/2018 dated 19th August, 2019, the compliance of all the conditions applicable to CEPI shall be prepared. Greenbelt shall be planned in 40% of the project area. CER allocation shall be 1.5 times of the normal calculated amount.	Please refer to page no.39 of CHAPTER -13 of EIA report. Compliance of all the conditions applicable to CEPI is prepared and enclosed as ANNEXURE # 2

BIHAR FOUNDRY & CASTING LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No.	TOR Points	TOR Compliance
ix.	The project proponent shall obtain name change in Consents (CTE/CTO) for the existing project in the name of M/s. Bihar Foundry and Castings Limited.	Company has valid Consent To Operate from JSPCB vide no. JSPCB/HO/RNC/CTO-4412165/2020/1819 dated 10.11.2020 (which is in the name of GAUTAM FERRO ALLOYS (UNIT OF BFCL) to manufacture of Ferro Alloys (SiMn / FeMn) of total 96 TPD which is valid upto 31/12/2025. <u>Now we have submitted request letter to JSPCB for name Change of CTO which is under process.</u> A copy of the same is enclosed as ANNEXURE # 3.
x.	The PP shall submit the Action Plan as per Ministry's OM dated 30.09.2020 on the issues raised during the PH. In this instant case the PH was already conducted by the SPCB as per provisions of the EIA Notification, 2006.	Action Plan as per Ministry's OM dated 30.09.2020 on the issues raised during the PH is furnished in page no.8.2 of CHAPTER # 8 of EIA Report.
xi.	The validity of the TOR will be counted from the earlier granted TOR by the Ministry.	Note & Agreed

SPECIFIC TORs (as per ToR letter issued on 24/11/2020)

TOR No.	TOR Points	TOR Compliance
i.	Only Surface Water Shall be used. Ground water abstraction shall not be permitted.	The total water requirement for existing plant is 35 m ³ /day which is being met from Groundwater source. However for expansion project water shall be drawn from Damodar River. The copy of permission letter is enclosed as ANNEXURE # 4 & 5.
ii.	100% water consumed annually shall be recharged through water harvesting	Groundwater is using for Existing plant requirement only. Rainwater harvesting measures are furnished in page no.10.13 of Chapter # 10 of EIA report.
iii.	PM level from chimney shall be maintained at <30 mg/Nm ³ and power plant emission norms of SO ₂ and NO _x less than	We assure that the Dust emission from proposed Stack attached to SEAF will be below 30 mg/Nm ³ . There is no power unit in the Ferro

BIHAR FOUNDRY & CASTING LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No.	TOR Points	TOR Compliance
	100mg/Nm ³ shall be adhered to.	alloy Plant. Kindly refer to page no.2.26 of Chapter # 2 of EIA report.
iv.	All the plant roads and approach road to plant shall be made paved and industrial vacuum cleaners shall be used to keep the plant clean and free of fugitive emission	Internal roads are made pucca and which will prevent the fugitive dust emission due to vehicular movement. Industrial vacuum cleaners are being used to keep the plant clean and free of fugitive emission. Kindly refer to page no.10.6 of Chapter # 10 of EIA report.
v.	The dust collected from roads, plant floors and APCDs shall be recycled to pellet plant	This is a Ferro Alloys Plant with micro Pelletization (Briquetting) unit where the road dust and dust from the bag filter are recycled in it. Kindly refer to page no.2.25 of Chapter # 2 of EIA report.
vi.	100% of the slag generated through the process shall be utilized	Action plan for Solid waste disposal is furnished in page no.10.12 of Chapter # 10 of EIA report.
vii.	Plant shall operate on ZLD	The water is only needed for equipment cooling and only makeup water is needed. Therefore, no effluent generation.
viii.	4 th hole extraction system shall be installed on SAF for control of dust emission.	We assure that 4 th hole Fume extraction system with Bag filters will be provided to Submerged Electric Arc Furnace. Kindly refer to page no.10.3 of Chapter # 10 of EIA report.
ix.	Briquetting and jigging plant shall be installed	The Briquetting & jigging plants are already operational within the unit.
x.	No Ferro-chrome production without prior Environmental clearance from MOEF&CC.	The Unit is seeking permission to manufacture only FeMn and SiMn. Currently no plan for Ferro Chrome production.
xi.	AOD (Argon Oxygen Decarburisation) Converter shall have Secondary Fume extraction facility	This is a Ferro Alloys Plant, No AOD is envisaged. However CLU convertor will be fitted with secondary fume extraction facility during expansion programme.

GENERIC TOR / STANDARD TORs IN RESPECT OF METALLURGICAL INDUSTRIES (FERROUS & NON FERROUS)

TOR No.	TOR point raised	TOR Compliance
1.	Executive Summary	Executive summary Furnished in page no. 11.1 of CHAPTER # 11 of EIA report.
2.	Introduction	
	i. Details of the EIA Consultant including NABET	Pioneer Enviro Laboratories & Consultants Pvt. Ltd. is QCI-NABET accredited

BIHAR FOUNDRY & CASTING LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No.	TOR point raised	TOR Compliance
	accreditation	EIA Consultant, vide certificate No. NABET/ EIA/ 1922/ SA 0148, valid up to 11 th March 2023. A copy of NABET certificate is furnished in CHAPTER # 12 of EIA report.
	ii. Information about the project proponent	BFCL, "was founded in 1971", introduce ourselves as one of the largest manufacturer of Ferro Alloys in the state of Jharkhand. BFCL have our manufacturing units situated at Ramgarh, Jharkhand. BFCL are also into manufacturing of Billets, Sponge Iron and generate power from waste heat of sponge iron. BFCL principles reflect commitment to move towards future growth and development of the company. The following are the Directors of the Company. Kindly refer to page no. 1.7 of Chapter # 1 of EIA report.
	iii. Importance and benefits of the project	Ferroalloy products are used in upstream, midstream and downstream segments of oil, gas and other petrochemicals. Rising crude oil production & exploration activities and measures taken by governments of various nations of the region to boost industrial sector will catapult demand for different type of steels. This will subsequently augment the growth of ferroalloy market over the forecast time period. Kindly refer to page no. 1.9 of Chapter # 1 of EIA report.
	3.1.1 Project Description	
	i. Cost of project and time of completion.	Total estimated Cost of the project is Rs. 89.3 Crores Present status of 5 th Submerged Electric Arc Furnace & CLU converter: • Installation of 5th Submerged Electric Arc Furnace of 9 MVA capacity has been completed. • Production is not yet started • Regarding installation of CLU converter, 70% of civil work, plant & machinery has been completed Kindly refer to page no. 2.17 & 2.16 of Chapter # 2 of EIA report.
	ii. Products with capacities for the proposed project.	Modification-cum-Expansion of Ferro Alloy Plant (for Grant of ToR under

BIHAR FOUNDRY & CASTING LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No.	TOR point-raised	TOR Compliance
		violation) Modification of existing 2x5 MVA SEAF's to 2x6 MVA SEAF, Modification of existing 1x7.5 MVA SEAF to 1x9 MVA SEAF, Existing 1x9.0 MVA SEAF, establishment new 1x9 MVA SEAF & new 12MT per batch CLU Converter for refining liquid HC FeMn to MC/LC FeMn). Kindly refer to page no. 2.17 of Chapter # 2 of EIA report.
	iii. If expansion project, details of existing products with capacities and whether adequate land is available for expansion, reference of earlier EC if any.	Details of existing products with capacities are furnished in page no. 2.17 of Chapter # 2 of EIA report. Total 2.91 Ha. (7.18 Acres), of land has taken on lease from Jharkhand Industrial Area Development Authority (JIADA) for a period of 30 years. 2.91 Ha. (7.18 Acres) of Existing plant land is Industrial land. The proposed expansion will be taken up in the existing plant premises only. Additional land of 1.385 Ac. (0.56 Ha.) has been acquired for development of Greenbelt to comply 40% of 2.91 Ha. (7.18 Acres). Kindly refer to page no. 2.13 of Chapter # 2 of EIA report for land details. Kindly refer to page no. 2.18 of Chapter # 2 of EIA report.
	iv. List of raw materials required and their source along with mode of transportation	Maximum quantity of HFO (Heavy Fuel Oil) stored at site will be 1 x 25 m ³ capacity respectively
	v. Other chemicals and materials required with quantities and storage capacities	Kindly refer to page no. 4.6 of Chapter # 4 of EIA report for Stack emission details. Kindly refer to page no. 2.26 of Chapter # 2 of EIA report for Air Emission Management details.
	vi. Details of Emission, effluents, hazardous waste generation and their management	Kindly refer to page no. 2.27 of Chapter # 2 of EIA report for effluent generation and its management details. Kindly refer to page no. 2.28 of Chapter # 2 of EIA report for hazardous

BIHAR FOUNDRY & CASTING LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No.	TOR point raised	TOR Compliance
	vii. Requirement of water, power, with source of supply, status of approval, water balance diagram, man-power requirement (regular and contract)	waste generation and is management. Water required for the existing plant is 35 KLD and same is being sourced from Ground water source. NOC from CGWA has been obtained to abstract ground water of 35 m³/day for industrial use vide letter No. CGWA / NOC / IND / ORIG / 2021 / 10628 dated 02/01/2021 which is valid upto 01/01/2024. The total water requirement for the expansion project is estimated as 148 m³/day, which will be met from the Damodar river (Tenughat Reservoir). New Pipeline will be laid from Damodar River to the project site. Water permission obtained to the quantity of 0.598 MCM for both units i.e. DRI unit & adjacent Ferro Alloy unit. A copy of NOC from CGWA & sanction letter received from DVRRRC for water withdrawal is enclosed as ANNEXURE # 4 & 5. Kindly refer to page no. 4.16 & 4.17 of Chapter # 4 EIA report for detailed water requirement breakup and water balance diagram. Total power consumption is 33 MW, in which meet from DVC 28.5 MW & 4.5 MW from Captive power plant of adjacent unit of BFCL. Kindly refer to page no. 2.26 of Chapter # 2 of EIA report Power requirement to each unit. The proposed project will generate direct and indirect employment opportunity for about 750 persons, which will help in improving the socio-economic conditions of the region. Kindly refer to page 8.1 of Chapter # 8 of EIA report for Man power requirement (regular & contract). Kindly refer to page no. 2.20 to 2.24 of Chapter # 2 of EIA report for process
	viii. Process description along with major equipment's	

BIHAR FOUNDRY & CASTING LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No.	TOR point raised	TOR Compliance
	and machineries, process flow sheet (quantitative) from raw material to products to be provided	description.
	ix. Hazard identification and details of proposed safety systems	Kindly refer to Page no. 7.25 to 7.30 of Chapter # 7 of EIA report
	x. Expansion / modernization proposals	
	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 30 th 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.	• Bihar Foundry & Castings Limited (BFCL) is operating a Ferro Alloy Plant located at Plot No 1405(P), Ramgarh Industrial Area, Marar Village, Ramgarh Tehsil & District, Jharkhand. • Environment Clearance from MoEF&CC vide F.No. J- 11011/384/2010-IA (II) (I) dated 31.10.2011 is enclosed as ANNEXURE – 6. • Site Inspection report on ATR submitted for Non Compliances, Certified Compliance report of conditions stipulated in E.C issued by IRO, Ranchi is enclosed as ANNEXURE # 7.
	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.	Not Application as Existing plant has obtained Environment Clearance. 
4.	Site Details	

BIHAR FOUNDRY & CASTING LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No.	TOR point raised	TOR Compliance																		
	i. Location of the project site covering village, Taluka/Tehsil, District and State, Justification for selecting the site, whether other sites were considered. 	Bihar Foundry & Castings Limited (BFCL) is operating a Ferro Alloy unit Located at Plot No 1405(P), Ramgarh Industrial Area, Marar Village, Ramgarh Tehsil & District, Jharkhand. Kindly refer to page no. 2.2 of Chapter # 2 of EIA report for location of the project site. The proposed expansion will be taken up in the existing plant premises only. Additional land of 1.385 Ac. (0.56 Ha.) has been acquired for development of Greenbelt to comply 40% of 2.91 Ha. (7.18 Acres). Kindly refer to page no. 2.8 of Chapter # 2 of EIA report for Environmental Setting within 10 Km. radius of the project site. Kindly refer to page no. 5.1 of Chapter # 5 of EIA report for Justification for selecting the site. Toposheet of the study area of radius of 10 km and site location on 1:50,000 scale is furnished in page no. 2.12 of Chapter # 2 of EIA report.																		
	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. Co-ordinates (lat-long) of all four corners of the site.	The following are the Coordinates of the plant site <table border="1"> <thead> <tr> <th>Point</th><th>Latitude</th><th>Longitude</th></tr> </thead> <tbody> <tr> <td>Point # 1</td><td>23°39'33.79"N</td><td>85°30'20.85"E</td></tr> <tr> <td>Point # 2</td><td>23°39'33.67"N</td><td>85°30'24.03"E</td></tr> <tr> <td>Point # 3</td><td>23°39'26.99"N</td><td>85°30'25.12"E</td></tr> <tr> <td>Point # 4</td><td>23°39'25.39"N</td><td>85°30'23.90"E</td></tr> <tr> <td>Point # 5</td><td>23°39'25.35"N</td><td>85°30'19.63"E</td></tr> </tbody> </table>	Point	Latitude	Longitude	Point # 1	23°39'33.79"N	85°30'20.85"E	Point # 2	23°39'33.67"N	85°30'24.03"E	Point # 3	23°39'26.99"N	85°30'25.12"E	Point # 4	23°39'25.39"N	85°30'23.90"E	Point # 5	23°39'25.35"N	85°30'19.63"E
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BIHAR FOUNDRY & CASTING LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No.	TOR point raised	TOR Compliance
		Kindly refer to page no. 2.2 of Chapter # 2 of EIA report for coordinates of the project site.
iv.	Google map-Earth downloaded of the project site.	Kindly refer to page no. 2.4 of Chapter # 2 of EIA report for Google Earth map showing location of the project site.
v.	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.	Layout of Industrial Area indicating location of unit within the Industrial area/Estate & Plant layout showing proposed units including storage area, plant area, greenbelt area, utilities etc. are furnished in page no. 2.15 & 2.16 of Chapter # 2
vi.	Photographs of the proposed and existing (if applicable) plant site. If existing, show photographs of plantation/greenbelt, in particular.	Photographs of the existing plant are furnished in page no. 2.5 to 2.7 of Chapter # 2 of EIA report.
vii.	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)	Total 2.91 Ha. (7.18 Acres), of land has taken on lease from Jharkhand Industrial Area Development Authority (JIADA) for a period of 30 years. 2.91 Ha. (7.18 Acres) of Existing plant land is Industrial land. The proposed expansion will be taken up in the existing plant premises only. Additional land of 1.385 Ac. (0.56 Ha.) has been acquired for development of Greenbelt to comply 40% of 2.91 Ha. (7.18 Acres).
viii.	A list of major industries with name and type within study area (10km radius) shall be incorporated.	Kindly refer to page no. 2.13 of Chapter # 2 of EIA report for land details.
	Land use details of the study area	Kindly refer to page no. 2.9 of Chapter # 2 of EIA report for major industries within 10 Km radius of the project site.
ix.	Geological features and Geo-hydrological status of	Kindly refer to page no. 3.38 of Chapter # 3 of EIA report for land use details of the study area. The district is a part of Chotanagpur plateau. Important physiographic

BIHAR FOUNDRY & CASTING LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No.	TOR point raised	TOR Compliance
	the study area shall be included.	regions of the district is Damodar Valley .Major area of the district come under Damodar Valley. Damodar Valley is bounded by Hazaribag Plateau in north and Ranchi Plateau in south .Ranchi and Hazaribag plateau is separated by East-West running Damodar valley. Barka Pahar (Marang Buru) 1049 meters high above sea level located along the Ramgarh-Ranchi border is probably the highest Peak and it also separate both district. Kindly refer to page no. 3.36 of Chapter # 3 of EIA report.
x.	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)	There is no major river within 1 Kms. radius of the project. Kharoon river is flowing at a distance of 1.4 Kms. from the plant. However kindly refer to page no. 3.40 of Chapter # 3 for Drainage pattern map of the Study area.
xi.	Status of acquisition of land. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land.	Total 2.91 Ha. (7.18 Acres), of land has taken on lease from Jharkhand Industrial Area Development Authority (JIADA) for a period of 30 years. A copy of the Lease deeds are enclosed as ANNEXURE – 8 .
xii.	R & R details in respect of land in line with state Government policy	Kindly refer to page no. 2.12 of Chapter # 2 of EIA report for land details. Not applicable as expansion will be taken up in the existing plant premises only.
5.	Forest and Wildlife related issues (if applicable)	
i.	Permission and approval for the use of forest land (forestry clearance), if any, and recommendations of the State Forest Department, (if applicable)	Not applicable, as there is no forest land involved in the proposed project site.
ii.	Landuse map based on High resolution satellite imagery (GPS) of the proposed site delineating the forestland (in case of projects involving forest land	Kindly refer to page no. 3.41 to 3.44 for Satellite imagery and LULC map.

BIHAR FOUNDRY & CASTING LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No.	TOR point raised	TOR Compliance
	<i>more than 40 ha)</i>	
	iii. Status of Application submitted for obtaining the stage I forestry clearance along with latest status shall be submitted.	Not applicable, as there is no forest land involved in the proposed Project site.
	iv. The projects to be located within 10 km of the National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals, the project proponent shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-a-vis the project location and the recommendations or comments of the Chief Wildlife Warden-thereon Wildlife Conservation Plan duly authenticated by the Chief Wildlife Warden of the State Government for conservation of Schedule I fauna, if any exists in the study area	Not applicable, as there are no National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals within 10 Km. radius of the project site.
	v. Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972, to the Standing Committee of the National Board for Wildlife	Not applicable, as there are no Schedule-I fauna exists in the study area.
	vi. Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972, to the Standing Committee of the National Board for Wildlife	Not applicable
6.	Environmental Status	
	i. Determination of atmospheric inversion level at the project site and site-specific micro-meteorological data using temperature, relative humidity, hourly wind speed and direction and rainfall;	Site-specific micro-meteorological data is furnished in page no. 3.2 of CHAPTER # 3 of EIA report.
	ii. AAQ data (except monsoon) at 8 locations for PM ₁₀ , PM _{2.5} , SO ₂ , NO _x , CO and other parameters relevant to the project shall be collected. The monitoring stations shall be based CPCB guidelines and take into account the pre-dominant wind direction, population zone and sensitive receptors including	Kindly refer to page no. 4.2 of CHAPTER # 4 of EIA report. 8 nos. of Ambient Air Quality Monitoring Stations were chosen during data collected in 1st December 2019 to 29th February 2020 by M/s. Ampl Environ Pvt Ltd. Hyderabad with in the study zone of the plant area in accordance with CPCB guidelines. Subsequently One Month i.e. 1st May 2022 to 31st May 2022 data has been collected at the same Monitoring stations for Revalidation of Baseline data.

BIHAR FOUNDRY & CASTING LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No.	TOR point raised	TOR Compliance																														
	reserved forests.	The following are the resultant concentrations of various parameters. <table border="1"> <thead> <tr> <th>Parameters</th><th>Concentrations during study period Dec 2019 to Feb 2020</th><th>Concentrations during study period from 1st May 2022 to 31st May 2022 (Revalidation)</th></tr> </thead> <tbody> <tr> <td>PM_{2.5}</td><td>34.7 to 42.8 µg/m³</td><td>34.9 to 46.2 µg/m³</td></tr> <tr> <td>PM₁₀</td><td>68.9 to 86.3 µg/m³</td><td>69.1 to 79.4 µg/m³</td></tr> <tr> <td>SO₂</td><td>7.8 to 13.5 µg/m³</td><td>7.8 to 13.3 µg/m³</td></tr> <tr> <td>NO₂</td><td>17.4 to 26.2 µg/m³</td><td>15.5 to 27.1 µg/m³</td></tr> <tr> <td>CO</td><td>410 to 600 µg/m³</td><td>384 to 744 µg/m³</td></tr> </tbody> </table> Kindly refer to page no. 3.6 to 3.15 of CHAPTER # 3 of EIA report. One season data of all AAQ measurement for 12 weeks of all stations are furnished in ANNEXURE # 9 for One Month revalidated data 5 nos. of surface water samples have been collected 2 from Damodar river (1.7 Kms.), one sample from Marar Pond (1.6 Kms.), one sample from Ramgarh Pond (3.7 Kms.) & other sample are collected in Sample from Unnamed Nala (near BFCL 0.6 Kms.). The analysis of samples shows that all the parameters are in accordance with BIS-2296 specifications <table border="1"> <thead> <tr> <th>Parameter</th><th>1st Dec 2019 to 29th Feb 2020</th><th>May 2022</th></tr> </thead> <tbody> <tr> <td>pH</td><td>: 7.54 to 7.86</td><td>7.08 to 7.77</td></tr> <tr> <td>Total Hard ness</td><td>: 136.02 to 278.5</td><td>122.5 to 255.8</td></tr> <tr> <td>DO (in mg/l)</td><td>: 5.38 to 7.8</td><td>5.0 to 7.2</td></tr> </tbody> </table>	Parameters	Concentrations during study period Dec 2019 to Feb 2020	Concentrations during study period from 1 st May 2022 to 31 st May 2022 (Revalidation)	PM _{2.5}	34.7 to 42.8 µg/m ³	34.9 to 46.2 µg/m ³	PM ₁₀	68.9 to 86.3 µg/m ³	69.1 to 79.4 µg/m ³	SO ₂	7.8 to 13.5 µg/m ³	7.8 to 13.3 µg/m ³	NO ₂	17.4 to 26.2 µg/m ³	15.5 to 27.1 µg/m ³	CO	410 to 600 µg/m ³	384 to 744 µg/m ³	Parameter	1 st Dec 2019 to 29 th Feb 2020	May 2022	pH	: 7.54 to 7.86	7.08 to 7.77	Total Hard ness	: 136.02 to 278.5	122.5 to 255.8	DO (in mg/l)	: 5.38 to 7.8	5.0 to 7.2
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	iii. Raw data of all AAQ measurement for 12 weeks of all stations as per frequency given in the NAQQM Notification of Nov. 2009 along with -min., max., average and 98% values for each of the AAQ parameters from data of all AAQ stations should be provided as an annexure to the EIA Report.																															
	iv. Surface water quality of nearby River (60m upstream and downstream) and, other surface drains at eight locations as per CPCB/MoEF&CC guidelines.																															



BIHAR FOUNDRY & CASTING LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No.	TOR point raised	TOR Compliance																																																
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	v. Whether the site falls near to polluted stretch of river identified by the CPCB/MoEF&CC.																																																	
	vi. Ground water monitoring at minimum at 8 locations shall be included.																																																	
	vii. Noise levels monitoring at 8 locations within the study area.																																																	

BIHAR FOUNDRY & CASTING LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No.	TOR point raised	TOR Compliance
		weighted sound pressure level meter. The equivalent day noise levels in the study zone are ranging from 52.10 dBA to 68.40 dBA & equivalent Night noise levels in the study zone are ranging from 42.70 dBA to 55.30 dBA during 1st December 2019 to 29th February 2020 carried out by M/s. AMPL ENVIRON PVT LTD. further Noise levels collected during revalidation of Noise levels in May 2022, the equivalent day noise levels in the study zone are ranging from 47.80 dBA to 66.80 dBA & equivalent Night noise levels in the study zone are ranging from 36.80 dBA to 53.20 dBA.
	viii. Soil Characteristic as per CPCB guidelines	Kindly refer to page no. 3.19 to 3.21 of CHAPTER # 3 of EIA report. Five (5) no. of soil samples were collected and for analyzed for various parameters like texture, infiltration rate, bulk density, pH, Ca, Mg, Na, K, Zn, Mn etc • pH – 6.88 to 7.45; • Total nitrogen – 206.5 to 295.8 kg/ha, • Phosphorous – 14.8 to 24.5 kg/ha • Potassium 108.9 to 166.2 Kg/ha Kindly refer to page no. 3.45 to 3.48 of CHAPTER # 3 of EIA report.
	ix. Traffic study of the area, type of vehicles, frequency of vehicles for transportation of materials, additional traffic due to proposed project, parking arrangement etc.	• Existing road is well connected to Ramgarh City Road & NH # 20 (Ranchi – Hazaribagh) which is at 7.0 Kms from the plant site. Existing Road network is capable of taking additional traffic load due to expansion project. • As per the above the LOS of the ROAD is categorised under 'C', which implies "GOOD". • Hence the existing road is capable of taking the additional vehicular traffic due to the proposed expansion project. • Traffic study of the area, type of vehicles, frequency of vehicles for transportation of materials, additional traffic due to proposed expansion project is already explained in page no. 4.21 of CHAPTER #

BIHAR FOUNDRY & CASTING LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

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		4 of EIA report for Traffic Study.
	x. 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.	Detailed description of flora and fauna (terrestrial and aquatic) existing in the study area is furnished in page no. 3.55 to 3.68 of CHAPTER # 3 of EIA report.
	xi. Socio-economic status of the study area	Kindly refer to page no. 3.68 to 3.89 of CHAPTER # 3 & page no. 7.34 of CHAPTER # 7 of EIA report for details Socio Economic Study.
7.	Impact Assessment 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 well assessed. Details of the 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.	Ground level concentration of pollutants from the stack emission based on site-specific meteorological features model used and the input data used for modeling are furnished in page no. 4.2 to 4.7 of CHAPTER # 4 of EIA report. The air quality contours shall be plotted on a location map showing the location of project site are shown in page no. 4.8 to 4.15 of CHAPTER # 4 of EIA report. 
	ii. Water Quality modelling - in case, if the effluent is proposed to be discharged in to the local drain, then Water Quality Modelling study should be conducted for the drain water taking into consideration the upstream and downstream quality of water of the	Water quality modelling is not carried out as it is a ZLD plant. • The wastewater generated from Ferro Alloys unit will be sent to ETP and after ensuring compliance with SPCB norms, it will be utilized for Jigging plant, Briquetting plant, dust suppression & for greenbelt development.

BIHAR FOUNDRY & CASTING LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No.	TOR point raised	TOR Compliance
	drain.	- Sanitary waste water will be treated in proposed STP and treated wastewater will be utilized for Greenbelt development. - Zero effluent discharge will be maintained in the proposed expansion project also.
iii.	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.	- Major raw materials will be transported through railway rakes up to the nearest railway station (i.e. Barkakana RS – 12 Kms) and then to the site through road by covered trucks. - All the trucks used for the transport of raw materials, products and wastes will be completely covered with tarpaulin and ensured no spillage during transportation. - Total no. of trucks after proposed expansion will be 50 trucks / day. - Existing road is well connected to Ramgarh City Road & NH # 20 (Ranchi – Hazaribagh) which is at 7.0 Kms from the plant site. Existing Road network is capable of taking additional traffic load due to expansion project. - All the raw material required for the proposed expansion of plant will be stored on pucca platform above ground level. - All the raw material yards are equipped with water sprinkling system, so as to avoid fugitive emission during the material handling. - As per the above the LOS of the ROAD is categorised under 'C', which implies "GOOD". - Hence the existing road is capable of taking the additional vehicular traffic due to the proposed expansion project. - Kindly refer to page no. 4.21 of CHAPTER # 4 of EIA report for Traffic Study.
iv.	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	Kindly refer to page no. 10.11 of CHAPTER # 10 of EIA report for a note on treatment of wastewater from different plant operations, extent recycled and reused for different purposes & Complete scheme of effluent treatment.



BIHAR FOUNDRY & CASTING LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No.	TOR point raised	TOR Compliance
	untreated and treated effluent to meet the prescribed standards of discharge under E(P) Rules.	Kindly refer to page no. 4.16 of CHAPTER # 4 of EIA report for Characteristics of untreated effluent.
	v. Details of stack emission and action plan for control of emissions to meet standards.	Kindly refer to page no. 10.7 of CHAPTER # 10 of EIA report for Characteristics of treated effluent. Stack emission details are furnished in page no. 4.6 of Chapter # 4 of EIA report for Stack emission details.
	vi. Measures for fugitive emission control	Action plan for control of emissions to meet standards is furnished in page no. 2.26 of Chapter # 2 of EIA report for control of emissions to meet standards. Control of Secondary Fugitive Emissions From SMS - The secondary emissions from the proposed Submerged Electric Arc Furnaces will be extracted and treated in a fume extraction & cleaning system. - Fumes will be evacuated directly from induction furnaces through hoods with swiveling mechanism and ducting. - Clean gases having less than 30 mg/Nm³ of dust content will be exhausted through a Stack of adequate height.
	vii. Details, of hazardous waste generation and their storage, utilization and disposal. Copies of MOU regarding utilization of solid and hazardous waste shall also be included. EMP shall include the concept of waste-minimization, recycle/reuse/recover techniques, Energy conservation, and natural resource conservation.	Kindly refer to page no. 10.5 of CHAPTER # 10 of EIA report. Kindly refer to page no. 2.28 of CHAPTER # 2 & page no. 10.8 of Chapter-10 of EIA report for waste generation and their storage, utilization and its disposal.
	viii. Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 2009. A detailed plan of action	Kindly refer to page no. 2.26 of CHAPTER # 2 of EIA report for Energy conservation measures proposed. Not applicable as no Fly Ash will be generated from the proposed plant. Bagfilter dust will be sent to Briquetting plant. These briquettes will be sent

BIHAR FOUNDRY & CASTING LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No.	TOR point raised	TOR Compliance
	shall be provided.	to process again. Kindly refer to page no.2.28 of Chapter # 2 of EIA report
ix.	Action plan for the 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.	Total land after proposed expansion will be 2.91 Ha. (7.18 Acres) . As the Plant is situated in Severely Polluted area (SPA) it is proposed to develop 40% of Greenbelt as part of the expansion i.e. in an extent of 1.17 Ha. (2.9 Acres) . Additional safeguards such as 40% green belt is proposed to develop within the plant premises & outside the plant premises over an extent of 1.17 Ha. (2.9 Acres) The total Greenbelt area proposed within the Plant premises is 1.515 Acres (0.61 Ha.) which is inclusive of existing Greenbelt. To meet the requirement of 40% greenbelt development it is proposed to acquire additional land outside the existing plant. Kindly refer to page no.10.11 of CHAPTER # 10 of EIA report.
x.	Action plan for rainwater harvesting measures at plant site shall be submitted to harvest rainwater from the rooftops 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.	The potential rain water that can be recharged / utilized to meet the plant water requirement is 16,500 m³ / year . Accordingly, the net water requirement will reduce. Kindly refer to page no.10.22 of CHAPTER # 10 of EIA report.
xi.	Total capital cost and recurring cost/annum for environmental pollution control measures shall be included.	Capital Cost for Environment Protection for proposed plant : 4.5 Crores Recurring Cost per annum for Environmental protection: 0.72 Crores Kindly refer to page no.10.16 of CHAPTER # 10 of EIA report for break-up of budget for Total capital cost and recurring cost/annum for environmental

BIHAR FOUNDRY & CASTING LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No.	TOR point raised	TOR Compliance
	xii. Action plan for post-project environmental monitoring shall be submitted.	pollution control measures. Kindly refer to page no.6.2 of CHAPTER # 6 of EIA report. Budget for Environment Monitoring is furnished in page no.6.3 of CHAPTER # 6 of EIA report.
	xiii. 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.	Onsite and Offsite Disaster preparedness and Emergency Management Plan including Risk Assessment and damage control are furnished in page no. 7.22 to 7.40 of CHAPTER # 7 of EIA report.
8.	Occupational Health Details of existing Occupational & Safety Hazards. What are the exposure levels of above mentioned 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, 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 abovementioned parameters as per age, sex, duration of exposure and department wise.	Anticipated Occupational & Safety Hazards & measures taken to protect the health of workers are furnished in page no. 7.41 of Chapter # 7 of EIA report. Medical records of each employee are being / will be maintained separately and will be updated as per finding during monitoring. Age, sex wise, department wise data on the above parameters will be maintained and submitted to the ministry. Medical records of the employee at the end of his / her term will be updated. Please refer to page no. 7.41 of Chapter # 7 of EIA report.
	iii. Annual report of health status of workers with special reference to Occupational Health and Safety.	Medical records of each employee are being / will be maintained separately and is being / will be updated as per finding during monitoring.

BIHAR FOUNDRY & CASTING LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No.	TOR point raised	TOR Compliance
		Health reports of the employees are enclosed as ANNEXURE # 10 of Health report of employees
	iv. Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers.	Kindly refer to page no. 7.41 of Chapter # 7 & page no. 10.16 of Chapter # 10 of EIA report.
9.	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.	Kindly refer to page no. 10.17 of Chapter # 10 of EIA report.
	ii. 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.	
	iii. 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.	
	iv. 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	
10.	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.	Kindly refer to page no. 10.2 of Chapter # 10 of EIA report.
11.	Enterprise Social Commitment (ESC)	
	i. To address the Public Hearing issues, an amount as	



BIHAR FOUNDRY & CASTING LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No.	TOR point raised	TOR Compliance
	specified under Ministry's Office Memorandum vide F.No. 22-65/2017-IA.III dated 1st May 2018 amounting to Rs. crores, shall be earmarked by the project proponent, towards Corporate Environment Responsibility (CER). Distinct CER projects shall be carved out based on the local public hearing issues. Project estimate shall be prepared based on PWD schedule of rates for each distinct item and schedule for time bound action plan shall be prepared. These CER projects as indicated by the project proponent shall be implemented along with the main project. Implementation of such program shall be ensured by constituting a Committee comprising of the project proponent, representatives of village Panchayat & District Administration. Action taken report in this regard shall be submitted to the Ministry's Regional Office. No free distribution/donations and or free camps shall be included in the above CER budget	Earlier ESC has been changed to CER as per the O.M issued on 1st May 2018. Later on this O.M is nullified as per the O.M issued on 30th September 2020. As per this, the budgetary allocation for commitment made by Project Proponent to address the concern raised during public hearing & based on Social Impact Assessment (SIA). Hence A separate budget will be allocated for Social welfare measures after completion of Public Hearing. Kindly refer to page no. 8.2 to 8.5 of CHAPTER # 8 of EIA report for activities taken up by the management & proposed activities under Corporate Environment Responsibility.
12.	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.	No litigation is pending against the project and / or any direction / order passed by any Court of Law against the project.
13.	A tabular chart with index for point wise compliance of above TORs	Noted
14.	The TORs prescribed shall be valid for a period of three	Noted



BIHAR FOUNDRY & CASTING LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

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	years for submission of the EIA-EMP reports along with Public Hearing Proceedings (wherever stipulated).	

B. Additional TORs for Metallurgical Industry (Ferrous & Non-Ferrous)

TOR No.	Specific TOR issued	TOR Compliance
1.	Complete process flow diagram describing each unit, its processes and operations, along with material and energy inputs & outputs (material and energy balance).	Kindly refer to page no. 2.20 to 2.24 of CHAPTER # 2 of EIA report for process description. Kindly refer to page no. 2.19 of CHAPTER # 2 of EIA report for material inputs & outputs. Kindly refer to page no. 2.26 of CHAPTER # 2 of EIA report for energy requirement.
2.	Emission from Sulphuric acid plant and sulphur muck management	Not Applicable as the proposed plant is not a Sulphuric acid plant unit.
3.	Details on installation of Continuous Emission Monitoring system with recording with proper calibration system	Continuous Emission Monitoring System with recording with proper calibration system will be installed for proposed unit. Calibration to CEMS will be carried out periodically and records pertaining to calibration will be maintained.
4.	Details on toxic metals including fluoride emissions	There will not be any fluoride emissions from the proposed expansion project.
5.	Details on stack height	Stack height details are furnished in page no. 4.6 of CHAPTER # 4 of EIA report.
6.	Details on ash disposal and management	Not Applicable as there will not be any generation from the existing as well as from expansion of proposed Ferro Alloy manufacturing unit.
7.	Complete process flow diagram describing production of lead/zinc/copper/aluminium, etc.	Not Applicable as there will not be any facility of process of lead/zinc/copper/aluminium, etc. in the existing as well as in expansion project.
8.	Details on smelting, thermal refining, melting, slag fuming, and Waelz kiln operation	Not Applicable as the proposed plant is not an Aluminium processing unit.
9.	Details on Holding and de-gassing of molten metal from primary	Not Applicable as the proposed plant is not an Aluminium processing unit.

BIHAR FOUNDRY & CASTING LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TOR No	Specific TOR issued	TOR Compliance
	and secondary aluminium, materials pre-treatment, and from melting and smelting of secondary aluminium	unit.
10.	Details on toxic metal content in the waste material and its composition and end use (particularly of slag)	Kindly refer to page no. 10.8 of CHAPTER # 10 of EIA report for Slag Composition.
11.	Trace metals in waste material especially slag	Details on Slag composition is furnished in page no. 10.8 of CHAPTER # 10 of EIA report.
12.	Plan for trace metal recovery	APCS dust will be sent to Briquetting unit to recover any trace metal in the dust. Kindly refer to page no. 10.8 of CHAPTER # 10 of EIA report for waste generation and their storage, utilization and its disposal.
13.	Trace metals in water	Kindly refer to page no.3.32 of CHAPTER # 3 of EIA report. Heavy metals are within the limits.



CHAPTER – 1

INTRODUCTION



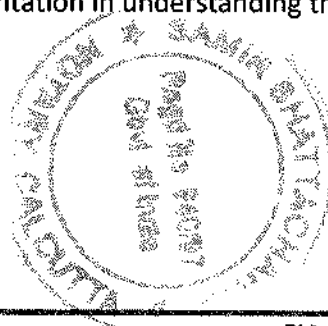
1.1 PURPOSE OF THE REPORT

Environmental management plays a vital role in sustainable development of a country. Recognizing its importance, the Ministry of Environment and Forest, Government of India had formulated policies and procedures governing the industrial and other developmental activities to prevent indiscriminate exploitation of natural resources and to promote integration of environmental concern in developmental projects.

Ministry of Environment, Forest & Climate Change (MoEF&CC) has made prior Environmental Clearance (EC) for certain developmental projects mandatory through its notification issued on 14th September 2006 and its subsequent amendment.

Environmental Impact Assessment (EIA) is systematic process to identifying, predicting, evaluating and mitigating the biophysical, social and other relevant environmental effects due to the proposed developmental project. It plays a vital role in providing information for decision-making on the environmental consequences of proposed projects. It promotes environmentally sound and sustainable development through the identification appropriate enhancement and mitigation measures.

The proposed project activity has both positive and negative impacts on the environment. The negative impacts include environmental degradation and adverse socio-economic changes. It is the responsibility of the company to document the associated positive and negative impacts, so that the attempts can be made to minimize the effects due to the negative impacts and maximize the benefits due to the positive impacts. In this regard, Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) have been considered as the most important documentation in understanding the environmental implications and safeguarding the environment.



1.2 IDENTIFICATION OF PROJECT & PROJECT PROPONENT

Bihar Foundry & Castings Limited (BFCL) -Ferro Alloy Plant is in the production of ferro alloy FeMn/SiMn– 96TPD (34,080TPA). The company has been promoted by a group of experienced businessmen who are presently engaged in manufacturing and trading business of various products.

About the Project

Bihar Foundry & Castings Limited (BFCL), Ferro Alloy Plant is in the production of ferro alloy FeMn/SiMn– 96 TPD (34,080TPA) Located at Plot No 1405(P), Ramgarh Industrial Area, Marar Village, Ramgarh Tehsil & District, Jharkhand.

Following is Chronology of Permissions obtained:

- Consent-to-Establish (CTE) obtained vide order No.T-551, dated 24.02.2000 for Ferro Alloy unit of 2x5 MVA SEAF's to manufacture 26 TPD of SiMn/FeMn.
- Consent-to-Establish (CTE) obtained vide order no. 2577 dated-20.05.2009 for Ferro Alloy unit of 1x7.5 MVA SEAF to manufacture 30 TPD of SiMn/FeMn.
- Environment Clearance (EC) from MoEF&CC, New Delhi, vide F. No. J- 11011/384/2010-IA (II) (I) dated 31.10.2011 to manufacture of ferro Alloys (SiMn/FeMn) of total 96TPD (34,080 TPA).
- The Consent-to-Establish (CTE) obtained vide order no. D-1510(N), Dated: 21.05.2014 for additional 40 TPD.
- Company has valid ConsentTo Operate from JSPCB vide no. JSPCB/HO/RNC/CTO-4412165/2020/1819 dated 10.11.2020 (which is in the name of GAUTAM FERRO ALLOYS (UNIT OF BFCL) which is valid upto 31/12/2025. Now we have submitted request letter to JSPCB for name Change of CTO which is under process.

- Implementation status of the existing EC.

S. No.	Facilities As per E.C. dated 31/10/2011	Implementation Status as on 24/11/2020	Production as per CTO
1	Ferro Alloys Plant of 96 TPD (2x5 MVA + 1x7.5 MVA + 1x9 MVA SEAF's with Jigging unit and Micro Pelletizing facility	Ferro Alloys Plant of 96 TPD (2x5 MVA + 1x7.5 MVA + 1x9 MVA SEAF's with Jigging unit and Micro Pelletizing facility	96 TPD (SiMn/ FeMn)
Note : All units as per EC accorded on 31/10/2011 have been implemented and CTO has			

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro-Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

S. No.	Facilities As per E.C. dated 31/10/2011	Implementation Status as on 24/11/2020	Production as per CTO
been obtained accordingly			

Proposed Project

Now, it has been proposed to go for expansion of Ferro Alloys production capacity by installing another Submerged Electric Arc Furnace & Permission to manufacture FeMn or SiMn in the existing SEAF to meet the demand for Ferro Alloys in and around the state of Jharkhand.

Preamble of the Expansion project

Earlier **the present proposal** is submitted to MOEF&CC for EC appraisal.

Application submitted for ToR - 12/09/2020

ToR issued for the project - 24/11/2020

Date of public consultation - 15/03/2021

Online application submitted for EC appraisal vide proposal no.

IA/JH/IND/223909/2020 - 23/08/2021

Re-constituted EAC (Industry-I) - 13 – 14 September, 2021

After appraisal EAC has recommended to return the proposal in present form

Meanwhile we have installed of 5th Furnace & CLU converter without completing the EC process. Hence we are here with submitting the Application A fresh under Violation for ToR.

Reasons for the expansion project getting into violation:

- The company has started installation of the 5th Submerged Arc Furnace of 1x9 MVA & CLU converter without completing the process of Environment Clearance because of the following reasons (Reasons for violation).
- Due to COVID restrictions and social lockdown wherein all the physical activities were restricted, we could not move ahead with the study, interaction with officials and accordingly we could not complete the process of EC due to delay from our end.
- We have also given a completion date of 31st Dec 2021 for our 5th furnace project to our consortium of banks.
- If the completion date is exceeded by a period of 6 months, the loan account would have slipped into a NPA (Non-Performing Asset) category.
- This situation would have led to bankruptcy of our company as well.

- Thus, to avoid such situation, installation/completion of the 5th furnace has been completed along with CLU converter.

Present status of 5th Submerged Electric Arc Furnace & CLU converter:

- ❖ Installation of 5th Submerged Electric Arc Furnace of 9 MVA capacity has been completed.
- ❖ Production is not yet started
- ❖ Regarding installation of CLU converter, 70% of civil work, plant & machinery has been completed

As per the Ministry of Environment, Forest & Climate Change, New Delhi, EIA notification dated 14th September, 2006 & its subsequent amendments, all the Ferro Alloy units (Primary Metallurgical) are falling under Sl. No. 3 (a) **under VIOLATION**, classified as Category 'A' for the grant of Environmental Clearance and shall be appraised at Central Level.

In order to obtain Environmental Clearance for the proposed expansion, Form – 1 along with proposed TOR & Pre-Feasibility Report have been submitted to the Honourable Ministry of Environment, Forest & Climate Change (MoEF&CC), New Delhi. Presentation has been made before the Expert Appraisal Committee of MoEF&CC on **03-11-2022 for ToR**.

The EAC also took into consideration the request of M/s. BFCL submitted through written representation vide letter dated **03.11.2022** for appraisal of the instant proposal as **modification/ amendment** in TOR granted vide letter No. J-11011/384/2010-IAI(I) dated **24.11.2020** under violation category instead of issuance of fresh TOR.

Baseline data was earlier collected by previous Consultant **M/s. Ampl Environ Pvt Ltd. Hyderabad** from **1st December 2019 to 29th February 2020**. Subsequently the baseline data has been collected for further period of one month i.e. in **May 2022** for Re-validation of Baseline data for preparation of EIA report by **Pioneer Enviro Laboratories & Consultants Pvt. Ltd.**

Further, the EAC observed that the project falls in the Ramgarh district of Jharkhand. Ramgarh is declared as **Severely Polluted area (SPA)** with CEPI index 65.11 by CPCB vide No. B29012/ESS(CPA)/2015-16/ dated 26th April 2016. The EAC advised M/s. BFCL to comply with all the conditions applicable to CEPI.

Existing EC as well as instant ToR application is in the name of **M/s. Bihar Foundry and Castings Limited** whereas the Consents obtained from JSPCB is in the name **M/s. Gautam Ferro Alloys (Unit of BFCL)**. It is informed that M/s. BFCL have submitted a request letter to JSPCB for name Change in CTO which is under process.

After deliberations, the **Committee recommended** the project proposal for modification in TOR letter No. **J-11011/384/2010-IAII(I)** dated **24.11.2020** w.r.t. appraisal of proposal under **violation category** as per the provisions contained in the MoEF&CC Standard Operating Procedures dated **07/07/2021** pertaining to consideration of violation cases. All the terms and conditions stipulated in ToR letter no. **J-11011/384/2010-IAII(I)** dated **24.11.2020** shall remain the same with stipulation of the following **specific conditions issued in Amendment to ToR vide no. File No. IA-J-11011/384/2010-IA-II(IND-I)** dated **19th December, 2022**.

- i. The State Government/SPCB shall take action against the project proponent under the provisions of the Environment (Protection) Act, 1986, and further no consent to operate to be issued till the project is granted EC.
- ii. Assessment of ecological damage with respect to air, water, land and other environmental attributes. The collection and analysis of data shall be done by an environmental laboratory duly notified under the Environment (Protection) Act, 1986, or an environmental laboratory accredited by NABL, or a laboratory of a Council of Scientific and Industrial Research (CSIR).
- iii. Preparation of EMP comprising remediation plan and natural and community resource augmentation plan corresponding to the ecological damage assessed and economic benefits derived due to violation.
- iv. The remediation plan and the natural and community resource augmentation plan to be prepared as an independent chapter (13) in the EIA report by the accredited consultants.
- v. Budget of remediation plan and natural and community resource augmentation plan corresponding to the ecological damage shall be completed within three years and to be prepared accordingly.
- vi. The project proponent shall require to submit a bank guarantee equivalent to the amount of remediation plan and natural and community resource augmentation

plan with the SPCB prior to the grant of EC. The quantum shall be recommended by the EAC and finalized by the regulatory authority.

- vii. Project proponent shall implement penalty provisions i.e., 1% of project cost attributable to the expansion, incurred up to the date of filing of application along with the EIA/EMP report as contained in the paragraph 12 of the Standard Operating Procedure dated 7/07/2021 shall be complied with.
- viii. In pursuance to MoEF&CC OM's dated 31st October, 2019 & 30th December, 2019 issued in compliance of the order of Hon'ble NGT in OA No. 1038/2018 dated 19th August, 2019, the compliance of all the conditions applicable to CEPI shall be prepared. Greenbelt shall be planned in 40% of the project area. CER allocation shall be 1.5 times of the normal calculated amount.
- ix. The project proponent shall obtain name change in Consents (CTE/CTO) for the existing project in the name of M/s. Bihar Foundry and Castings Limited.
- x. The PP shall submit the Action Plan as per Ministry's OM dated 30.09.2020 on the issues raised during the PH. In this instant case the PH was already conducted by the SPCB as per provisions of the EIA Notification, 2006. Minutes of 16th meeting of the EAC for Industry-I sector held on 3rd November, 2022 Page 78 of 121.
- xi. The validity of the TOR will be counted from the earlier granted TOR by the Ministry.

Pioneer Enviro Laboratories & Consultants Private Limited, Hyderabad, which is accredited by NABET, Quality Council of India, vide certificate No. **NABET/ EIA/ 1922/ SA 0148**, for preparing Environmental Impact Assessment (EIA) report for Metallurgical Unit, have prepared EIA report for the proposed expansion project.

This report furnishes the details of location of Site, Description of the project, prevailing baseline status w.r.t Air Environment, Water Environment, Noise Environment, Land Environment, Flora & Fauna and Socio-economic environment. This report also helps in identification of environmental impacts and suggesting mitigation measures to be followed during Construction and Operation of the proposed expansion project as a part of Environmental Management Plan. This report also acts as guidance manual for the proponent for following the Environmental Management Plan (EMP) and for adopting post project Environmental Monitoring Program as per statutory norms.

About Project Proponent [Gen. TOR # 2 (ii)]

BFCL, "was founded in 1971", introduce ourselves as one of the largest manufacturer of Ferro Alloys in the state of Jharkhand. BFCL have our manufacturing units situated at Ramgarh, Jharkhand. BFCL are also into manufacturing of Billets, Sponge Iron and generate power from waste heat of sponge iron. BFCL principles reflect commitment to move towards future growth and development of the company. The following are the Directors of the Company.

Sl.No.	Name & Designation	Age	Qualification	Experience
1.	DR H.K. Budhia, CMD, BFCL	78	B.Tech., Ph.D. In Chemical Engineering (USA)	Having more than 50 years of experience in steel manufacturing and presently Chairman & Managing Director of M/s. BFCL, Ramgarh.
2.	Mr. Gaurav Budhia, Director, BFCL	35	Graduate	A Graduate having 17 years of experience in steel melting and Mining Sector, structural manufacturing and presently Director in BFCL.

1.3 BRIEF DESCRIPTION

1.3.1 NATURE OF THE PROJECT

It has been proposed to expand the Ferro Alloy Plant at Ramgarh Industrial Area, Ramgarh, Jharkhand as follows:

- Modification of existing 2x5 MVA SEAF's to 2x6 MVA SEAF
- Modification of existing 1x7.5 MVA SEAF to 1x9 MVA SEAF
- Existing 1x9.0 MVA SEAF
- Proposed New 1x9 MVA SEAF
- New 12MT per batch CLU Converter for refining liquid HC FeMn to MC/LC FeMn

1.3.2 SIZE OF THE PROJECT (Existing and Proposed)

Following is Plant configuration and production capacity existing plant and for proposed Expansion project:

Table : 1.3.1: PLANT CONFIGURATION AND PRODUCTION CAPACITIES

S. No.	Existing Units		Proposed Units (Modification- Cum-expansion)		Total (Existing + Proposed)	
	Configuration	Production TPA	Configuration	Production (in TPA)	Configuration	Production (in TPA)
1	Ferro Alloy	34,080	Modification	SiMn- 24,495	2x6 MVA +	SiMn- 58,575

BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

S. No.	Existing Units		Proposed Units (Modification- Cum-expansion)		Total (Existing + Proposed)	
	Configuration	Production TPA	Configuration	Production (in TPA)	Configuration	Production (in TPA)
	unit of 2x5 MVA + 1x7.5 MVA + 1x9 MVA SEAFs	(96 TPD) (SiMn / FeMn)	of existing 2x5 MVA to 2x6 MVA SEAFs Modification of existing 1x7.5 MVA to 1x9 MVA SEAF Existing 1x9 MVA SEAF New 1x9 MVA SEAF* New 12MT per batch CLU Converter for refining liquid HC FeMn to MC/LC FeMn	(69 TPD) Or FeMn- 59,995 (169 TPD)	3x9 MVA SEAFs + 12MT CLU Converter	(165 TPD) Or HC/MC/LC FeMn-94,075 (265 TPD)

Note: * We would like to bring to your kind notice that we have constructed 5th Furnace i.e New 1 x 9 MVA SAF & CU converter is under construction.

1.3.3 LOCATION OF THE PLANT

- BIHAR FOUNDRY & CASTING LIMITED (BFCL) is located at Ramgarh Industrial Area, Survey Plot No 1405(P), Marar Village, Ramgarh Tehsil & District, Jharkhand.
- Total **2.91 Ha. (7.18 Acres)**, of land has taken on lease from Jharkhand Industrial Area Development Authority (JIADA) for a period of 30 years.
- Proposed expansion will be taken up in the existing plant premises only.

1.3.4 IMPORTANCE OF PROJECT [Gen. ToR # 2 (iii)]

Steel is a basic commodity for economic growth of any country and the per capita consumption is a measure of prosperity of a country. The per capita steel consumption has risen from 38 kg in 2005-06 to 61 kg in 2017-18, compared to global average of 208 kg. The per capita steel consumption in rural sector is only 10 kg. The crude steel production capacity had increased from 22 million tons per annum (MTPA) in 1991-92 to 91 MTPA in 2015-16 (installed capacity is 122 MTPA) and 101 MTPA in 2016-17. The Indian steel industry is ranked 3rd in the world and has tremendous potential for growth. The

government of India has set pragmatic target of achieving per capita steel consumption of 160kgs by 2030-31 requiring a crude steel production of 255 MT and capacity of 300 MT.

The proposed project will bridge the demand supply gap of steel in the country. The project will add revenue to the Government by way of direct and indirect taxes.

Importance of the Project to the Region: The project will contribute to government treasury by way of direct and indirect taxes. The proposed expansion project will employ 500 persons during operation stage.

Ferroalloy products are used in upstream, midstream and downstream segments of oil, gas and other petrochemicals. Rising crude oil production & exploration activities and measures taken by governments of various nations of the region to boost industrial sector will catapult demand for different type of steels. This will subsequently augment the growth of ferroalloy market over the forecast time period.

Ferroalloys market will progress in positive direction due to there ability to enhance properties of various types of alloys and steel. They help in adding various alloying elements in desired quantities in the most technical and economic ways. The major end-use of ferroalloys is in automotive, railways, construction and various mechanical engineering industries. High energy consumption during production along with increasing fuel prices across the globe may hinder the growth of market in coming years.

Project Benefits:

- Employment to the local people.
- Social & Infrastructural developmental activities in the area in the consultation with village panchayath.

1.4 SCOPE OF THE STUDY

The scope of work includes a detailed characterization of the environment in an area of 10 Km. radius of the plant site for various environmental parameters like Air, Water, Noise, Land, Biological and Social-economic aspects.

The EIA Report has been prepared in accordance with the Terms of Reference (TOR) issued vide by the Ministry of Environment, Forest & Climate Change, New Delhi vide no.

J-11011/384/2010-IAII(I) dated 24.11.2020 along with following specific conditions issued in Amendment to ToR letter vide no. IA-J-11011/384/2010-IA-II(IND-I) dated 19th December, 2022.

Generic Structure of the Environmental Impact Assessment (EIA) report as per the EIA notification of the MoEF&CC, GoI dated 14th September 2006 and its subsequent amendments is detailed below:

Ch. No.	Heading
1.	Introduction
2.	Project Description
3.	Description of the Environment
4.	Anticipated Environmental Impact & Mitigation Measures
5.	Analysis of Alternatives (Technology & Site)
6.	Environmental Monitoring Program
7.	Additional Studies
8.	Project Benefits
9.	Environmental Cost – Benefit Analysis
10.	Environmental Management Plan (EMP)
11.	Summary & Conclusion
12.	Disclosure of Consultant engaged



CHAPTER – 2

PROJECT DESCRIPTION



2.1 TYPE OF PROJECT

BIHAR FOUNDRY & CASTINGS LIMITED (BFCL) Manufacturing of Ferro Alloys using Manganese Ore, Quartz, Scrap, LAM coke, Mill scales Electrode paste, etc. as raw materials. Currently Bihar Foundry & Castings Limited (BFCL) (Ferro Alloy Plant) is operating ferro alloy plant and producing FeMn/SiMn of 96TPD (34,080TPA). It has been proposed to expand the Ferro Alloy Plant production capacity at Ramgarh Industrial Area, Ramgarh, Jharkhand.

Ministry of Environment, Forest & Climate Change (MoEF&CC) has made prior Environmental Clearance (EC) for certain developmental projects mandatory through its notification issued on 14th September 2006 and its subsequent amendments.

As per the EIA notification dated 14th September, 2006 & its subsequent amendments, all the Ferro Alloy units (Primary Metallurgical) are falling under Sl. No. 3 (a), classified as Category 'A' for the grant of Environmental Clearance at Central Level.

2.2 NEED FOR THE PROJECT

Steel is a basic commodity for economic growth of any country and the per capita consumption is a measure of prosperity of a country. The per capita steel consumption has risen from 38 kg in 2005-06 to 61 kg in 2017-18, compared to global average of 208 kg. The per capita steel consumption in rural sector is only 10 kg. The crude steel production capacity had increased from 22 million tons per annum (MTPA) in 1991-92 to 91 MTPA in 2015-16 (installed capacity is 122 MTPA) and 101 MTPA in 2016-17. The Indian steel industry is ranked 3rd in the world and has tremendous potential for growth. The government of India has set pragmatic target of achieving per capita steel consumption of 160kgs by 2030-31 requiring a crude steel production of 255 MT and capacity of 300 MT.

The proposed project will bridge the demand supply gap of steel in the country. The project will add revenue to the Government by way of direct and indirect taxes.

Importance of the Project to the Region: The project will contribute to government treasury by way of direct and indirect taxes. The proposed expansion project will employ 500 persons during operation stage.

2.3 LOCATION OF THE PROJECT [Gen.TOR # 4 (i) & 4 (iii)]

- BIHAR FOUNDRY & CASTINGS LIMITED (BFCL) is located at Ramgarh Industrial Area, Survey Plot No 1405(P), Marar Village, Ramgarh Tehsil & District, Jharkhand.
- Proposed expansion will be taken up in the existing plant premises only.
- The project site falls in Survey of India Topo sheet no. 73 E/10 (F45B10).

The following are coordinates of the plant site

Table No. 2.3.1: Coordinates of the plant site

Point	Latitude	Longitude
Point # 1	23°39'33.79"N	85°30'20.85"E
Point # 2	23°39'33.67"N	85°30'24.03"E
Point # 3	23°39'26.99"N	85°30'25.12"E
Point # 4	23°39'25.39"N	85°30'23.90"E
Point # 5	23°39'25.35"N	85°30'19.63"E



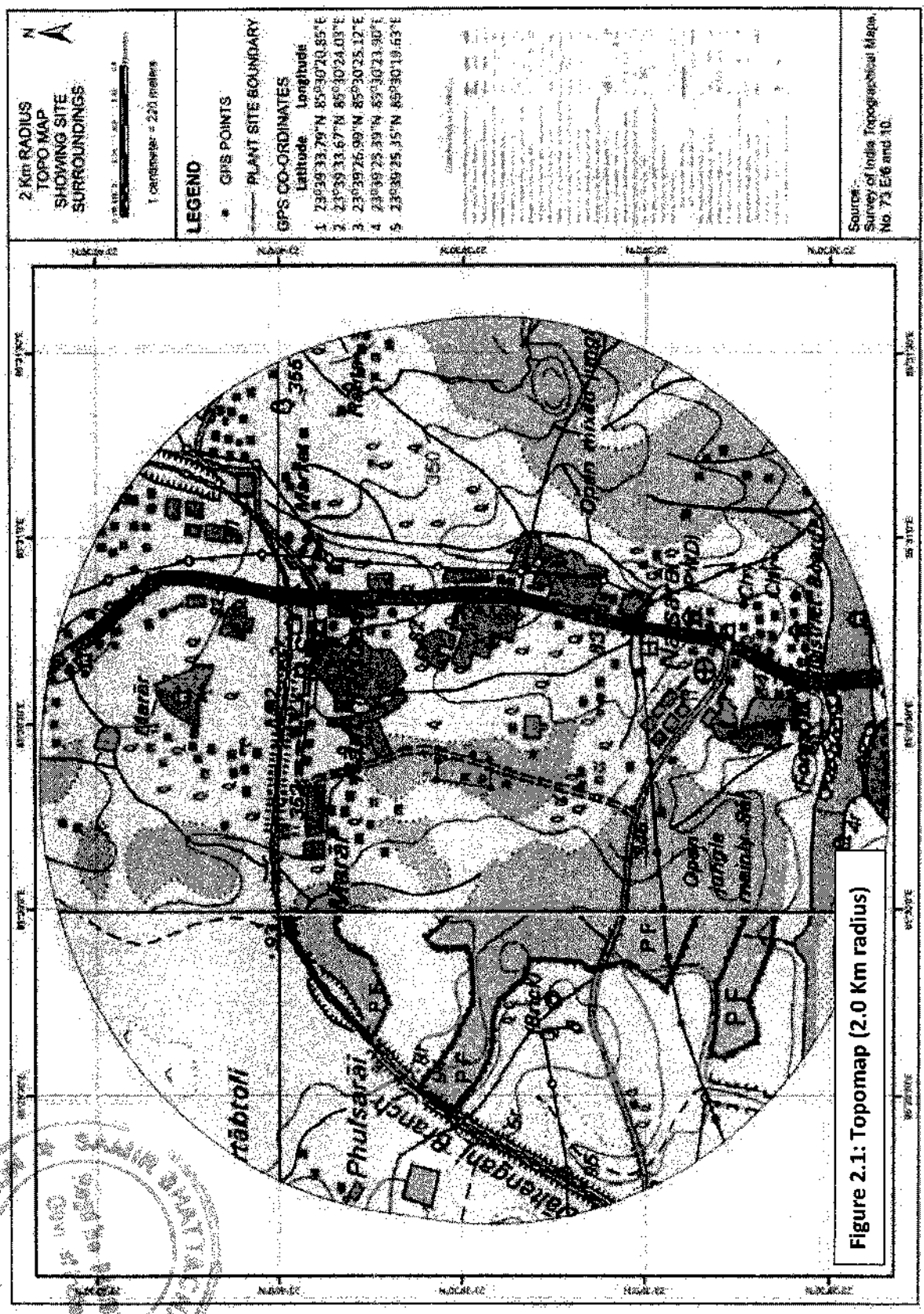


Figure 2.1: Topomaps (2.0 Km radius)

Figure 2.2: Google Earth map showing Plant site & Additional Greenbelt areas

[Gen.TOR # 4 (iv)]

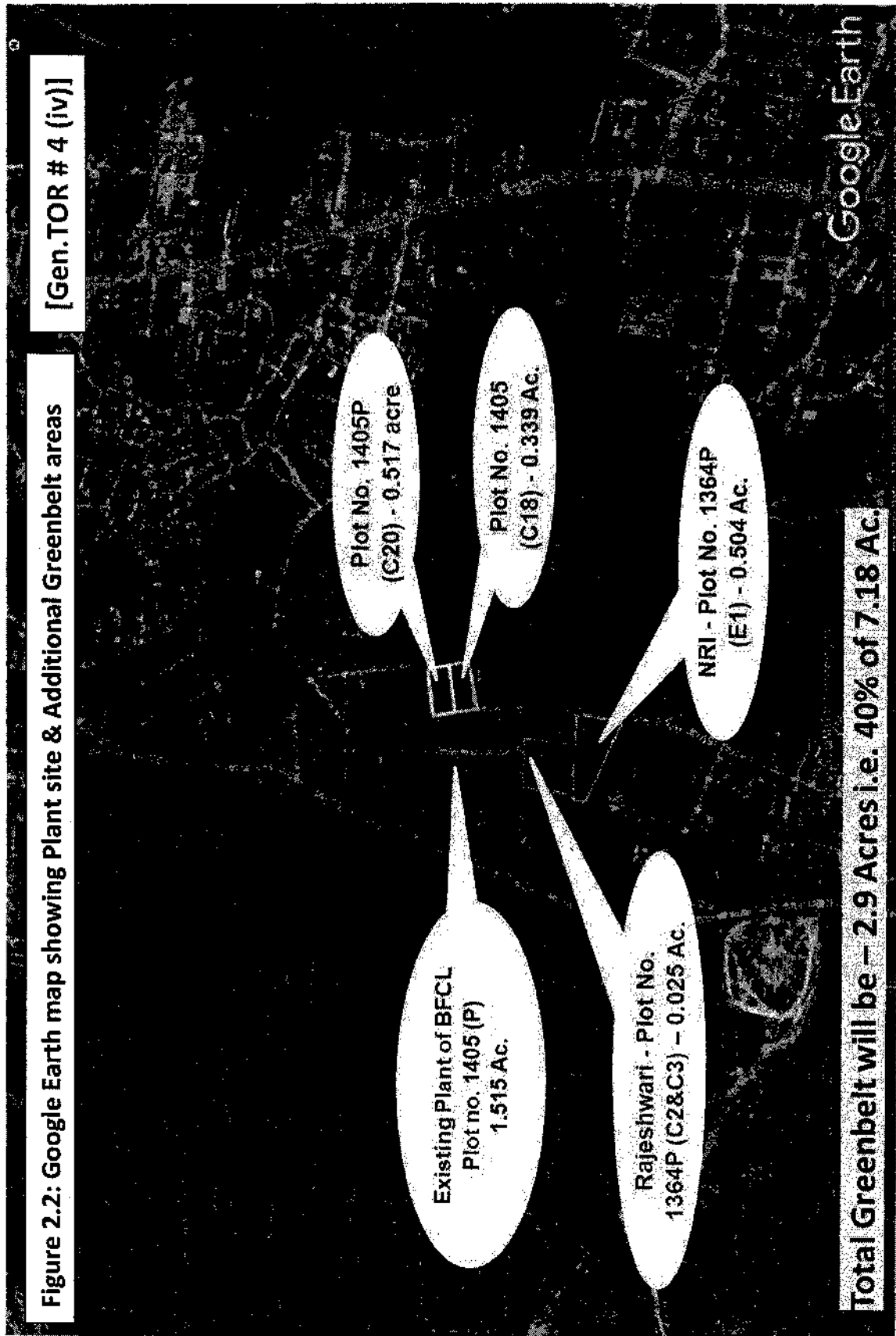
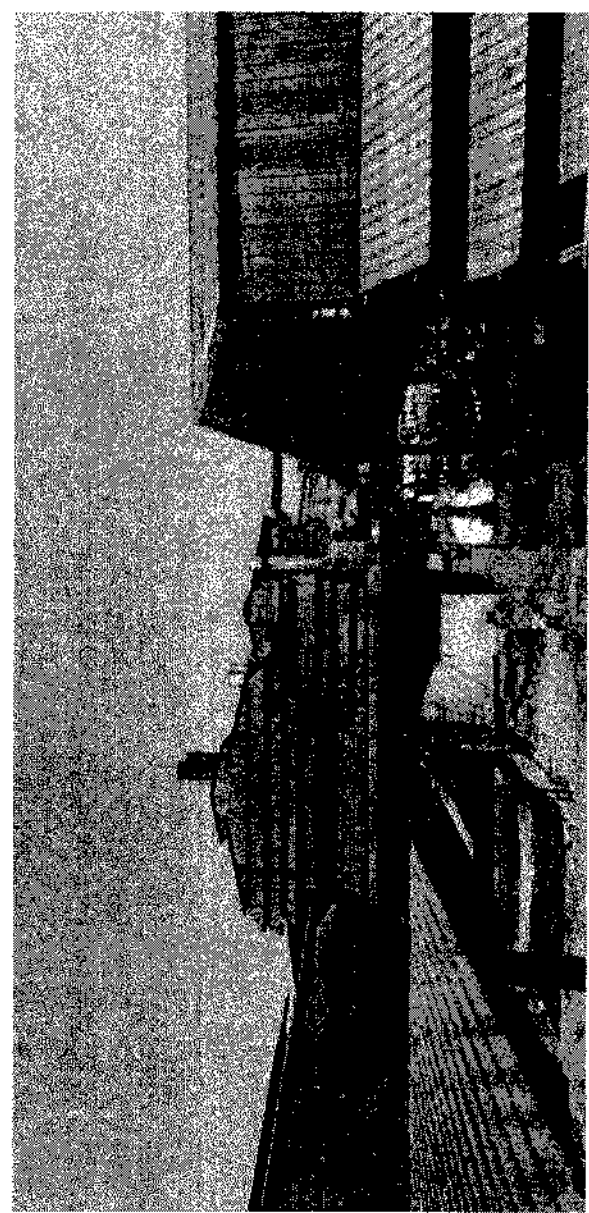




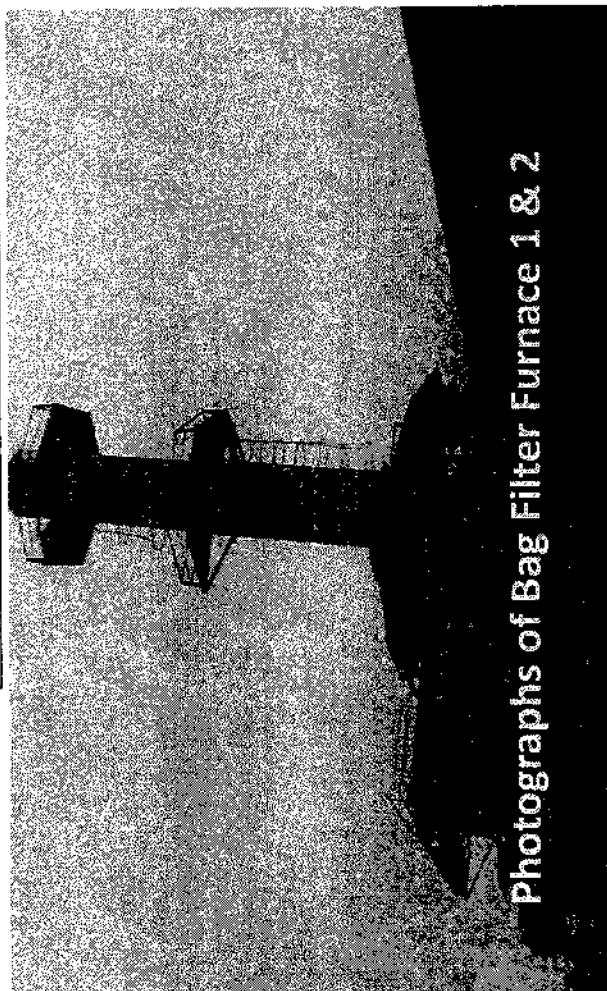
Figure 2.3: Existing Plant Photographs
[Gen.TOR # 4 (vi)]



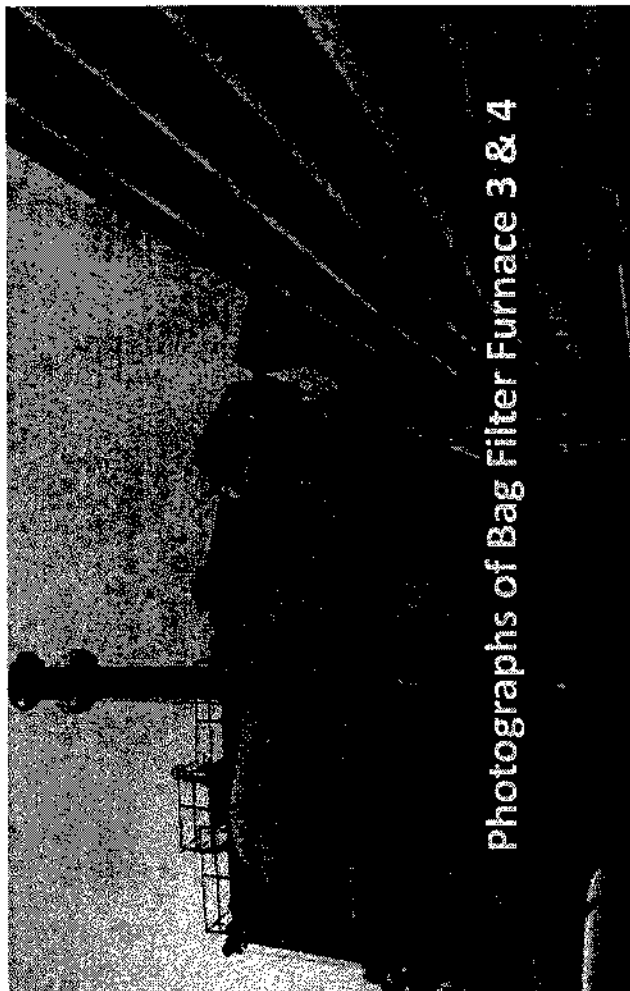
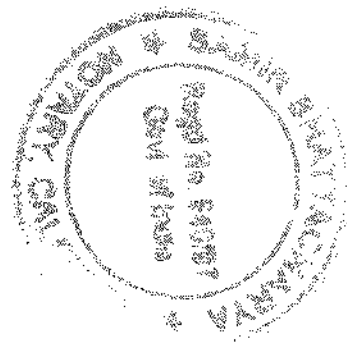
GREENBELT DEVELOPMENT IN EXISTING PLANT



AIR EMISSION CONTROL SYSTEMS IN EXISTING PLANT



Photographs of Bag Filter Furnace 1 & 2



Photographs of Bag Filter Furnace 3 & 4

BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,

Ramgarh Tehsil & District, Jharkhand

2.3.1 ENVIRONMENTAL SETTING WITHIN 10 Km. RADIUS OF THE PLANT SITE [Gen. TOR # 4 (i)]

The following is the environmental setting within the 10 Km. radius of the Plant site:

Table 2.3.2 – Environmental Setting

S.No.	Salient Features / Environmental features	Distance w.r.t. site / Remarks
1.	Type of Land (for Expansion)	Industrial
2.	Type of Land (Study Area)	As per LULC the land use within 10 Km. is as follows: Settlements – 7.9 %; Industrial Area- 3.1 %; Water Bodies / Tank / River etc.– 5.8 %; Scrub Forest area –9.2 %; Single crop land –57.2 %; Land with scrub – 10.2 %; Land without scrub – 2.3% & Sheet Rock area – 1.1 % Mining Area – 3.4%.
3.	National Park/ Wild life sanctuary / Biosphere reserve / Tiger Reserve / Elephant Corridor / migratory routes for Birds	There are no notified National Park/ Wild life sanctuary / Biosphere reserve / Tiger Reserve/ migratory routes for Birds within 10 Km. radius of the plant.
4.	Historical places / Places of Tourist importance / Archeological sites	Nil
5.	Industrial areas / cluster (MoEF&CC Office Memorandum dated 13 th January 2010) and its subsequent amendments	Ramgarh district is declared Severely Polluted area (SPA) with CEPI index 65.11 by CPCB vide No.B29012/ESS(CPA)/2015-16/ dated 26th April 2016. Additional safeguards such as 40% green belt is proposed to develop within the plant premises & outside the plant premises over an extent of 1.17 Ha. (2.9 Acres) and also Continuous Ambient Air Quality Monitoring station (CAAQMS) has been already established within the Plant premises.
6.	Defence Installations	Ramgarh Cantonment area
7.	Nearest village	Palamu Colony – 0.4 Kms. (NE) Marar – 0.8 Kms. (N)
8.	No. of Villages in the Study Area	53
9.	Nearest Hospital	Palamu Colony – 0.4 Kms. (NE) Marar – 0.8 Kms. (N)
10.	Reserved forests	Unnamed PF (0.5 Kms. – W), Unnamed PF (4.7 Kms-NW), Unnamed PF (4.0 Kms-S) present within 10 Kms. radius of the plant site.
11.	Water body	Damodar River (1.4 Kms- S), Raura Nala (2.5 Kms. -E) Meramgarh Nala (5.4 Kms. -E) Unnamed stream (0.5 Kms. – W) Ramgarh Village pond (4.0 Kms- S) Seota village Pond (1.5 Kms. -NE)

BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

S.No.	Salient Features / Environmental features	Distance w.r.t. site / Remarks
		and other unnamed small ponds are existing within study area.
12.	Nearest Railway station	Ranchi Road RS – 0.8 Kms. (NE) Barkakana RS – 5.0 Kms (SW)
13.	Nearest Port facility	Nil in 10Kms radius
14.	Nearest Airport / Airstrip	Nil within 10 Kms. Radius [Birsamunda Airport, Ranchi– 42 Kms. (Aerial)]
15.	Nearest Interstate Boundary	No interstate boundary within 10 Km radius of the plant site.
16.	Seismic zone as per IS-1893	Seismic zone – III
17.	R & R	There is no rehabilitation and resettlement issue, as the proposed expansion will be taken up in the existing plant premises only.

[Gen. TOR # 4 (viii)]**Table 2.3.3: List of Industries Outside Ramgarh industrial Area (within 10 Km. radius)**

S. No.	Industries	Location	Aerial Distance in KM	Direction wrt BFCL, Ferro Alloys Unit	Product
1	Bihar Foundry & Castings Limited	Plot No.- 1364, Ramgarh Industrial Area, PO: Marar, Dist. Ramgarh, Jharkhand 829117	Adjacent	SSE	Iron & Steel
2	SAIL Refractory Unit	IFICO, Marar, PO: Marar, Distt. Ramgarh, Jharkhand - 829117	0.86	NE	Refractory
3	SAIL Refractory Unit	Ranchi Road, Marar, PO: Marar, Distt. Ramgarh, Jharkhand - 829117	1.87	NE	Refractory
4	Maihar Alloys Private Limited	Vill: Rauta, P.O. Marar, Dist. Ramgarh, Jharkhand - 829117	1.96	SE	Iron & Steel
5	Radha Casting & Metalik Private Limited	Vill: Paiki, PO: Marar, Dist. Ramgarh, Jharkhand - 829117	2.96	SE	MS Billets & Pig Iron
6	Jharkhand Ispat Private Limited	Vill: Hesla, P.O: Argada, Distt. Ramgarh, Jharkhand-829122	4.37	WSW	Iron & Steel
7	Aloke Steels Industries Private Limited	Vill: Budhakhap, P.O: Karma, Distt. Ramgarh, Jharkhand-829137	4.77	ENE	Iron & Steel
8	Maa Chinnmastika Cement & Ispat Private Limited	Hehal, P.O: Barkakana, Dist. Ramgarh, Jharkhand - 829103	6.12	SW	Iron & Steel

BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

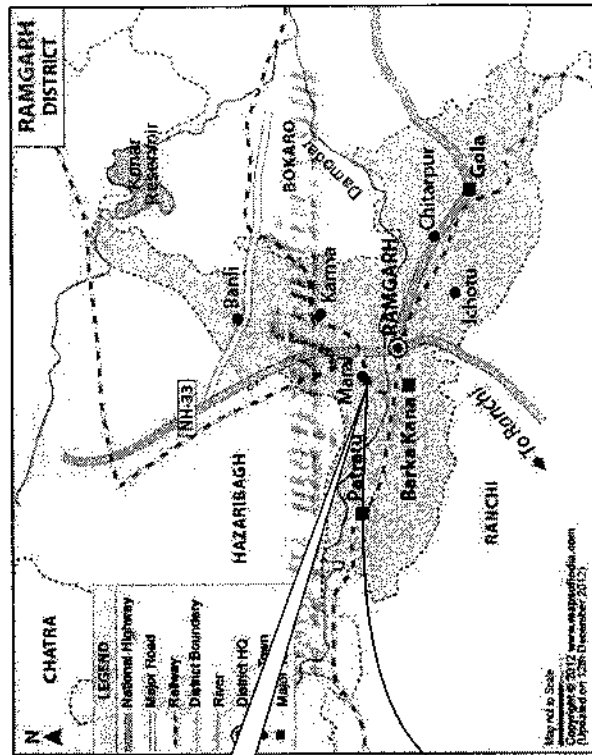
9	Shri Ram Power & Steel Private Limited	Sarubera Road, Naya More, P.O: Kuju, Dist. Ramgarh, Jharkhand - 825316	7.82	NNE	Iron & Steel

Table 2.3.4 : List of Industries within 10 Km. radius (Ramgarh Industrial Park)

S.No.	Name of the Industry	Distance with Direction	Type
1.	SMPL PVT.LTD.	Adjacent towards (East)	Steel
2.	Shyam Food Products	Adjacent (Just Beside the Plant)	Flour mill
3.	Steel India Limited	0.6 Kms. (NNW)	Steel
4.	Madhura Ingots	0.81 Kms. (SW)	Metal industry suppliers

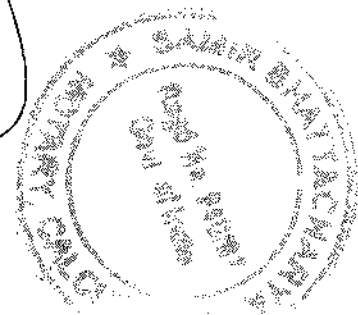
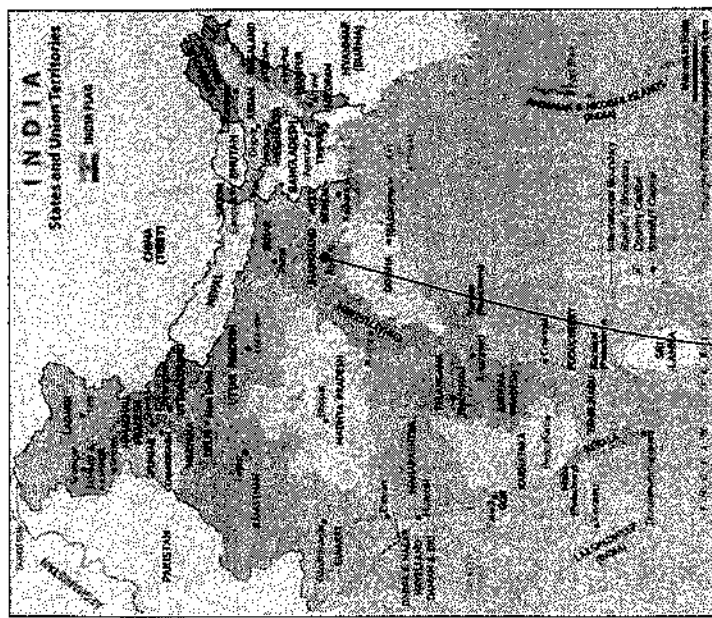
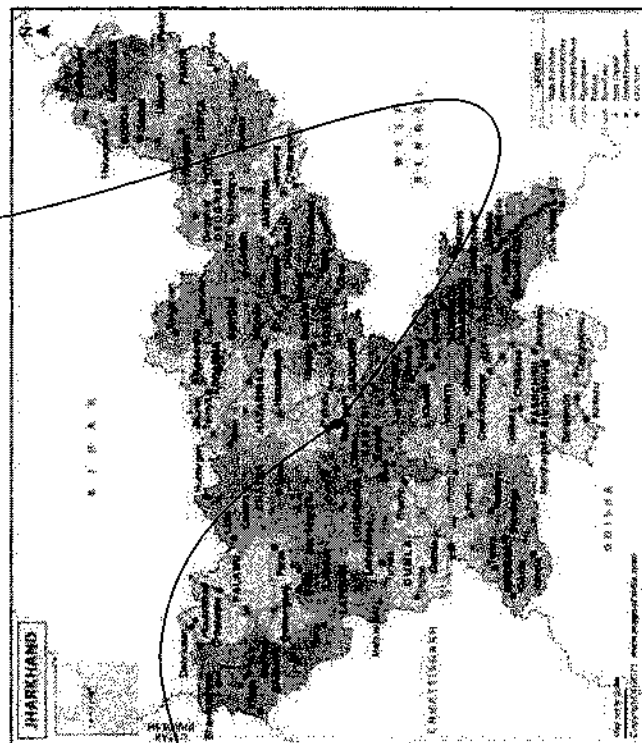
The general location of the plant site is shown in fig. 2.4. The topographical map showing the location of the proposed site is shown in fig. 2.5.

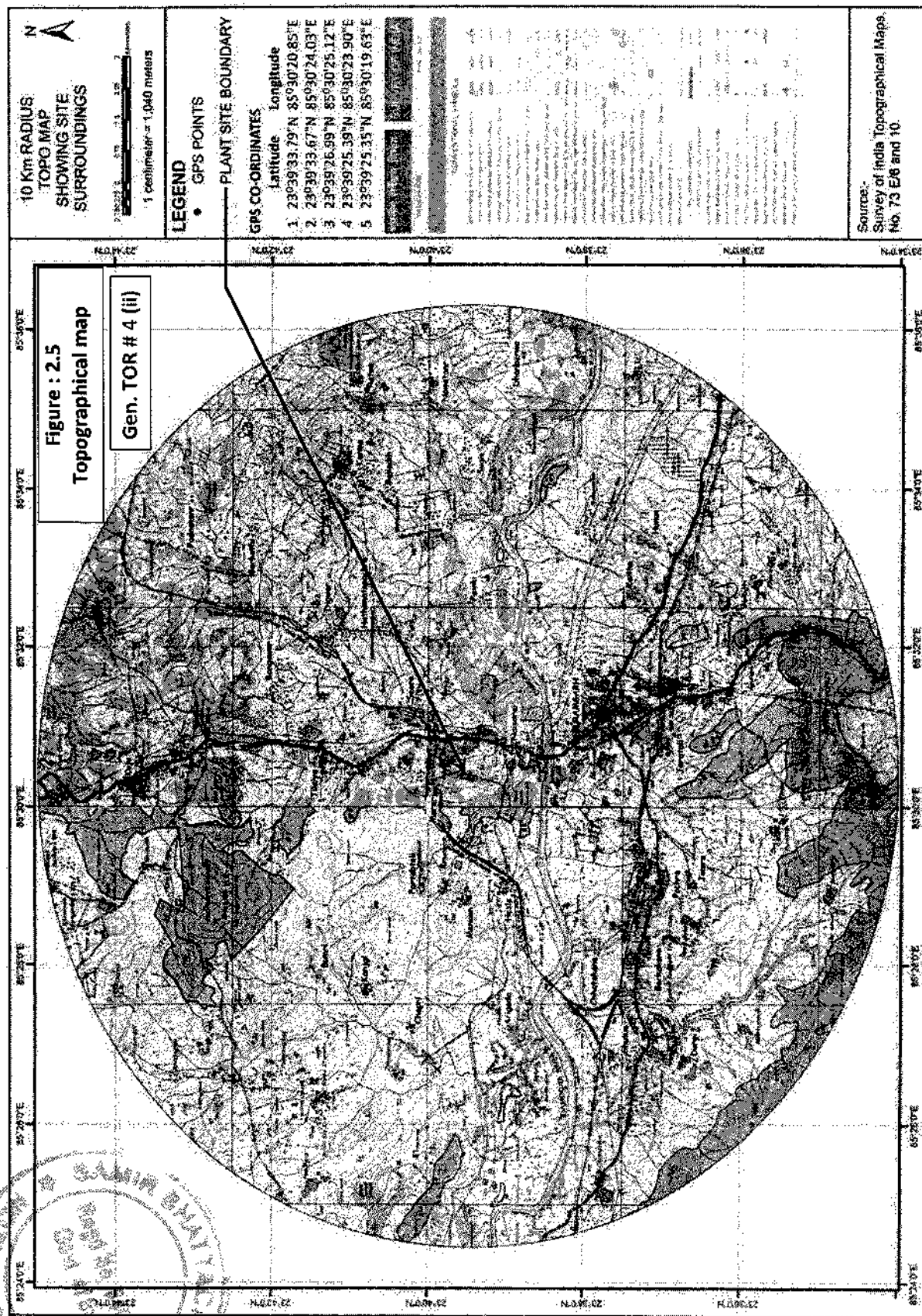




BIHAR FOUNDRY & CASTINGS LTD.

Figure 2.4: General Location Map showing Plant





2.4 DETAILS OF LAND [Gen. TOR # 3 (iii), 4 (vii) & 4(xi)]

Existing plant is located at Ramgarh Industrial Area, Survey Plot No 1405(P), Marar Village, Ramgarh Tehsil & District, Jharkhand. Total land as per Environmental Clearance order accorded on 31/10/2011 was 14 Acres (5.66 Ha.)

- Total 2.91 Ha. (7.18 Acres), of land has taken on lease from Jharkhand Industrial Area Development Authority (JIADA) for a period of 30 years.
- 2.91 Ha. (7.18 Acres) of Existing plant land is Industrial land. The proposed expansion will be taken up in the existing plant premises only.
- Additional land of 1.385 Ac. (0.56 Ha.) has been acquired for development of Greenbelt to comply 40% of 2.91 Ha. (7.18 Acres).

Table 2.4.1 - Land use classification

S.No.	Type of land	Area(In Acres)	Area(in Ha.)
1.	Private Land	Nil	Nil
2.	Govt. Land	Nil	Nil
3.	Industrial Land	7.18	2.91
4.	Forest Land	Nil	Nil
	Total	7.18	2.91

Table 2.4.2 - Land Use of the Plant Area

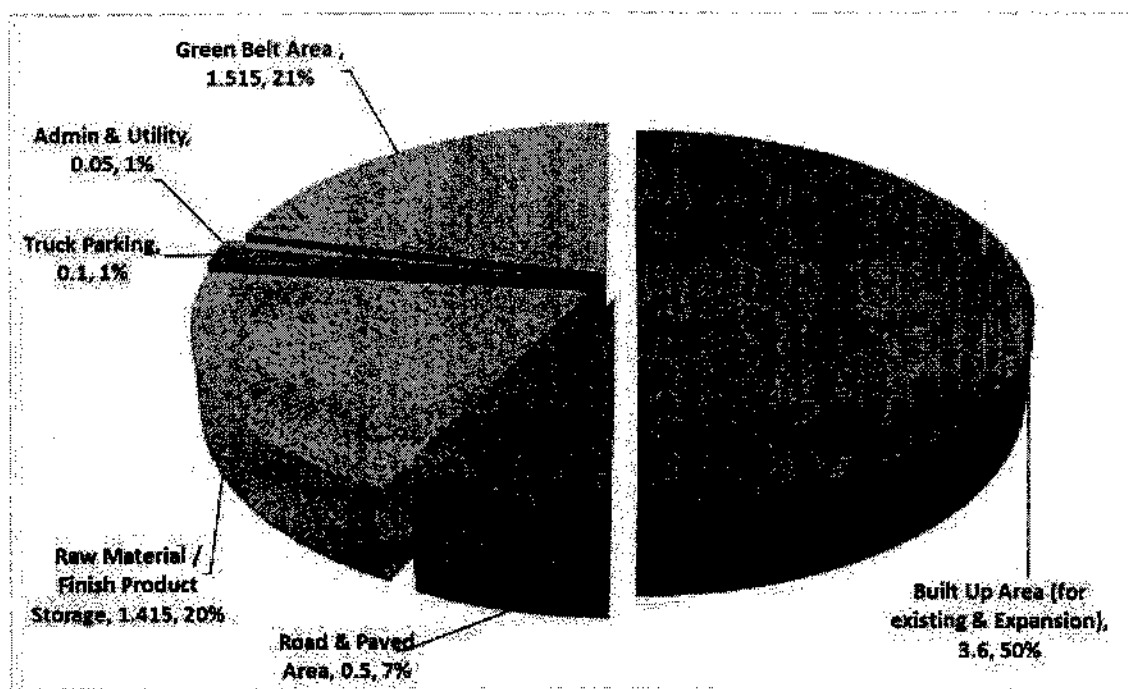
S. No	Description of Area	Area (Hect.)	Area (Acre)	%
1.	Built Up Area (for existing & Expansion)	1.46	3.6	50.14
2.	Road & Paved Area	0.20	0.5	6.96
3.	Raw Material / Finish Product Storage	0.57	1.415	19.71
4.	Truck Parking	0.04	0.1	1.39
5.	Admin & Utility	0.02	0.05	0.70
6.	Green Belt Development	0.61	1.515	21.10
	Total	2.91	7.18	100%

Note:

As the plant is situated in CPA. Total Greenbelt will be developed in an area of 2.9 Acres (1.17 Ha.). Out of which 1.515 Acres (0.61 Ha.) will be within the plant premises & remaining greenbelt i.e. 1.385 Ac. (0.56 Ha.) will be developed in Additional land located Outside the Plant premises as a compensatory measure.



Figure 2.6: Pie Diagram showing Land Use Statement



BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

Figure 2.7: LAYOUT OF INDUSTRIAL AREA, RAMGARH [Gen. TOR # 4 (v)]

INDUSTRIAL AREA RAMGARH

SCALE: 1"=163.9'

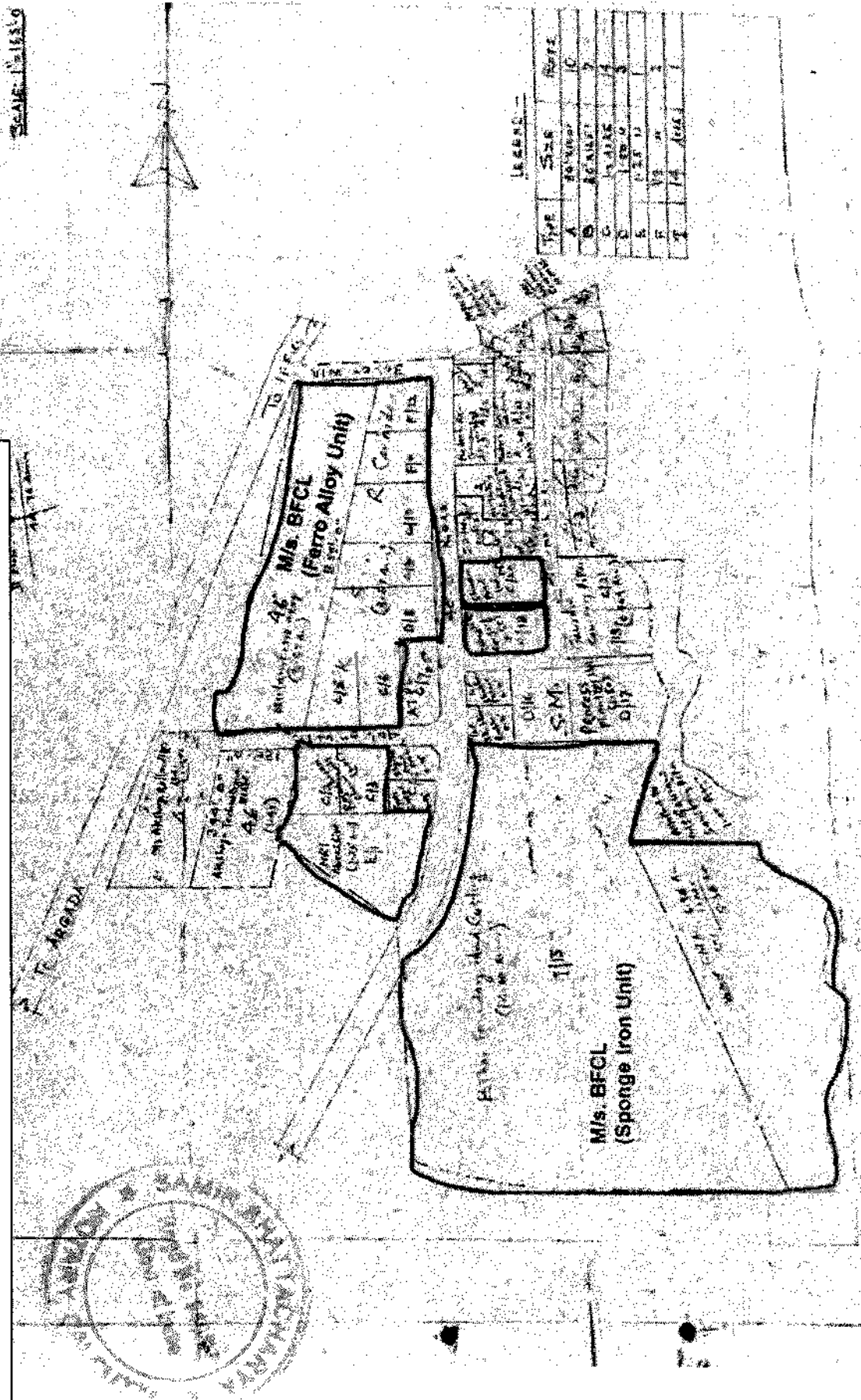
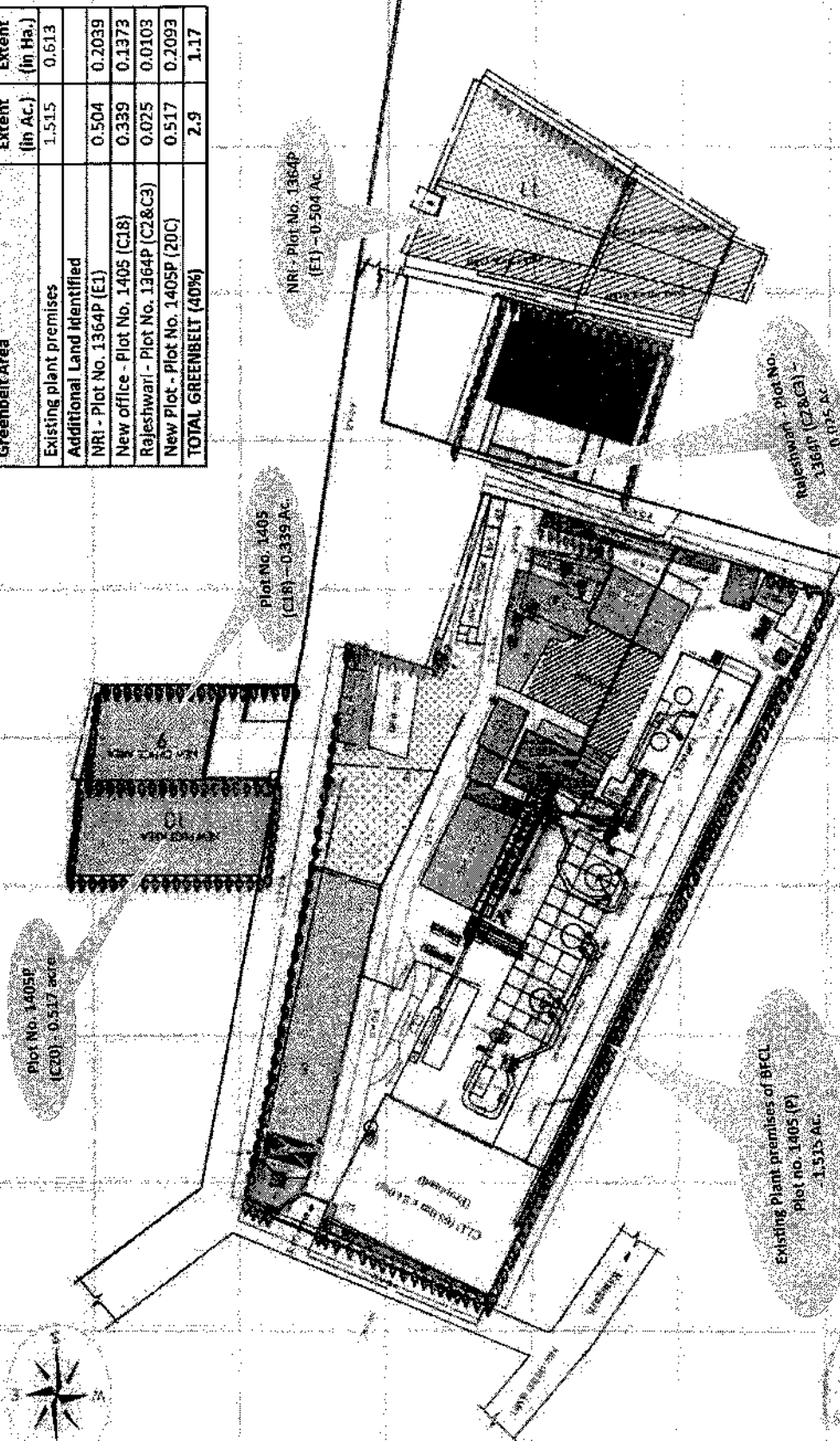


Figure 2.8: Plant Layout [Gen. TOR # 4 (v)]

Greenbelt Area	Extent (in Ac.)	Extent (in Ha.)
Existing plant premises	1.515	0.613
Additional Land Identified		
NRI - Plot No. 1364P (E1)	0.504	0.2039
New office - Plot No. 1405 (C18)	0.339	0.1373
Rajeshwari - Plot No. 1364P (C2&C3)	0.025	0.0103
New Plot - Plot No. 1405P (20C)	0.517	0.2093
TOTAL GREENBELT (40%)	2.9	1.17



Note: As the plant is situated in CPA. Total Greenbelt will be developed in an area of 2.9 Acres (1.17 Ha.). Out of which 1.515 Acres (0.61 Ha.) will be within the plant premises & remaining greenbelt i.e. 1.385 Ac. (0.56 Ha.) will be developed in Additional land located Outside the Plant premises as a compensatory measure.

GREEN BELT AREA		EXISTING PLANT AREA	
Plot No.	Extent (in Ha.)	Plot No.	Extent (in Ha.)
1	0.000	1	0.000
2	0.000	2	0.000
3	0.000	3	0.000
4	0.000	4	0.000
5	0.000	5	0.000
6	0.000	6	0.000
7	0.000	7	0.000
8	0.000	8	0.000
9	0.000	9	0.000
10	0.000	10	0.000
11	0.000	11	0.000
12	0.000	12	0.000
13	0.000	13	0.000
14	0.000	14	0.000
15	0.000	15	0.000
16	0.000	16	0.000
17	0.000	17	0.000
18	0.000	18	0.000
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22	0.000	22	0.000
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27	0.000	27	0.000
28	0.000	28	0.000
29	0.000	29	0.000
30	0.000	30	0.000
31	0.000	31	0.000
32	0.000	32	0.000
33	0.000	33	0.000
34	0.000	34	0.000
35	0.000	35	0.000
36	0.000	36	0.000
37	0.000	37	0.000
38	0.000	38	0.000
39	0.000	39	0.000
40	0.000	40	0.000
41	0.000	41	0.000
42	0.000	42	0.000
43	0.000	43	0.000
44	0.000	44	0.000
45	0.000	45	0.000
46	0.000	46	0.000
47	0.000	47	0.000
48	0.000	48	0.000
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89	0.000	89	0.000
90	0.000	90	0.000
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92	0.000	92	0.000
93	0.000	93	0.000
94	0.000	94	0.000
95	0.000	95	0.000
96	0.000	96	0.000
97	0.000	97	0.000
98	0.000	98	0.000
99	0.000	99	0.000
100	0.000	100	0.000

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

2.5 SIZE / MAGNITUDE OF OPERATION [Gen. TOR # 3 (ii) & 3 (iii)]
Table 2.5.1–Plant Configuration and Production Capacity (Existing & Proposed)

S. No.	Existing Units		Proposed Units (Modification- Cum-expansion)		Total (Existing + Proposed)	
	Configuration	Production TPA	Configuration	Production (in TPA)	Configuration	Production (in TPA)
1	Ferro Alloy unit of 2x5 MVA + 1x7.5 MVA + 1x9 MVA SEAFs	34,080 (96 TPD) (SiMn / FeMn)	Modification of existing 2x5 MVA to 2x6 MVA SEAFs Modification of existing 1x7.5 MVA to 1x9 MVA SEAF Existing 1x9 MVA SEAF New 1x9 MVA SEAF* New 12MT per batch CLU Converter for refining liquid HC FeMn to MC/LC FeMn	SiMn- 24,495 (69 TPD) or FeMn- 59,995 (169 TPD)	2x6 MVA + 3x9 MVA SEAFs + 12MT CLU Converter	SiMn- 58,575 (165 TPD) Or HC/MC/LC FeMn-94,075 (265 TPD)

Note: * We would like to bring to your kind notice that we have constructed 5th Furnace i.e New 1 x 9 MVA SAF & CLU converter is under construction.

2.6 PROPOSED SCHEDULE FOR APPROVAL AND IMPLEMENTATION [Gen. TOR # 3 (i)]

Present status of 5th Submerged Electric Arc Furnace & CLU converter:

- ❖ Installation of 5th Submerged Electric Arc Furnace of 9 MVA capacity has been completed.
- ❖ Production is not yet started
- ❖ Regarding installation of CLU converter, 70% of civil work, plant & machinery has been completed

2.7 PROJECT COST [Gen. TOR # 3 (i)]

The estimated cost of the proposed expansion project is Rs.89.3 Crores including pre-operative expenses and margin money for working capital requirements. The following is the breakup of it.

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

Table 2.7.1: Break-Up Of Project Cost

S.No.	Unit	Project cost (Rs in Crores)
1.	Modification in 2 x 5 SEAF + 1 x 7.5 MVA SEAFs	6.0
2.	New 1 x 9 MVA SEAF	12.2
3.	CLU converter	71.1
TOTAL PROJECT COST		89.3

2.8 TECHNOLOGY AND PROCESS DESCRIPTION
2.8.1 RAW MATERIALS [Gen.TOR # 3 (iv)]

The following will be the raw material requirement for the present proposal:

Table 2.8.1: Raw Material Requirement, Source & Mode Of Transport

S.No.	Raw Material	Quantity After Expansion (TPA)	Sources	Mode of Transport
1.	For Ferro Alloys (2x6 MVA + 3x9 MVA SEAFs)			
(i)	Ferro Manganese – 94,075 TPA			
a)	Manganese ore	2,35,188	Imported (Zambia)	By Rail & Road (through covered trucks)
b)	Pearl Coke	70,556	Imported	By Rail & Road (through covered trucks)
c)	Electrode Paste	1410	Local market	By road (through covered trucks)
d)	Quartz	28,222	Local market	By road (through covered trucks)
e)	Dolomite	23,518	Imported (Bhutan)	By Rail & Road (through covered trucks)
(OR)				
(ii)	Silico Manganese – 58,575 TPA			
a)	Manganese Ore	1,46,438	Imported (Zambia)	By Rail & Road (through covered trucks)
b)	Pearl Coke	43,930	Imported	---
c)	Carbon paste	878	Local market	----
d)	Dolomite	14,643	Imported (Bhutan)	By road (through covered trucks)
e)	FeMn Slag	29,288	In house	By road (through covered trucks)

2.8.2 RAW MATERIAL TRANSPORT, STORAGE & HANDLING

- Major raw materials will be transported through railway rakes up to the nearest railway station (i.e. Barkakana RS – 12 Kms) and then to the site through road by covered trucks.

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

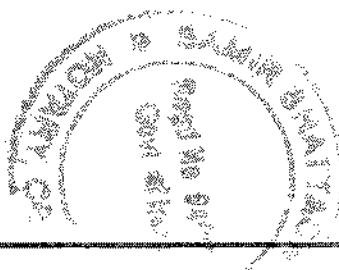
- All the trucks used for the transport of raw materials, products and wastes will be completely covered with tarpaulin and ensured no spillage during transportation.
- Total no. of trucks after proposed expansion will be 50 trucks / day.
- Existing road is well connected to Ramgarh City Road & NH # 20 (Ranchi – Hazaribagh) which is at 7.0 Kms from the plant site. Existing Road network is capable of taking additional traffic load due to expansion project.
- All the raw material required for the proposed expansion of plant will be stored on pucca platform above ground level.
- All the raw material yards are equipped with water sprinkling system, so as to avoid fugitive emission during the material handling.

2.8.3 MATERIAL BALANCE [Addl. TOR # 1]
Table 2.8.2: For Ferro Manganese Manufacturing

For Ferro Manganese				
INPUTS			OUTPUTS	
S.No.	Item	Quantity (TPA)	Item	Quantity (TPA)
1	Manganese ore	2,35,188	Fe Mn	94,075
2	Pearl Coke	70,556	Slag	42,600
3	Electrode Paste	1410	Gases	2,22,219
4	Quartz	28,222		
5	Dolomite	23,518		
	Total	358,894	Total	358,894

Table 2.8.3: For Silico Manganese Manufacturing

For Silico Manganese				
INPUTS			OUTPUTS	
S.No.	Item	Quantity (TPA)	Item	Quantity (TPA)
1	Manganese Ore	1,46,438	SiMn	58,575
2	Pearl Coke	43,930	Slag	39,300
3	Carbon paste	878	Gases	1,37,302
4	Dolomite	14,643		
5	FeMn Slag	29,288		
	Total	2,35,177	Total	2,35,177



2.8.4 MANUFACTURING PROCESS [Gen.ToR # 3(viii) & Add. TOR # 1]

2.8.4.1 Ferro Alloys Manufacturing Process

Ferro Alloys will be smelted at about 1350 – 15000C. This will be achieved by a conventional, Closed Submerged Electric Arc Furnace. The three carbon Electrodes, partially submerged in the charge, are supported on hydraulic cylinders for upward and down ward movements to maintain the desired electrical conditions.

The body of the furnace is cylindrical in shape, and is lined with firebricks, silicon carbide bricks and carbon tamping paste. Three tap – holes are provided at 120 degree apart for drawing out both the molten alloy and Slag. During the repair works one of the tap – holes the other will function as stand by.

The weighed raw materials will be thoroughly mixed in the proper proportion before charging into the furnace, through Skip, Telfer hoist and charging chutes. The charge will be pushed near to electrodes on Furnace top by a Charging Stoker.

As the charge enters the smelting zone, the alloy formed by chemical reactions of the oxides and the reductants, will be heavy, gradually settles at the bottom. At regular intervals the furnace will be tapped. The tap hole will be opened by Oxygen lacing pipe and after tapping is completed, it will be closed by clay plugs.

The liquid Silico manganese and Slag will be collected in a Ladle and Slag will be over flowed to sand beds. The metal being retained in the ladle having a Nozzle at bottom which allows metal flows on to C.I. Pans. After solidification the cakes will be broken manually to required lump size.

FERRO MANGANESE PRODUCTION PROCESS

Percentage of Manganese in Ferro Manganese is between 65-75%. The ferroalloy is classified into the following two grades on the basis of its carbon content:

- Low Carbon Ferro Manganese – Carbon = 0.5%
- High Carbon Ferro Manganese – Carbon 6%-8%

Ferro Manganese, a bulk ferroalloy, is a key ingredient for Ferro Alloys making around 90% of world manganese ore production is used by the iron and Ferro Alloys making.

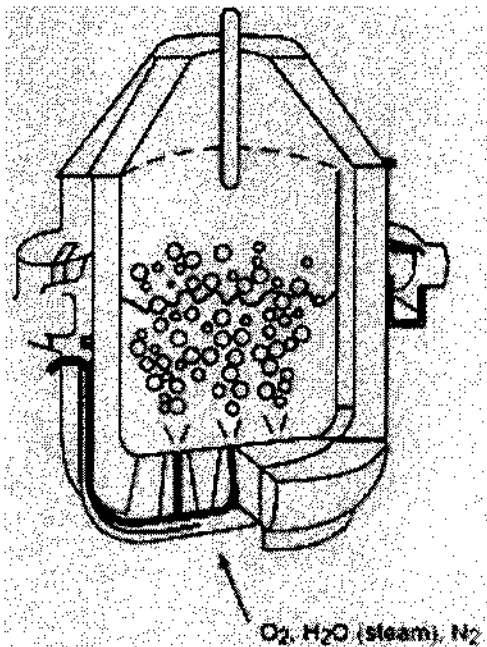
CLU (Creusot-Loire-Uddeholm) Converter:

The CLU converter process is part of a number of modern processes which focus on driving more efficient, cost effective secondary refining processes. Advantages of the CLU process includes among others, temperature control and price advantage over similar processes. High speed technology has become the necessity for Ferro-alloys production in order to increase the productivity, reduce the production cost, and meet specific quality requirements. The new developments taken place relating to refining of Ferro alloy are as follows:

- Use of ladle metallurgy for improving productivity and quality
- CLU secondary refining practices for alloy Ferro Alloys making

The refining process in the converter involves the oxidation of excess carbon in the metal whilst increasing or keeping the levels of other elements constant.

Cross section of CLU converter



The charge of the CLU converter is composed of the liquid Ferro alloy from the Submerged Arc Furnace, fluxes and others. The liquid alloy contains mostly iron, manganese, SiO_2 , carbon and other undesirable elements such as phosphorus, sulphur and manganese. Fluxes are salts

that are added to the bath for the purpose of slagging undesirable elements and balancing the heat within the bath at the optimum level.

The gas mixture is injected through nozzles or tubers located at or near the bottom of the vessel to promote mixing, heat transfer and mass transfer in the bath smelting. Under these conditions; reactions take place rapidly resulting in a higher refining rate. As reactions proceed, three phases are formed in the bath namely molten Ferro Alloys, liquid slag and gas. The lighter phase (slag) floats on top of the heavier phase (molten Ferro Alloys) during the refining process. The gas mixture characteristics used in CLU are Steam, Argon, Nitrogen and Oxygen from Bottom of Tuyeres location

Advantages of CLU converter

- The possibility of controlling the temperature during the decarburization
- The cost of dilution gas is low
- The low operating temperature

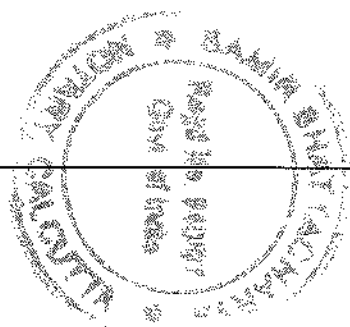
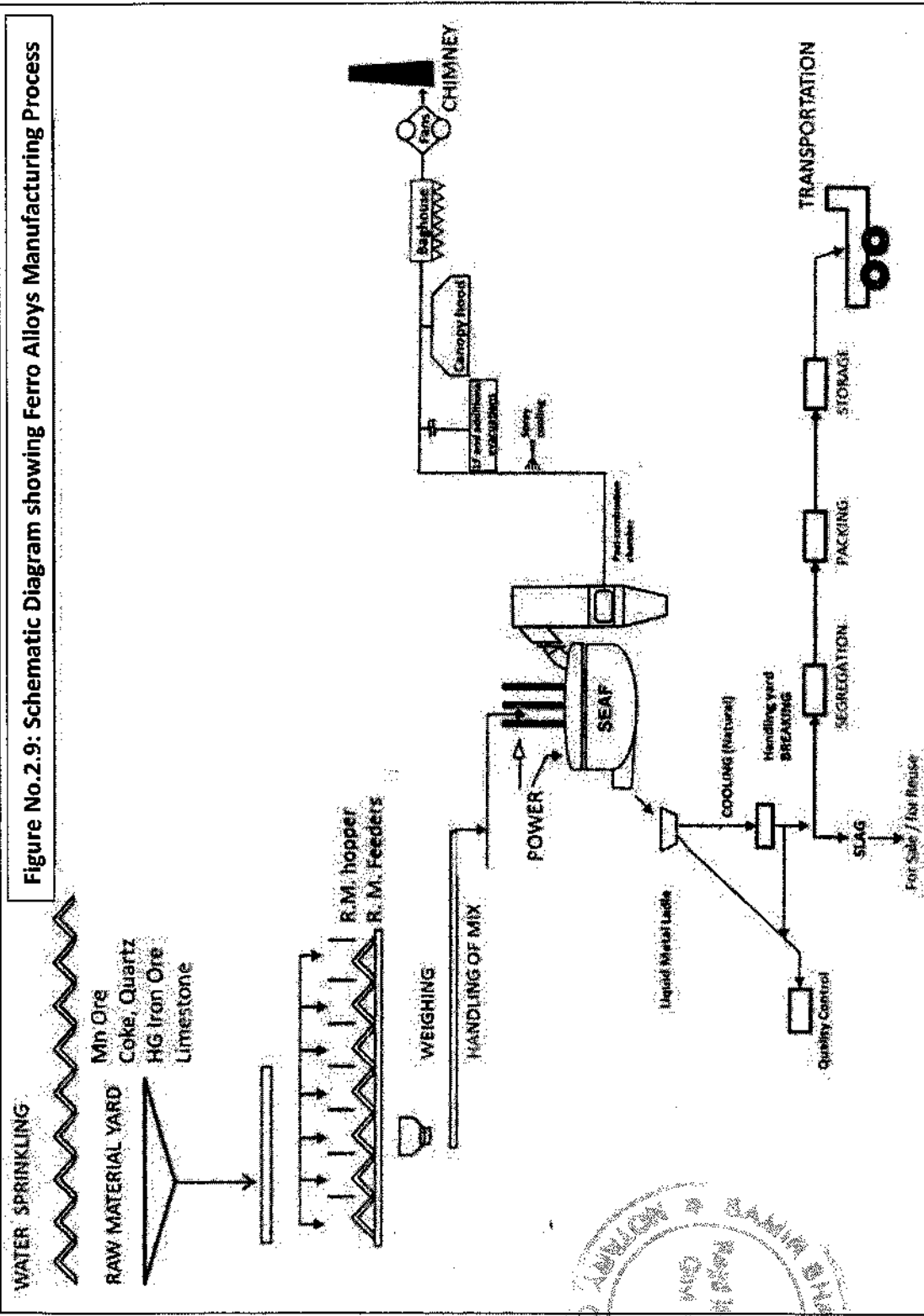
SILICO MANGANESE PRODUCTION PROCESS

Silico manganese (SiMn) is, as the name suggests, a ferroalloy with high contents of manganese and silicon. It is made by heating a mixture of the oxides like manganese oxide (MnO_2), silicon dioxide (SiO_2), and iron oxide Fe_2O_3 with carbon in a furnace wherein these undergo a thermal decomposition reaction. Silico-Manganese is used as a deoxidizer and an alloying element in Ferro Alloys. The standard grade Silicon manganese contains 14 to 16% of silicon, 65 to 68% of manganese and 2% of carbon. The low carbon grade SiMn has carbon levels from 0.05 to 0.10 %. The process flow chart of Ferro Alloy manufacturing is given in Fig-2.9.



BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand



2.8.4.2 JIGGING & BRIQUETTING PLANT:

The ferroalloy slag consists some portion of valuable ferroalloy material which can be obtained in a directly saleable condition and can be sold at reasonably good market rates as compared to the main ferroalloy product. The Metal Recovery Plant is being used to recover this portion of metal from slag. Certain portion of slag is conveyed to Metal Recovery Plant (MRP) wherein it is crushed as to extract good quality Ferro Manganese from the slag waste. This process involves the following three steps;

- Crushing and screening of metal containing slag.
- Separation of metal from slag.
- Re-crushing of middling to realize additional metal. The process flow of Metal

In the existing plant **Briquetting unit** also provided where the dust from the bag filter & Internal roads dust and are converted into briquettes and will be fed to Furnace.

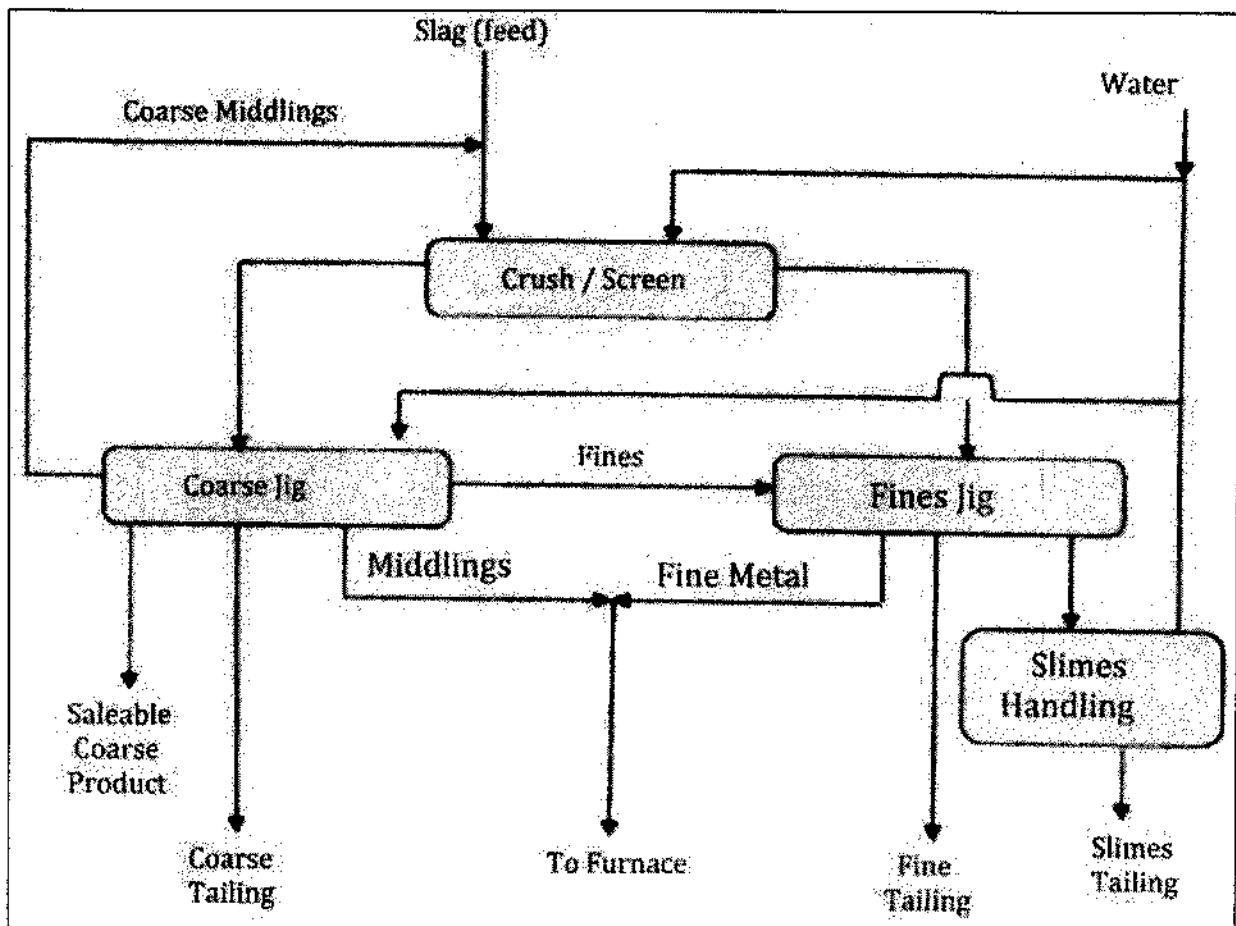


Figure No.2.10: Schematic Diagram showing Jigging Process

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

2.8.5 STACK EMISSIONS

Following is the Stack emission details from various unit in the proposed project:

Table 2.8.4 - STACK DETAILS

S.No.	Stack attached to	No. of Stacks	Dia (m)	Height (m)	Temp. of flue gas (°C)	Vol. flow rate (m³/s)	Velocity of flue gas (m/sec)	PM (g/s)	SO ₂ (g/s)	NO _x (g/s)
Existing Stacks										
1	existing 2x5 MVA to 2x6 MVA SEAFs	1 (combined Stack)	1.8	45	150	11.1	15.0	0.2 (per Flue)	--	1.6 (per Flue)
2	Modification of existing 1x7.5 MVA to 1x9 MVA SEAF	1 (combined Stack)	1.8	45	150	16.7	15.0	0.4 (per Flue)	--	2.4 (per Flue)
3	Existing 1x9 MVA SEAF									
4	DG Set (500 KVA)	1	0.25	7 (above building)	90	16.7	2.5	0.01	2.1	1.8
Proposed Stack										
5	New 1x9 MVA SEAF*	1	1.2	45	150	16.7	15.0	0.4	--	2.4
6	CLU converter	1	1.6	40	150	37.0	15.0	0.8	--	5.3

2.8.6 WATER REQUIREMENT

- Water required for the existing plant is 35 KLD and same is being sourced from Ground water source.
- NOC from CGWA has been obtained to abstract ground water of 35 m³/day for industrial use vide letter No. CGWA/NOC/IND/ORIG/2021/10628 dated 02/01/2021 which is valid upto 01/01/2024.
- The total water requirement for the expansion project is estimated as 148 m³/day, which will be met from the Damodar river (Tenughat Reservoir).
- New Pipeline will be laid from Damodar River to the project site.
- Water permission obtained to the quantity of 0.598 MCM for both units i.e. DRI unit & adjacent Ferro Alloy unit.

Table 2.8.5 - Breakup of Water Requirement

S.No.	Unit	Quantity in KLD		
		Existing Plant	Proposed Expansion	Total after Expansion
1.	Ferro Alloy Plant	30	40	70
2.	CLU	—	80	80
3.	Domestic	5	28	33
	Total	35	148	183

2.8.7 POWER REQUIREMENT [Gen. TOR # 3 (vii)]

Total power consumption is 33 MW, in which meet from DVC 28.5 MW & 4.5 MW from Captive power plant of adjacent unit of BFCL.

2.8.8 MAN POWER REQUIREMENT [Gen. TOR # 3 (vii)]

The proposed project will generate direct employment 750 nos. which will be employed officials, staff, skilled, semi-skilled labour & 200 nos. indirectly employed in contract works & transport.

Manager	Supervisor	Semiskilled & Un-skilled	Total
150	225	375	750

2.8.9 ENERGY CONSERVATION MEASURES [Gen. TOR # 7 (vii)]

- Rooftop Solar Panel, Solar Powered Street Lights etc. will be installed wherever possible.
- It is proposed to provide LED lights in the offices and common areas.
- Energy Efficient Motors as per NEMA Premium® Efficiency Electric Motor specification or equivalent classifications will be provided.
- All Electrical Motor of 3 KW or above will be provided with Variable Frequency Drive (VFD).

2.9 ENVIRONMENTAL MITIGATION MEASURES
2.9.1 AIR EMISSION CONTROL [Gen. TOR # 3 (vi) & 7 (v)]
Submerged Electric Arc Furnace

The main sources of dust pollution are crushing operations of raw materials (such as, Mn Ore, Dolomite, Quartz, coke, etc.) and their transfer points. A separate de-dusting system will be provided to control the dust from various material transfer points by means of suitable ducting connected to an Induced Draught fan. The dust that is drawn from various points will pass through

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 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

bag filters. The following table shows the air emission control systems proposed in the expansion project to treat the flue gases and their outlet dust emissions.

Table 2.9.1: Air Emission Control Systems (Existing & proposed)

S.No.	Source	Control Equipment	Emission at the outlet
1.	Submerged Electric Arc Furnaces (for new 1 x 9 MVA SEAF)	4 th Hole Fume Extraction system with bag filters	PM < 30 mg/Nm ³
2.	CLU converter (12 MT)	Fume Extraction system with bag filters	PM < 30 mg/Nm ³

Note :

4th Hole Fume Extraction system with bag filters are already provided to existing 2 x 5 MVA, 1x 7.5 MVA & 1x9 MVA SEAFs.

Apart from the above Dry fog system with dust suppression at transfer points, crushing plant, dust extraction system with bagfilters at other dust emanating areas, mechanical dust sweepers, etc. will also be provided.

2.9.2 WASTEWATER MANAGEMENT [Gen. TOR # 3 (vi)]

- Total effluent generation after expansion project will be **61 KLD**.
- The wastewater generated from Ferro Alloys unit will be sent to ETP and after ensuring compliance with SPCB norms, it will be utilized for Jigging plant, Briquetting plant, dust suppression & for greenbelt development.
- Sanitary waste water will be treated in proposed STP and treated wastewater will be utilized for Greenbelt development.
- Zero effluent discharge will be maintained in the proposed expansion project also.

2.9.3 NOISE LEVEL MANAGEMENT

- The major noise generating sources in the plant will be Furnace & D.G. Sets.
- Acoustic enclosures will be provided to D.G. set.
- All machinery will be manufactured as per MoEF&CC/OSHA & other international standards on noise levels.
- The noise levels will be confined to the working zones of the plant.
- Earplugs will be provided to all employees who will enter into the noise prone areas.
- Community noise levels are not likely to be affected due to the extensive thick green belt and attenuation due to the physical barriers.
- The ambient noise levels will be in accordance with MoEF&CC norms i.e. ambient noise levels will be < 75 dBA during daytime and < 70 dBA during nighttime.

2.9.4 SOLID WASTE MANAGEMENT

[Spec. ToR # (v), (vi), Gen. TOR # 7 (vii) & 7 (viii)]

The following will be the solid waste generation from the proposed expansion project & proposed method of disposal.

Table 2.9.2 – Solid & Hazardous Waste Generation and its Management

S.No	Waste / By Product	Quantity (TPA)			Method of disposal
		Existing	Proposed	After expansion	
1.	Slag from FeMn	13,820	28,780	42,600	After Jigging It will be reused in manufacture of SiMn as it contains high SiO ₂ and Silicon.
2.	Slag from SiMn	20,450	18,850	39,300	After Jigging will be used for Road construction / Used in Filling low lying areas etc.
3.	APCS dust	840	730	1575	Will be sent to Briquetting unit.
4.	Waste oil	80 Ltr/Annum	160 Ltr/Annum	240 Ltr/Annum	Will be sent to authorized recyclers

Hazardous waste generation, storage & disposal [Gen. TOR # 3 (vi) & 7 (vii)]

1. Spent oil : 0.24 KL / Annum

This will be stored in covered HDPE drums in a designated area and will be given to SPCB authorized recyclers & re-processors.

2. Used Batteries

Used batteries will be given back to the supplier under buy back agreement with supplier.

MUNICIPAL SOLID WASTE GENERATION & ITS DISPOSAL

Municipal (Organic) solid wastes from the Plant will be composted and used as manure for the green belt. Inorganic wastes (Non-biodegradable) will be sent to Authorized SPCB Recyclers.

2.9.5 GREENBELT DEVELOPMENT

- Total land after proposed expansion will be **2.91 Ha. (7.18 Acres)**.
- As the Plant is situated in Severely Polluted area (SPA) it is proposed to develop 40% of Greenbelt as part of the expansion i.e. in an extent of 1.17 Ha. (2.9 Acres).
- Additional safeguards such as 40% green belt is proposed to develop within the plant premises & outside the plant premises over an extent of **1.17 Ha. (2.9 Acres)**

- The total Greenbelt area proposed within the Plant premises is 1.515 Acres (0.61 Ha.) which is inclusive of existing Greenbelt.
- To meet the requirement of 40% greenbelt development it is proposed to acquire additional land outside the existing plant.
- The details of additional land where greenbelt can be developed outside the premises is as follows
 - Plot No. 1364P (E1) - 0.504 Acre (2039.6 SQM)
 - Plot No. 1405 (C18) - 0.339 Acre (1373.05 SQM)
 - Plot No. 1364P (C2&C3) - 0.025 Ac. (103.1238 SQM)
 - Plot No. 1405P (20C) - 0.517 Ac. (2093.65 SQM)

Hence the total greenbelt will be 2.9 Acres [1.515 Ac (Plant Premises) + 1.385 Ac (outside plant premises) which amounts to 40 %].

2.10 ASSESSMENT OF NEW & UNTESTED TECHNOLOGY FOR THE RISK OF TECHNOLOGICAL FAILURE

Manufacturing technologies for proposed expansion are well proven in the existing plant premises itself. Hence there will not be any risk of technological failures from this plant.



CHAPTER – 3

DESCRIPTION OF ENVIRONMENT

(BASELINE ENVIRONMENTAL STATUS)



3.1 BASELINE ENVIRONMENTAL STATUS

- This chapter gives an idea and description of environmental status of the study area with reference to the prominent environmental attributes. The main objective of describing the environment is to assess present environmental quality & the environmental impacts. The study area 10 Km. radius of the plant is covered in Survey of India Toposheet Nos. 73 E/6 & E/10.
- Baseline data has been collected by earlier Consultant from **1st December 2019 to 29th February 2020** by M/s. Ampl Environ Pvt Ltd. Hyderabad.
- As construction of 5th SEAF & CLU converted has been started, **we have submitted Application under Violation.**
- Due to some unavoidable reasons M/s. BIHAR FOUNDRY & CASTING LIMITED was changed the Consultant and engaged M/s. PIONEER ENVIRO LABS & CONSULTANTS PVT. LTD as EIA Consultant.
- Subsequently the baseline data has been collected for further period of **One month i.e. in May 2022 for Re-validation of Baseline data** for preparation of EIA report by **M/s. PIONEER ENVIRO LABS & CONSULTANTS PVT. LTD**

Baseline data has been collected pertaining to Ambient Air, Noise, Water & Soil by an external laboratory M/s. Global Enviro Labs (GEL), which is a MOEFCC & NABET recognized laboratory. Due care has been taken by Pioneer Enviro to ensure that calibrated samplers / equipments/ instruments have been utilized for sampling & analysis. Adequate care has also been taken to ensure proper Preservation & Transportation methods in accordance with the standard procedures. It is ensured by Pioneer Enviro that Standard Operating Procedures have been followed by M/s. Universal Enviro Associates (UEA).

3.2 AIR ENVIRONMENT

3.2.1 METEOROLOGY [Gen.TOR # 6 (i)]

Meteorology of the study area plays an important role in the air pollution studies. The prevailing micro meteorological conditions at the plant site will regulate the dispersion and dilution of air pollutants in the atmosphere. The predominant wind directions and the wind speed will decide the direction and distance of the most affected zone from the proposed activity. The meteorological data collected during the monitoring period is very useful in interpretation of baseline as input for dispersion models for predicting the Ground Level Concentrations (GLC).

3.2.2 METEOROLOGICAL DATA RECORDED AT PLANT SITE

A Temporary Weather Monitoring Station has been installed at the site. Temperature, relative humidity, wind direction, wind speed, and rainfall were recorded for one season i.e., **1st December 2019 to 29th February 2020** by M/s. Ampl Environ Pvt Ltd. Hyderabad.

Subsequently the meteorological data has been revalidated for One month i.e. from **1st May 2022 to 31st May 2022**.

Rainfall

Average Annual Rainfall of the Ramgarh district is 1251 mm. No rainfall recorded during study period.

Temperature

The maximum temperature recorded was 32.3°C and the minimum temperature was 15.6°C at the site (during **1st December 2019 to 29th February 2020**) & the maximum temperature recorded was 42.1°C and the minimum temperature was 22.3°C at the site (during **1st May 2022 to 31st May 2022**).

Relative Humidity

The relative humidity at the site are ranging from 52% to 68%.

Wind Pattern at Project Site during the study period

- ❖ Wind rose from IMD has been collected for Nearest IMD station (Jharkand)
- ❖ Baseline data has been collected by earlier Consultant from **1st December 2019 to**

29th February 2020 by M/s. Ampl Environ Pvt Ltd. Hyderabad.

- ❖ As construction of 5th SEAF & CLU converted has been started, we have submitted Application under Violation.
- ❖ M/s. BIHAR FOUNDRY & CASTING LIMITED changing the EIA Consultant.
- ❖ Subsequently the baseline data has been collected for further period of One month i.e. in **May 2022** at the same Monitoring locations for **Re-validation** of Baseline data for preparation of EIA report by **M/s. PIONEER ENVIRO LABS & CONSULTANTS PVT. LTD.**
- ❖ Weather monitoring station has been established at site to collect Meteorological data.
- ❖ Wind speed and direction are recorded at site every hour.
- ❖ The wind rose shows that winds are predominantly blowing from **NW to SE** direction.
- ❖ The wind rose diagram of the site is shown in fig 3.1 & 3.2.



WINDROSE AT SITE (1st December 2019 to 29th February 2020)

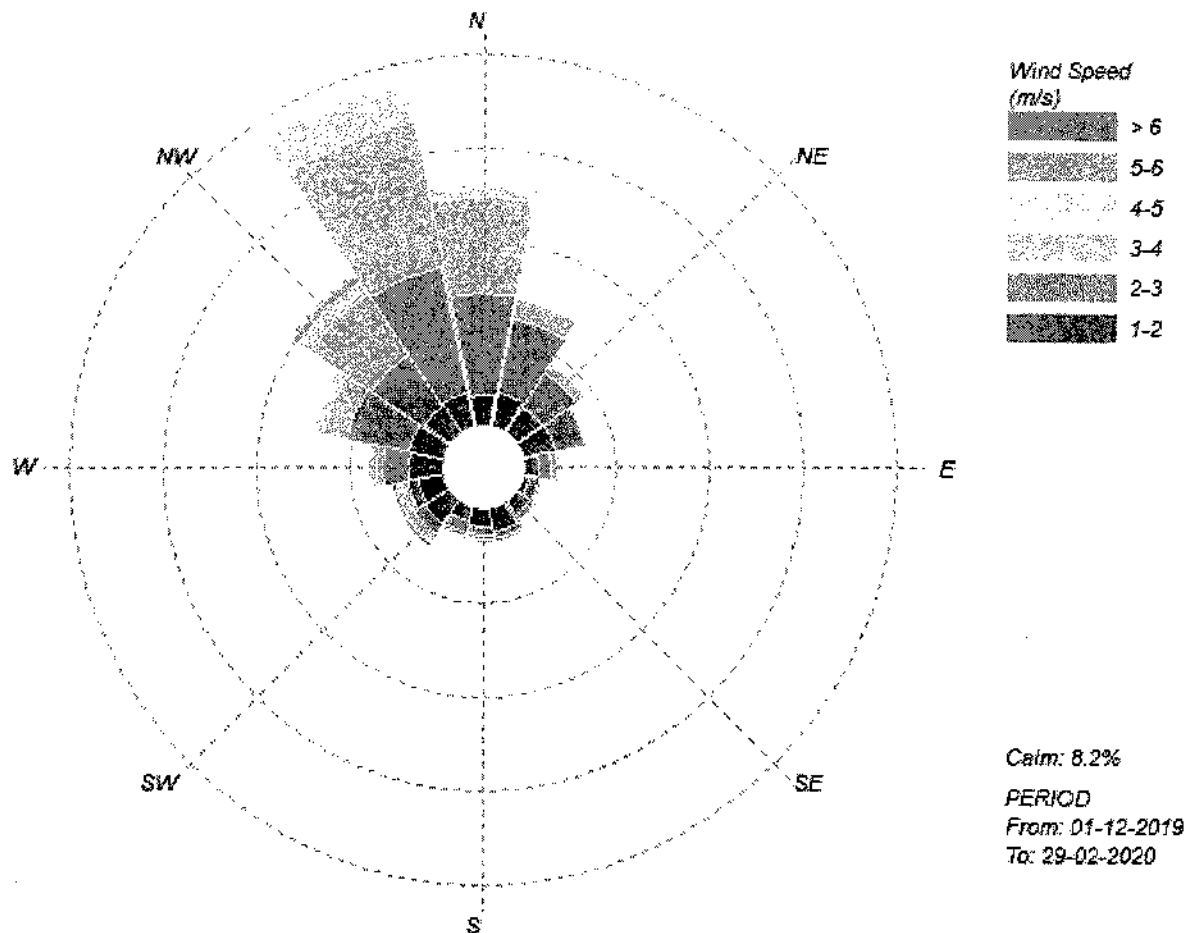


Figure 3.1



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Ramgarh Industrial Area, Marar Village
Ramgarh Tehsil & District, Jharkhand

WINDROSE AT SITE (1st May 2022 to 31st May 2022)

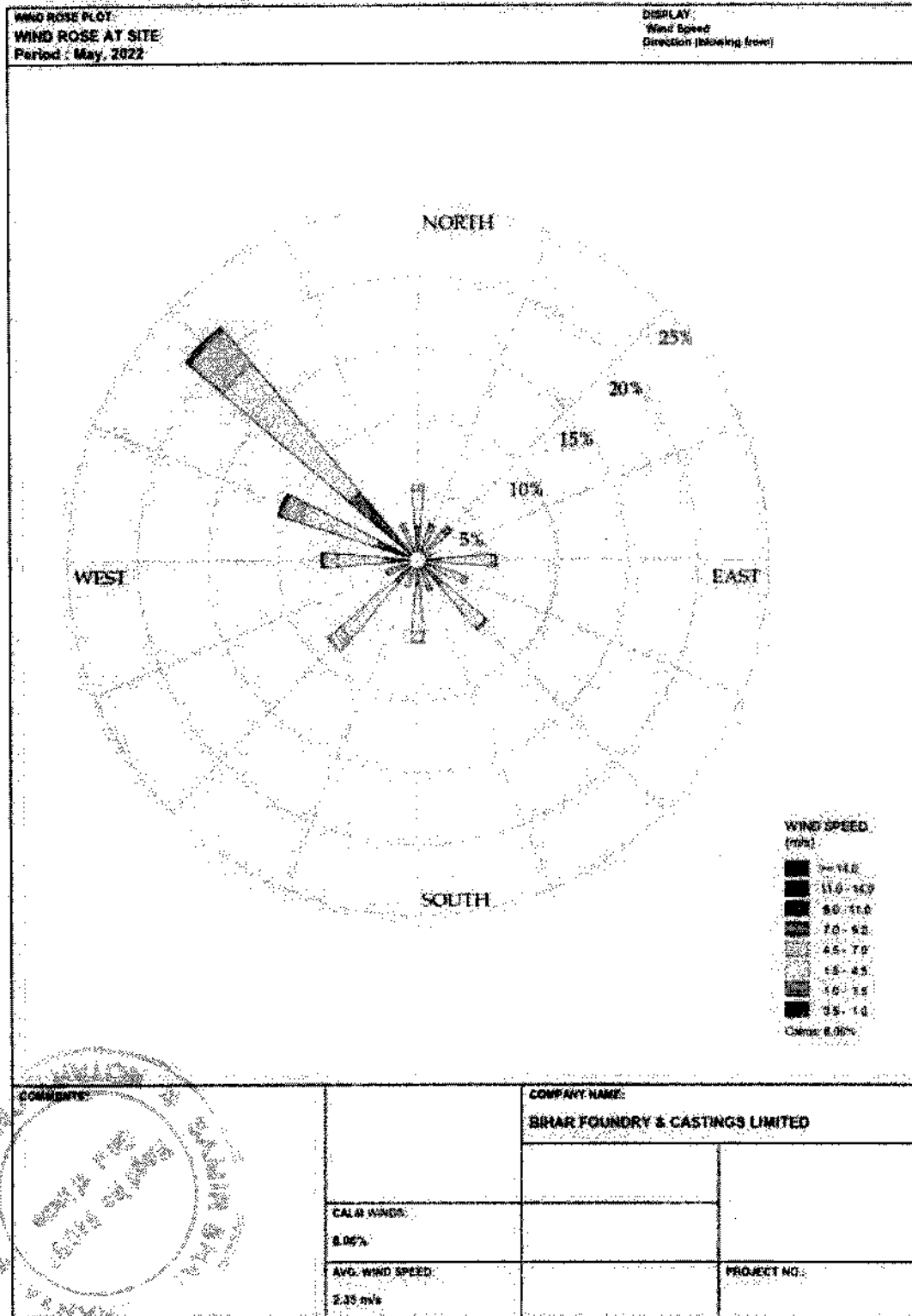


Table 3.2.1 - Site Specific Meteorological Data

S.No.	Time	Wind Direction	Wind Speed (m/s)	Ambient Temp. (in Deg. Kelvin)	Stability Class	Mixing Height (m)
1	1:00:00	CALM	0.0	295.0	6	400
2	2:00:00	NW	1.8	295.7	5	300
3	3:00:00	NWW	2.2	296.4	4	200
4	4:00:00	NW	3.3	296.8	4	500
5	5:00:00	S	6.5	297.1	4	600
6	6:00:00	NWW	4.8	297.6	4	700
7	7:00:00	S	5.2	298.2	4	700
8	8:00:00	NW	3.3	298.6	3	900
9	9:00:00	N	2.5	299.8	2	1100
10	10:00:00	SE	4.2	300.4	2	1200
11	11:00:00	N	5.6	301.1	2	1300
12	12:00:00	NE	7.1	301.8	1	1400
13	13:00:00	SW	9.0	302.3	1	1400
14	14:00:00	S	8.5	303.8	2	1300
15	15:00:00	NW	7.2	305.0	2	1200
16	16:00:00	S	6.3	305.3	4	800
17	17:00:00	W	4.9	304.9	4	700
18	18:00:00	E	1.9	303.5	5	700
19	19:00:00	NW	2.8	302.6	5	500
20	20:00:00	SW	2.2	301.5	6	400
21	21:00:00	NW	3.0	300.5	6	500
22	22:00:00	NNW	1.5	299.4	6	200
23	23:00:00	SW	2.2	298.5	5	300
24	00:00:00	CALM	0.0	297.2	5	500

3.2.3 AIR QUALITY [Gen.TOR # 6 (ii)]

The ambient air quality with respect to the study zone of 10 km. radius around the plant site forms the baseline information. The various sources of air pollution in the region are vehicular traffic, dust arising from unpaved village roads & domestic fuel burning. The Prime objective of baseline air quality survey is to assess the existing air quality of the area. This will also be useful in assessing the conformity to standards of the ambient air quality during the operation of the proposed expansion project.

3.2.3.1 SELECTION OF SAMPLING STATIONS

8 nos. of Ambient Air Quality Monitoring Stations were chosen during data collected in 1st December 2019 to 29th February 2020 by M/s. Ampl Environ Pvt Ltd. Hyderabad with in the study zone of the plant area in accordance with CPCB guidelines. Subsequently One Month i.e. 1st May 2022 to 31st May 2022 data has been collected at the same Monitoring stations for Revalidation of Baseline data by PIONEER ENVIRO.

The sampling locations and their distances are shown in Table 3.2.3 and in Fig 3.2. The Max., Min., and 98th percentile values for all the sampling locations for PM_{2.5}, PM₁₀, SO₂, NO_x and CO are shown in Table 3.2.4 to 3.2.11.

3.2.3.2 PARAMETERS MONITORED

Ambient air quality has been monitored earlier for 2 days in a week for One Season (1st December 2019 to 29th February 2020) by M/s. Ampl Environ Pvt Ltd. at 8 nos. of monitoring locations for PM_{2.5}, PM₁₀, SO₂, NO_x & CO.

The sampling locations and their distances are shown in Table 3.2.3 and in Fig 3.3. The Max., Min., and 98th percentile values for all the monitoring locations for PM_{2.5}, PM₁₀, SO₂, NO_x & CO are shown in Table 3.2.4, 3.2.5.

Subsequently during Revalidation of Baseline data for One Month has been collected during 1st May 2022 to 31st May 2022 by PIONEER ENVIRO to assess the existing status of air Quality. At each Monitoring Particulate Matter (PM_{2.5}), Particulate Matter (PM₁₀), Suspended Particulate Matter, SO₂, NO_x & CO are monitored.

The sampling locations and their distances are shown in Table 3.2.6 and in Fig 3.3. The Max., Min., and 98th percentile values for all the monitoring locations for PM_{2.5}, PM₁₀, SO₂, NO_x & CO are shown in Table 3.2.7 to 3.2.14.

3.2.3.3 SAMPLING & ANALYTICAL TECHNIQUES INSTRUMENTS USED FOR SAMPLING

Envirotech RDS, APM 550 dust samplers pertaining to M/s. Global Enviro Labs (GEL), Hyderabad have been used for monitoring PM_{2.5}, PM₁₀, SO₂, NO_x & CO. PM_{2.5} & PM₁₀ are estimated by gravimetric method (IS: 5182 Part 23:2006) has been adopted, SO₂ is estimated by Improved West & Gaeke method (IS: 5182; Part 2: 2001), NO_x is estimated by Jacob – Hochheiser method (IS: 5182; Part – VI : 2006). CO was analyzed using Non-dispersive

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 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village
 Ramgarh Tehsil & District, Jharkhand

infrared absorption gas analyzer & Asbestos Fibre count is estimated on membrane filter method and using Phase contrast Microscope (IS: 11450-1986). The standard operating Procedures of M/s. Global Enviro Labs (GEL), Hyderabad have been used for sampling and analysis.

Calibration

Calibration charts have been prepared for all gaseous pollutants. The Calibration is carried out when new absorbing solutions are prepared.

TABLE 3.2.2: TECHNIQUES USED FOR AMBIENT AIR QUALITY MONITORING

S.No.	Parameter	Technique	Minimum Detectable Limit ($\mu\text{g}/\text{m}^3$)
1.	Particulate Matter ($\text{PM}_{2.5}$)	APM 550 dust sampler (Gravimetric Method)	5.0
2.	Particulate Matter (PM_{10})	Respirable Dust Sampler (Gravimetric Method)	5.0
3.	SO_2	EPA Modified West & Gaeke method	4.0
4.	NO_x	Arsenite modified Jacob & Hochheiser	4.5
5.	CO	Adsorption and Desorption followed by GC analysis	12.5

TABLE 3.2.3: AMBIENT AIR QUALITY MONITORING STATIONS

 (1st December 2019 to 29th February 2020 by M/s. Ampl Environ Pvt Ltd.)

Station No.	Location	DIRECTION w.r.t Plant	DISTANCE (in Kms.) w.r.t Plant
A1	Existing Plant	---	---
A2	Marar	N	0.8
A3	Naisarai	SSE	1.0
A4	Ramgarh	SSE	3.0
A5	Kaitha	SE	5.5
A6	Ghutua	SW	6.7
A7	Hesla	SWW	2.6
A8	Partabtoli	NW	2.5

TABLE 3.2.4: SUMMARY OF AMBIENT AIR QUALITY DATA

 (1st December 2019 to 29th February 2020) by M/s. Ampl Environ Pvt Ltd.)

Location	$\text{PM}_{2.5}$ (Standard – $60 \mu\text{g}/\text{m}^3$)			PM_{10} (Standard – $100 \mu\text{g}/\text{m}^3$)		
	Minimum	Maximum	98 Percentile	Minimum	Maximum	98 Percentile
A1	66.5	101.2	96.4	117.1	171.1	168.0
A2	67.8	103.3	98.3	119.5	174.5	171.4
A3	63.8	97.2	92.5	112.4	164.2	161.3

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village
 Ramgarh Tehsil & District, Jharkhand

A4	87.1	132.6	126.3	153.4	224.1	220.1
A5	93.8	127.6	121.5	147.6	215.6	211.7
A6	74.5	113.4	108.0	131.2	191.6	188.2
A7	71.8	109.3	104.1	126.5	184.8	181.5
A8	89.8	121.5	115.7	140.6	205.3	201.7

TABLE 3.2.5: SUMMARY OF AMBIENT AIR QUALITY DATA

 (1st December 2019 to 29th February 2020) by M/s. Ampl Environ Pvt Ltd.]

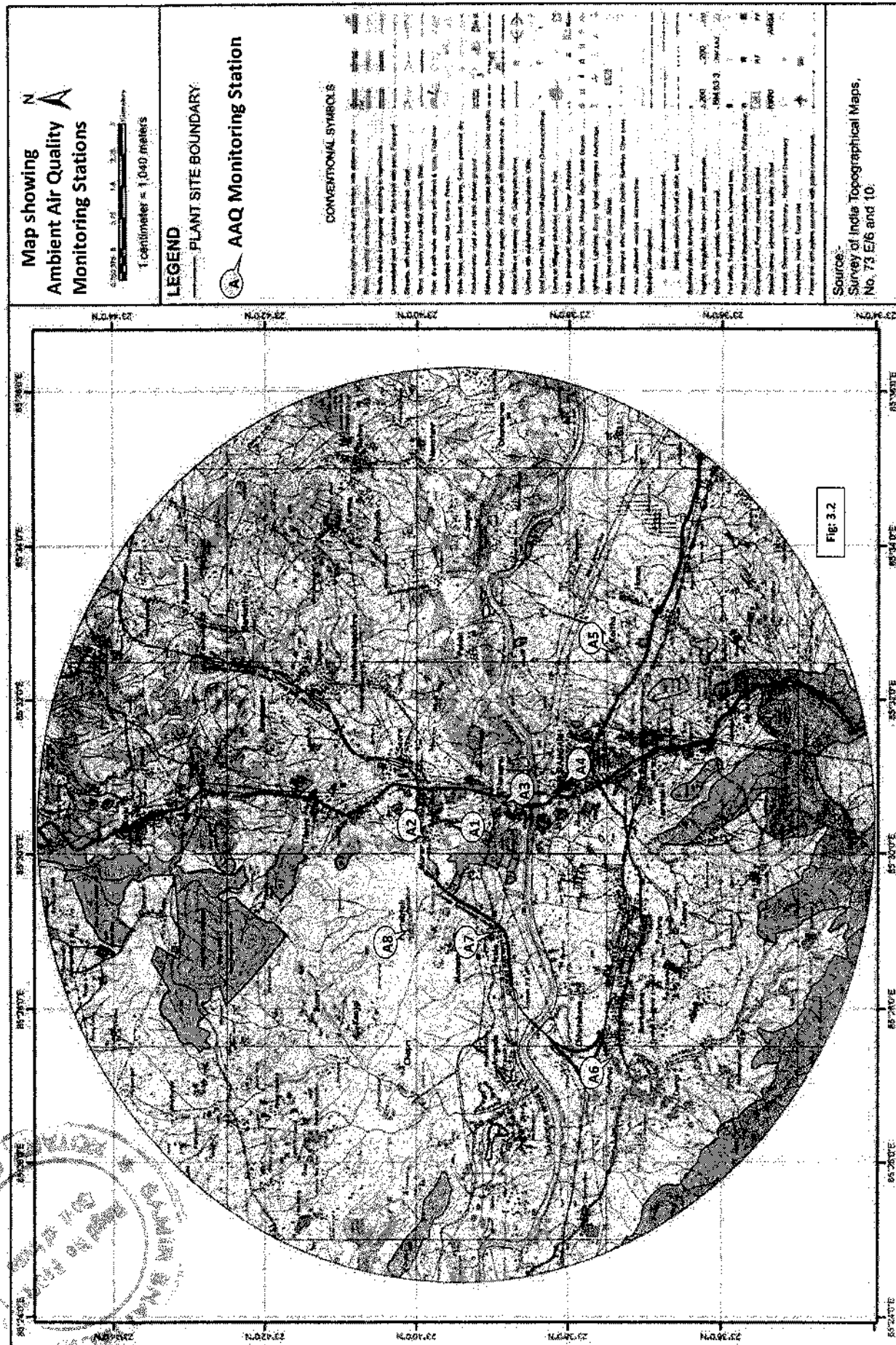
Location	SO ₂ (Standard – 80 µg/m ³)			NO _x (Standard – 80 µg/m ³)			CO (Standard – 2 mg/m ³)
	Minimum	Maximum	98 Percentile	Minimum	Maximum	98 Percentile	
A1	5.7	10.2	8.6	20.1	33.7	30.0	1.3
A2	5.8	10.4	8.8	20.5	34.4	30.6	1.0
A3	5.4	9.8	8.3	19.3	32.4	28.8	1.3
A4	7.4	13.4	11.3	26.3	44.2	39.4	1.8
A5	7.1	12.9	10.9	25.3	42.5	37.9	1.7
A6	6.3	11.4	9.7	22.5	37.8	33.6	1.1
A7	6.1	11.0	9.3	21.7	36.4	32.4	1.5
A8	6.8	12.2	10.4	24.1	40.5	36.1	1.6

TABLE 3.2.6: AMBIENT AIR QUALITY MONITORING STATIONS
 (One Month Data collected for Revalidation

 from 1st May to 31st May 2022 by M/s. PIONEER ENVIRO)

S.No.	STATION	DIRECTION w.r.t Plant	DISTANCE (in Kms.) w.r.t Plant
1.	Existing Plant	---	---
2.	Marar	N	0.8
3.	Naisarai	SSE	1.0
4.	Ramgarh	SSE	3.0
5.	Kaitha	SE	5.5
6.	Ghutua	SW	6.7
7.	Hesla	SWW	2.6
8.	Partabtoli	NW	2.5





BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

TABLE 3.2.7

Sampling Location: Existing Plant Unit : $\mu\text{g}/\text{m}^3$			Sampling Period: 1 st May to 31 st May 2022	
Parameter	Maximum	Minimum	98 th percentile	Standard as per NAAQS
PM _{2.5}	42.3	38.1	42.2	60
PM ₁₀	73.9	71.2	73.8	100
SO ₂	13.3	11.4	13.3	80
NO _x	22.4	18.5	22.4	80
CO	525	412	520	2000

TABLE 3.2.8

Sampling Location: Marar Unit : $\mu\text{g}/\text{m}^3$			Sampling Period: 1 st May to 31 st May 2022	
Parameter	Maximum	Minimum	98 th percentile	Standard as per NAAQS
PM _{2.5}	44.1	40.1	44.0	60
PM ₁₀	76.2	71.5	76.1	100
SO ₂	12.0	10.4	12.0	80
NO _x	24.2	19.2	24.2	80
CO	665	524	664	2000

TABLE 3.2.9

Sampling Location: Naisarai Unit : $\mu\text{g}/\text{m}^3$			Sampling Period: 1 st May to 31 st May 2022	
Parameter	Maximum	Minimum	98 th percentile	Standard as per NAAQS
PM _{2.5}	41.8	37.5	41.7	60
PM ₁₀	73.6	70.8	73.5	100
SO ₂	10.9	9.2	10.9	80
NO _x	21.8	16.7	21.7	80
CO	514	406	514	2000

TABLE 3.2.10

Sampling Location: Ramgarh Unit: $\mu\text{g}/\text{m}^3$			Sampling Period: 1 st May to 31 st May 2022	
Parameter	Maximum	Minimum	98 th percentile	Standard as per NAAQS
PM _{2.5}	46.2	41.1	46.1	60
PM ₁₀	79.4	72.4	79.2	100
SO ₂	12.2	10.1	12.2	80
NO _x	27.1	22.6	27.0	80
CO	744	606	742	2000

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

TABLE 3.2.11

Sampling Location: Kaitha Unit: $\mu\text{g}/\text{m}^3$			Sampling Period: 1 st May to 31 st May 2022	
Parameter	Maximum	Minimum	98 th percentile	Standard as per NAAQS
PM _{2.5}	43.2	40.6	43.1	60
PM ₁₀	74.5	70.2	74.4	100
SO ₂	10.3	8.0	10.3	80
NO _x	18.5	16.3	18.5	80
CO	512	396	512	2000

TABLE 3.2.12

Sampling Location: Ghutua Unit: $\mu\text{g}/\text{m}^3$			Sampling Period: 1 st May to 31 st May 2022	
Parameter	Maximum	Minimum	98 th percentile	Standard as per NAAQS
PM _{2.5}	41.7	38.2	41.6	60
PM ₁₀	72.4	69.6	72.3	100
SO ₂	8.8	7.9	8.8	80
NO _x	18.1	16.0	18.0	80
CO	495	402	495	2000

TABLE 3.2.13

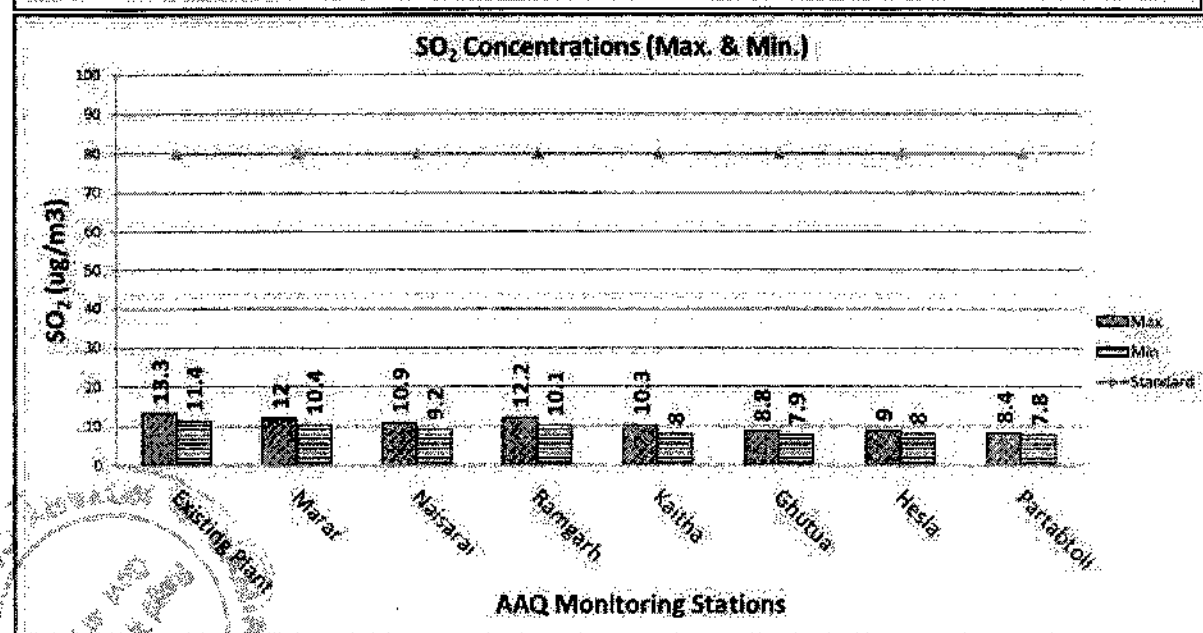
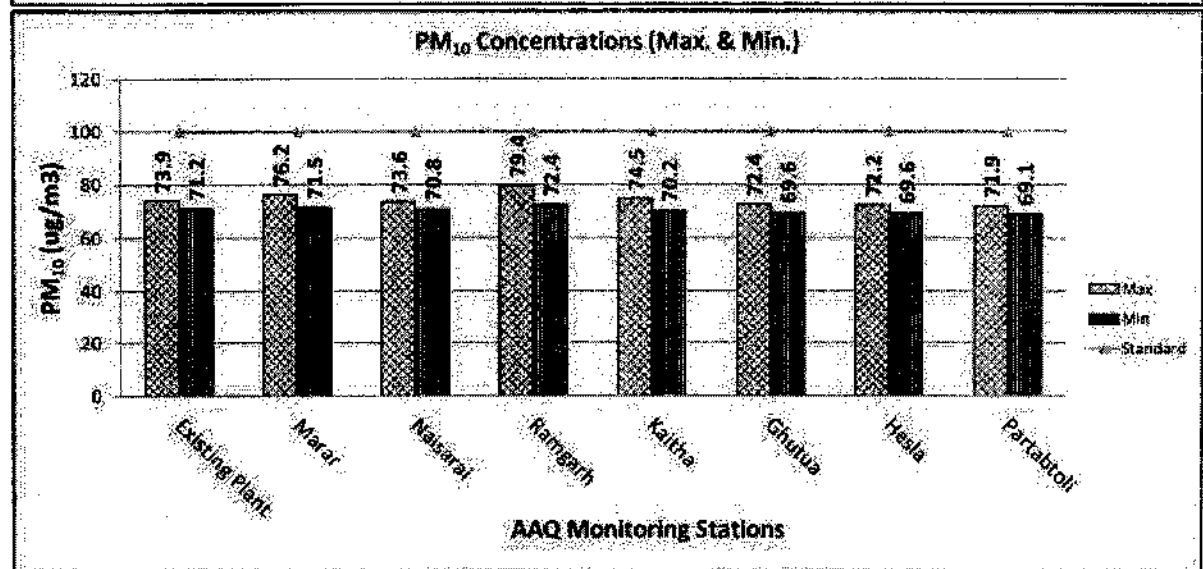
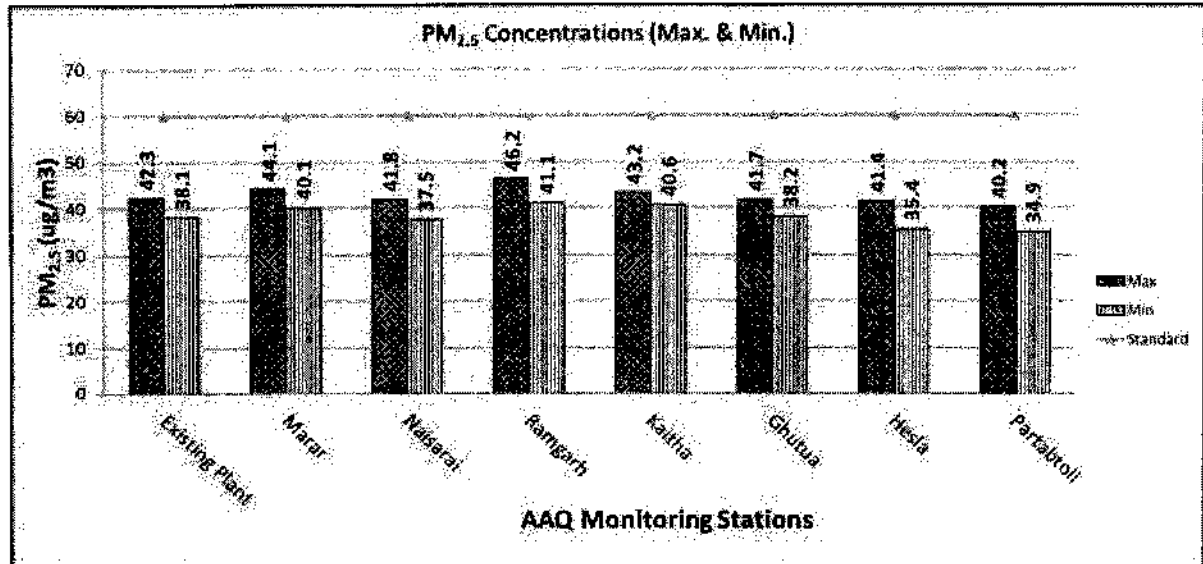
Sampling Location: Hesla Unit: $\mu\text{g}/\text{m}^3$			Sampling Period: 1 st May to 31 st May 2022	
Parameter	Maximum	Minimum	98 th percentile	Standard as per NAAQS
PM _{2.5}	41.4	35.4	41.4	60
PM ₁₀	72.2	69.6	72.2	100
SO ₂	9.0	8.0	9.0	80
NO _x	18.3	16.1	18.3	80
CO	466	392	466	2000

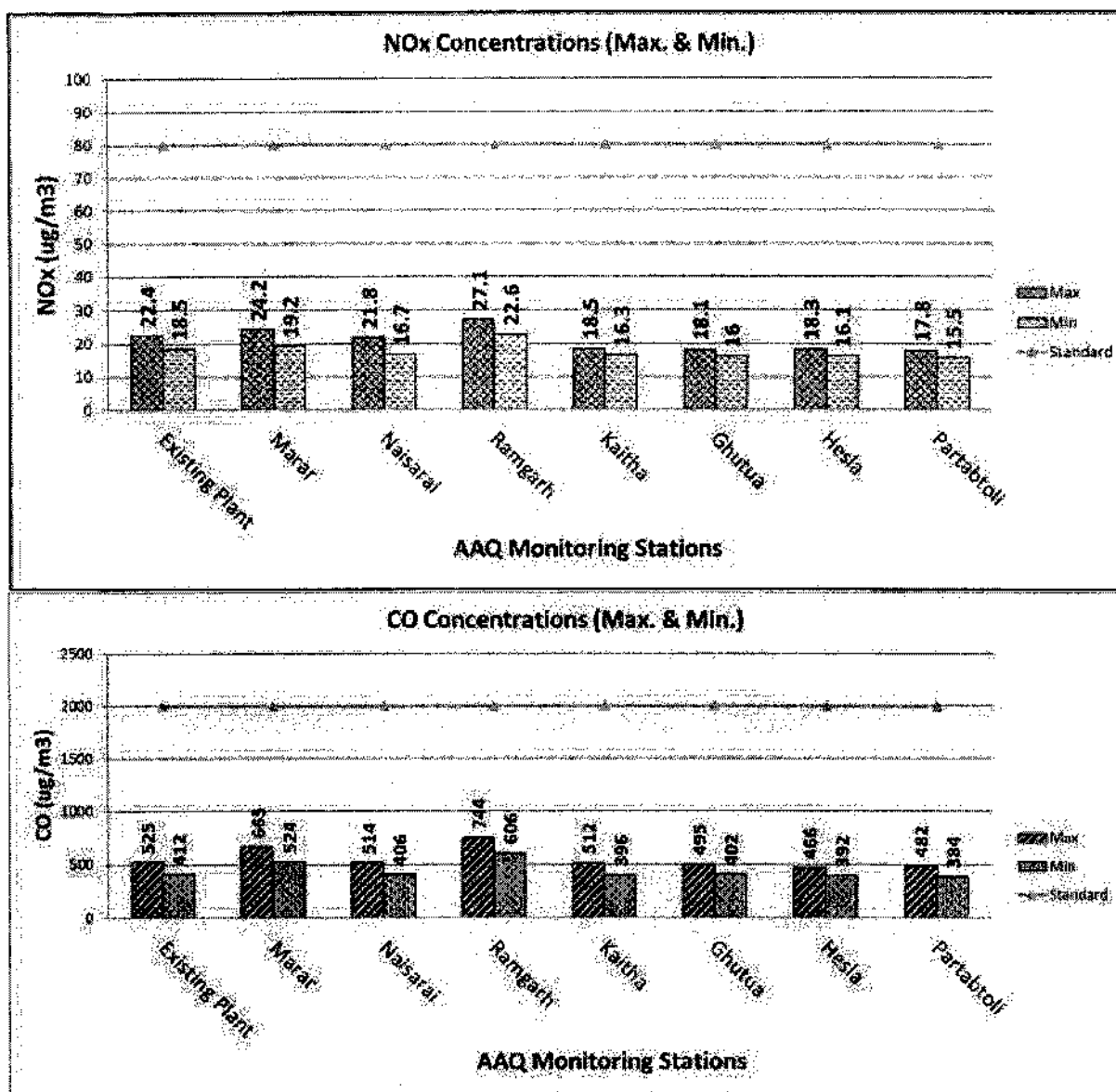
TABLE 3.2.14

Sampling Location: Partabtoli Unit: $\mu\text{g}/\text{m}^3$			Sampling Period: 1 st May to 31 st May 2022	
Parameter	Maximum	Minimum	98 th percentile	Standard as per NAAQS
PM _{2.5}	40.2	34.9	40.1	60
PM ₁₀	71.9	69.1	71.7	100
SO ₂	8.4	7.8	8.4	80
NO _x	17.8	15.5	17.7	80
CO	482	384	480	2000

BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand





Interpretation of Ambient Air Quality Monitoring

The highest 98th percentile PM_{2.5} concentration was recorded at Ramgarh with a value of 46.2 µg/m³.

The highest 98th percentile PM₁₀ concentration was recorded at Ramgarh with a value of 79.4 µg/m³.

The highest 98th percentile SO₂ concentration was recorded at Existing plant with a value of 13.3 µg/m³.

The highest 98th percentile NO_x concentration was recorded at Ramgarh with a value of 27.1 µg/m³.

The 98th percentile CO concentration recorded at the Ramgarh is 744 µg/m³.

The following are the summary of concentrations of various parameters at the monitoring stations:

TABLE 3.2.15: SUMMARY OF AMBIENT AIR QUALITY DATA

Parameter	Concentration (during 1 st December 2019 to 29 th February 2020)	Concentration (during 1 st May to 31 st May 2022)	NAAQ Standards
PM _{2.5}	34.7 to 42.8 µg/m ³	34.9 to 46.2 µg/m ³	60 µg/m ³
PM ₁₀	68.9 to 86.3 µg/m ³	69.1 to 79.4 µg/m ³	100 µg/m ³
SO ₂	7.8 to 13.5 µg/m ³	7.8 to 13.3 µg/m ³	80 µg/m ³
NO _x	17.4 to 26.2 µg/m ³	15.5 to 27.1 µg/m ³	80 µg/m ³
CO	410 to 600 µg/m ³	384 to 744 µg/m ³	2000 µg/m ³

The concentrations of various parameters are within the NAAQS Standards. There is marginal increase in emissions due to the proposed expansion project due to the emissions from Stack, Fugitive emissions, Vehicular Emissions the over baseline concentrations. The net resultant incremental GLCs are calculated and furnished in **page no. 4.7 of Chapter # 4.**

3.3 NOISE ENVIRONMENT

The physical description of sound concerns its loudness as a function of frequency. Noise in general is sound, which is composed of many frequency components of various loudness distributed over the audible frequency range. Various noise scales have been introduced to describe, in a single number, the response of an average human being to a complex sound made up various frequencies at different loudness levels. The most common and heavily favoured of those scales is the A weighted decibel (dBA). This is more suitable for audible range of 20 to 20,000 Hertz. The scale has been designed to weigh various components of noise according to the response of a human ear.

The impact of noise sources on surrounding community depends on

- Characteristics of noise sources (instantaneous, intermittent or continuous in nature). It is well known that steady noise not as annoying as one that is continuously varying in loudness.
- The time, at which noise occurs, for example loud noise levels at night in residential areas are not acceptable because of sleep disturbance.
- The location of the noise source, with respect to noise sensitive area, which determines the loudness and period of noise exposure.

The environmental impact of noise can have several effects varying from Noise Induced Hearing Loss (NIHL) to annoyance depending on loudness of Noise levels.

The environmental impact assessment of noise from the proposed expansion project can be carried out by taking into consideration of various factors: potential damage to hearing, potential physiological responses, and annoyance and general community responses.

The main objective of noise level monitoring is to assess the background noise levels in different zones viz., industrial, commercial, residential and silence zones within the study area.

The basic studies conducted were

- a. Assessment of background noise levels.
- b. Identification and monitoring the major noise generating sources in the study area.
- c. Impact of noise on general population in the study zone of 10 Km. radius.

3.3.1 RECONNAISSANCE

Noise levels were measured at different locations within 10 Km. radius of the plant such as villages, bus stands etc.

3.3.1.1 BACKGROUND NOISE

Baseline noise data has been measured at different locations using A-weighted sound pressure level meter. The equivalent **day noise levels** in the study zone are ranging from **52.10 dBA to 68.40 dBA** & equivalent **Night noise levels** in the study zone are ranging from **42.70 dBA to 55.30 dBA** during **1st December 2019 to 29th February 2020** carried out by **M/s. AMPL ENVIRON PVT LTD.** further Noise levels collected **during revalidation** of Noise levels in **May 2022**, the equivalent **day noise levels** in the study zone are ranging from **47.80 dBA to 66.80 dBA** & equivalent **Night noise levels** in the study zone are ranging from **36.80 dBA to 53.20 dBA**.

3.3.1.2 SOURCES OF NOISE

The major noise generating sources in the plant are Furnace Arcing, compressors & DG set. All equipment will be of reputed make and the same will be manufactured in accordance of the MOEF&CC, OSHA & other international guidelines by the supplier. The major noise levels will be confined to the working zones of the plant. The **Leq** of eight hours will be

within the prescribed standards. The ambient noise levels during operation of the expansion project will be less than 75 dBA during daytime & less than 70 dBA during nighttime.

Typical considerations in environmental noise assessment can be divided into two categories; one is related to noise sources and the other related to potential receiver.

Two quantities are needed to describe completely the strength of the source. They are sound Power level and directivity. Sound Power levels measures the total sound Power radiated by the source in all directions where as directivity is a measure of difference in radiation with direction. This concept of sound Power level and directivity index makes it possible to calculate the sound pressure level created by the source.

3.3.2 COMMUNITY NOISE

The ambient noise level is characterized by significant variations above a base or a residual noise level. The residual noise level is that level below which the ambient noise does not seem to drop during a given time interval and is generally caused by the unidentified distant sources. It differs in rural and urban areas. At night, its level is low due to lesser elements of noise. The annoyance that people experience depends upon the number of noise elements that produce noise concurrently at a given time that occur during a time interval.

The noise rating developed by EPA for specification of community noise from all sources is the day night sound level, Ldn. It is similar to a 24 hour equivalent sound level except that during the night period, which extends from 10.00 p.m. to 6.00 a.m. A 10 dBA weighing penalty is added to the account for the fact that noise at night when people are trying to sleep is judged more annoying than the same noise during the day time.

The Ldn for a given location in a community is calculated from an hourly equivalent sound level given by the following equation.

$$Ldn = 10 \log \left(\frac{1}{24} \left[15 (10^{(Ld/10)}) + 9 (10^{(Ln+10)/10}) \right] \right)$$

Where Ld is the equivalent noise level during day time (6A .M. to 10 P.M.)

Ln is the equivalent noise level during night time (10 P.M. to 6 A.M.)

3.3.2.1 OCCUPATIONAL EXPOSURE

To assess the magnitude of impact due to noise sources, it is essential to know the following:

- The duration of sound.
- Distribution through the working day.
- Overall noise levels.
- It's composition including frequency and intensity at various intervals of time.

Other factors regarding receiver include

- The age of the individual.
- The sensitivity of the individual.
- The efficiency of the protective devices used.

After characterizing the noise sources noise at receiver's location, the impact must be assessed. The environmental impact of noise can lead to the following effects.

- Damages the hearing capacity.
- Interference in communication.
- Interference with work.
- Interference with sleep.
- Causes annoyance.

3.3.3 METHODOLOGY ADOPTED FOR NOISE LEVEL OBSERVATION

For measurement of Ambient Noise level in the Study area, a Digital Sound Level Meter (*Make & Model: Lutron SL-4001*) has been used. The instrument has been calibrated with a Standard Acoustic calibrator before using in the field. The measurements were carried out continuously for the 24-hour period to obtain hourly equivalent sound pressure level, 1 hour Leq. From these values, day and night time as well as 24-hour Leq values were also calculated. The Leq is the equivalent continuous sound level, which is equivalent to the same sound energy as the fluctuating sound measured in the same period.

**Table 3.3.1: GUIDANCE FOR ASSESSMENT OF REPRESENTATIVENESS AND RELIABILITY OF
BASELINE ENVIRONMENTAL ATTRIBUTES**

Attributes	Sampling		Measurement	Remarks
	Network	Frequency	Method	
Noise				
Hourly equivalent noise levels	Identified study area	Once in each season	Instrument: Noise level meter	IS:4954-1968 as adopted by CPCB

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

Hourly equivalent noise levels	In plant (1.5 m from machinery)	Once	Instrument: Noise level meter	CPCB/OSHA
Hourly equivalent noise levels	Highways	Once in each season	Instrument: Noise level meter	CPCB/IS:4954-1968

3.3.4 NOISE LEVEL OBSERVATIONS IN THE STUDY AREA [Gen. ToR # 6 (vii)]

Baseline noise levels have been monitored at different monitoring locations within the 10 Km. radius of the plant site during Dec 2019 to Feb 2020 (for One season) carried out by M/s. AMPL ENVIRON PVT LTD. and subsequently during revalidation of Baseline data Noise levels have been rechecked at same locations in May 2022. Monitoring stations and their distances with respect to site are shown in Table 3.3.2.

TABLE 3.3.2 : NOISE LEVEL MONITORING STATIONS

 (1st December 2019 to 29th February 2020) by M/s. Ampl Environ Pvt Ltd.)

S.No	STATION	DIRECTION w.r.t site	DISTANCE w.r.t site (in Kms.)
1.	Existing Plant	---	---
2.	Marar	N	0.8
3.	Naisarai	SSE	1.0
4.	Ramgarh	SSE	3.0
5.	Kaitha	SE	5.5
6.	Ghutua	SW	6.7
7.	Hesla	SWW	2.6
8.	Partabtoli	NW	2.5

TABLE 3.3.3 : EQUIVALENT DAY NIGHT NOISE LEVEL

 (1st December 2019 to 29th February 2020) by M/s. Ampl Environ Pvt Ltd.)

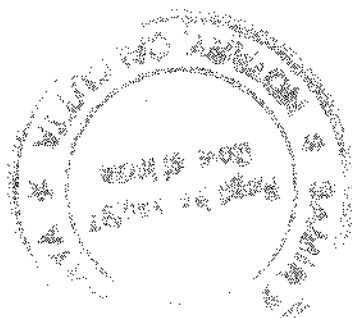
S. No.	Locations	Project area / study area	Leq Day noise level dB(A)	Leq Night noise level dB(A)
N1	Existing Plant	Industrial area	68.4	55.3
N2	Marar	Residential Area	62.6	46.1
N3	Naisarai	Residential Area	57.4	44.8
N4	Ramgarh	Commercial Area	59.7	43.5
N5	Kaitha	Residential Area	55.4	44.1
N6	Ghutua	Residential Area	56.8	42.7
N7	Hesla	Residential Area	57.2	43.9
N8	Partabtoli	Residential Area	52.1	43.6

TABLE 3.3.4: EQUIVALENT DAY NIGHT NOISE LEVELS

(Data collected for Revalidation in May 2022 by M/s. PIONEER ENVIRO)

S.No.	LOCATION	EQUIVALENT NOISE LEVELS (dBA)			Standard
		DAY	NIGHT	DAY-NIGHT	
1.	Existing Plant*	66.8	53.2	65.77	Industrial* Daytime – 75 dBA Night time – 70 dBA
2.	Marar	52.5	41.4	52.12	
3.	Naisarai	50.5	39.8	50.25	
4.	Ramgarh**	60.2	48.6	59.67	Commercial** Daytime – 65 dBA Night time – 55 dBA
5.	Kaitha	48.9	38.2	48.65	
6.	Ghutua	50.2	40.1	50.16	
7.	Hesla	47.8	36.8	47.45	Residential Daytime – 55 dBA Night time – 45 dBA Silence zone # Daytime – 50 dBA Night time – 40 dBA
8.	Partabtoli	49.6	39.1	49.42	

- *The noise levels monitored at Existing plant are within the norms prescribed for Industrial Zone.
- **The noise levels monitored at Ramgarh within the norms prescribed for Commercial Zone.
- The noise levels monitored at all residential areas are within the norms prescribed for Residential Zone.



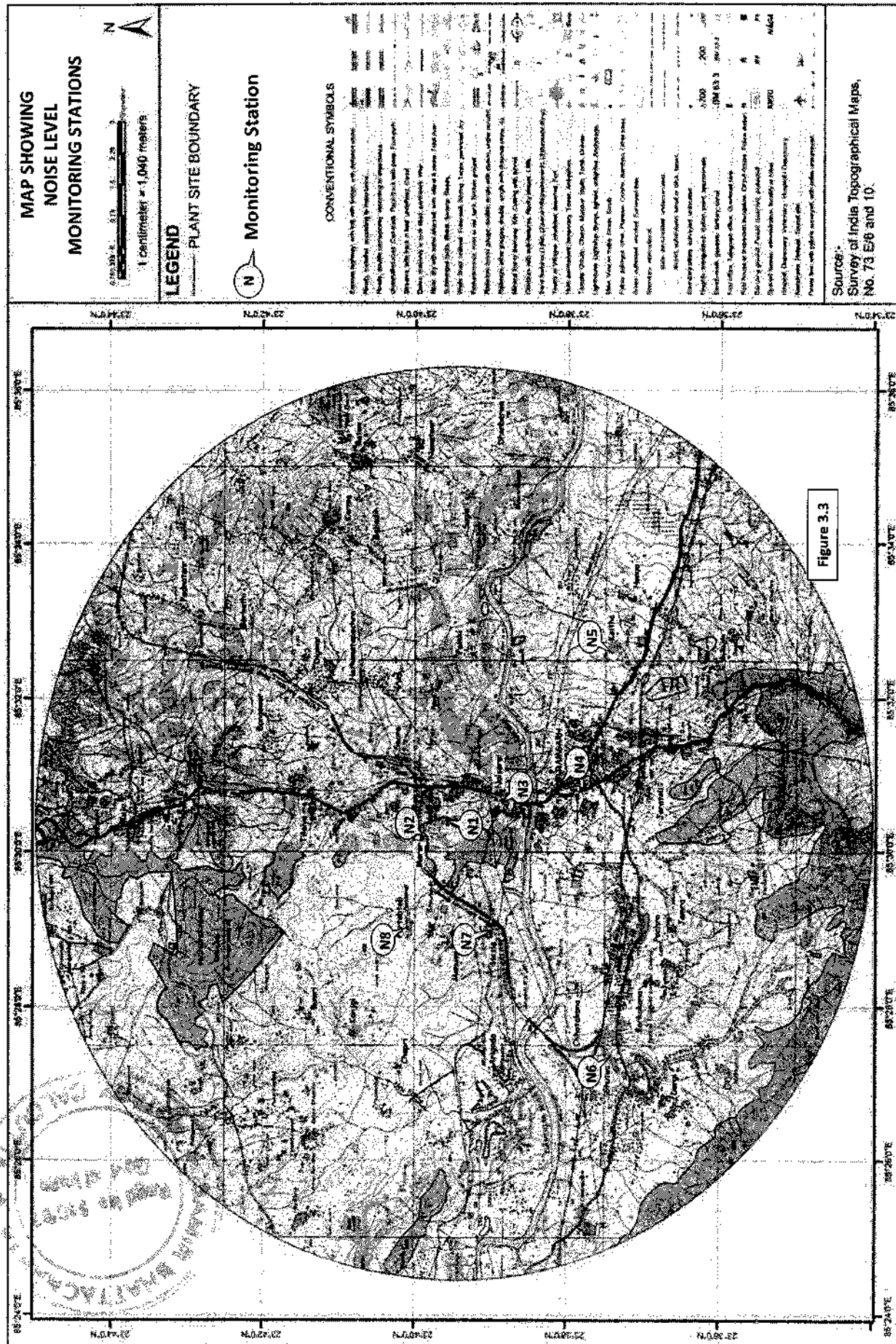


Figure 3.3

3.4 WATER QUALITY IMPACTS

3.4.1 SURFACE WATER QUALITY [Gen.TOR # 6 (iv)]

Surface Water Quality have been monitored at 5 nos. of surface water samples have been collected 2 nos. from Damodar river (1.7 Kms.), one sample from Marar Pond (1.6 Kms.), one sample from Ramgarh Pond (3.7 Kms.) & other sample are collected in Sample from Unnamed Nala (near BFCL 0.6 Kms.) during 1st December 2019 to 29th February 2020 carried out by M/s. Ampl Environ Pvt Ltd. and subsequently the Samples have been collected during May 2022 from same locations for revalidation of Surface water quality and analysed for parameters.

All the Surface water samples are analyzed as per BIS-2296 Standards. The analysis of surface water analysed during 1st December 2019 to 29th February 2020 are furnished in Table No. 3.4.2 & surface water analysed during May 2022 is furnished in Table No.3.4.3.

TABLE NO. 3.4.1: SURFACE WATER QUALITY SAMPLING STATIONS

(during 1st Dec 2019 to 29th Feb 2020 carried out by M/s. Ampl Environ Pvt Ltd.)

S.No.	Sampling Station	Distance (in kms. w.r.t. Plant)	Direction (w.r.t. Plant)
SW # 1	60 m Upstream of Damodar upstream	1.7	SWW
SW # 2	60 m Downstream of Damodar Downstream	1.8	SSE
SW # 3	Sample from Marar Pond	1.6	N
SW # 4	Sample from Ramgarh Pond	3.7	SSE
SW # 5	Sample from Unnamed Nala (near BFCL)	0.6	SW



BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

TABLE NO. 3.4.2: SURFACE WATER QUALITY ANALYSIS

 (during 1st Dec 2019 to 29th Feb 2020 carried out by M/s. Ampl Environ Pvt Ltd.)

S.NO.	PARAMETER	Standard as per BIS : 2296	UNIT	SW1	SW2	SW3	SW4	SW5
1.	pH (at 25 °C)	6.5-8.5	----	7.61	7.56	7.72	7.54	7.86
2.	Colour	----	----	<5	<5	<5	<5	<5
3.	Turbidity (NTU)	----	NTU	11	9.6	14	16	15.6
4.	Odour	----	----	A	A	A	A	A
5.	Total hardness as CaCO ₃	1500	mg/l	136.02	158.21	278.5	252.4	216.9
6.	Calcium as Ca	200	mg/l	27.31	46.41	76.83	68.18	63.4
7.	Alkalinity as CaCO ₃	----	mg/l	89.42	122.1	248.1	226.1	219.7
8.	Chloride as Cl	600	mg/l	70.3	67.6	157.1	127.8	122.1
9.	Residual free Chlorine	----	mg/l	<0.20				
10.	Cyanide as CN	0.05	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02
11.	Magnesium as Mg	100	mg/l	16.26	10.07	36.01	19.67	14.02
12.	Total Dissolved Solids	1500	mg/l	318	379	497	543	526
13.	Total Suspended Solids	----	mg/l	141	153	289	261	297
14.	Dissolved Oxygen	4 (Min.)	mg/l	7.4	7.8	5.62	5.38	5.8
15.	Sulphate as SO ₄	400	mg/l	44.2	48.7	46.8	46.4	48.4
16.	Fluoride as F	1.5	mg/l	0.76	0.84	1.14	0.96	0.82
17.	BOD (3 Days at 27 °C)	3	mg/l	<5	<5	18.2	20.4	2.4
18.	COD	----	mg/l	32.8	30.6	92.4	98.6	88.2
19.	Conductivity	----	(mS/cm)	0.506	0.608	0.819	0.876	0.848
20.	Nitrate as NO ₃	20	mg/l	31.4	42.6	39.8	46.8	30.6
21.	Sodium as Na	----	mg/l	48.3	52.6	50.4	64.2	72.8
22.	Potassium as K	----	mg/l	4.41	5.62	5.2	6.8	8.2
23.	Iron as Fe	50	mg/l	0.36	0.41	0.39	0.48	0.32
24.	Aluminum as Al	----	mg/l	<0.03	<0.03	<0.03	<0.03	<0.03
25.	Boron (mg/l)	<0.01	mg/l	0.51	0.53	0.48	0.38	0.49
26.	Hexa Chromium as Cr+6	0.05	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01
27.	Phenolic Compounds	0.005	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001
28.	Mineral Oil	<0.01	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01
29.	Anionic Detergents as MBAS	0.1	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02
30.	Zinc as Zn	----	mg/l	0.89	1.66	1.12	1.08	1.87
31.	Copper as Cu	1.5	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01
32.	Total coliforms	500	(MPN/100 ml)	79	102	266	198	324

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 Ramgarh Industrial Area, Marar Village,
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TABLE NO. 3.4.3: SURFACE WATER QUALITY ANALYSIS
 (Revalidation of data in May 2022 by M/s. PIONEER ENVIRO)

S.NO.	PARAMETER	Standard as per BIS : 2296	UNIT	SW1	SW2	SW3	SW4	SW5
1.	pH (at 25 °C)	6.5-8.5	----	7.08	7.28	7.56	7.77	7.55
2.	Colour	----	----	<5	<5	<5	<5	<5
3.	Turbidity (NTU)	----	NTU	7.8	6.3	12.5	13.3	14.4
4.	Odour	----	----	A	A	A	A	A
5.	Total hardness as CaCO ₃	1500	mg/l	122.5	142.6	255.8	233.4	228.4
6.	Calcium as Ca	200	mg/l	28.4	40.6	65.8	72.1	56.6
7.	Alkalinity as CaCO ₃	----	mg/l	94.5	116.8	229.3	212.5	233.4
8.	Chloride as Cl	600	mg/l	55.3	60.4	133.8	114.5	105.7
9.	Residual free Chlorine	----	mg/l	<0.20	<0.20	<0.20	<0.20	<0.20
10.	Cyanide as CN	0.05	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02
11.	Magnesium as Mg	100	mg/l	17.4	12.3	28.2	22.6	18.4
12.	Total Dissolved Solids	1500	mg/l	296	335	402	466	425
13.	Total Suspended Solids	----	mg/l	102	123	206	226	238
14.	Dissolved Oxygen	4 (Min.)	mg/l	7	7.2	5	5.2	5.5
15.	Sulphate as SO ₄	400	mg/l	38.2	55.2	51.5	39.4	42.6
16.	Fluoride as F	1.5	mg/l	0.71	0.79	0.98	0.84	0.77
17.	BOD (3 Days at 27 °C)	3	mg/l	2.1	2.4	8.6	7.4	2.6
18.	COD	----	mg/l	10.2	11.5	32.4	27.7	13.6
19.	Conductivity	----	(mS/cm)	0.474	0.536	0.643	0.746	0.680
20.	Nitrate as NO ₃	20	mg/l	16.4	22.6	29.4	30.2	18.9
21.	Sodium as Na	----	mg/l	52.4	60.4	42.7	60.1	58.4
22.	Potassium as K	----	mg/l	3.84	4.65	5.55	6.15	7.22
23.	Iron as Fe	50	mg/l	0.27	0.38	0.33	0.44	0.28
24.	Aluminum as Al	----	mg/l	<0.03	<0.03	<0.03	<0.03	<0.03
25.	Boron (mg/l)	<0.01	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001
26.	Hexa Chromium as Cr+6	0.05	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01
27.	Phenolic Compounds	0.005	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001
28.	Mineral Oil	<0.01	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01
29.	Anionic Detergents as MBAS	0.1	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02
30.	Zinc as Zn	----	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01
31.	Copper as Cu	1.5	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01
32.	Total coliforms	500	(MPN/100 ml)	58	76	204	166	284

Interpretation of surface water samples

The following are the analytical values of the surface water samples collected

Parameter		1 st Dec 2019 to 29 th Feb 2020	May 2022
pH	:	7.54 to 7.86	7.08 to 7.77
Total Hard ness	:	136.02 to 278.5	122.5 to 255.8
DO (in mg/l)	:	5.38 to 7.8	5.0 to 7.2
BOD	:	2.4 to 20.4	2.1 to 8.6
TDS(in mg/l)	:	318 to 543	296 to 466
Fluoride (in mg/l)	:	0.76 to 1.14	0.71 to 0.98
Chlorides (in mg/l)	:	67.6 to 157.1	55.3 to 133.8
Sulphates (in mg/l)	:	44.2 to 48.7	38.2 to 55.2

All the parameters in the water samples collected are in conformity with BIS; 2296 except BOD which is exceeding the standard due to washing of cattle.

3.4.2 GROUND WATER QUALITY ANALYSIS [Gen. ToR # 6 (vi)]

8 Nos. of ground water samples from open wells / bore wells have been collected during during 1st Dec 2019 to 29th Feb 2020 by M/s. Ampl Environ Pvt Ltd. & further during revalidation ground water samples have been collected from the same sampling locations in May 2022 to assess ground water quality. The analysis of samples shows that all the parameters are in accordance with BIS: 10500 specifications.

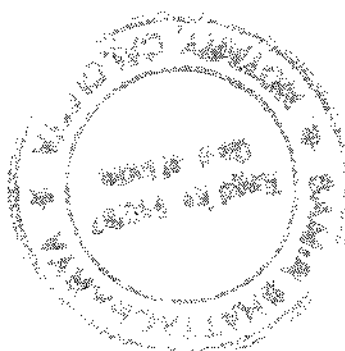
The ground water samples have been collected and analyzed for various parameters like pH, Suspended Solids, Total Dissolved Solids, Temperature, Total Hardness, Calcium Hardness, Magnesium hardness, Alkalinity, Fluoride, Chloride, Sulphates, Nitrates, Phenolic compounds, Heavy metals etc. and is compared with the standards to know the water quality.

The Ground Water Sampling locations and their distances from the project site collected during Dec 2019 to Feb 2020 are shown in Table 3.4.4. The Ground Water characteristics are shown in table Nos. 3.4.5 & 3.4.6 for samples collected during Dec 2019 to Feb 2020 and Table Nos. 3.4.7 to 3.4.8 for samples collected during May 2022.

TABLE 3.4.4: GROUND WATER QUALITY SAMPLING STATIONS

S.No	STATION	DIRECTION	DISTANCE w.r.t site (in Kms.)
1.	Existing Plant	---	---
2.	Marar	NE	0.8
3.	Naisarai	NW	1.0
4.	Ramgarh	NE	3.0
5.	Kaitha	SW	5.5
6.	Ghutua	SE	6.7
7.	Hesla	S	2.6
8.	Partabtoli	SW	2.5

The Groundwater sample analysis indicates that all physical, Chemical & Bacteriological parameters of all the samples collected are within the Potable water standards as per BIS-10500 standard



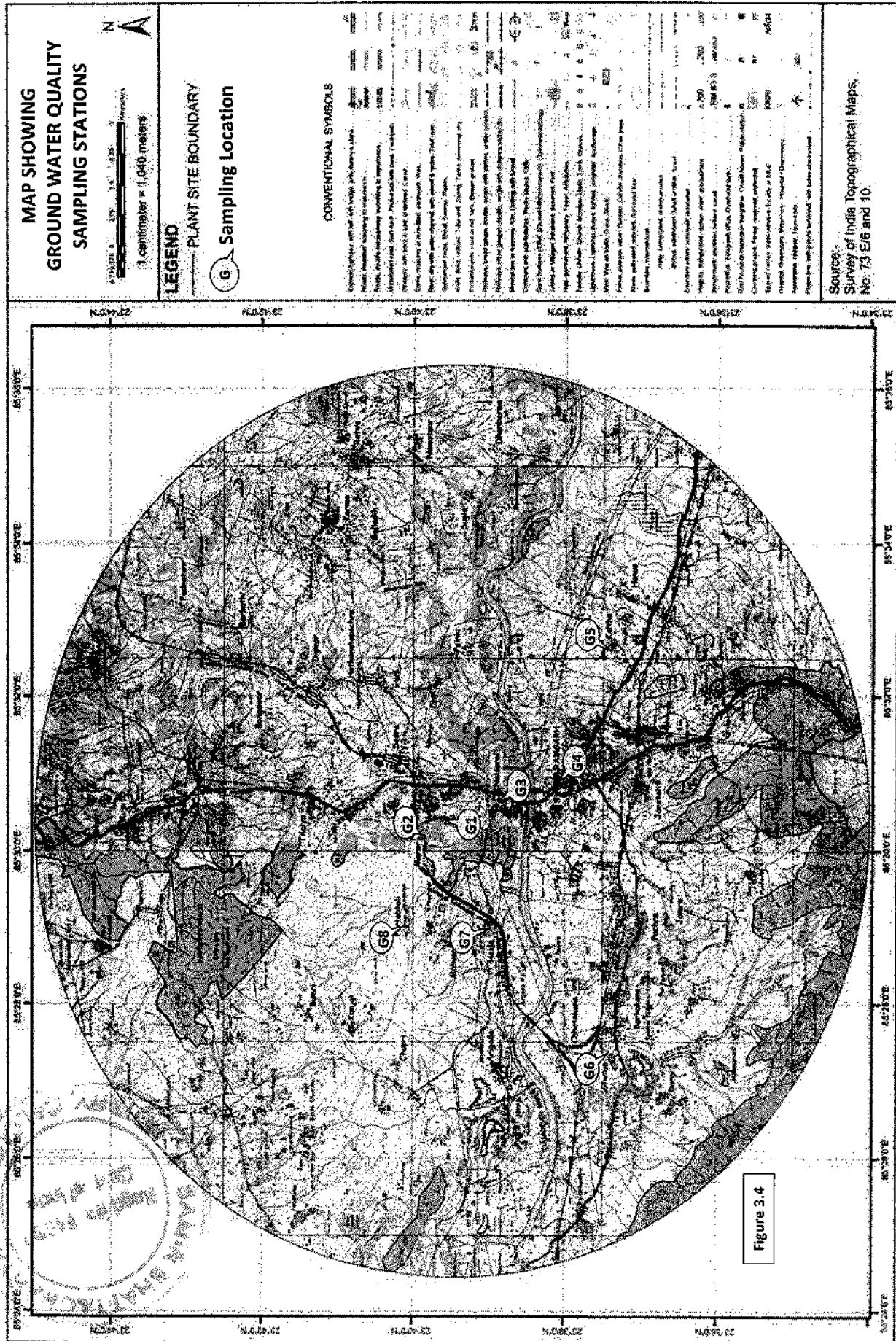


Figure 3.4

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TABLE 3.4.5: GROUND WATER QUALITY ANALYSIS

 (during 1st Dec 2019 to 29th Feb 2020 carried out by M/s. Ampl Environ Pvt Ltd.)

S. No.	Parameter	GW1 Existing Plant	GW2 Marar	GW3 Naisarai	GW4 Ramgarh	Desirable limit (Max.)	Permissible limit (Max.)
1	pH (at 25 °C)	7.66	7.61	7.82	7.51	6.5 to 8.5	--
2	Colour (Hazen)	<5	<5	<5	<5	5	15
3	Turbidity (NTU)	<5	<5	<5	<5	1	5
4	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
6	Total Hardness as CaCO ₃ (mg/L)	238.31	339.82	308.18	316.82	200	600
7	Calcium as Ca (mg/L)	52.4	80.41	57.61	60.28	75	200
8	Alkalinity as CaCO ₃ (mg/L)	251.43	338.39	291.6	319.81	200	600
9	Chloride as Cl (mg/L)	84.36	150.4	139.82	132.8	250	1000
10	Cyanide as CN (mg/L)	ND	ND	ND	ND	0.05	--
11	Magnesium as Mg (mg/L)	25.75	33.31	39.39	39.87	30	100
12	Total Dissolved Solids (mg/L)	426	642	572	487	500	2000
13	Sulphate as SO ₄ (mg/L)	44.36	52.81	58.09	54.44	200	400
14	Fluoride as F (mg/L)	1.26	1.21	1.16	1.23	1	1.5
15	Nitrate as NO ₃ (mg/L)	24.6	28.81	29.86	26.3	45	--
16	Iron as Fe (mg/L)	0.36	0.41	0.32	0.29	0.3	--
17	Aluminium as Al (mg/L)	<0.03	<0.03	<0.03	<0.03	0.03	0.2
18	Boron (mg/L)	<0.1	<0.1	<0.1	<0.1	0.5	1
19	Hexa Chromium as Cr	<0.01	<0.01	<0.01	<0.01	0.05	--
20	Conductivity (mS/cm)	0.768	1.022	0.936	0.794	--	--
21	Phenolic Compounds	<0.001	<0.001	<0.001	<0.001	0.001	0.002
22	Mineral Oil (mg/L)	<0.01	<0.01	<0.01	<0.01	0.5	--
23	Anionic Detergents as MBAS (mg/L)	<0.02	<0.02	<0.02	<0.02	0.2	1
24	Zinc as Zn (mg/L)	1.12	2.08	1.73	1.28	5	15
25	Copper as Cu (mg/L)	0.48	0.64	0.76	0.62	0.05	1.5
26	Manganese as Mn (mg/L)	<0.06	<0.06	<0.06	<0.06	0.1	0.3
27	Cadmium as Cd (mg/L)	<0.06	<0.06	<0.06	<0.06	0.003	--
28	Lead as Pb (mg/L)	<0.13	<0.13	<0.13	<0.13	0.01	--
29	Selenium as Se (mg/L)	<0.01	<0.01	<0.01	<0.01	0.01	--
30	Arsenic as As (mg/L)	<0.01	<0.01	<0.01	<0.01	0.01	--
31	Mercury as Hg (mg/L)	<0.001	<0.001	<0.001	<0.001	0.001	--



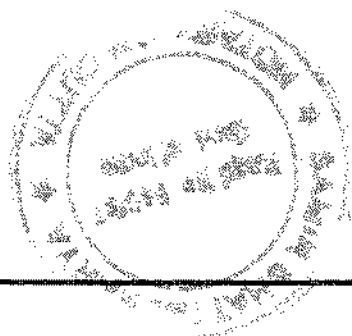
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 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

TABLE 3.4.6: GROUND WATER QUALITY ANALYSIS

 (during 1st Dec 2019 to 29th Feb 2020 carried out by M/s. Ampl Environ Pvt Ltd.)

S. No.	Parameter	GW5 Kaitha	GW6 Ghutua	GW7 Hesla	GW8 Partaboli	Desirable limit (Max.)	Permissible limit (Max.)
1	pH (at 25 °C)	7.62	7.84	7.92	7.76	6.5 to 8.5	--
2	Colour (Hazen)	<5	<5	<5	<5	5	15
3	Turbidity (NTU)	<5	<5	<5	<5	1	5
4	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
6	Total Hardness as CaCO ₃ (mg/L)	278.42	346.31	331.46	241.28	200	600
7	Calcium as Ca (mg/L)	52.8	68.6	66.9	58.4	75	200
8	Alkalinity as CaCO ₃ (mg/L)	286.73	302.61	309.1	272.18	200	600
9	Chloride as Cl (mg/L)	96.81	134.42	128.6	119.81	250	1000
10	Cyanide as CN (mg/L)	ND	ND	ND	ND	0.05	--
11	Magnesium as Mg (mg/L)	35.14	41.95	39.41	22.87	30	100
12	Total Dissolved Solids (mg/L)	474	632	568	471	500	2000
13	Sulphate as SO ₄ (mg/L)	48.52	68.41	52.8	50.68	200	400
14	Fluoride as F (mg/L)	1.16	0.94	1.18	1.07	1	1.5
15	Nitrate as NO ₃ (mg/L)	30.4	24.7	27.4	30.41	45	--
16	Iron as Fe (mg/L)	0.38	0.32	0.27	0.39	0.3	--
17	Aluminium as Al (mg/L)	<0.03	<0.03	<0.03	<0.03	0.03	0.2
18	Boron (mg/L)	<0.1	<0.1	<0.1	<0.1	0.5	1
19	Hexa Chromium as Cr	<0.01	<0.01	<0.01	<0.01	0.05	--
20	Conductivity (mS/cm)	0.782	1.026	0.938	0.841	--	--
21	Phenolic Compounds	<0.001	<0.001	<0.001	<0.001	0.001	0.002
22	Mineral Oil (mg/L)	<0.01	<0.01	<0.01	<0.01	0.5	--
23	Anionic Detergents as MBAS (mg/L)	<0.02	<0.02	<0.02	<0.02	0.2	1
24	Zinc as Zn (mg/L)	2.46	1.97	1.07	1.28	5	15
25	Copper as Cu (mg/L)	0.34	0.92	0.51	0.62	0.05	1.5
26	Manganese as Mn (mg/L)	<0.06	<0.06	<0.06	<0.06	0.1	0.3
27	Cadmium as Cd (mg/L)	<0.06	<0.06	<0.06	<0.06	0.003	--
28	Lead as Pb (mg/L)	<0.13	<0.13	<0.13	<0.13	0.01	--
29	Selenium as Se (mg/L)	<0.01	<0.01	<0.01	<0.01	0.01	--
30	Arsenic as As (mg/L)	<0.01	<0.01	<0.01	<0.01	0.01	--
31	Mercury as Hg (mg/L)	<0.001	<0.001	<0.001	<0.001	0.001	--



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 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

TABLE 3.4.7: GROUND WATER QUALITY ANALYSIS [Addl. TOR # xiii]

(Revalidation of data in May 2022 by M/s. PIONEER ENVIRO)

S. No.	Parameter	GW1 Existing Plant	GW2 Marar	GW3 Naisarai	GW4 Ramgarh	Desirable limit (Max.)	Permissible limit (Max.)
1	pH (at 25 °C)	7.45	7.38	7.24	7.68	6.5 to 8.5	--
2	Colour (Hazen)	<5	<5	<5	<5	5	15
3	Turbidity (NTU)	<5	<5	<5	<5	1	5
4	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
6	Total Hardness as CaCO ₃ (mg/L)	243.4	322.1	296.2	302.4	200	600
7	Calcium as Ca (mg/L)	58.9	68.9	49.4	70.4	75	200
8	Alkalinity as CaCO ₃ (mg/L)	238.4	322.6	272.5	307.4	200	600
9	Chloride as Cl (mg/L)	99.4	141.6	132.3	140.1	250	1000
10	Cyanide as CN (mg/L)	ND	ND	ND	ND	0.05	--
11	Magnesium as Mg (mg/L)	33.2	31.4	44.5	35.2	30	100
12	Total Dissolved Solids (mg/L)	456	622	598	513	500	2000
13	Sulphate as SO ₄ (mg/L)	40.7	55.4	63.7	49.8	200	400
14	Fluoride as F (mg/L)	1.06	1.18	1.02	1.14	1	1.5
15	Nitrate as NO ₃ (mg/L)	2.64	2.72	3.05	2.77	45	--
16	Iron as Fe (mg/L)	0.28	0.34	0.22	0.27	0.3	--
17	Aluminium as Al (mg/L)	<0.03	<0.03	<0.03	<0.03	0.03	0.2
18	Boron (mg/L)	<0.1	<0.1	<0.1	<0.1	0.5	1
19	Hexa Chromium as Cr	<0.01	<0.01	<0.01	<0.01	0.05	--
20	Conductivity (mS/cm)	0.768	1.022	0.936	0.794	--	--
21	Phenolic Compounds	<0.001	<0.001	<0.001	<0.001	0.001	0.002
22	Mineral Oil (mg/L)	<0.01	<0.01	<0.01	<0.01	0.5	--
23	Anionic Detergents as MBAS (mg/L)	<0.02	<0.02	<0.02	<0.02	0.2	1
24	Zinc as Zn (mg/L)	1.12	2.08	1.73	1.28	5	15
25	Copper as Cu (mg/L)	<0.01	<0.01	<0.01	<0.01	0.05	1.5
26	Manganese as Mn (mg/L)	<0.01	<0.01	<0.01	<0.01	0.1	0.3
27	Cadmium as Cd (mg/L)	<0.01	<0.01	<0.01	<0.01	0.003	--
28	Lead as Pb (mg/L)	<0.01	<0.01	<0.01	<0.01	0.01	--
29	Selenium as Se (mg/L)	<0.01	<0.01	<0.01	<0.01	0.01	--
30	Arsenic as As (mg/L)	<0.01	<0.01	<0.01	<0.01	0.01	--
31	Mercury as Hg (mg/L)	<0.001	<0.001	<0.001	<0.001	0.001	--



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 Ramgarh Industrial Area, Marar Village,
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TABLE 3.4.8: GROUND WATER QUALITY ANALYSIS
 (Revalidation of data in May 2022 by M/s. PIONEER ENVIRO)

S. No.	Parameter	GW5 Kaitha	GW6 Ghutua	GW7 Hesla	GW8 Partabtoli	Desirable limit (Max.)	Permissible limit (Max.)
1	pH (at 25 °C)	7.78	8.01	7.67	7.55	6.5 to 8.5	--
2	Colour (Hazen)	<5	<5	<5	<5	5	15
3	Turbidity (NTU)	<5	<5	<5	<5	1	5
4	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
6	Total Hardness as CaCO ₃ (mg/L)	287.2	332.3	312.4	364.5	200	600
7	Calcium as Ca (mg/L)	59.8	60.4	77.2	66.4	75	200
8	Alkalinity as CaCO ₃ (mg/L)	293.8	324.5	338.2	249.8	200	600
9	Chloride as Cl (mg/L)	109.6	122.5	137.5	129.2	250	1000
10	Cyanide as CN (mg/L)	ND	ND	ND	ND	0.05	--
11	Magnesium as Mg (mg/L)	30.7	48.9	37.2	29.7	30	100
12	Total Dissolved Solids (mg/L)	488	706	535	462	500	2000
13	Sulphate as SO ₄ (mg/L)	58.2	62.4	54.8	60.6	200	400
14	Fluoride as F (mg/L)	0.96	0.88	1.09	0.9	1	1.5
15	Nitrate as NO ₃ (mg/L)	3.14	2.55	2.64	3.23	45	--
16	Iron as Fe (mg/L)	0.33	0.28	0.19	0.3	0.3	--
17	Aluminium as Al (mg/L)	<0.03	<0.03	<0.03	<0.03	0.03	0.2
18	Boron (mg/L)	<0.1	<0.1	<0.1	<0.1	0.5	1
19	Hexa Chromium as Cr	<0.01	<0.01	<0.01	<0.01	0.05	--
20	Conductivity (mS/cm)	0.782	1.026	0.938	0.841	--	--
21	Phenolic Compounds	<0.001	<0.001	<0.001	<0.001	0.001	0.002
22	Mineral Oil (mg/L)	<0.01	<0.01	<0.01	<0.01	0.5	--
23	Anionic Detergents as MBAS (mg/L)	<0.02	<0.02	<0.02	<0.02	0.2	1
24	Zinc as Zn (mg/L)	2.46	1.97	1.07	1.28	5	15
25	Copper as Cu (mg/L)	<0.01	<0.01	<0.01	<0.01	0.05	1.5
26	Manganese as Mn (mg/L)	<0.01	<0.01	<0.01	<0.01	0.1	0.3
27	Cadmium as Cd (mg/L)	<0.01	<0.01	<0.01	<0.01	0.003	--
28	Lead as Pb (mg/L)	<0.01	<0.01	<0.01	<0.01	0.01	--
29	Selenium as Se (mg/L)	<0.01	<0.01	<0.01	<0.01	0.01	--
30	Arsenic as As (mg/L)	<0.01	<0.01	<0.01	<0.01	0.01	--
31	Mercury as Hg (mg/L)	<0.001	<0.001	<0.001	<0.001	0.001	--

INTERPRETATION OF GROUNDWATER ANALYSIS
INTERPRETATION OF GROUNDWATER ANALYSIS

The following are the Analysis results collected during study period

Parameters	:	1 st Dec 2019 to 29 th Feb 2020	Revalidated on May 2022
pH	:	7.51 to 7.92	7.24 to 8.01
TDS	:	426 to 642 mg/l	456 to 706 mg/l
Total Hardness	:	238.3 to 346.3 mg/l	243.4 to 364.5 mg/l
Chlorides	:	84.36 to 150.4 mg/l	99.4 to 141.6 mg/l
Fluoride	:	0.94 to 1.26 mg/l	0.88 to 1.18 mg/l
Heavy metals (Iron -Fe)	:	0.27 to 0.41 mg/l	0.19 to 0.34 mg/l
Heavy metals are within the limits.			

The Groundwater sample analysis carried out during May 2022 for physical, Chemical & Bacteriological parameters of all the samples collected are within the Potable water standards as per BIS-10500 standards.

3.5 LAND ENVIRONMENT
3.5.1 GEOLOGICAL & HYDROGEOLOGICAL STATUS OF THE DISTRICT [Gen.TOR # 4 (ix)]

The district is a part of Chotanagpur plateau. Important physiographic regions of the district is Damodar Valley .Major area of the district come under Damodar Valley. Damodar Valley is bounded by Hazaribag Plateau in north and Ranchi Plateau in south .Ranchi and Hazaribag plateau is separated by East-West running Damodar valley. Barka Pahar (Marang Buru) 1049 meters high above sea level located along the Ramgarh-Ranchi border is probably the highest Peak and it also separate both district.

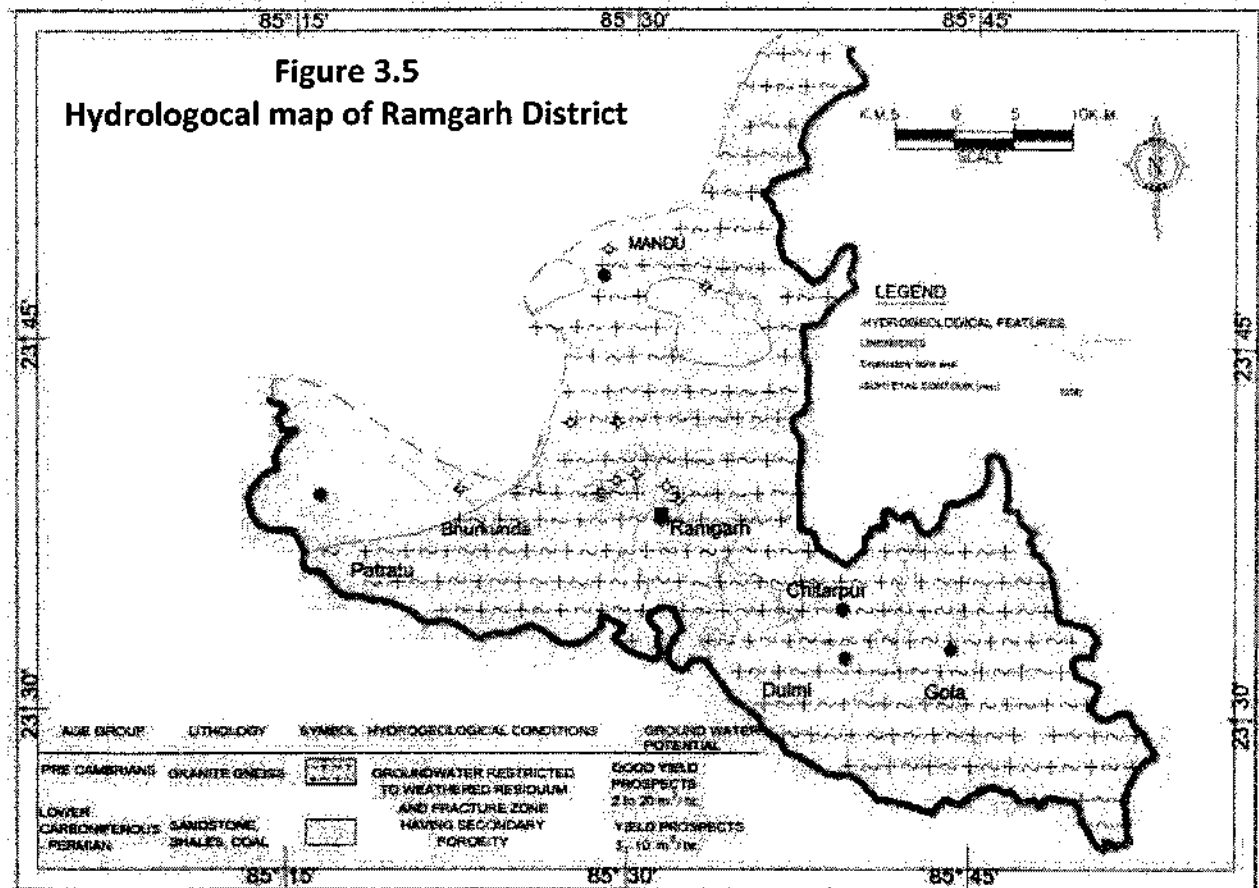
Mainly two type of soil found -Red Soil and Sandy loam. Three soil orders namely Entisols, Inceptisols and Alfisols were observed in the district.

Hydrogeology

The district is having varied hydrogeological characteristics due to which ground water potential differs from one region to another. It is underlain by Chotanagpur granite gneiss of pre-Cambrian age in three-fourth of the district.

Aquifer systems---Two types of aquifers are found. Weathered aquifer and fractured aquifers. Thickness of weathered aquifers varies from 10-20 m in granite terrain and 30-60m

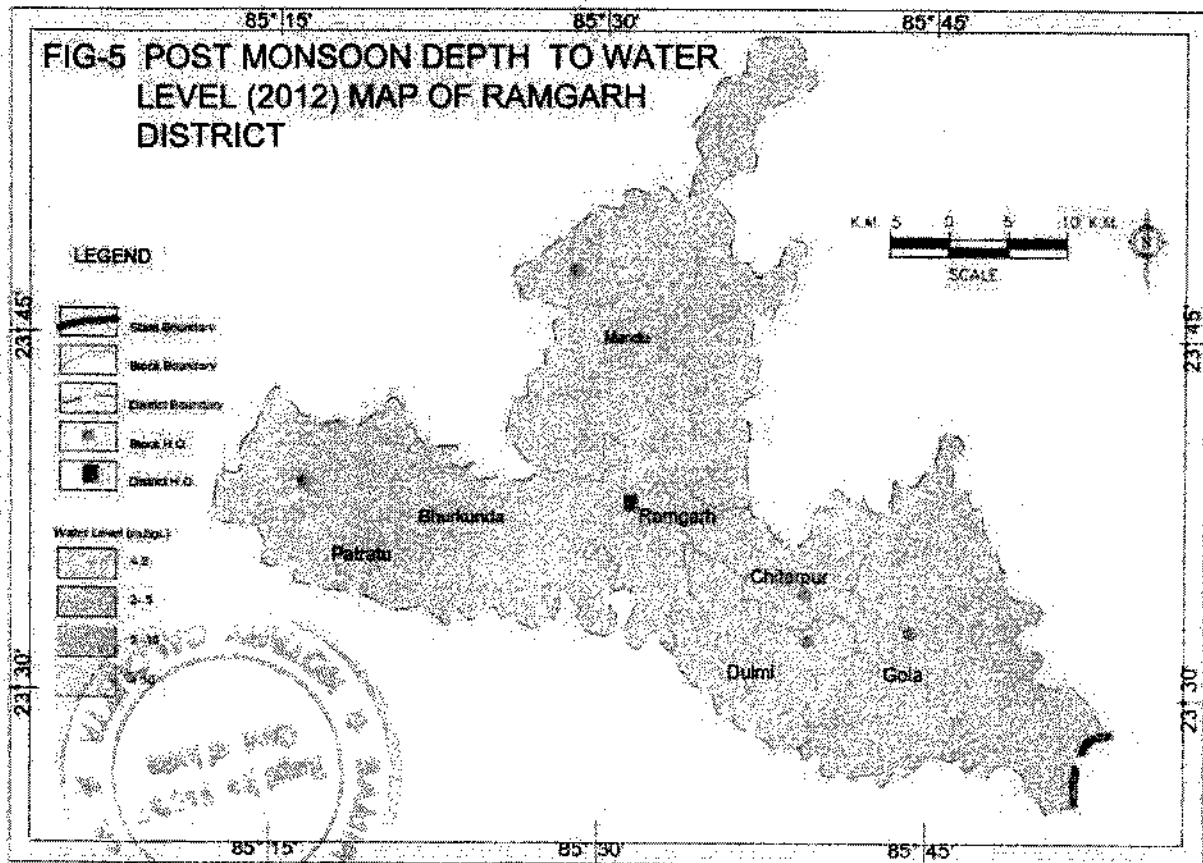
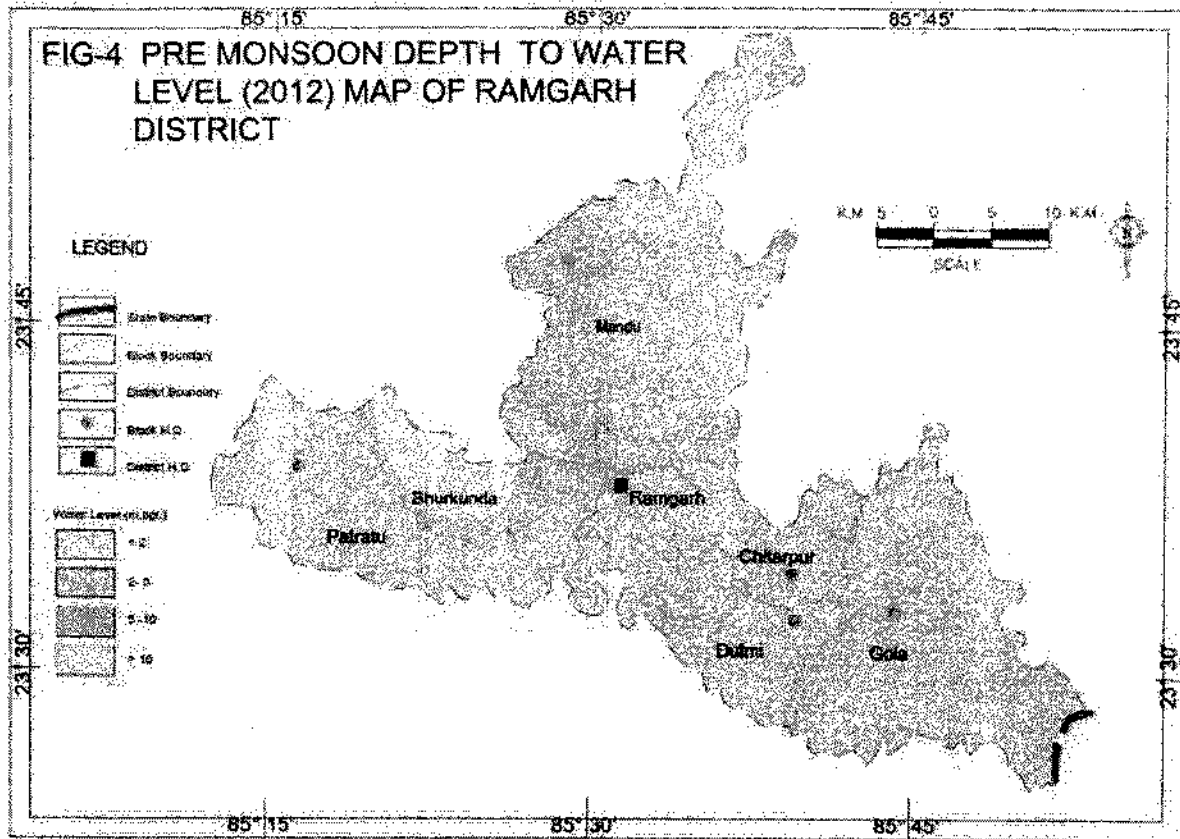
in lateritic terrain. In weathered aquifer ground water occurs in unconfined condition while in fractured aquifer ground water occurs in semi confined to confined condition.



DEPTH TO WATER LEVEL

Central Ground Water Board has established network of observation wells for monitoring of groundwater level to know the behavior of ground water regime in the district. There are seven monitoring stations which are monitored every year in January, May, August & November.

During pre-monsoon season the minimum and maximum water level were observed as 2.25 mbgl at Barwatola and 11.19 mbgl at Bhurkunda respectively. The water level during the post-monsoon season of the district ranges from 1.6 to 5.9 mbgl.



The total water requirement for existing plant is 35 m³/day which is being met from Groundwater source. However for expansion project water shall be drawn from Damodar River for which permission is already been obtained.

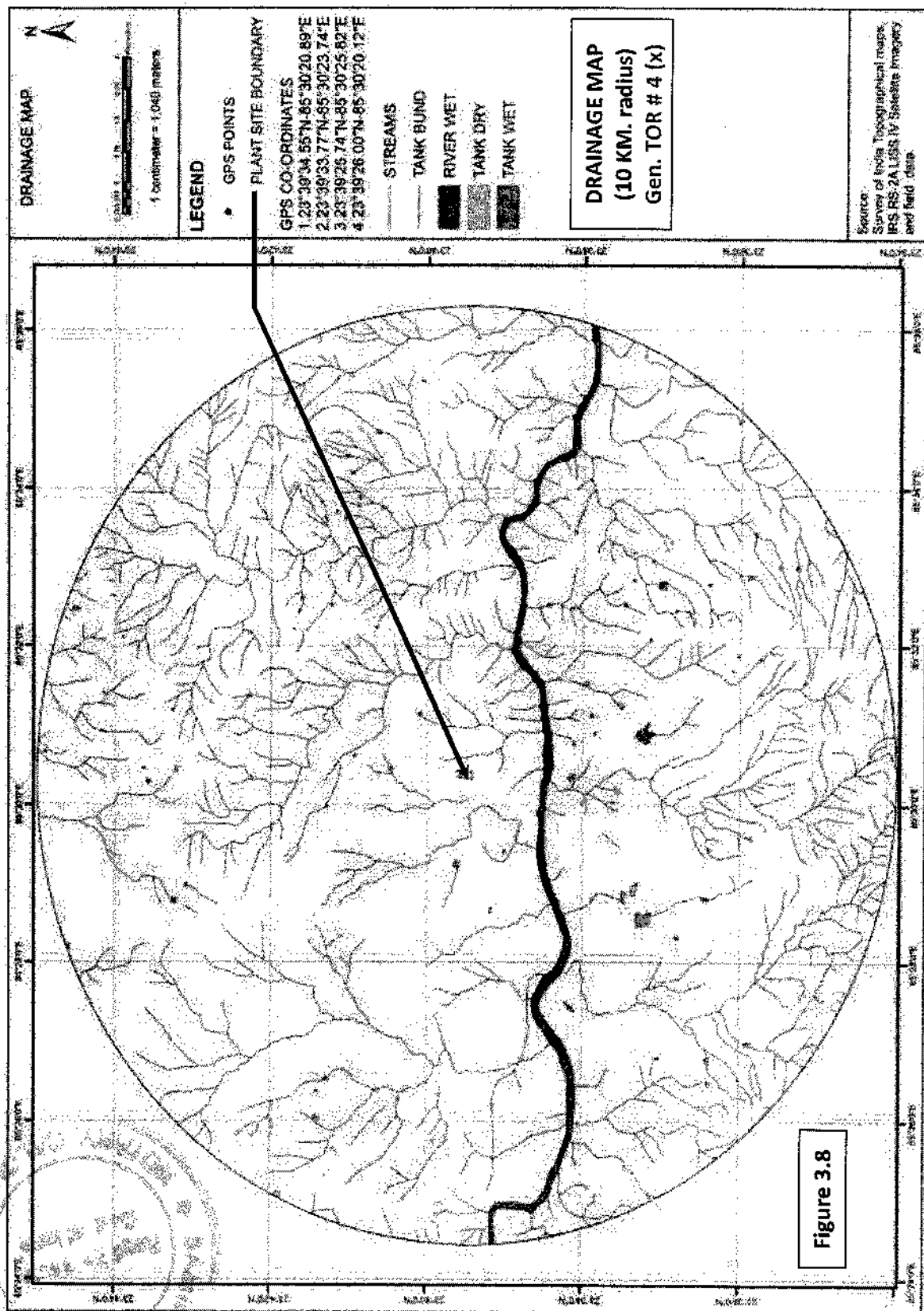
DRAINAGE [Gen.TOR # 4 (x)]

Damodar is the Main River of the district and it also forms a major river basin, Comprising a number of tributaries. Important amongst them are: Naikari, Bhervi or Bhera and Bokaro river. Small Rivers are Hurhuri, Gomti, Barki, Kurum, Kochi, Sherbhuki, Dhobdhab etc. Subarnarekha River flow south eastern part of district. Tributaries of Subarnarekha are Kadamgara, Khatgara etc.



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(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

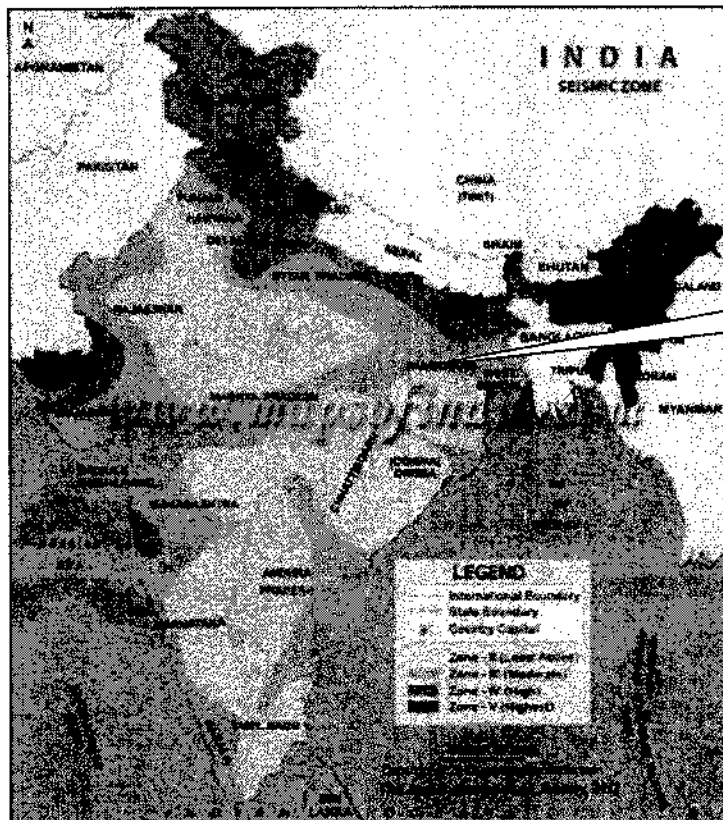


3.5.2 MINERAL RESERVES

Study area consists of few Coal mineral reserves.

3.5.3 SEISMIC EFFECT

The project site falls in zone-III of Seismic Zone classification of India.



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3.5.4 LAND USE PATTERN [Gen.TOR # 4 (viii) & 5 (ii)]

The following is the land use pattern within 10 Km radius of the plant site & LULC map and Satellite Imagery are shown in subsequent slide.

Table 3.5.1: LAND USE PATTERN AREA STATEMENT

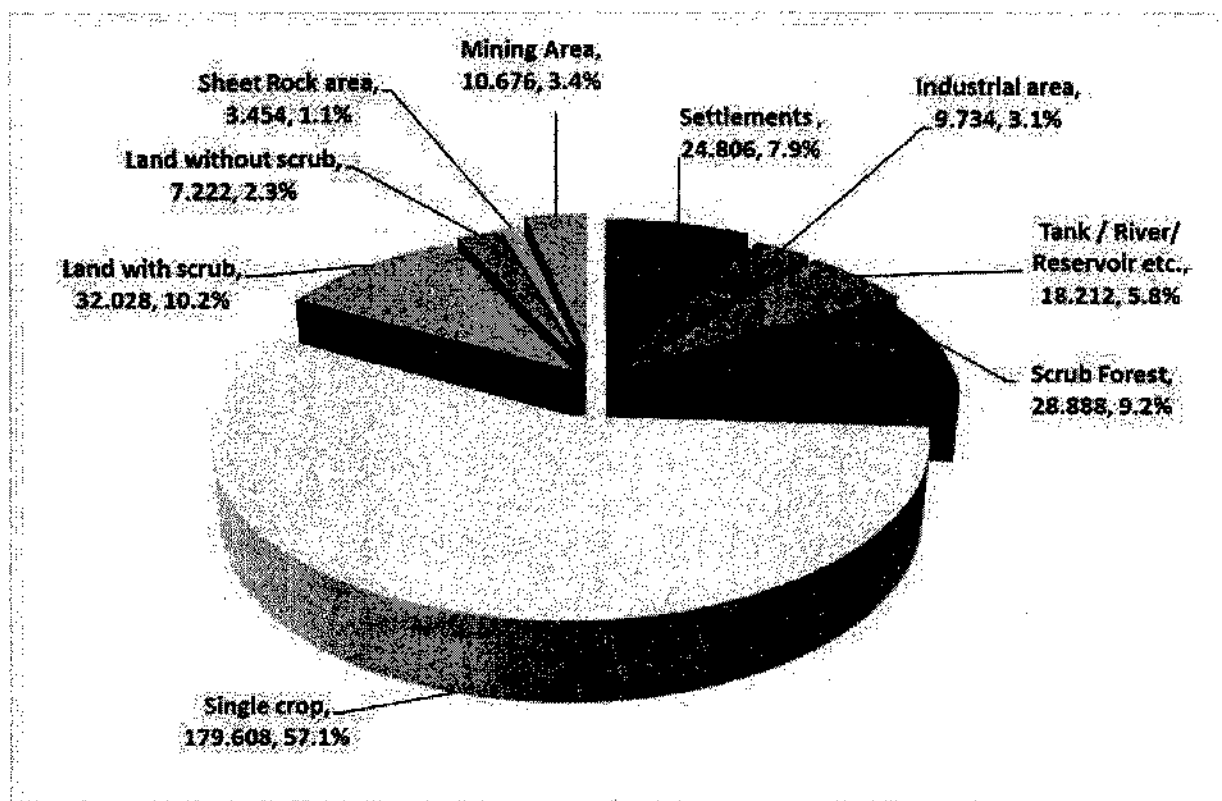
Sl. No.	LANDUSE	AREA (Sq. km)	%
1.	BUILT- UP LAND		
	A. Settlements	24.806	7.9
	B. Industrial area	9.734	3.1
2.	WATERBODIES		
	A. Tank / River etc.	18.212	5.8
3.	FOREST		
	A. Scrub Forest	28.888	9.2

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(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

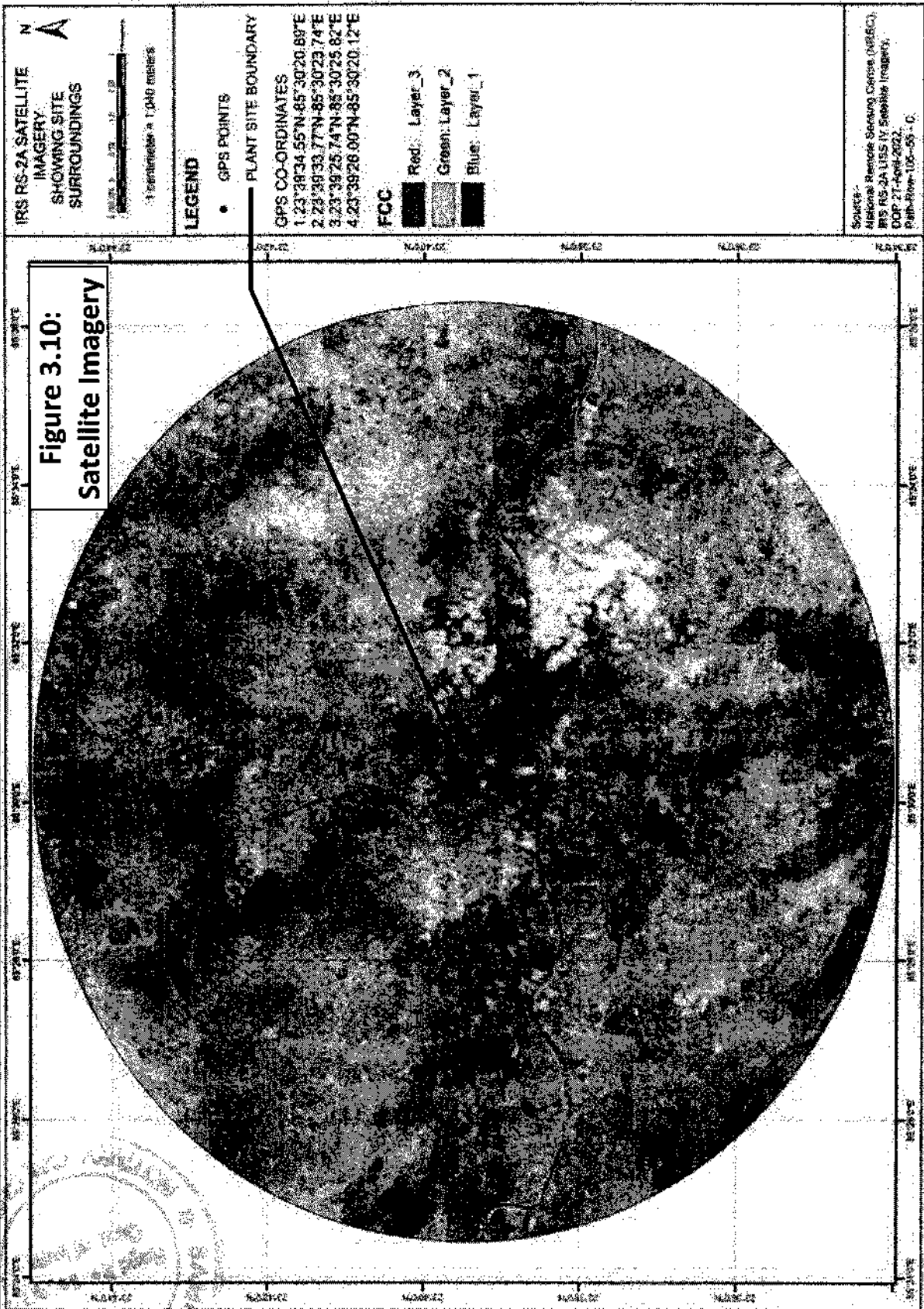
Sl. No.	LANDUSE	AREA (Sq. km)	%
4.	CROP LAND		
	A. Single crop	179.608	57.1
5.	WASTELANDS		
	A. Land with scrub	32.028	10.2
	B. Land without scrub	7.222	2.3
	C. Sheet rock area	3.454	1.1
	D. Mining area	10.676	3.4
	TOTAL	314	100

Figure 3.9: PIE CHART OF LULC STATEMENT



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Ramgarh Tehsil & District, Jharkhand

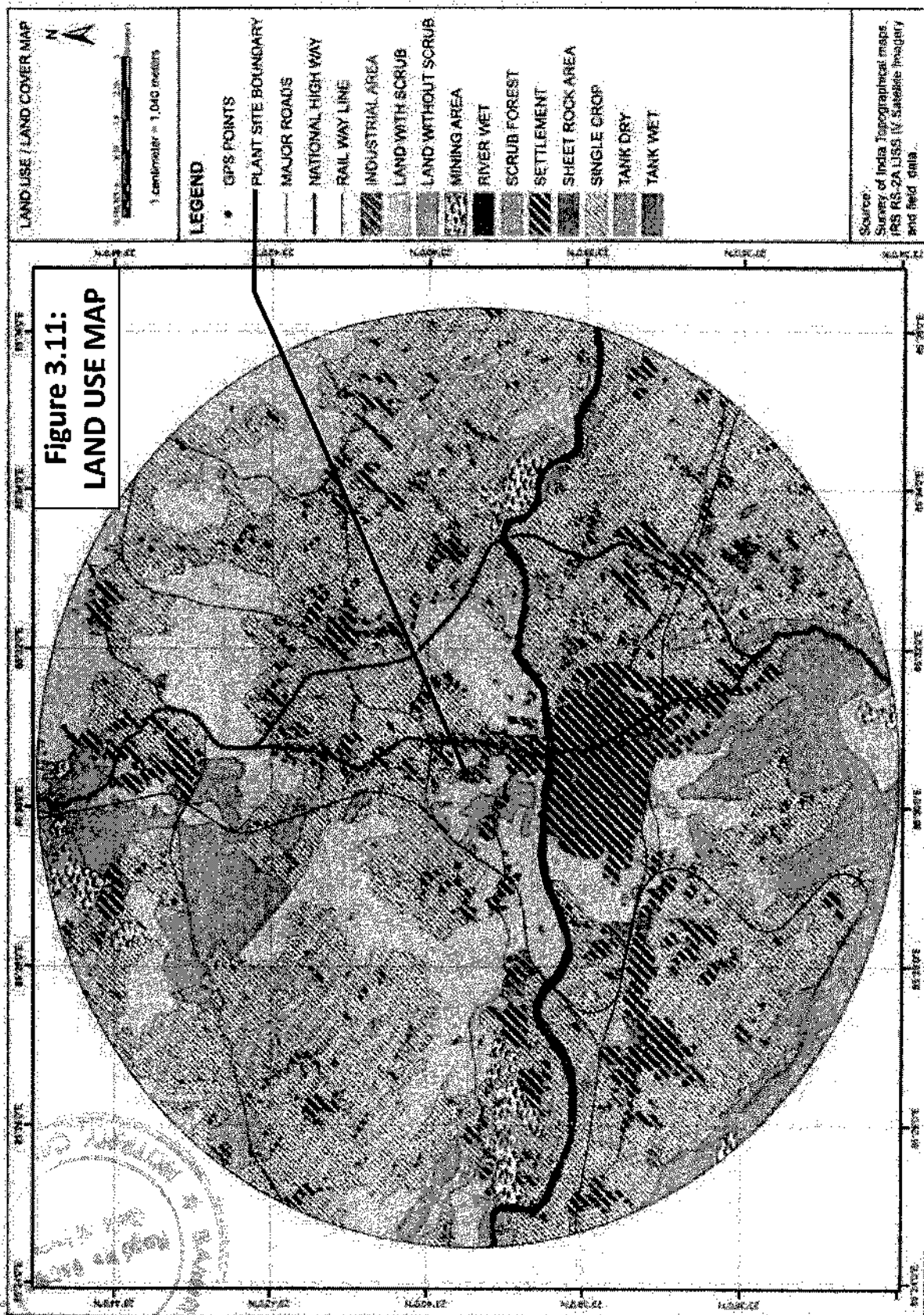
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3.5.5 SOIL ENVIRONMENT [Gen.TOR # 6 (viii)]

5 Nos. of Soil samples have been collected during **December 2019 to February 2020** by M/s. **AMPL ENVIRON PVT LTD.** Hyderabad & further during revalidation of Baseline data 5 Nos. of Soil samples have been collected from the nearby villages in **May 2022** by M/s. **PIONEER ENVIRO LABS & CONSULTANTS PVT. LTD** and for analyzed for various parameters like texture, infiltration rate, bulk density, pH, Ca, Mg, Na, K, Zn, Mn etc. The Soil samples are taken from depth of 15 -90 cm will be collected. The physio-chemical characteristics of soil were analyzed using standard methods.

The soil sampling locations and their distances from the plant were shown in Table 3.5.2. The Soil Quality sampling stations are shown in Fig. 3.12. The Soil characteristics of samples collected in **December 2019 to February 2020** were shown in Table no.3.5.3 and the Soil characteristics of samples collected in **May 2022** were shown in in Table no. 3.5.4.

TABLE 3.5.2: SOIL QUALITY SAMPLING STATIONS

S.No	STATION	DIRECTION	DISTANCE w.r.t site (in Kms.)
1.	Existing Plant	--	--
2.	Marar	0.8	N
3.	Naisarai	1.0	SSE
4.	Ramgarh	3.0	SSE
5.	Partabtoli	2.5	NW



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**Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand**

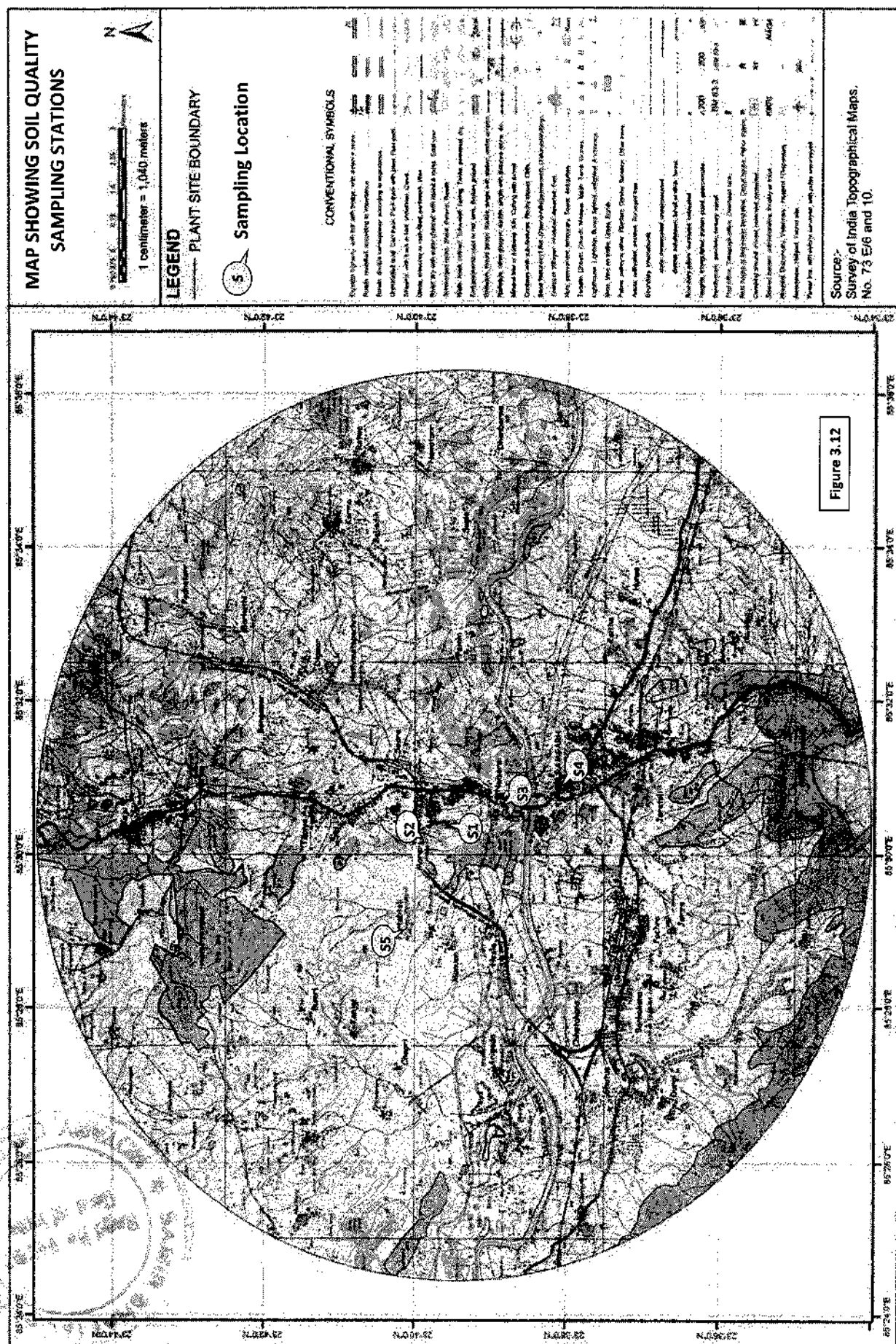


TABLE 3.5.3 : SOIL CHARACTERISTICS

(Samples Collected in the month of during December 2019 to February 2020 by M/s. AMPL ENVIRON PVT LTD. Hyderabad)

S. No.	Parameters	Unit	S1	S2	S3	S4	S5
1	Bulk density	gm/cc	1.44	1.40	1.20	1.25	1.36
2	pH (at 25 °C)	--	6.78	7.03	6.92	6.82	6.99
3	Organic Matter	%	0.63	0.71	0.64	0.75	0.66
4	Soil Texture	--	Sandy Loam	Silty	Silty	Silty	Silty
5	Water holding capacity	%	28.69	27.63	27.52	31.20	32.33
6	Calcium as Ca	mg/100gm	25.50	24.25	26.88	37.61	47.24
7	Conductivity	mS/cm	0.326	0.338	0.312	0.295	0.401
8	Available Nitrogen as N	kg/ha	236.24	238.54	210.18	221.12	310.46
9	Potassium as K	kg/ha	133.36	124.23	174.42	173.42	148.25
10	Available Phosphorus	kg/ha	22.51	15.66	15.63	13.63	11.65
11	Manganese as Mn	mg/kg	6.53	9.05	4.26	6.29	13.17
12	Zinc as Zn	mg/kg	1.98	3.16	2.02	1.10	2.36
13	Lead as Pb	mg/kg	0.62	0.53	0.53	0.72	0.63

Interpretation (during December 2019 to February 2020)

The analysis results show that soil is neutral in nature as pH value ranges from 6.78 –7.03 with organic matter 0.63 - 0.75%. The concentration of Nitrogen (210.18 to 310.46 kg-N/ha) Available Phosphorus (11.65 to 22.51 kg/ha) and Potassium (124.23 to 174.23 kg/ha) has been found to be in good amount in the soil samples. The NPK (Compound fertilizer containing N, P2O5 and K2O) ratio is 8:1:3. The consumption of fertilizers is as important a factor as their production. There should be appropriate balance in the consumption of different fertilizer nutrients. The appropriate NPK ratio under Indian soil conditions is stated to be 4:2:1 (National Academy of Agricultural Sciences, 2009).

TABLE 3.5.4 : SOIL CHARACTERISTICS
(Revalidation of data in May 2022 by M/s. PIONEER ENVIRO)

S. N.	Parameters	Unit	S1	S2	S3	S4	S5
1	Bulk density	gm/cc	1.38	1.44	1.26	1.19	1.32
2	pH (at 25 °C)	--	7.02	7.15	6.88	7.45	7.23
3	Organic Matter	%	0.58	0.66	0.45	0.55	0.49
4	Soil Texture	--	Sandy Loam	Silty	Silty	Silty	Silty
	Sand	%	43	38	28	26	31
	Silt	%	29	40	36	41	46
	Clay	%	28	22	36	33	23
5	Water holding capacity	%	34.8	21.5	24.5	22.6	30.4
6	Porosity	%	45.6	51.5	60.6	50.1	64.6
7	Calcium as Ca	mg/100gm	35.2	28.9	22.6	31.4	42.5
8	Conductivity	mS/cm	0.414	0.368	0.295	0.333	0.469
9	Available Nitrogen as N	kg/ha	206.5	259.2	226.1	277.2	295.8
10	Potassium as K	kg/ha	124.2	108.9	166.2	158.4	161.3
11	Available Phosphorus	kg/ha	24.5	18.9	20.2	14.8	15.2
12	Manganese as Mn	mg/kg	4.8	7.2	4.9	5.8	10.4
13	Zinc as Zn	mg/kg	1.66	2.84	1.85	1.32	1.89
14	Lead as Pb	mg/kg	0.43	0.22	0.35	0.48	0.55

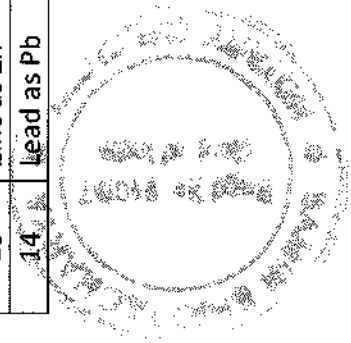


Table 3.5.5 - Soil Standard Classification

S.No.	Parameters	Classification
1.	pH	<4.5 extremely acidic 4.51 - 5.0 very strong acidic 5.01 - 5.5 strongly acidic 5.51-6.0 moderately acidic 6.1 - 6.5 slightly acidic 6.51 - 7.3 Neutral 7.31-7.8 slightly alkaline 7.81-8.5 moderately alkaline 8.51 - 9.0 strongly alkaline >9.0 Very strongly alkaline
2.	Nitrogen (Kg/ha)	Up to 50 very less 51-100 less 110-150 good 151-300 better >300 sufficient
3.	Phosphorus (Kg/ha)	Up to 15 very less 15 - 30 less 31-50 medium 51-65 on average sufficient 66-80 sufficient >80 more than sufficient
4.	Potassium (Kg/ha)	0 - 120 very less 120-180 less 180-240 medium 241-300 average 301-360 better >360 more than sufficient

Interpretation & Conclusion

Samples collected from identified locations indicate pH value ranging from 6.88 to 7.45, which shows that the soil is neutral to moderately alkaline in nature. Soil texture is mostly Silty in the study area. Total nitrogen ranges from 206.5 to 295.8 kg/ha, indicates that better amount of nitrogen is present in the soil and Phosphorous is present in the range of 14.8 to 24.5 kg/ha which is less in range required Phosphorous quantity. Potassium is found to be ranging from 108.9 to 166.2 Kg/ha which is less in range. Hence, need to supplement Phosphorous and Potassium to the farmers in the area, so that soil fertility and accordingly agriculture yield will increase.

3.6 BIOLOGICAL ENVIRONMENT [Gen. TOR # 6 (x)]

The Biological Environment study has been carried out as a part of the EIA study report to understand the present status of ecosystem prevailing in the study area and to study the floristic and fauna diversity of the terrestrial and aquatic environment of the study area within the 10 km radius of the plant site.

Data collection has been sourced from:

- a) Primary source (i.e. Field study)
- b) Secondary source (i.e. Local habitants, Literature, Internet, concern Govt. departments etc.)

All the collected data were classified to interpret the impact of emissions from the proposed project on the flora and fauna of the region. Survey of the wild plants as well as cultivated crop plants was made and all the available information was recorded.

3.6.1 OBJECTIVES OF THE STUDY

The present study was undertaken with the following objectives:

- i. To assess the nature and distribution of vegetation in and around the project within the study area.
- ii. To assess the biodiversity of natural system present in the study area.
- iii. Details of flora and fauna, Endemic, Rare, Endangered and Threatened (RET Species) separately for core and buffer area based on such primary field survey and secondary secures and clearly indicating the Schedule of fauna present. In case of any scheduled -I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department.
- iv. To study the likely impact of the proposed project on the Biological Environment and to suggest mitigation measure, if required.

3.6.2 METHODOLOGY OF THE FLORAL AND FAUNAL STUDY

Biological Environment Study was conducted in the month of May 2022 during Summer season by Dr. K. Bayapu Reddy (FAE – EB) & team to assess the list of terrestrial plant and animal species that occur in the core area and the buffer area up to 10 Km radius from proposed project site. The entire core area has been surveyed for enumeration of flora

and fauna. Within the core area 10 quadrats of 5 x 20 m (100 m²) each were chosen for phytosociological investigation using restricted random sampling techniques. For the purpose of calculation of Importance Value Indices (IVI) of the core area, quadrat method was used for estimation of frequency and density while the cover was estimated by modified line intercept method. The canopy cover of each species that intercepted or overlaid or under laid along a line transect of 500 m was determined based on the total distance intercepted. The average canopy cover was calculated as the percent cover based on four transects of 500 m each.

3.6.3 DESCRIPTION OF THE PROJECT SITE & STUDY AREA

It is an existing Ferro alloys plant, located Ramgarh Industrial Area, Marar Village, Ramgarh, Jharkhand. The total area of the industrial site is 2.91 Ha. (7.18 Acres) and it is proposed to develop greenbelt of 1.17 Ha. (2.9 Acres) which is 40% of the total land area.

Pictures of the existing greenbelt and avenue plantations is shown below:

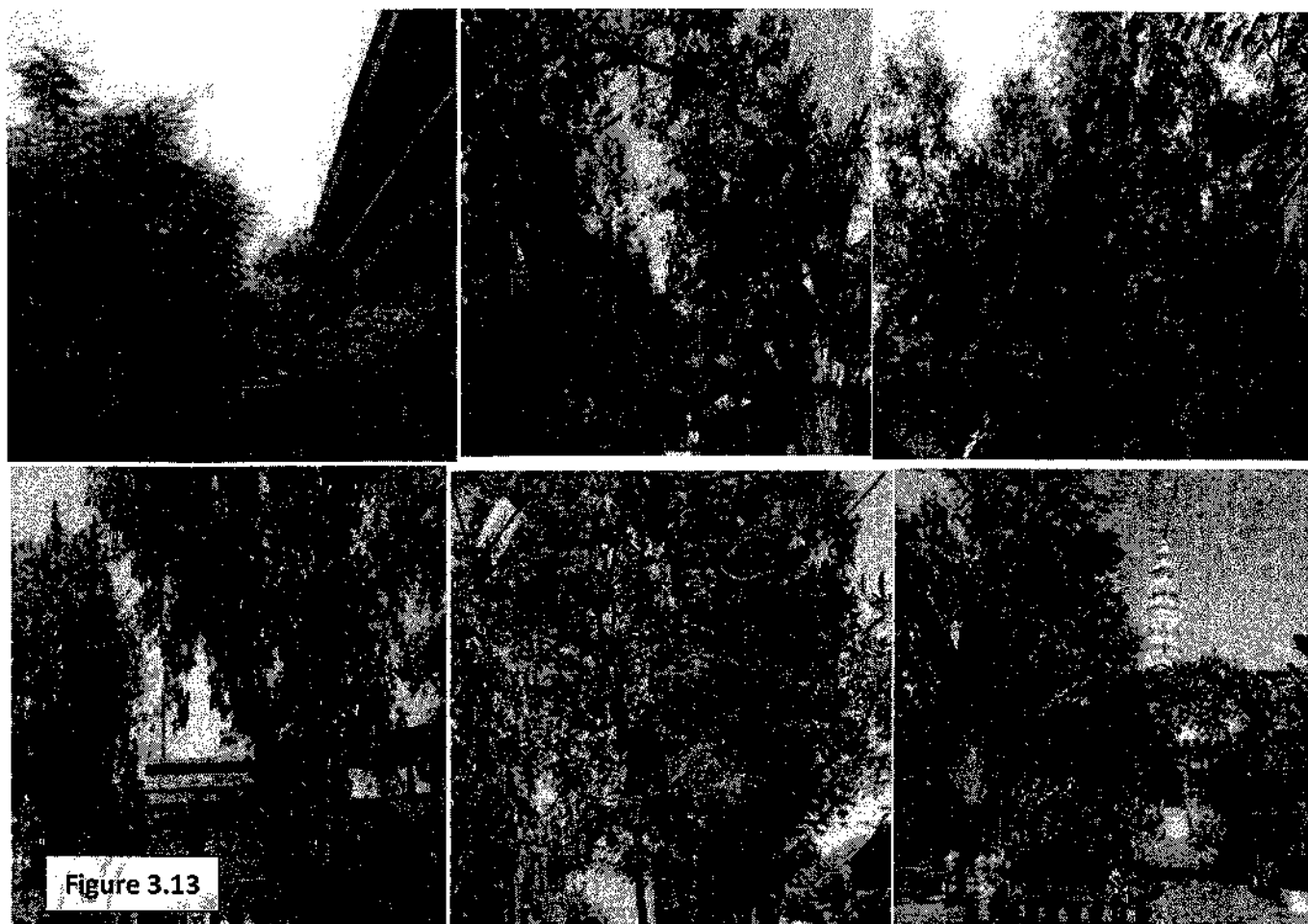


Figure 3.13

Table 3.6.1: LAND USE OF THE PLANT AREA

Sl. No	Description of Area	Area (Acre)	Area (Hect.)	%
1.	Built Up Area (for existing & Expansion)	3.6	1.46	50.14
2.	Road & Paved Area	0.5	0.20	6.96
3.	Raw Material / Finish Product Storage	1.415	0.57	19.71
4.	Truck Parking	0.1	0.04	1.39
5.	Admin & Utility	0.05	0.02	0.70
6.	Green Belt Development	1.515	0.61	21.10
Total		7.18	2.91	100.00

Note:

As the plant is situated in CPA. Total Greenbelt will be developed in an area of 2.9 Acres (1.17 Ha.). Out of which 1.515 Acres (0.61 Ha.) will be within the plant premises & remaining greenbelt i.e. 1.385 Ac. (0.56 Ha.) will be developed in Additional land located Outside the Plant premises as a compensatory measure.

Environmental Status:

The site under consideration is an existing Ferro Alloys plant located in an industrial area. Hence, there shall be no change in the land use and land cover of the project site.

There are no Notified National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild animals, or other protected areas except reserved and protected forests within the 10 Km buffer zone. It is located in an industrial park. There are several industrial units in operation in the Industrial Park where the plant is situated.

None of the vertebrates other than Aves belong to either the Rare or endangered or the threatened (RET) category of the IUCN or Schedule-I of the Indian Wildlife (Protection) Act. The proposed expansion activity of the industry is not going to pose any additional threat to Schedule-1 fauna.

3.6.4 DETAILS OF FLORA IN THE STUDY AREA

The study area includes the industrial site of 2.91 Ha. (7.18 Acres) and the surrounding buffer zone of 10 Km radius. There are many industries; protected and reserve forests in the buffer zone. Primary survey of the study area was carried out during the month of May 2022. The project site is of 2.91 Ha. (7.18 Acres) and about 1.17 Ha. (2.9 acres) of Greenbelt is being / will be developed within the existing plant premises & outside the plant premises. There are many trees grown as a part of the industrial greenbelt and avenue plantations. Ashok (*Polyalthia longifolia*) has been grown in large numbers and it is easily

the most common and dominant plant in the core area. Natural flora is represented by a few weeds. A list of plants found in the core area is given in Table- 3.6.2.

Table 3.6.2: List of plants found in the plant site during the study period

S.No.	Common name	Scientific Name
1	Gulmohar Tree	Delonix regia
2	Nandi Flame	Spathodea campanulata
3	Yellow Flame	Peltophorum pterocarpum
4	Kaner	Nerium oleander
5	Peeli kaner	Cascabela Thevatia
6	White Frangipani	Plumeria obtusa
7	Naseberry	Manilkara zapota
8	Lemon Tree	Citrus limon
9	Pomegranate	Punica granatum
10	Mahua Tree	Madhuca longifolia
11	Neem Tree	Azadirachta Indica
12	Kadam Tree	Neolamarckia cadamba

3.6.5 DETAILS OF FLORA IN THE STUDY AREA

Flora of the buffer zone:

The buffer zone includes fair amount of habitat biodiversity. There are industrial, residential, agrarian and forest ecosystems besides rivers. There are both reserved and protected forests. Most of the avenue trees, fruit trees and ornamental plants are grown in the premises of the industrial units. There are both reserved and protected forests. There are Sal plantations, Bamboo plantations and mixed forests dominated either by bamboo or Sal. The forests belong to tropical dry deciduous type of Champion and Seth. There are degraded open scrub jungles mainly around the foot of the hills. There are also sparsely vegetated rocky hill tops. A list of forests found in the buffer zone is given in Table – 3.6.3. Besides the forests listed in Table 3.6.3, there are few unnamed small and scattered forests in the study area.

The trees are mainly deciduous, evergreen types and with thick undergrowth. The forest types observed in the study area are of moist tropical deciduous forest, which tends to become dry deciduous forest. Four principal vegetation types within the study area were recognized during survey:

- i. Open Sal forest associated with mixed jungle
- ii. Mixed jungle

- iii. Degraded forest dominated with Palash and Mahua
- iv. Scrub forest

Vegetation in Forest Area

The following forests are situated within 10 Kms. radius of the plant site.

- Unnamed PF (0.5 Kms. – in W)
- Unnamed PF (4.7 Kms- in NW)
- Unnamed PF (4.0 Kms – in S)

The forests are characterized by the presence of broad-leaved deciduous trees like Sal (*Shorea robusta*), Asan (*Terminalia alata*), Bhallaatak (*Semecarpus acardium*), Palash (*Butea monosperma*), Piasal (*Pterocarpus marsupium*), Mahua (*Madhuca longifolia*) etc. The understory consists of bamboo clumps, lantana and Christmas bushes. Climbers like Bushwillow (*Combretum candrum*), Air potato (*Dioscorea bulbifera*), Satamuli (*Asparagus racemosus*) etc. are found in close association with the trees and shrubs. There are also protected forests or plantations of Sal and Bamboo in the buffer zone. A list of trees, shrubs, and perennial climbers found in the buffer zone is given in Table- 3.6.3.

Table 3.6.3 : List of trees, shrubs and perennial climbers found in the buffer zone of the plant

Scientific Name	Common Name	Family
Trees		
<i>Acacia catechu</i>	Khair	Mimosaceae
<i>Acacia pennata</i>	Feather Acacia	Mimosaceae
<i>Alstonia cholaris</i>	Chatim	Apocynaceae
<i>Aegle marmelos</i>	Bel	Rutaceae
<i>Anogeissus latifolia</i>	Dhawra	Combretaceae
<i>Albizia lebbek</i>	Siris	Mimosaceae
<i>Albizia odoratissima</i>	Kala Siris	Leguminosae
<i>Albizia procera</i>	Safed Siris	Mimosaceae
<i>Semecarpus acardium</i>	Bhilwa	Combretaceae
<i>Azadirachta indica</i>	Neem	Meliaceae
<i>Bauhinia vahlii</i>	Mahul	Sapotaceae
<i>Bauhinia variegata</i>	Kachnar, Papri	Leguminosae
<i>Bombax ceiba</i>	Semal	Bombaceae
<i>Butea monosperma</i>	Dhak, Palah	Fabaceae

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

<i>Cassia angustifolia</i>	Indian senna	Fabaceae
<i>Cassia fistula</i>	Amaltas	Fabaceae
<i>Diospyros melanoxylon</i>	Kendu	Ebenaceae
<i>Dalbergia sissoo</i>	Shisham	Fabaceae
<i>Delonix regia</i>	Gulmohar	Fabaceae
<i>Emblica officinalis</i>	Amla	Leguminosae
<i>Enterolobium cyclocarpum</i>	Elephant ear	Mimosaceae
<i>Erythrina variegata</i>	Indian coral tree	Fabaceae
<i>Erythrina suberosa</i>	Dhaul, Padiara	Fabaceae
<i>Eucalyptus globulus</i>	Eucalyptus	Myrtaceae
<i>Flacourtia indica</i>	Indian Plum	Flacourtiaceae
<i>Ficus benghalensis</i>	Bar, Bargad	Moraceae
<i>Ficus glomerata</i>	Gular	Moraceae
<i>Ficus religiosa</i>	Peepal	Moraceae
<i>Gmelina arborea</i>	Gamhar	Verbenaceae
<i>Grevillea robusta</i>	Silver oak	Proteaceae
<i>Lagerstroemia speciosa</i>	Banaba	Lythraceae
<i>Holarrhena antidysenterica</i>	Kutaja	Apocynaceae
<i>Jacaranda mimosifolia</i>	Jacaranda	Bignoneaceae
<i>Lagerstroemia parviflora</i>	Sidha	Lythraceae
<i>Leucaena leucocephala</i>	Subabul	Fabaceae
<i>Mangifera indica</i>	Aam	Anacardiaceae
<i>Madhuca longifolia</i>	Mahua	Sapotaceae
<i>Melia azadirachta</i>	Bakain	Meliaceae
<i>Magnolia champaca</i>	Champaka	Magnoliaceae
<i>Millingtonia hortensis</i>	Indian cork tree	Bignoniaceae
<i>Moringa oleifera</i>	Sanjna	Moringaceae
<i>Pithecellobium dulce</i>	Janglijalebi	Fabaceae
<i>Peltophorum pterocarpum</i>	Copper-pod	Caesalpiniaceae
<i>Polyalthia longifolia</i>	Mast tree	Annonaceae
<i>Pongamia pinnata</i>	Karanj	Papilionaceae
<i>Prosopis juliflora</i>	Vilaitikikar	Mimosaceae
<i>Psidium guajava</i>	Amrud	Myrtaceae
<i>Pterocarpus marsupium</i>	Piasal	Fabaceae
<i>Pterospermum acerifolium</i>	Kanakchapa	Malvaceae
<i>Shorea robusta</i>	Sal	Dipterocarpaceae
<i>Spathodea campanulata</i>	Fountain tree	Bignoneaceae
<i>Schleichera oleosa</i>	Kusum	Sapindaceae
<i>Syzygium cumini</i>	Jamun	Myrtaceae
<i>Tamarindus indica</i>	Imli	Fabaceae
<i>Tectona grandis</i>	Teak	Lamiaceae
<i>Terminalia arjuna</i>	Arjun	Combretaceae
<i>Terminalia bellirica</i>	Bahera	Combretaceae

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

<i>Terminaliachebula</i>	Harida	Combretaceae
<i>Terminaliaaolata</i>	Asan	Combretaceae
<i>Terminaliacatappa</i>	Indian almond	Combretaceae
<i>Trewianudiflora</i>	Gamhar	Euphorbiaceae
<i>Ziziphusmauritiana</i>	Ber	Rhamnaceae
Shrubs		
<i>Alangiumsalvifolium</i>	Ankula	Alangiaceae
<i>Abutilon indicum</i>	Indian Abutilon	Malvaceae
<i>Adhatodavasica</i>	Vasaka	Acanthaceae
<i>Agave americana</i>	Ram Ban	Agavaceae
<i>Calotropisprocera</i>	Shet-akanda	Asclepiadaceae
<i>Calotropis gigantea</i>	Akanda	Asclepiadaceae
<i>Cassia sophora</i>	Kolokasunda	Caesalpiniaceae
<i>Chromolaenaodorata</i>	Christmas bush	Asteraceae
<i>Clerodendrumphlomidis</i>	Aarni	Lamiaceae
<i>Cleistanthuscollinus</i>	Garrar	Euphorbiaceae
<i>Combretumdecandrum</i>	Combretums	Combretaceae
<i>Dodonaeviscosa</i>	Mehndar	Sapindaceae
<i>Durantaerecta</i>	Duranta	Verbenaceae
<i>Euphorbia sp.</i>	Euphorbia	Euphorbeaceae
<i>Eupatorium cannabinum</i>	Ayapana	Asteraceae
<i>Gossypiumherbaceum</i>	Kapas	Malvaceae
<i>Hibiscus rosa-sinensis</i>	Jaba	Malvaceae
<i>Ipomoea carnea</i>	Bara Kalmi	Convolvulaceae
<i>Indigoferapulchella</i>	Kathi, Nil	Fabaceae
<i>Jatropha glandulifera</i>	Lal-bharenda	Euphorbiaceae
<i>Jatropha gossypifolia</i>	Verenda	Euphorbiaceae
<i>Leonotisnepetifolia</i>	Lalguma	Lamiaceae
<i>Lantana camara</i>	Chotra	Verbenaceae
<i>Meynalaxiflora</i>	Mayna	Rubiaceae
<i>Mimosa rubicaulis</i>	Karingan	Fabaceae
<i>Ocimumgratissimum</i>	Ramotulsi	Lamiaceae
<i>Polygonum capitatum</i>	Smartweed	Polygonaceae
<i>Ricinus communis</i>	Rehri	Euphorbiaceae
<i>Sidacordifolia</i>	Berela	Malvaceae
<i>Sidarhombifolia</i>	Lalberela	Malvaceae
<i>Tabernaemontanadivaricata</i>	Tagar	Apocynaceae
<i>Urena lobata</i>	Bon okra	Malvaceae
<i>Vitex negundo</i>	Bana	Lamiaceae
<i>Woodfordiafruticosa</i>	FireFlame Bush	Lythraceae
<i>Zizyphusjuba</i>	Beri	Rhamnaceae
Climbers		
<i>Asparagus racemosus</i>	Satamuli	Liliaceae

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

Bauhinia vahlii	Gront	Caesalpiniaceae
Combretum roxburghii	Punk	Combretaceae
Cocciniagrandis	Telakucha	Cucurbitaceae
Dioscorea bulbifera	Gachalu	Dioscoriaceae
Dioscorea oppositifolia	Shora-alu	Dioscoriaceae
Mukiamaderaspatana	Bilavi	Cucurbitaceae
Herbs		
Achyranthes aspera	Apang	Amaranthaceae
Acalypha indica	Muktajhuri	Euphorbiaceae
Ageratum conyzoides	Dochunty	Asteraceae
Amaranthus spinosus	Katanotey	Amaranthaceae
Anisomeles indica	Bhuta-airi	Lamiaceae
Andrographis paniculata	Kalmegh	Acanthaceae
Argemone mexicana	Seyalkanta	Papaveraceae
Barleria prionitis	Daskaranta	Acanthaceae
Boerhavia diffusa	Punarnaba	Nyctaginaceae
Boerhavia repens	Ghodapuruni	Nyctaginaceae
Centella asiatica	Thankuni	Umbelliferae
Cleome viscosa	Hurhure	Cleomaceae
Commelinabenghalensis	Kansiri	Commelinaceae
Croton bonplandianum	Kbon-tulsi	Euphorbiaceae
Cassia tora	Chakundo	Caesalpiniaceae
Cyperus rotundus	Motha	Cyperaceae
Crotalaria retusa	Atasi	Papilionaceae
Datura stramonium	Dhatu	Solanaceae
Dentella repens	Bhuiyat	Rubiaceae
Eclipta prostrata	Kesutti	Asteraceae
Eichornia crassipes	Kachuripana	Pontederiaceae
Euphorbia hirta	Boro-karni	Euphorbiaceae
Hyptis suaveolens	Vilayti Tulsi	Lamiaceae
Hygrophila longifolia	Kantakalia	Acanthaceae
Heliotropium indicum	Hatisur	Boraginaceae
Ixora coccinea	Rangan	Rubiaceae
Limnophila indica	Karpur	Scrophulariaceae
Lippia nodiflora	Bhui okra	Verbenaceae
Leonurus sibiricus	Raktadrones	Lamiaceae
Leucas aspera	Shetadrones	Lamiaceae
Mimosa pudica	Lajjabati	Mimosaceae
Musa x paradisiaca	Kanch-kala	Musaceae
Musa balbisiana	Kodoli	Mosaceae
Nymphaea pubescens	Saluk	Nymphaeaceae
Ocimum sanctum	Tulasi	Lamiaceae
Physalis minima	Bon-tepari	Solanaceae

Phyllanthusuritaria	Hazarmani	Phyllanthaceae
Ruelliatuberosa	Popping pod	Acanthaceae
Solanum nigrum	Kakmachi	Solanaceae
Tridaxprocumbens	Tridaksha	Asteraceae
Typhaelephantina	Hogla	Typhaceae
Vernonia cinerea	Kukshim	Asteraceae
Palms		
Borassusflabelliformis	Tal	Arecaceae
Cocos nucifera	Coconut Palm	Arecaceae
Phoenix sylvestris	Khajoor	Arecaceae
Phoenix acaulis	JangliKhajoor	Arecaceae
Bamboo		
Bambusaarundinacea	Kanta bans	Poaceae
Dendrocalamusstrictus	Bamboo	Poaceae
Grasses		
Apludavaria	Chunkarki	Poaceae
Aristidadepressa	Lambi	Poaceae
Chrysopogonfulvus	Dholu	Poaceae
Chrysopogongryllus	Dholu	Poaceae
Chrysopogonmontanus	Dholu	Poaceae
Cynodondactylon	Dhoob	Poaceae
Eragrostistenella	Bharbusi	Poaceae
Eragrostisunioloides	Kush	Poaceae
Heteropogoncontortus	Lamb, Sariala	Poaceae
Imperatacylindrica	Oolu	Poaceae
Pennisetumorientale	Fountain Grass	Poaceae

3.6.6 DETAILS OF FAUNA IN THE STUDY AREA

It is based both on the primary survey and the secondary data relating to the forest area of the buffer zone. The area of survey and study extends up to a radius of 10 Km in case of terrestrial fauna. Among the mammals, monkeys, squirrels and rats were found. There are reports or indications to the presence of Schedule -I Indian wildlife mainly Elephants. A list of vertebrate species other than birds either spotted or reported from the study area is given in Table – 3.6.4.

A list of birds either spotted or reported from the study area is given in Table-3.6.5. A list of butterflies spotted in the study areas given in Table-3.6.6.

Table-3.6.4: List of vertebrates other than birds either spotted or reported from the study area.

Scientific name	Common name	Schedule

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro-Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

Mammals		
<i>Cynopterus sphinx</i>	Short Nosed Indian Fruit Bat	Schedule-V
<i>Pteropus giganteus</i>	Indian Fruit Bat	Schedule-V
<i>Cuon alpinus</i>	Indian Wild Dog	Schedule-II
<i>Felis chaus</i>	Jungle Cat	Schedule-II
<i>Sus scrofa</i>	Wild Boar	Schedule-III
<i>Ratufa indica</i>	Giant Squirrel	Schedule-II
<i>Funambulus pennantii</i>	Five Striped Palm Squirrel	Schedule-IV
<i>Canis aureus</i>	Jackal	Schedule-III
<i>Axis axis</i>	Chital	Schedule-III
<i>Suncus murinus</i>	Indian House Shrew	Schedule-IV
<i>Hyaena hyaena</i>	Hyaena	Schedule-II
<i>Hystrix indica</i>	Indian Porcupine	Schedule-IV
<i>Lepus nigricolis</i>	Hare	Schedule-IV
<i>Vulpus benghalensis</i>	Fox	Schedule-II
<i>Muntiacus muntjak</i>	Barking Deer	Schedule-III
<i>Presbytis entellus</i>	Monkey	Schedule-II
<i>Macaca mulatta</i>	Monkey	Schedule-II
<i>Rattus rattus</i>	Rat	Schedule-V
<i>Herpestes edwardsii</i>	Mongoose	Schedule-II
<i>Boselaphus tragocamelus</i>	Nilgai	Schedule-III
<i>Cervus unicolor</i>	Sambar	Schedule-III
<i>Viverricula indica</i>	Small Indian Civet	Schedule-II
Reptiles & Amphibians		
<i>Naja naja</i>	King Cobra	Schedule-II
<i>Calotes versicolor</i>	Garden Gecko	Schedule-IV
<i>Chamaeleo zeylanicus</i>	Indian Chameleon	Schedule-II
<i>Hemidactylus leschenaultii</i>	Leaf Toad Gecko	Schedule-IV
<i>Trimeresurus gramineus</i>	Bamboo Pit Viper	Schedule-III
<i>Nabix stolata</i>	Bamhuni	Schedule-II
<i>Eutropis macularia</i>	Bronze Grass Skink	Not Available
<i>Bungarus caeruleus</i>	Common Indian Krait	Schedule-IV
<i>Ptyas mucosus</i>	Indian Rat Snake	Schedule-II
<i>Xenochrophis piscator</i>	Asiatic Water Snake	Schedule-II
<i>Viper russelli</i>	Russel Viper	Schedule-II
<i>Echiscarinatus</i>	Saw Scaled Viper	Schedule-IV
<i>Eublepharis species</i>	Fat Tailed Gecko	Schedule-II
<i>Naja naja</i>	Indian Cobra	Schedule-II
<i>Hemidactylus flaviviridis</i>	House Lizard	Schedule-II
<i>Ahaetulla species</i>	Tree Snake	Schedule-II
<i>Rana hexadactyla</i>	Indian pond frog	Schedule-IV
<i>Duttaphrynus melanostictus</i>	Common Indian Toad	Not Listed
<i>Hoplobatrachus tigerinus</i>	Indian Bull Frog	Schedule-IV
<i>Euphlyctis cyanophlyctis</i>	Indian Skipper Frog	Schedule-IV
<i>Bufo stomaticus</i>	Marble Toad	Not Listed

Naja Hannah	King Kobra	Schedule-II

Table- 3.6.5 - List of birds either spotted or reported from the study area

Scientific name	Common or Local name	Schedule
<i>Accipiter badius</i>	Shikra	Schedule IV
<i>Acridotheresginginianus</i>	Bank Myna	Schedule IV
<i>Acridotherestrictis</i>	Common Myna	Schedule IV
<i>Anhinga melanogaster</i>	Indian Darter	Schedule IV
<i>Apusaffinis</i>	House Swift	Schedule IV
<i>Apusapus</i>	Common Swift	Schedule IV
<i>Ardeolagrayii</i>	Pond Heron	Schedule IV
<i>Bubo bubo</i>	Owl	Schedule IV
<i>Bubulcus ibis</i>	Cattle Egret	Schedule IV
<i>Cerylerudis</i>	Pied Kingfisher	Schedule IV
<i>Chloropsisaurifrons</i>	Golden Fronted Leaf-Bird	Schedule IV
<i>Clamatorjacobinus</i>	Pied Cuckoo	Schedule IV
<i>Columba livia</i>	Rock Pigeon	Schedule IV
<i>Coraciasbenghalensis</i>	Indian Roller	Schedule IV
<i>Corvus splendens</i>	House Crow	Schedule IV
<i>Coturnixcoturnix</i>	Bater	Schedule IV
<i>Cuculusmicropterus</i>	Indian Cuckoo	Schedule IV
<i>Dendrocittavagabunda</i>	Tree Pie	Schedule IV
<i>Dicirismacrocerus</i>	Black Drongo	Schedule IV
<i>Dicrurusparadiseus</i>	Racket Tailed Drongo	Schedule IV
<i>Egrettaagarzetta</i>	Little Egret	Schedule IV
<i>Emberizabruniceps</i>	Red Headed Bunting	Schedule IV
<i>Eudynamysscolopacea</i>	Asian Koel	Schedule IV
<i>Gallinula chloropus</i>	Indian Moorhen	Schedule IV
<i>Gallus gallus</i>	Red Jungle Fowl	Schedule IV
<i>Halcyon smyrnensis</i>	White Breasted Kingfisher	Schedule IV
<i>Haliastur Indus</i>	Brahminy Kite	Schedule IV
<i>Hierococcyxvarius</i>	Common Hawk Cuckoo	Schedule IV
<i>Ixobrychus minutes</i>	Common Little Bittern	Schedule IV
<i>Megalaimazeylanica</i>	Brown Headed Barbet	Schedule IV
<i>Meropusorientalis</i>	Green Bee Eater	Schedule IV
<i>Meropuspersicus</i>	Blue Cheeked Bee Eater	Schedule IV
<i>Meropsphilippinus</i>	Blue Tailed Bee Eater	Schedule IV
<i>Microcarboniger</i>	Little Cormorant	Schedule IV
<i>Milvusmigrans</i>	Black Kite	Schedule IV
<i>Nectariniaasiatica</i>	Purple Sun Bird	Schedule IV
<i>Nectarinia minima</i>	Small Sun Bird	Schedule IV
<i>Orthotomussutorius</i>	Tailor Bird	Schedule IV
<i>Parus major</i>	Grey Tit	Schedule IV
<i>Passer domesticus</i>	House Sparrow	Schedule IV
<i>Phalacrocorax carbo</i>	Great Cormorant	Schedule IV

<i>Ploceusphilippinus</i>	Baya	Schedule IV
<i>Pseudibispapillosa</i>	Indian Black Ibis	Schedule IV
<i>Psittacaraholochlora</i>	Green Parakeet	Schedule IV
<i>Psittaculakrameri</i>	Rose Ringed Parakeet	Schedule IV
<i>Pycnonotuscafer</i>	Red Vented Bulbul	Schedule IV
<i>Saxicolacaprata</i>	Pied Bush Chat	Schedule IV
<i>Saxicoloidesfulicata</i>	Indian Robin	Schedule IV
<i>Streptopeliachinensis</i>	Spotted Dove	Schedule IV
<i>Streptopeliadecaocta</i>	Ring Dove	Schedule IV
<i>Upupaepops</i>	Common Hoopoe	Schedule IV
<i>Tadornaferruginea</i>	Brahminy Duck	Schedule IV
<i>Turdoidescaudatus</i>	Common Babbler	Schedule IV
<i>Turdoidesstriatus</i>	Jungle Babbler	Schedule IV
<i>Vanellusindicus</i>	Red Wattled Lapwing	Schedule IV

Table- 3.6.6: List of butterflies spotted in the study area by survey team.

Butterflies	
Latin name	Common name
<i>Ixias Marianne</i>	White orange tip
<i>Papiliodemoleus</i>	Lime butterfly
<i>Euploea core</i>	Common crow
<i>Cyrestisthyodamas</i>	Common map
<i>Papiliopolytes</i>	Common mormon
<i>Euremahecabe</i>	Common Grass Yellow
<i>Danausgenutia</i>	Stripped Tiger
<i>Hypolimnasmisippus</i>	Danaid Egg Fly
<i>Mycalesisperseus</i>	Common Bush Brown

Aquatic flora and Fauna:

There are no natural water bodies in the core area. But Damodar River flows in Southern part of the buffer zone. There are many seasonal streams and a few tanks but there are no perennial water bodies. A list of aquatic and semiaquatic macrophytes found in the buffer zone is given in Table-3.6.7. A list of fishes either caught by fisherman or reported from the river is given in Table-3.6.8.

Table-3.6.7: List of aquatic / semi aquatic macrophytes found in and around the Rivers and Tanks

Latin name	Family
<i>Azolla pinnata</i>	Salviniaceae
<i>Caesuliaaxillaris</i>	Asteraceae
<i>Ceratophyllumdemersum</i>	Ceratophyllaceae
<i>Chrysopogonzizanioides</i>	Poaceae
<i>Coixlacryma-jobi</i>	Poaceae
<i>Colocasia esculenta</i>	Araceae

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

<i>Commelinabenghalensis</i>	Commelinaceae
<i>Cyperusalternifolius</i>	Cyperaceae
<i>Dryopterisfilix-mas</i>	Dryopteridaceae
<i>Dryopterisboldii</i>	Dryopteridaceae
<i>Echinochloacolona</i>	Poaceae
<i>Eichhornia crassipes</i>	Pontederiaceae
<i>Grangeamaderaspatana</i>	Asteraceae
<i>Hygrophilasalicifolia</i>	Acanthaceae
<i>Ipomea aquatic</i>	Convolvulaceae
<i>Lemna minor</i>	Lemnaceae
<i>Ludwigiaadscendens</i>	Onagraceae
<i>Marsileaquadrifolia</i>	Marsileaceae
<i>Melochiacorchorifolia</i>	Sterculiaceae
<i>Nelumbo nucifera</i>	Nelumbonaceae
<i>Nymphaeapubescens</i>	Nymphaeaceae
<i>Oxalis corniculata</i>	Oxalidaceae
<i>Pandanusodoratissimus</i>	Pandanaceae
<i>Pileamicrophylla</i>	Urticaceae
<i>Polygonum hydropiper</i>	Polygonaceae
<i>Portulaca oleracea</i>	Portulacaceae
<i>Potamogetonnatans</i>	Potamogetonaceae
<i>Trapanatans</i>	Lythraceae
<i>Ranunculussceleratus</i>	Ranunculaceae
<i>Rumexdentatus</i>	Polygonaceae
<i>Typhaangustata</i>	Typhaceae
<i>Utriculariagibba</i>	Lentibulariaceae
<i>Veronica anagallis-aquatica</i>	Plantaginaceae

Table-3.6.8: List of fishes from the water bodies of the buffer area

Scientific name	Common name / Local name
<i>Labeorohita</i>	Rohu
<i>Catlacatla</i>	Katla
<i>Labeocalbasu</i>	Calbasu
<i>Mystuscavasius</i>	Cat fish
<i>Gambusiaaffinis</i>	Mosquito fish
<i>Barbuschilina</i>	Black Fish
<i>Clariasbatrachus</i>	Singi
<i>Notopterusnotopterus</i>	Bronze Feather Back
<i>Goniosalanmama</i>	Ganges River Gizzard Shad
<i>Oreochromis aureus</i>	Tilapia
<i>Oreochromis niloticus</i>	Tilapia
<i>Puntius sophore</i>	Kotri
<i>Tilapia rendalli</i>	Tilapia

3.6.7 INTERPRETATION FROM THE ABOVE ECOLOGY & BIODIVERSITY STUDY

Prediction of impacts is based both on the direct and indirect; short-term as well as long-term; irreversible and irreversible impacts that are most likely to occur owing to the proposed industrial activity during establishment and operation. The ecological factors that are considered most significant as far as the impact on flora and fauna are concerned:

1. Whether there shall be any reduction in species diversity
2. Whether there shall be any habitat loss or fragmentation
3. Whether there shall be any additional risk or threat to the rare or endangered or endemic or threatened (REET) species
4. Whether there shall be any impairment of ecological functions such as (i) disruption of food chains, (ii) decline in species population and or (iii) alterations in predator-prey relationships.

As stated earlier, the project site is located in a notified industrial area.

- The core area or the industrial site is already under industrial use.
- Hence, there shall be no change in the land use and land cover of the core area.
- None of the existing trees or greenbelt is going to be damaged or destroyed.
- There are no rare or endangered or threatened (RET) species of plants in the core area.
- There are no RET or Schedule - I species in the project site.

Table 3.6.11: INTERPRETATION FROM THE ABOVE ECOLOGY & BIODIVERSITY STUDY

S.No.	Factor/Objective	Remark
(a)	Whether there shall be any reduction in species diversity	No Land use of the plant is Industrial and it is also observed that no Endemic, Rare, Endangered and Threatened (RET) species of flora were found in the entire study area listed by Botanical Survey of India and also None of the vertebrates other than Aves belong to either the Rare or endangered or the threatened (RET) category of the IUCN or Schedule-I of the Indian Wildlife (Protection) Act.
(b)	Whether there shall be any habitat loss or fragmentation	No • Proposed project site and study area does not come under the any specific habitat for specific species. • Study area is not the part of any notified Elephant corridors / Migratory routes for birds etc. • As per the secondary source, No Schedule – I fauna is observed within 10 Kms. radius of the plant.
(c)	Whether there shall be any	No

BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

	additional risk or threat to the rare or endangered or endemic or threatened (REET) species	- As per the study carried out and Botanical Survey of India, it is found that No Endemic, Rare, Endangered and Threatened (RET) species of flora were found in the study area. - As per the secondary source, No Schedule – I fauna is observed within 10 Kms. radius of the plant.
(d)	Whether there shall be any impairment of ecological functions such as (i) disruption of food chains, (ii) decline in species population and or (iii) alterations in predator-prey relationships.	No In the proposed project following environment protection measures will be provided for duly complying with norms stipulated by MOEF&CC / SPCB: 4th Hole Fume Extraction & Cleaning system with bagfilters will be provided to SEAFs to bring down the particulate matter emission to less than 50 mg/Nm³. - All conveyor will be covered with GI sheets to control the dust emission. Whenever APCS fails, the raw material feed to the unit will be stopped and will commence production after APCS is rectified to comply with the norms. - Net resultant Ground level concentrations during operation of the plant after superimposing the incremental concentrations over the maximum baseline concentrations are well within the National Ambient Air Quality Standards. - Zero liquid effluent discharge will be implemented in the proposed project. 1.17 Ha. (2.9 Acres) Acres (40%) of greenbelt (including existing) will further mitigate the emissions. - All these environmental protection systems will be installed and operated to comply with the norms.

3.7 SOCIO ECONOMIC DATA [ToR No. 6 (xi)]

The study area covers within a radius of 10 km from the Plant site. The socio-economic profile of the study area of **53 Villages** is presented based on site visits; discussions with the villagers and the secondary data available from various agencies such as Hand Books for Census 2011.

Demographic details based on Hand Books for Census 2011 of the study area is shown below:

BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

Table 3.7.1 - POPULATION BREAK UP AS PER CENSUS 2011

S.NO.	VILLAGE NAME	NO OF HOUSE HOLD	TOTAL POP	TOTAL MALE	TOTAL FEMALE	POPULATION SC	MALE SC	FEMALE SC	POPULATION ST	MALE ST	FEMALE ST
1	Ara (CT)	2669	13547	7031	6516	1344	695	649	3795	1897	1898
2	Barka Chumba	1452	7853	4086	3767	1219	639	580	891	454	437
3	Bumri	364	2075	1076	999	74	44	30	1678	859	819
4	Burha Khukia	232	1181	601	580	0	0	0	190	95	95
5	Burhakhap	78	430	214	216	0	0	0	0	0	0
6	Chaha	175	797	399	398	41	22	19	588	289	299
7	Chaingara	1185	6325	3246	3079	630	318	312	2270	1143	1127
8	Chapri	124	680	344	336	0	0	0	505	255	250
9	Chetar	227	1290	667	623	0	0	0	442	232	210
10	Chhotka Chumba	328	1612	834	778	281	160	121	757	370	387
11	Chhotki Sihduar	51	280	134	146	165	79	86	67	34	33
12	Chhotkidundi	315	1890	967	923	197	98	99	568	290	278
13	Datma	171	786	424	362	143	71	72	39	25	14
14	Digwar	1104	5833	3072	2761	368	187	181	705	363	342
15	Durgi	619	3511	1826	1685	100	49	51	369	205	164
16	Gobardarha	302	1465	762	703	169	85	84	198	105	93
17	Harwe	182	895	459	436	0	0	0	523	269	254
18	Hathimara	243	1384	730	654	0	0	0	0	0	0
19	Hesla	511	2535	1310	1225	66	39	27	1304	663	641
20	Huhu	587	3045	1528	1517	178	101	77	844	410	434
21	Jamira	515	2795	1466	1329	0	0	0	580	292	288
22	Jatahadh Alias Gosa	102	556	277	279	0	0	0	6	3	3
23	Jobla	68	432	215	217	6	5	1	426	210	216
24	Kachudag	63	332	179	153	0	0	0	307	164	143
25	Kaitha	789	4359	2262	2097	587	314	273	690	364	326

BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

S.NO.	VILLAGE NAME	NO OF HOUSE HOLD	TOTAL POP	TOTAL MALE	TOTAL FEMALE	POPULATION SC	MALE SC	FEMALE SC	POPULATION ST	MALE ST	FEMALE ST
26	Kander	216	1079	554	525	5	3	2	1008	519	489
27	Kanjgi	416	2179	1110	1069	500	245	255	1124	572	552
28	Kankebar	217	1216	611	605	58	28	30	59	29	30
29	Karma	2205	12298	6263	6035	608	316	292	876	433	443
30	Kothar	720	3910	1953	1957	630	317	313	939	462	477
31	Kuju (CT)	4059	21356	11246	10110	2688	1359	1329	2697	1375	1322
32	Lodhma	310	1509	808	701	0	0	0	808	423	385
33	Manuan	682	3837	1961	1876	150	83	67	788	397	391
34	Marar (CT)	1086	5298	2777	2521	965	500	465	742	360	382
35	Masmohana	297	1538	785	753	59	31	28	1308	666	642
36	Muram Kalan	873	4466	2325	2141	917	482	435	533	268	265
37	Orla (CT)	1163	5809	3015	2794	978	509	469	1984	982	1002
38	Painki	219	1195	619	576	234	129	105	270	140	130
39	Phulsarai	545	3104	1584	1520	0	0	0	1415	711	704
40	Piri	435	2195	1134	1061	22	12	10	1015	523	492
41	Pochra	266	1486	765	721	14	8	6	52	27	25
42	Ramgarh	30523	161821	85780	76041	18133	9314	8819	23836	12029	11807
43	Ratwe	917	4940	2495	2445	301	140	161	288	154	134
44	Rauta	194	952	486	466	292	146	146	329	163	166
45	Sanri Alias Tilaiva (CT)	1217	6186	3216	2970	1154	606	548	1956	1002	954
46	Seota (CT)	1295	6554	3459	3095	892	447	445	550	254	296
47	Sidhwar Kalan	174	906	461	445	1	1	0	532	278	254
48	Sirka	432	2165	1124	1041	587	295	292	398	198	200
49	Siur	163	847	430	417	159	88	71	464	223	241
50	Sugia	632	3235	1586	1649	125	71	54	1485	705	780
51	Tellatu	583	3113	1581	1532	83	44	39	555	277	278
52	Topa (CT)	1015	5028	2660	2368	871	428	443	1022	527	495

BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

S.NO.	VILLAGE NAME	NO OF HOUSE HOLD	TOTAL POP	TOTAL MALE	TOTAL FEMALE	POPULATION SC	MALE SC	FEMALE SC	POPULATION ST	MALE ST	FEMALE ST
53	Urlung	97	587	304	283	14	9	5	573	295	278

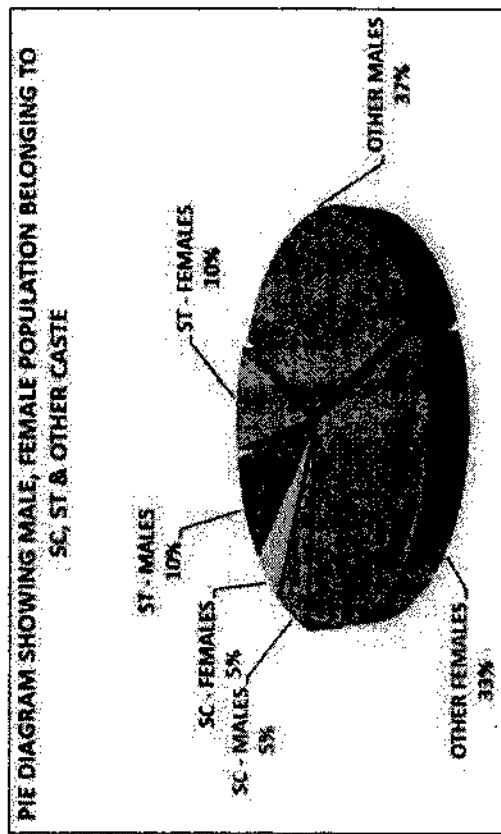


TABLE NO.3.7.2: LITERACY LEVELS OF THE POPULATION UP AS PER CENSUS 2011

S.NO.	VILLAGE NAME	Total population Literates	Male literates	Female literates	Total population illiterates	Male illiterates	Female illiterates
1	Ara (CT)	9069	5246	3823	4478	1785	2693
2	Barka Chumba	4518	2638	1880	3335	1448	1887
3	Bumri	851	520	331	1224	556	668
4	Burha Khukra	687	409	278	494	192	302
5	Burhakhap	234	127	107	196	87	109
6	Chaha	360	221	139	437	178	259
7	Chaingara	3629	2182	1447	2696	1064	1632

BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

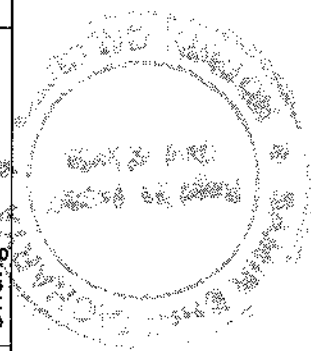
Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

S.NO.	VILLAGE NAME	Total population Literates	Male literates	Female literates	Total population illiterates	Male illiterates	Female illiterates
8	Chapri	351	202	149	329	142	187
9	Chetar	712	433	279	578	234	344
10	Chhotka Chumba	920	551	369	692	283	409
11	Chhotki Sihduar	109	69	40	171	65	106
12	Chhotkidundi	934	585	349	956	382	574
13	Datma	548	321	227	238	103	135
14	Digwar	3484	2059	1425	2349	1013	1336
15	Durgi	2463	1416	1047	1048	410	638
16	Gobardaha	946	552	394	519	210	309
17	Harwe	384	236	148	511	223	288
18	Hathimara	848	509	339	536	221	315
19	Hesla	1578	908	670	957	402	555
20	Huhu	1713	984	729	1332	544	788
21	Jamira	1512	905	607	1283	561	722
22	Jatahadih Alias Gosa	278	166	112	278	111	167
23	Jobla	263	157	106	169	58	111
24	Kachudag	161	104	57	171	75	96
25	Kaitha	2406	1441	965	1953	821	1132
26	Kander	490	319	171	589	235	354
27	Kanjgi	1072	677	395	1107	433	674
28	Kankebar	834	480	354	382	131	251
29	Karma	7300	4244	3056	4998	2019	2979
30	Kothar	2435	1427	1008	1475	526	949
31	Kuju (CT)	14365	8274	6091	6991	2972	4019
32	Lodhma	896	558	338	613	250	363
33	Manuan	2254	1293	961	1583	668	915
34	Marar (CT)	3781	2162	1619	1517	615	902

BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

S.NO.	VILLAGE NAME	Total population Literates	Male Literates	Female Literates	Total population literates	Male illiterates	Female illiterates
35	Masmohana	712	409	303	826	376	450
36	Muram Kalan	2858	1656	1202	1608	669	939
37	Orla (CT)	3800	2243	1557	2009	772	1237
38	Painki	648	386	262	547	233	314
39	Phulsarai	1645	987	658	1459	597	862
40	Piri	1260	763	497	935	371	564
41	Pochra	969	544	425	517	221	296
42	Ramgarh	109006	63357	45649	52815	22423	30392
43	Ratwe	2717	1600	1117	2223	895	1328
44	Rauta	460	273	187	492	213	279
45	Sanri Alias Tilaiya (CT)	3910	2261	1649	2276	955	1321
46	Seota (CT)	4815	2700	2115	1739	759	980
47	Sidhwar Kalan	400	244	156	506	217	289
48	Sirka	1432	848	584	733	276	457
49	Siur	349	213	136	498	217	281
50	Sugia	1686	966	720	1549	620	929
51	Teliatu	1821	1084	737	1292	497	795
52	Topa (CT)	3384	2012	1372	1644	648	996
53	Urlung	509	282	227	78	22	56



BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

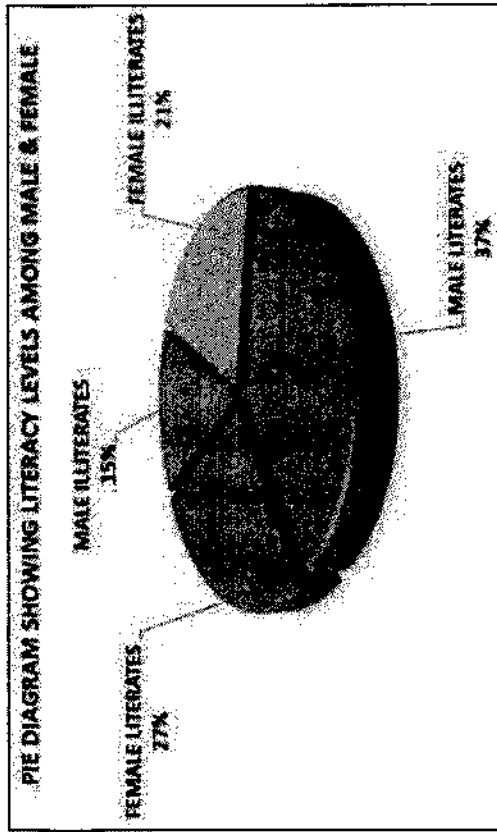
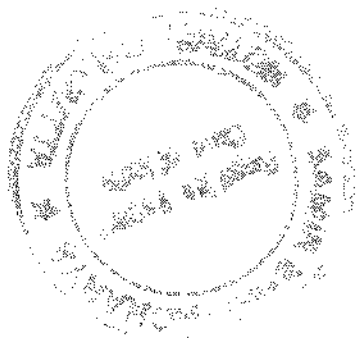


TABLE NO.3.7.3: WORKERS CLASSIFICATION AS PER CENSUS 2011 (MAIN & MARGINAL)

S.NO.	VILLAGE NAME	TOT_ WORK_P	TOT_ WORK_M	TOT_ WORK_F	MAIN WORK_P	MAIN WORK_M	MAIN WORK_F	MARG WORK_P	MARG WORK_M	MARG WORK_F
1	Ara (CT)	3466	2926	540	2930	2542	388	536	384	152
2	Barka Chumba	2392	1941	451	1394	1181	213	998	760	238
3	Bumri	649	476	173	224	210	14	425	266	159
4	Burha Khukra	621	303	318	280	263	17	341	40	301
5	Burhakhap	100	74	26	86	65	21	14	9	5
6	Chaha	274	187	87	96	67	29	178	120	58
7	Chaingara	2203	1567	636	802	658	144	1401	909	492
8	Chapri	194	171	23	25	20	5	169	151	18
9	Chetar	667	343	324	339	307	32	328	36	292
10	Chhotka Chumba	544	408	136	219	203	16	325	205	120
11	Chhotki Sihduar	151	75	76	72	63	9	79	12	67
12	Chhotkidundi	669	474	195	474	303	171	195	171	24

BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

S.NO.	VILLAGE NAME	TOT_ WORK_P	TOT_ WORK_M	TOT_ WORK_F	MAIN WORK_P	MAIN WORK_M	MAIN WORK_F	MARG WORK_P	MARG WORK_M	MARG WORK_F
13	Datma	234	223	11	166	158	8	68	65	3
14	Digwar	1658	1436	222	1100	1019	81	558	417	141
15	Durgi	833	790	43	583	549	34	250	241	9
16	Gobardaha	808	415	393	383	288	95	425	127	298
17	Harwe	263	228	35	241	212	29	22	16	6
18	Hathimara	356	342	14	354	340	14	2	2	0
19	Hesia	700	614	86	522	475	47	178	139	39
20	Huhu	1713	927	786	488	401	87	1225	526	699
21	Jamira	844	678	166	350	327	23	494	351	143
22	Jatahadh Alias Gosa	208	152	56	163	145	18	45	7	38
23	Jobla	143	99	44	19	15	4	124	84	40
24	Kachudag	90	86	4	85	81	4	5	5	0
25	Kaitha	1623	1126	497	915	832	83	708	294	414
26	Kander	591	376	215	582	375	207	9	1	8
27	Kanjgi	559	514	45	477	443	34	82	71	11
28	Kankebar	439	281	158	291	201	90	148	80	68
29	Karma	4252	2889	1363	1380	1143	237	2872	1746	1126
30	Kothar	1839	1089	750	1091	903	188	748	186	562
31	Kuju (CT)	5862	5151	711	5322	4747	575	540	404	136
32	Lodhma	610	416	194	605	414	191	5	2	3
33	Manuan	1024	902	122	605	533	72	419	369	50
34	Marar (CT)	1596	1370	226	1529	1337	192	67	33	34
35	Masmohana	446	373	73	409	347	62	37	26	11
36	Muram Kalan	1635	1172	463	681	547	134	954	625	329
37	Orla (CT)	1538	1283	255	895	806	89	643	477	166
38	Painki	472	288	184	451	281	170	21	7	14
39	Phulsaral	867	721	146	693	601	92	174	120	54

BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

S.NO.	VILLAGE NAME	TOT_ WORK_P	TOT_ WORK_M	TOT_ WORK_F	MAIN WORK_P	MAIN WORK_M	MAIN WORK_F	MARG WORK_P	MARG WORK_M	MARG WORK_F
40	Piri	670	543	127	553	452	101	117	91	26
41	Pochra	368	350	18	366	349	17	2	1	1
42	Ramgarh	54891	43336	11555	43592	37823	5769	11299	5513	5786
43	Ratwe	1948	1176	772	776	635	141	1172	541	631
44	Rauta	325	235	90	207	163	44	118	72	46
45	Sanri Alias Tilaiya (CT)	1806	1487	319	1697	1407	290	109	80	29
46	Seota (CT)	1918	1661	257	1697	1479	218	221	182	39
47	Sidhwar Kalan	536	274	262	33	23	10	503	251	252
48	Sirka	690	523	167	600	469	131	90	54	36
49	Siur	295	225	70	286	223	63	9	2	7
50	Sugia	664	485	179	381	285	96	283	200	83
51	Teliatu	1051	794	257	1018	779	239	33	15	18
52	Topa (CT)	1027	936	91	786	715	71	241	221	20
53	Urlung	146	144	2	146	144	2	0	0	0



BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

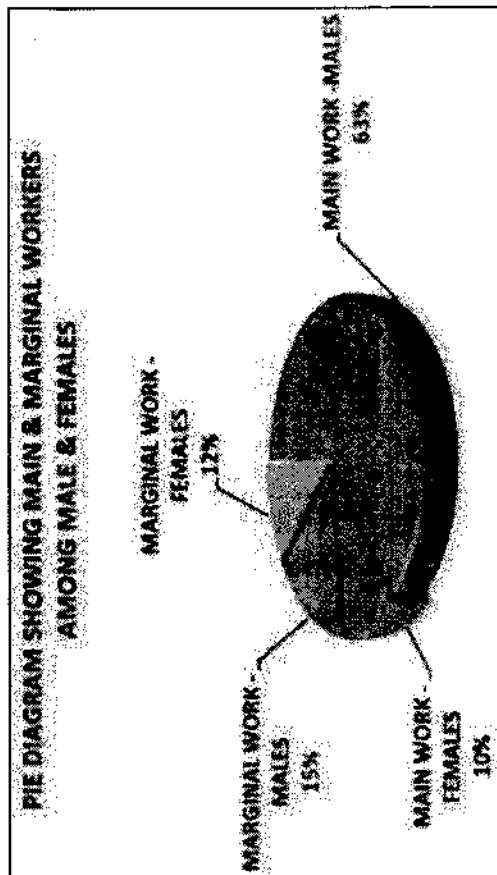
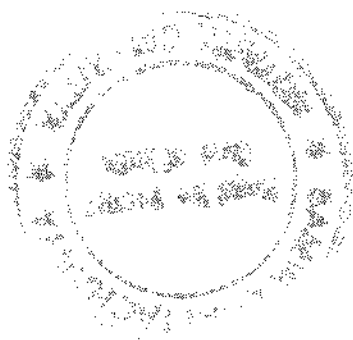


TABLE NO.3.7.4: CULTIVATORS CLASSIFICATION AS PER CENSUS 2011 (MAIN & MARGINAL)

S.NO.	VILLAGE NAME	MAIN_CL_P	MAIN_CL_M	MAIN_CL_F	MARG_CL_P	MARG_CL_M	MARG_CL_F
1	Ara (CT)	230	218	12	78	9	69
2	Barka Chumba	623	506	117	288	159	129
3	Bumri	60	56	4	147	34	113
4	Burha Khukra	240	226	14	320	32	288
5	Burhakhap	9	8	1	1	1	0
6	Chaha	0	0	0	0	0	0
7	Chaingara	161	117	44	628	302	326
8	Chapri	0	0	0	28	23	5
9	Chetar	236	231	5	273	20	253
10	Chhotka Chumba	31	29	2	110	45	65
11	Chhotki Sihduar	43	36	7	55	3	52
12	Chhotkidundi	248	129	119	20	15	5
13	Datma	16	16	0	28	28	0

BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

S.NO.	VILLAGE NAME	MAIN_CL_P	MAIN_CL_M	MAIN_CL_F	MARG_CL_P	MARG_CL_M	MARG_CL_F
14	Digwar	523	489	34	258	167	91
15	Durgi	105	98	7	39	39	0
16	Gobardarha	203	122	81	200	8	192
17	Harwe	144	142	2	3	1	2
18	Hathimara	53	51	2	0	0	0
19	Hesla	80	68	12	10	4	6
20	Huhu	231	200	31	696	214	482
21	Jamira	68	62	6	218	121	97
22	Jatahadli Alias Gosa	125	121	4	4	1	3
23	Jobla	0	0	0	0	0	0
24	Kachudag	31	31	0	1	1	0
25	Kaitha	421	396	25	215	32	183
26	Kander	445	262	183	6	0	6
27	Kanigi	109	103	6	68	63	5
28	Kankebar	150	96	54	61	41	20
29	Karma	557	495	62	1553	805	748
30	Kothar	425	400	25	532	110	422
31	Kuju (CT)	109	104	5	24	20	4
32	Lodhma	321	188	133	2	1	1
33	Manuan	51	44	7	48	45	3
34	Marar (CT)	10	9	1	1	0	1
35	Masmohana	55	51	4	0	0	0
36	Muram Kalan	159	105	54	444	235	209
37	Orla (CT)	13	12	1	55	53	2
38	Painki	137	58	79	6	2	4
39	Phulsarai	172	132	40	9	3	6
40	Piri	241	184	57	8	6	2
41	Pochra	55	55	0	0	0	0

BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

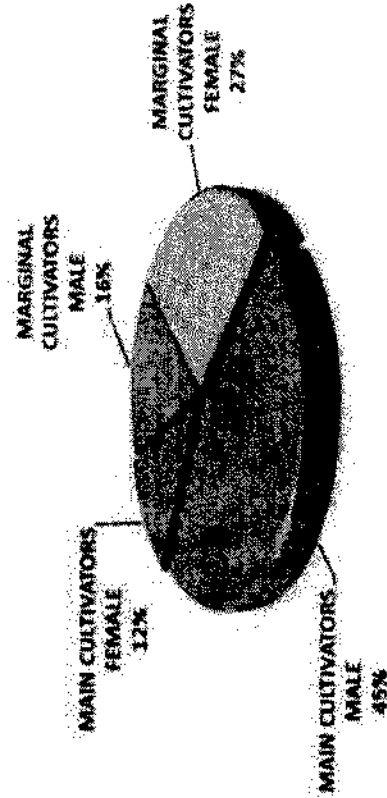
Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

S.NO.	VILLAGE NAME	MAIN_CL_P	MAIN_CL_M	MAIN_CL_F	MARG_CL_P	MARG_CL_M	MARG_CL_F
42	Ramgarh	5909	4460	1449	3989	1219	2770
43	Ratwe	419	363	56	397	128	269
44	Rauta	19	13	6	12	10	2
45	Sanri Alias Tilaiya (CT)	112	80	32	5	4	1
46	Seota (CT)	28	26	2	33	31	2
47	Sidhwar Kalan	25	18	7	195	88	107
48	Sirka	110	64	46	5	4	1
49	Siur	209	179	30	0	0	0
50	Sugia	172	121	51	153	138	15
51	Teliatu	586	463	123	17	7	10
52	Topa (CT)	44	43	1	2	2	0
53	Urlung	139	139	0	0	0	0

NOTE:

MAINCL P	MAIN CULTIVATORS POPULATION
MAINCLM	MAIN CULTIVATORS MALE
MAIN CL F	MAIN CULTIVATORS FEMALE
MARGCLP	MARGINAL CULTIVATORS POPULATION
MARGCLM	MARGINAL CULTIVATORS MALE
MARG CLF	MARGINAL CULTIVATORS FEMALE

PIE DIAGRAM SHOWING MAIN & MARGINAL CULTIVATORS AMONG MALE & FEMALES



BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TABLE NO.3.7.5: AGRICULTURAL LABOURS CLASSIFICATION AS PER CENSUS 2011 (MAIN & MARGINAL)

S.NO.	VILLAGE NAME	MAIN_AL_P	MAIN_AL_M	MAIN_AL_F	MARG_AL_P	MARG_AL_M	MARG_AL_F
1	Ara (CT)	52	47	5	87	76	11
2	Barka Chumba	79	60	19	181	134	47
3	Bumri	15	15	0	96	78	18
4	Burha Khukra	4	4	0	15	5	10
5	Burhakhap	4	2	2	4	3	1
6	Chaha	7	4	3	1	1	0
7	Chaingara	42	29	13	116	90	26
8	Chapri	0	0	0	36	30	6
9	Chetar	32	13	19	49	10	39
10	Chhotka Chumba	65	60	5	79	62	17
11	Chhotki Sihduar	26	26	0	24	9	15
12	Chhotkidundi	117	102	15	39	33	6
13	Datma	0	0	0	35	32	3
14	Digwar	212	188	24	104	92	12
15	Durgi	6	6	0	17	13	4
16	Gobardarha	6	2	4	64	26	38
17	Harwe	5	1	4	2	2	0
18	Hathimara	4	4	0	0	0	0
19	Hesla	36	32	4	38	38	0
20	Huhu	81	50	31	188	50	138
21	Jamira	92	91	1	184	157	27
22	Jatahadih Alias Gosa	10	2	8	41	6	35
23	Jobla	0	0	0	122	83	39
24	Kachudag	51	49	2	3	3	0
25	Kaitha	15	8	7	33	7	26

BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

S.NO.	VILLAGE NAME	MAIN_AL_P	MAIN_AL_M	MAIN_AL_F	MARG_AL_P	MARG_AL_M	MARG_AL_F
26	Kander	35	18	17	3	1	2
27	Kanjgi	67	64	3	11	7	4
28	Kankebar	11	3	8	71	32	39
29	Karma	243	149	94	818	488	330
30	Kothar	145	44	101	149	32	117
31	Kuju (CT)	68	62	6	97	86	11
32	Lodhma	129	85	44	2	1	1
33	Manuan	1	0	1	142	114	28
34	Marar (CT)	4	4	0	2	1	1
35	Masmohana	332	276	56	1	1	0
36	Muram Kalan	36	28	8	119	50	69
37	Orla (CT)	12	11	1	303	184	119
38	Painki	0	0	0	0	0	0
39	Phulsarai	67	56	11	32	21	11
40	Piri	100	81	19	79	59	20
41	Pochra	5	4	1	1	1	0
42	Ramgarh	1355	922	433	2305	794	1511
43	Ratwe	89	46	43	377	65	312
44	Rauta	0	0	0	0	0	0
45	Sanri Alias Tilaiya (CT)	369	310	59	72	61	11
46	Seota (CT)	21	11	10	7	3	4
47	Sidhwar Kalan	2	1	1	200	107	93
48	Sirka	107	62	45	34	10	24
49	Siur	48	22	26	2	0	2
50	Sugia	57	31	26	112	47	65
51	Teliatu	113	92	21	5	1	4
52	Topa (CT)	42	40	2	142	132	10
53	Urlung	1	1	0	0	0	0

BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

NOTE:

MAIN AL P	MAIN AGRICULTURAL LABOR POPULATION
MAIN AL M	MAIN AGRICULTURAL LABOR MALE
MAIN AL F	MAIN AGRICULTURAL LABOR FEMALE
MARG AL P	MARGINAL AGRICULTURAL LABOR POPULATION
MARG AL M	MARGINAL AGRICULTURAL LABOR MALE
MARG AL F	MARGINAL AGRICULTURAL LABOR FEMALE

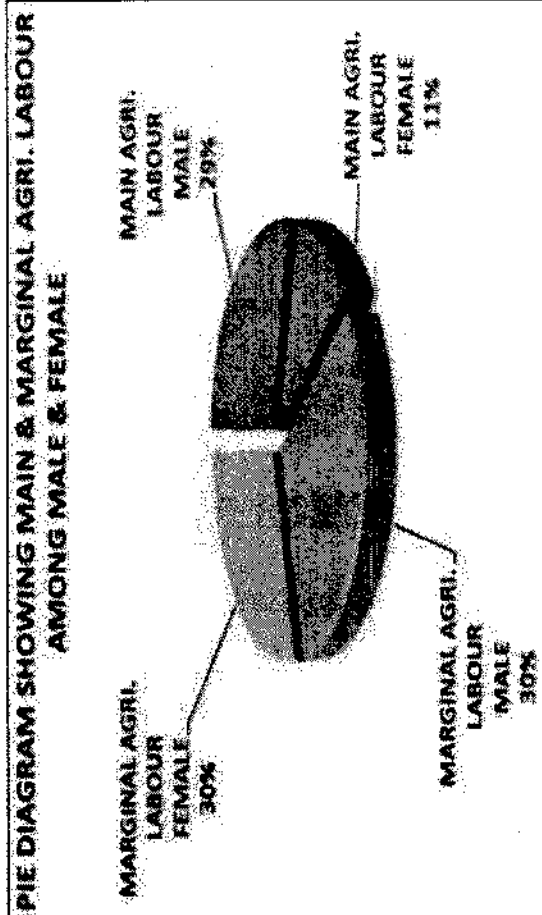


TABLE NO.3.7.6: HOUSEHOLD INDUSTRY WORKERS CLASSIFICATION AS PER CENSUS 2011(MAIN & MARGINAL)

S.NO.	VILLAGE NAME	MAIN_HH_P	MAIN_HH_M	MAIN_HH_F	MARG_HH_P	MARG_HH_M	MARG_HH_F
1	Ara (CT)	23	19	4	18	7	11
2	Barka Chumba	13	9	4	5	4	1
3	Bumri	0	0	0	1	0	1
4	Burha Khukra	1	1	0	1	0	1
5	Burhakhap	0	0	0	0	0	0
6	Chaha	0	0	0	0	0	0
7	Chaingara	16	15	1	83	75	8
8	Chapri	0	0	0	0	0	0
9	Chetar	0	0	0	0	0	0
10	Chhotka Chumba	6	5	1	0	0	0
11	Chhotki Sihduar	1	1	0	0	0	0

BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

S.NO.	VILLAGE NAME	MAIN_HH_P	MAIN_HH_M	MAIN_HH_F	MARG_HH_P	MARG_HH_M	MARG_HH_F
12	Chhotkidundi	5	5	0	1	0	1
13	Datma	0	0	0	0	0	0
14	Digwar	10	9	1	4	2	2
15	Durgi	7	6	1	3	3	0
16	Gobardaha	1	1	0	156	90	66
17	Harwe	25	25	0	5	5	0
18	Hathimara	18	11	7	0	0	0
19	Hesla	8	8	0	1	1	0
20	Huhu	11	9	2	9	7	2
21	Jamira	1	0	1	2	1	1
22	Jatahadih Alias Gosa	0	0	0	0	0	0
23	Jobla	0	0	0	0	0	0
24	Kachudag	0	0	0	0	0	0
25	Kaitha	2	1	1	5	1	4
26	Kander	0	0	0	0	0	0
27	Kanjgi	2	2	0	0	0	0
28	Kankebar	4	3	1	2	0	2
29	Karma	16	12	4	48	24	24
30	Kothar	22	12	10	8	4	4
31	Kuju (CT)	78	73	5	12	9	3
32	Lodhma	1	1	0	0	0	0
33	Manuan	32	16	16	14	11	3
34	Marar (CT)	19	14	5	1	0	1
35	Masmohana	1	1	0	0	0	0
36	Muram Kalan	28	25	3	25	13	12
37	Orla (CT)	10	10	0	6	3	3
38	Painki	15	7	8	1	0	1
39	Phulsarai	2	2	0	1	1	0

BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

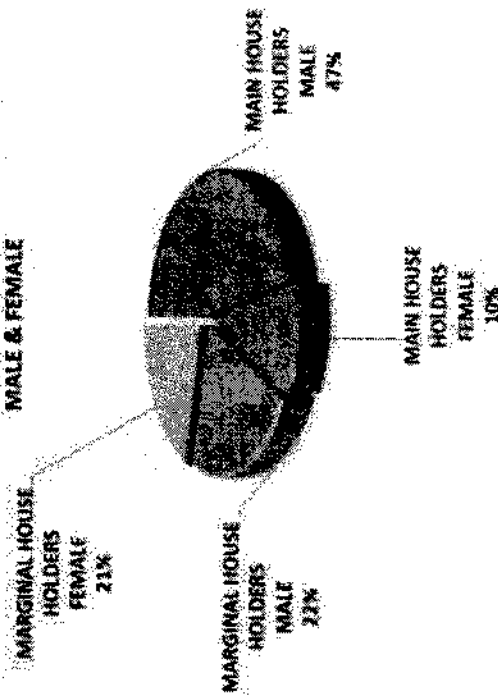
Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

S.NO.	VILLAGE NAME	MAIN_HH_P	MAIN_HH_M	MAIN_HH_F	MARG_HH_P	MARG_HH_M	MARG_HH_F
40	Piri	9	7	2	2	0	2
41	Pochra	5	5	0	1	0	1
42	Ramgarh	923	770	153	603	251	352
43	Ratwe	28	14	14	27	13	14
44	Rauta	0	0	0	0	0	0
45	Sanri Alias Tilaiya (CT)	10	7	3	1	1	0
46	Seota (CT)	24	19	5	7	6	1
47	Sidhwar Kalan	0	0	0	6	1	5
48	Sirka	13	12	1	4	3	1
49	Siur	0	0	0	0	0	0
50	Sugia	2	1	1	0	0	0
51	Teliatu	2	2	0	0	0	0
52	Topa (CT)	11	11	0	3	3	0
53	Urlung	0	0	0	0	0	0

NOTE:

MAIN HH P	MAIN HOUSE HOLDERS POPULATION
MAIN HH M	MAIN HOUSE HOLDERS MALE
MAIN HH F	MAIN HOUSE HOLDERS FEMALE
MARG HH P	MARGINAL HOUSE HOLDERS POPULATION
MARG HH M	MARGINAL HOUSE HOLDERS MALE
MARG HH F	MARGINAL HOUSE HOLDERS FEMALE

PIE DIAGRAM SHOWING MAIN & MARGINAL HOUSE HOLDERS AMONG MALE & FEMALE



BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

TABLE NO.3.7.7: OTHER WORKERS CLASSIFICATION AS PER CENSUS 2011 (MAIN & MARGINAL)

S.NO.	VILLAGE NAME	MAIN_OT_P	MAIN_OT_M	MAIN_OT_F	MARG_OT_P	MARG_OT_M	MARG_OT_F
1	Ara (CT)	2625	2258	367	353	292	61
2	Barka Chumba	679	606	73	524	463	61
3	Bumri	149	139	10	181	154	27
4	Burha Khukra	35	32	3	5	3	2
5	Burhakhap	73	55	18	9	5	4
6	Chaha	89	63	26	177	119	58
7	Chaingara	583	497	86	574	442	132
8	Chapri	25	20	5	105	98	7
9	Chetar	71	63	8	6	6	0
10	Chhotka Chumba	117	109	8	136	98	38
11	Chhotki Sihduar	2	0	2	0	0	0
12	Chhotkidundi	104	67	37	135	123	12
13	Datma	150	142	8	5	5	0
14	Digwar	355	333	22	192	156	36
15	Durgi	465	439	26	191	186	5
16	Gobardaha	173	163	10	5	3	2
17	Harwe	67	44	23	12	8	4
18	Hathimara	279	274	5	2	2	0
19	Hesla	398	367	31	129	96	33
20	Huhu	165	142	23	332	255	77
21	Jamira	189	174	15	90	72	18
22	Jatahadh Alias Gosa	28	22	6	0	0	0
23	Jobla	19	15	4	2	1	1
24	Kachudag	3	1	2	1	1	0
25	Kaitha	477	427	50	455	254	201
26	Kander	102	95	7	0	0	0
27	Kanjgi	299	274	25	3	1	2

BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

**Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand**

S.NO.	VILLAGE NAME	MAIN_OT_P	MAIN_OT_M	MAIN_OT_F	MARG_OT_P	MARG_OT_M	MARG_OT_F
28	Kankebar	126	99	27	14	7	7
29	Karma	564	487	77	453	429	24
30	Kothar	499	447	52	59	40	19
31	Kuju (CT)	5067	4508	559	407	289	118
32	Lodhma	154	140	14	1	0	1
33	Manuan	521	473	48	215	199	16
34	Marar (CT)	1496	1310	186	63	32	31
35	Masmohana	21	19	2	36	25	11
36	Muram Kalan	458	389	69	366	327	39
37	Orla (CT)	860	773	87	279	237	42
38	Palinki	299	216	83	14	5	9
39	Phulsarai	452	411	41	132	95	37
40	Piri	203	180	23	28	26	2
41	Pochra	301	285	16	0	0	0
42	Ramgarh	35405	31671	3734	4402	3249	1153
43	Ratwe	240	212	28	371	335	36
44	Rauta	188	150	38	106	62	44
45	Sanri Alias Tilaiya (CT)	1206	1010	196	31	14	17
46	Seota (CT)	1624	1423	201	174	142	32
47	Sidhwar Kalan	6	4	2	102	55	47
48	Sirka	370	331	39	47	37	10
49	Siur	29	22	7	7	2	5
50	Sugia	150	132	18	18	15	3
51	Tellatu	317	222	95	11	7	4
52	Topa (CT)	689	621	68	94	84	10
53	Urlung	6	4	2	0	0	0

BIHAR FOUNDRY & CASTINGS LIMITED (Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

NOTE:

MAIN OT P	MAIN OTHER WORKERS POPULATION
MAIN OT M	MAIN OTHER WORKERS MALE
MAIN OT F	MAIN OTHER WORKERS FEMALE
MARG OT P	MARGINAL OTHER WORKERS POPULATION
MARG OT M	MARGINAL OTHER WORKERS MALE
MARG OT F	MARGINAL OTHER WORKERS FEMALE

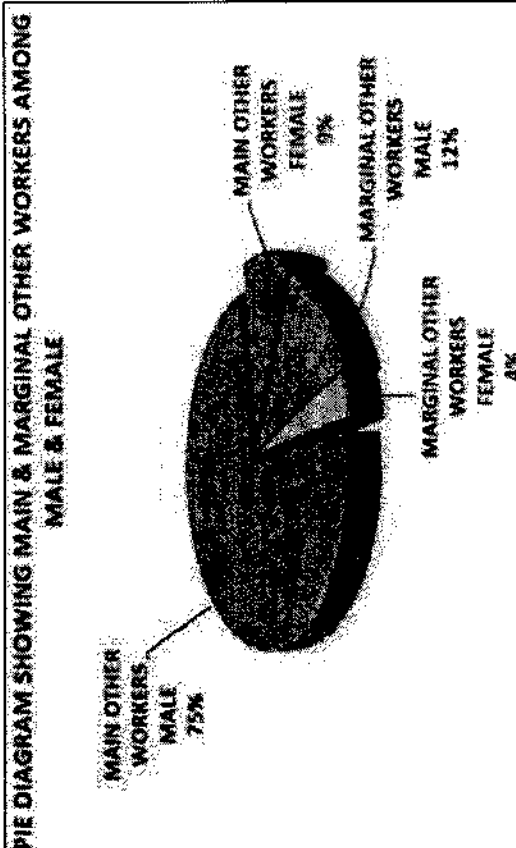


TABLE NO.3.7.8: NON WORKERS CLASSIFICATION AS PER CENSUS 2011

S.NO.	VILLAGE NAME	NON_WORK_POPULATION	NON_WORK_MALE	NON_WORK_FEMALE
1	Ara (CT)	10081	4105	5976
2	Barka Chumba	5461	2145	3316
3	Bumri	1426	600	826
4	Burha Khukra	560	298	262
5	Burhakhap	330	140	190
6	Chaha	523	212	311
7	Chaingara	4122	1679	2443
8	Chapri	486	173	313
9	Chetar	623	324	299
10	Chhotka Chumba	1068	426	642
11	Chhotki Sihduar	129	59	70
12	Chhotkidundi	1221	493	728

BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

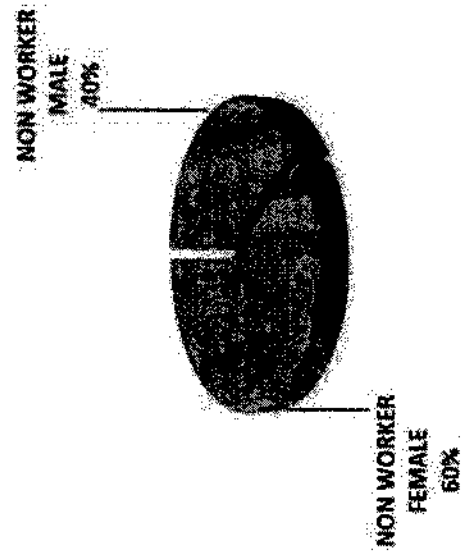
S.NO.	VILLAGE NAME	NON_WORK_POPULATION	NON_WORK_MALE	NON_WORK_FEMALE
13	Datma	552	201	351
14	Digwar	4175	1636	2539
15	Durgi	2678	1036	1642
16	Gobardarha	657	347	310
17	Harwe	632	231	401
18	Hathimara	1028	388	640
19	Hesla	1835	696	1139
20	Huhu	1332	601	731
21	Jamira	1951	788	1163
22	Jatahadih Alias Gosa	348	125	223
23	Jobla	289	116	173
24	Kachudag	242	93	149
25	Kaitha	2736	1136	1600
26	Kander	488	178	310
27	Kanjgi	1620	596	1024
28	Kankebar	777	330	447
29	Karma	8046	3374	4672
30	Kothar	2071	864	1207
31	Kuju (CT)	15494	6095	9399
32	Lodhma	899	392	507
33	Manuan	2813	1059	1754
34	Marar (CT)	3702	1407	2295
35	Masmohana	1092	412	680
36	Muram Kalan	2831	1153	1678
37	Orla (CT)	4271	1732	2539
38	Painki	723	331	392
39	Phulsarai	2237	863	1374
40	Piri	1525	591	934

BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

S.NO.	VILLAGE NAME	NON_WORK_POPULATION	NON_WORK_MALE	NON_WORK_FEMALE
41	Pochra	1118	415	703
42	Ramgarh	106930	42444	64486
43	Ratwe	2992	1319	1673
44	Rauta	627	251	376
45	Sanri Alias Tilaiya (CT)	4380	1729	2651
46	Seota (CT)	4636	1798	2838
47	Sidhwar Kalan	370	187	183
48	Sirka	1475	601	874
49	Siur	552	205	347
50	Sugia	2571	1101	1470
51	Teliatu	2062	787	1275
52	Topa (CT)	4001	1724	2277
53	Urlung	441	160	281

PIE DIAGRAM SHOWING NON-WORKER AMONG MALE & FEMALE



CHAPTER – 4

ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

.....



4.1 INTRODUCTION

Impact prediction is a very important phenomenon in evaluating the environmentally potential adverse impacts for any proposed 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 are superimposed over the baseline data to calculate the net impact on the environment after the proposed expansion project comes into production.

4.2 AIR ENVIRONMENT

It is possible that increase in the background concentration of even a minor constituent of the atmosphere may lead to significant changes in the atmospheric properties. So these changes are essential in understanding potential climatic changes due to air pollutants. For example under strongly stable conditions, disturbances are highly damped and mixing of pollutants is strongly suppressed. It is under such conditions that the worst air pollution episodes have occurred. Several scientific techniques and methodologies are available to predict impacts of developmental activities on physico, ecological and socioeconomic environments. Such predictions are superimposed over the baseline (pre project) status of environmental quality to derive the ultimate (post project) scenario of environmental conditions. The prediction of impacts helps to identify the environmental management plan required to be executed during and after commissioning of the proposed expansion project to minimize the adverse impacts on environmental quality.

The mathematical models are the best tools to quantitatively describe cause-effect relationships between sources of pollution and different components of environment. In case, mathematical models are not available or it is not possible to identify / validate

through models for particular situation, prediction could be arrived at through available scientific knowledge and judgments.

The mathematical model used for predictions in the present study include, steady state Gaussian Plume dispersion model designed for multiple point sources for air quality, Wave divergence and Federal Highway Administration (FHWA) models for noise levels. In case of water, land, biological and socio-economic environments the prediction have been made based on available scientific knowledge and judgments.

4.2.1 IMPACT ON TOPOGRAPHY AND CLIMATE

4.2.1.1 IMPACT ON TOPOGRAPHY

The major envisaged topographical changes would be limited to the immediate vicinity of the plant. The change in topography will be only due to man made structures like Industrial complex and Administrative building. Similarly, it will invite positive benefits in the form of land leveling in the plant vicinity.

4.2.1.2 IMPACTS ON CLIMATE

As the temperature of the effluent gases will not be high, generally this will not cause any thermal imbalance as extensive greenbelt has already been developed within the plant premises. However, there will be natural dispersion of heat due to unstable conditions during day and as such there would be no significant micro / macro climatologically changes of any consequence.

4.2.2 PREDICTION OF IMPACTS ON AIR ENVIRONMENT [Gen.TOR # 6 (i) & 7(i)]

It is absolutely essential to study the impacts of air pollution on its environs due to the proposed expansion project. These impacts are assessed with the help of Mathematical model based on steady state Gaussian Plume Dispersion Model designed for multiple point sources for short term. In the present case, Industrial Source Complex Short Term (ISC-3), 1993 dispersion model based on steady state Gaussian plume dispersion, designed for multiple point sources for short term developed by United States Environment Protection Agency (USEPA) has been used for simulations from point sources.

Model Input

Emissions

The emission data from the stacks is shown in Table 4.2.4

Receptor Locations

The software is capable of generating a polar receptor grid at every 10 radial angles at specified distances (in Kms).

Meteorological data

For the prediction of rise in Ground Level concentrations of pollutants, the actual hourly meteorological data recorded at the site during the study period (**May 2022**) is converted to mean meteorological hourly data as specified by CPCB and the same is used in the model. In the absence of site specific mixing heights, mixing heights published in 'Spatial distribution of hourly mixing depths over Indian region' by Dr. R.N.Gupta have been used.

For each hour the following meteorological information required

- Wind direction
- Wind speed
- Ambient Temperature
- Stability class
- Mixing Height

Predictions have been carried out for these emissions considering the following points.

- Predictions have been carried out for 100% load where the maximum emissions are emitted and which would be the worst environmental scenario.
- Predictions have been carried out for PM₁₀, SO₂ and NO_x.

• Pasquill Stability Class Through Sigma Theta Method

Hourly meteorological data recorded hourly, at the continuous weather monitoring station on wind speed and direction, has been used for calculating the stability by using Sigma Theta method (Ref: On site meteorological program guidance for regulatory modelling applications, US-EPA).

Calculation of standard deviation of wind direction:

Hourly wind direction has been recorded. The one hourly wind direction data (standard deviation; σA) in degrees has been used for determining the hourly stability.

Lateral Turbulence (σA) and Wind Speed or Sigma Theta Method:

The hourly σA values calculated by the data logger are used for arriving at the hourly stability's by the following procedure:

The following section describes the method of estimating stability categories in terms of standard deviation of the lateral wind direction fluctuations (σA) and the scalar mean wind speed (u_s). The lateral wind direction turbulence criteria for initial estimate of PG stability category are given in Table - 4.1.1. The wind speed adjustments for determining final estimate of PG stability category from σA is given in Table - 4.1.2. The criteria laid down in the tables below are for the data collected at 10m and roughness length of 15 cm. Night time is defined as the period from one hour before sunset to one hour after sunrise. The method specifies that the data need to be collected at 10 m height. The relationship employed in the estimation methods assumes conditions are of steady state.

TABLE - 4.2.1
LATERAL TURBULENCE CRITERIA FOR INITIAL ESTIMATE OF STABILITY

Initial estimate of Pasquill Stability Category	Standard deviation of horizontal wind direction fluctuations, σA , in degrees
A	$22.5 \leq \sigma A$
B	$17.5 \leq \sigma A < 22.5$
C	$12.5 \leq \sigma A < 17.5$
D	$7.5 \leq \sigma A < 12.5$
E	$3.8 \leq \sigma A < 7.5$
F	$\sigma A < 3.8$

TABLE - 4.2.2
WIND SPEED ADJUSTMENTS FOR DETERMINING FINAL ESTIMATE OF PG STABILITY CATEGORY FROM σA

	Initial Estimated Category	10 m Scalar Wind Speed (U_s) (m/s)	Final Estimate of Stability Category
Day time	A	$U_s < 3$	A
		$3 < U_s < 4$	B
		$4 < U_s < 6$	C
		$6 < U_s$	D
	B	$U_s < 4$	B
		$4 < U_s < 6$	C

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 Ramgarh Tehsil & District, Jharkhand

		6<US	D
	C	US<6	C
		6<US	D
	D, E or F	ANY	D
Night time	A	US<2.9	F
		2.9<US<3.6	E
		3.6<US	D
	B	US<2.4	F
		2.4<US<3.0	E
		3.0<US	D
	C	US<2.4	E
		2.4<US	D
	D	ANY	D
	E	US<5.0	E
		5.0<US	D
	F	US<3.0	F
		3.0<US<5.0	E
		5.0<US	D

Atmospheric inversion levels have been determined for assessment of Ground Level concentrations.

Presentation of results

In the present case model simulations have been carried out for the Summer season. For the short term simulations, the concentrations have been estimated around 1600 receptors to obtain optimum description of variations in concentrations over the site in 10 Km. radius covering 16 directions.

Model Output

The output contains the first through sixth highest concentration values at each receptor, Maximum concentration tables and daily concentration tables for each averaging period.

Sources of Air Emissions

Table 4.2.3

IMPACT ENVIRONMENT	IDENTIFIED IMPACTS
Air Environment	Particulate emissions
	• Fugitive emissions from Raw material transportation
	• Fugitive emissions from Unloading of Raw material
	• Fugitive emissions from Raw material transfer points
	• Fugitive emissions from Raw material conveying

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IMPACT ENVIRONMENT	IDENTIFIED IMPACTS
	- Stacks attached to the Furnace - Vehicular movement

4.2.3 STACK DETAILS

The following are the Stack emission details.

TABLE 4.2.4: STACK EMISSIONS [Gen. ToR # 3 (vi), 7 (v), Addl. TOR # (v)]

S.No.	Stack attached to	No. of Stacks	Dia (m)	Height (m)	Temp. of flue gas ($^{\circ}\text{C}$)	Vol. flow rate (m^3/s)	Velocity of flue gas (m/sec)	PM (g/s)	SO ₂ (g/s)	NO _x (g/s)
Existing Stacks										
1	existing 2x5 MVA to 2x6 MVA SEAFs	1 (combined Stack)	1.8	45	150	11.1	15.0	0.2 (per Flue)	--	1.6 (per Flue)
2	Modification of existing 1x7.5 MVA to 1x9 MVA SEAF	1 (combined Stack)	1.8	45	150	16.7	15.0	0.4 (per Flue)	--	2.4 (per Flue)
3	Existing 1x9 MVA SEAF									
4	DG Set (500 KVA)	1	0.25	7 (above building)	90	16.7	2.5	0.01	2.1	1.8
Proposed Stack										
5	New 1x9 MVA SEAF*	1	1.2	45	150	16.7	15.0	0.4	--	2.4
6	CLU converter	1	1.8	45	150	37.0	15.0	0.8	--	5.3

The predicted max. Incremental PM₁₀ concentrations (24 hourly) due to the proposed expansion project will be **0.48 $\mu\text{g}/\text{m}^3$** at a distance of 1500 m from the stack in the down wind direction over the baseline concentrations.

The predicted incremental rise in Particulate Matter concentration due to the Vehicular emission will be **0.10 $\mu\text{g}/\text{m}^3$** .

There will not be any incremental SO₂ concentrations (24 hourly) due to the proposed expansion project.

The predicted max incremental NO₂ concentrations (24 hourly) due to the proposed expansion project will be **2.99 $\mu\text{g}/\text{m}^3$** at a distance of 1500 m from the stack in the down wind direction over the baseline concentrations.

The predicted incremental rise in NO_2 concentration due to the Vehicular emission will be $0.80 \mu\text{g}/\text{m}^3$.

The predicted incremental rise in CO concentration due to the Vehicular emissions will be $0.52 \mu\text{g}/\text{m}^3$.

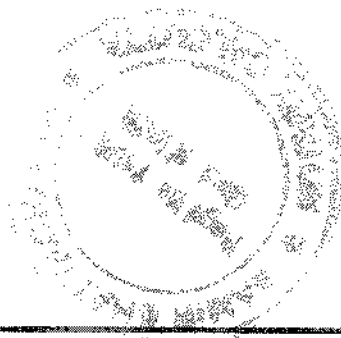
The net resultant concentrations (Maximum baseline conc. + predicted incremental rise in conc.) of PM, SO_2 , NO_2 and CO shown in Table No. 4.2.5, will be well within the National Ambient Air Quality Standards (NAAQS) when the expansion project commences the operation. Hence there will not be any adverse impact on air environment due to the proposed expansion.

TABLE 4.2.5
NET RESULTANT MAXIMUM CONCENTRATIONS
DURING THE OPERATION OF THE EXPANSION PROJECT (APCS WORKING SCENARIO)
[TOR # 7(i)]

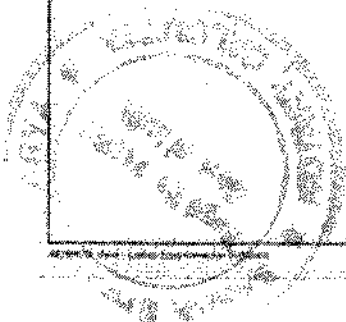
Item	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO ($\mu\text{g}/\text{m}^3$)
Maximum baseline conc. in the study area	79.4	13.3	27.1	744
Maximum predicted incremental rise in concentration due to proposed expansion project (Point Sources)	0.48	Nil	2.99	Nil
Maximum predicted incremental rise in concentration due to proposed expansion project (Vehicular emissions)	0.10	Nil	0.80	0.52
Net resultant concentrations during operation of the expansion project	79.98	13.3	30.89	744.52
National Ambient Air Quality Standards	100	80	80	2000

The net resultant Ground level concentrations during operation of the expansion project are within the NAAQS. Hence, there will not be any adverse impact on air environment due to the proposed expansion project.

Air Quality contour maps showing net resultant maximum concentrations are shown below [TOR # 7(i)].

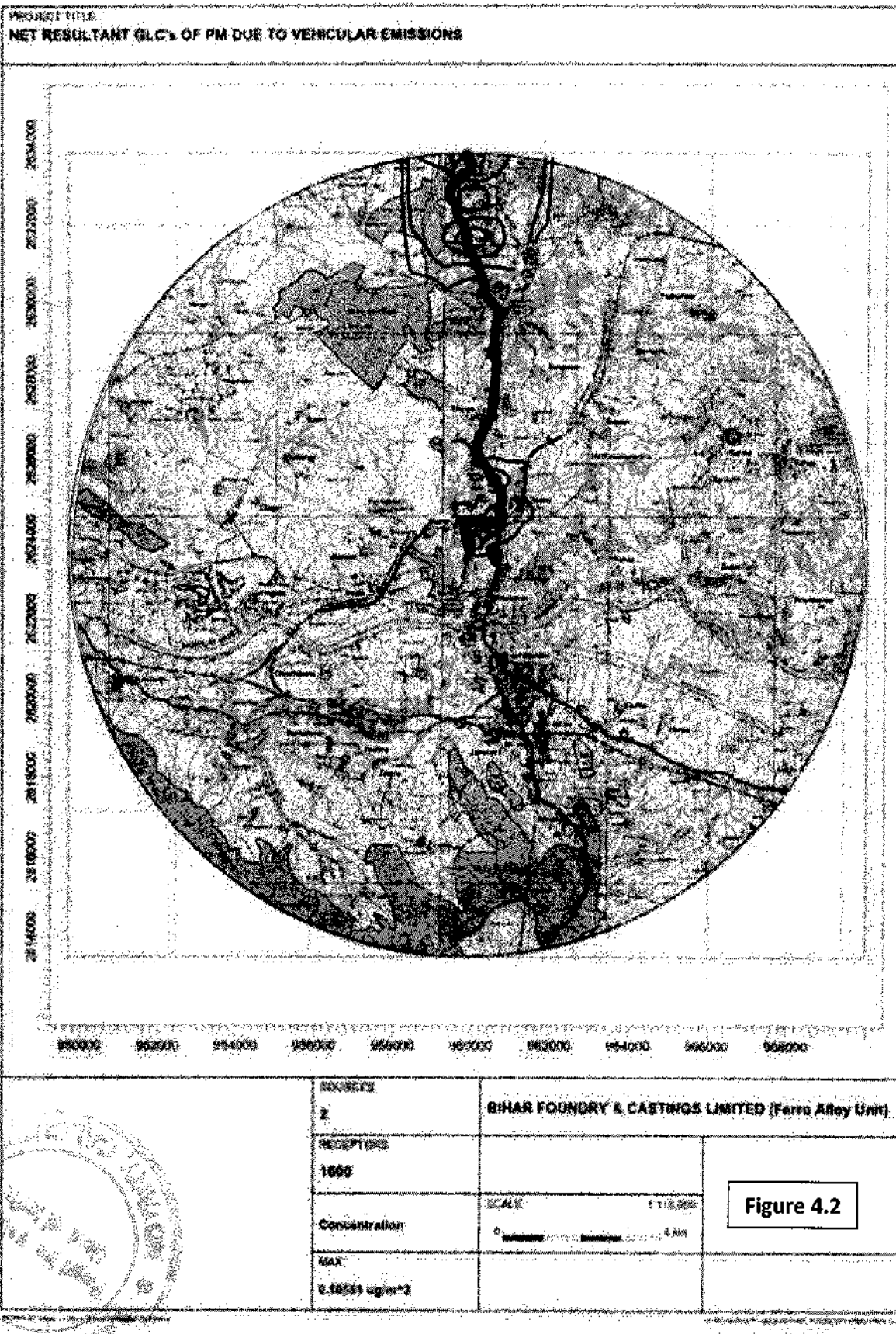


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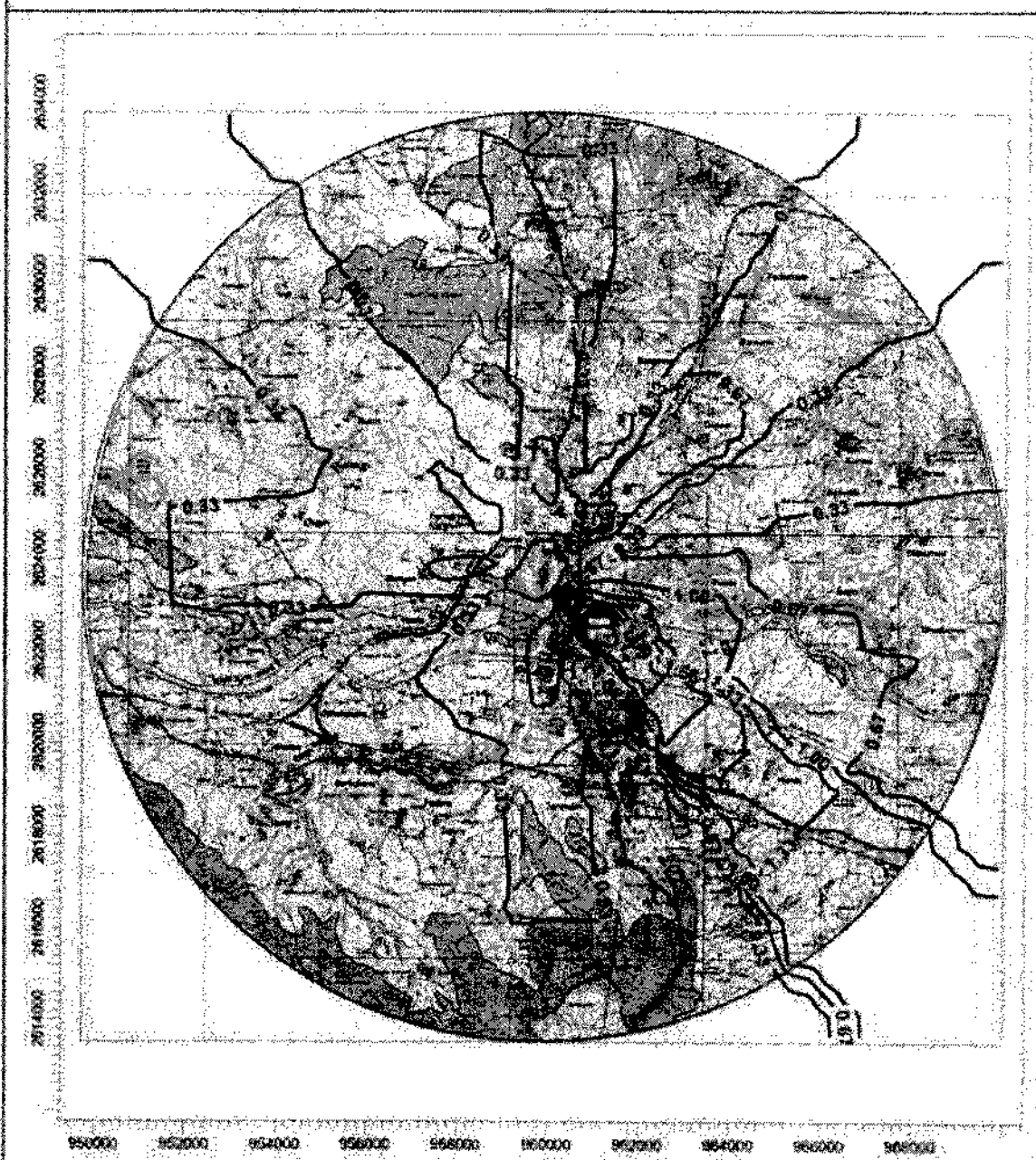
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PROJECT TITLE:
NET RESULTANT GLC'S OF NO2 DUE TO PROJECT



SOURCES 3	BIHAR FOUNDRY & CASTINGS LIMITED (Ferro Alloy Unit)	
RECEPTORS 1600		
Concentration:	SCALE 0 1 2 3 4 Km	
SCALE 2.98237 ug/m ³		

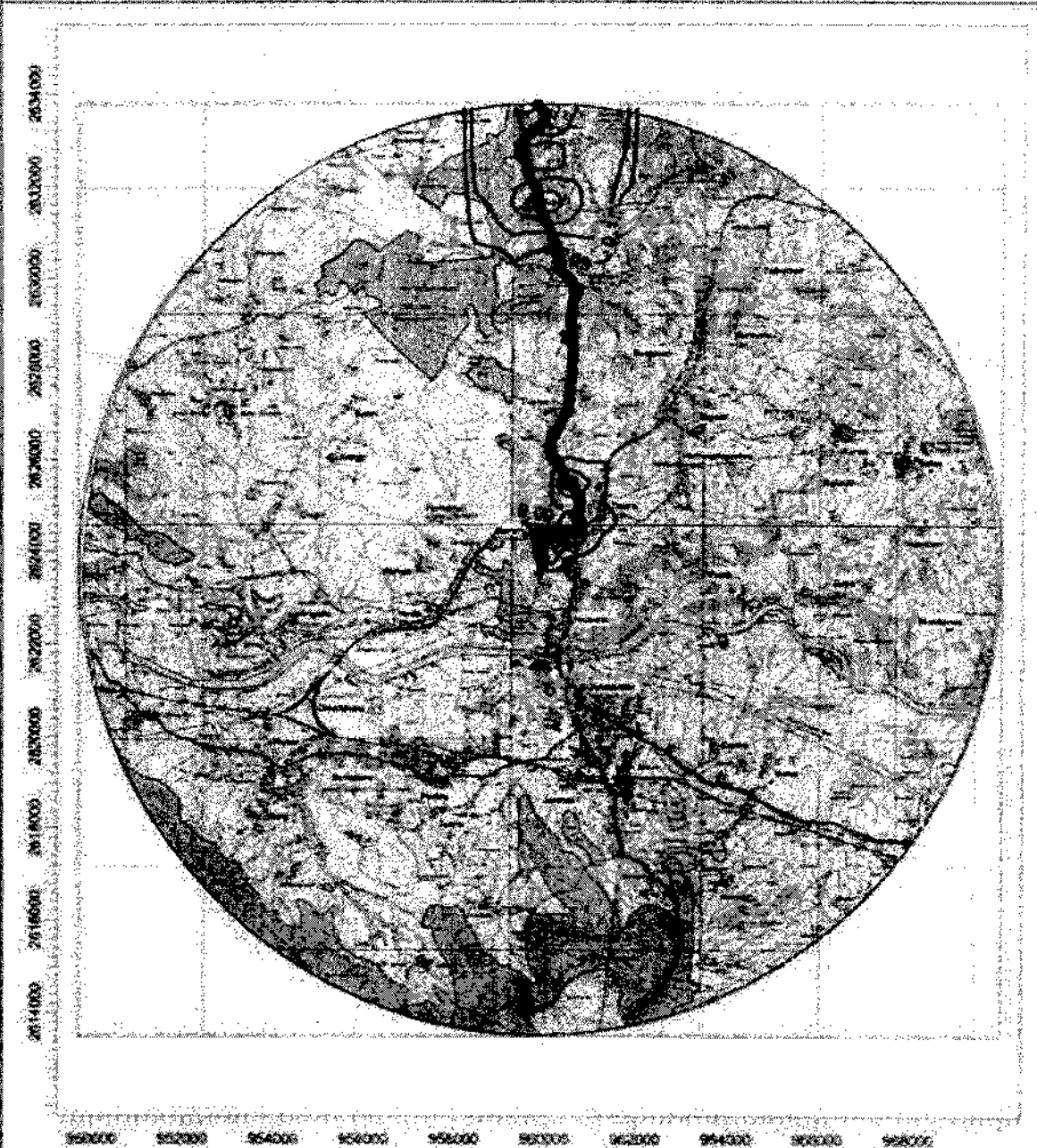
Figure 4.3

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PROJECT TITLE NET RESULTANT GLC% OF NO₂ DUE TO VEHICULAR EMISSIONS



	SOURCES	BIHAR FOUNDRY & CASTINGS LIMITED (Ferro Alloy Unit)	
	2		
	RECEPTORS		
	1600		
Concentration		SCALE	1:15,000
1455		4 km	
2.3007 µg/m ³			

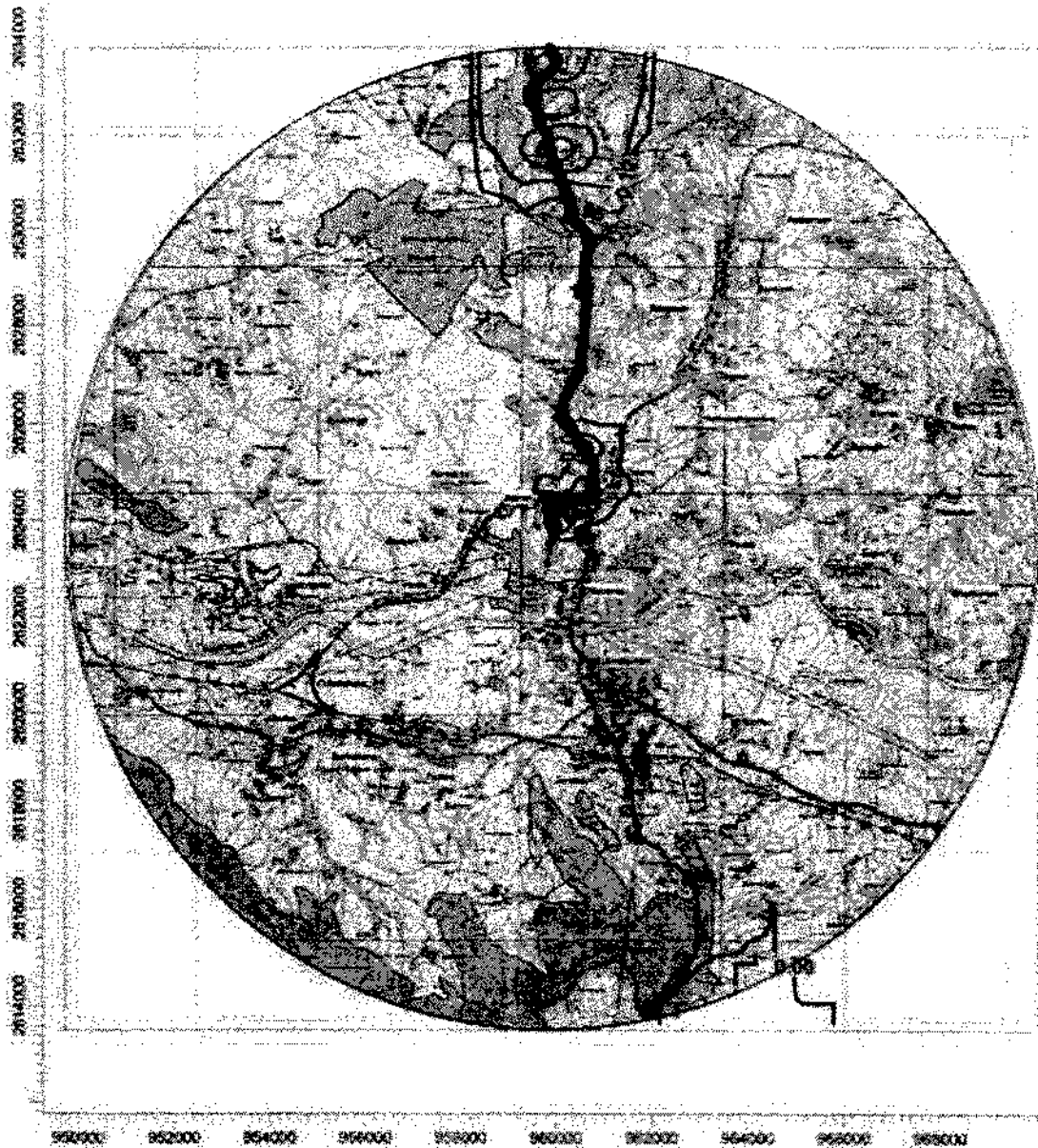
Figure 4.4

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PROJECT TITLE:
NET RESULTANT GLC% OF CO DUE TO VEHICULAR EMISSIONS



	SOURCES	BIHAR FOUNDRY & CASTINGS LIMITED (Ferro Alloy Unit)	
	RECEPTORS	1600	Figure 4.5
	Concentration	SCALE: 1:15,000 2 km	
	MAX.	0.51738 $\mu\text{g}/\text{m}^3$	

TABLE 4.2.6:

**NET RESULTANT MAXIMUM CONCENTRATIONS DURING THE OPERATION OF THE EXPANSION
PROJECT & DUE TO OTHER INDUSTRIES IN THE AREA
(APCS NOT WORKING SCENARIO)**

Item	PM ₁₀ (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (µg/m ³)
Maximum baseline conc. in the study area	79.4	13.3	27.1	744
Maximum predicted incremental rise in concentration due to proposed expansion project (Point Sources)	0.48	Nil	2.99	Nil
Maximum predicted incremental rise in concentration due to proposed expansion project (Vehicular emissions)	0.10	Nil	0.80	0.52
Net resultant concentrations during operation of the expansion project	79.98	13.3	30.89	744.52
National Ambient Air Quality Standards	100	80	80	2000

The net resultant Ground level concentrations during operation of the expansion project when APCS is not working is exceeding the NAAQS.

- 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.
- Emergency alert will be made to inform the nearest habitations.
- Water sprinklers will be utilised for dust suppression.

Air Quality contour map showing net resultant maximum concentration of PM during APCS not working scenario are shown below.

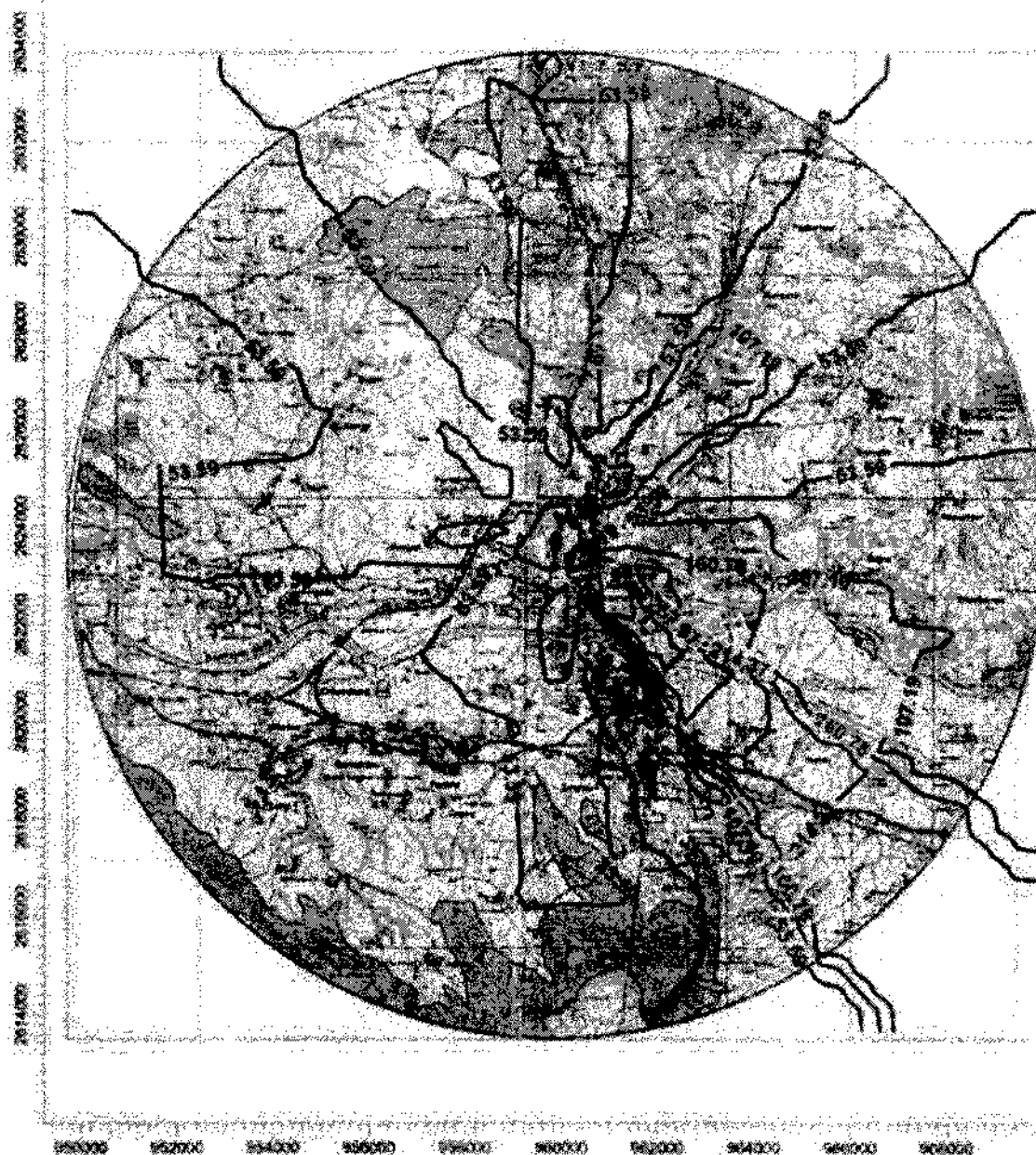


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PROJECT TITLE
NET RESULTANT GLO'S OF PM DUE TO PROJECT
(WITHOUT AIR POLLUTION CONTROL SYSTEMS)



	SOURCE	BIHAR FOUNDRY & CASTINGS LIMITED (Ferro Alloy Unit)	
	RECEPTOR	1500	Figure 4.6
	Concentration	SCALE 1:10,000 0 100 200 300 400 500 600 700 800 900 1000	
	MAX	482.34515 $\mu\text{g}/\text{m}^3$	

4.3 PREDICTION OF IMPACTS ON WATER ENVIRONMENT

4.3.1 WATER REQUIREMENT [Gen.TOR # 3 (vii)]

The total water requirement for existing plant is 35 m³/day which is being met from Groundwater source. NOC from CGWA has been obtained to abstract ground water of 35 m³/day for industrial use vide letter No. CGWA/NOC/IND/ORIG/2021/10628 dated 02/01/2021 which is valid upto 01/01/2024.

The total water requirement for the expansion project is estimated as 148 m³/day, which will be met from the Damodar river (Tenughat Reservoir) for which WRD, Govt. of Jharkhand has given a Recommendation letter. New Pipeline will be laid from Damodar River to the project site. Water permission obtained to the quantity of 0.598 MCM for both units i.e. DRI unit & adjacent Ferro Alloy unit.

Table No. 4.3.1: WATER REQUIREMENT & BREAK-UP FOR EXISTING & PROPOSED EXPANSION

S.No.	Unit	Quantity in KLD		
		Existing Plant	Proposed Expansion	Total after Expansion
1.	Ferro Alloy Plant	30	40	70
2.	CLU	--	80	80
3.	Domestic	5	28	33
	Total	35	148	183

4.3.2 WASTE WATER [Gen.TOR # 7 (iv)]

Existing

- The wastewater generated from Ferro Alloys unit is being sent to ETP and after ensuring compliance with SPCB norms, it will be utilized for Jigging plant, Briquetting plant, dust suppression & for greenbelt development.
- Sanitary waste water is being treated in septic tank followed by Soak Pit.

Proposed

- The wastewater generated from Ferro Alloys unit will be sent to ETP and after ensuring compliance with SPCB norms, it will be utilized for Jigging plant, Briquetting plant, dust suppression & for greenbelt development.

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 (Modification-cum-Expansion of Ferro Alloy Plant)

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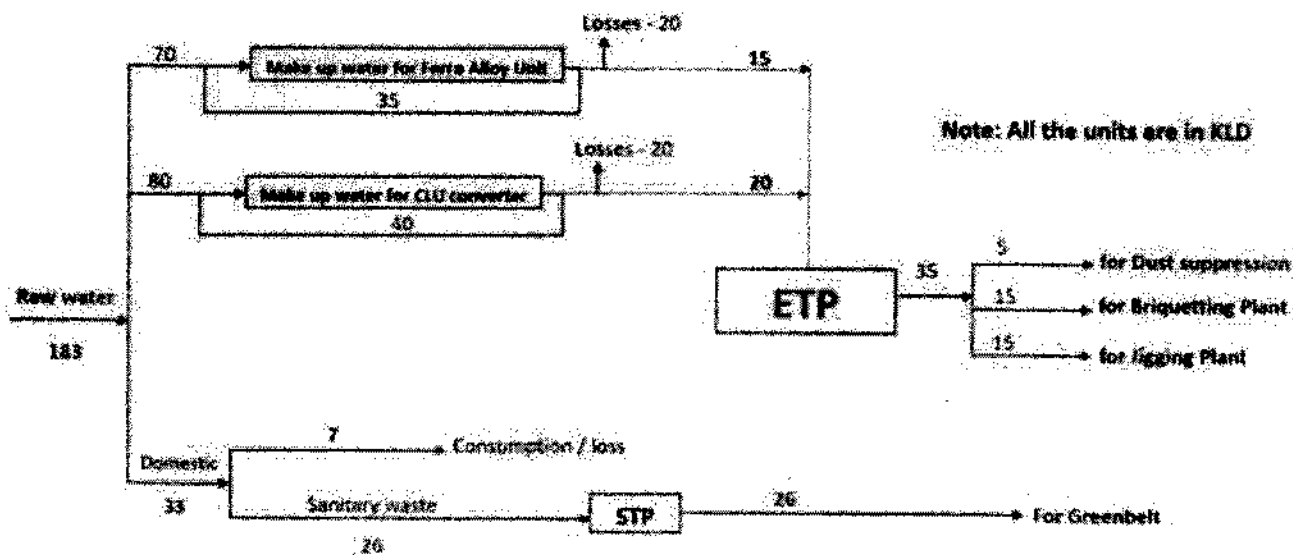
- Sanitary waste water will be treated in proposed STP and treated wastewater will be utilized for Greenbelt development.
- Zero effluent discharge will be maintained in the proposed expansion project also.

Table No. 4.3.2: WASTEWATER GENERATION AND ITS BREAKUP

S.No.	Source	Generation (KLD)		
		Existing Plant	Expansion	After Expansion
1.	Ferro Alloy Plant	5	10	15
2.	CLU	--	20	20
3.	Domestic	4	22	26
	Total	9	52	61

TABLE 4.3.3: WASTE WATER CHARACTERISTICS

PARAMETER	Sanitary waste water untreated
pH	7.0 – 8.5
BOD (mg/l)	200 – 250
COD (mg/l)	300 – 400
TDS (mg/l)	800 – 900

WATER BALANCE DIAGRAM (AFTER EXPANSION)


4.3.3 IMPACT ON SURFACE WATER BODIES

Damodar river (1.4 Kms.) Raura Nala (2.5 Kms.), Meramgarh Nala (5.4 Kms.), Unnamed stream (0.5 Kms.), Ramgarh Village pond (4.0 Kms.) & few seasonal nalas, Seota village Pond (1.5 Kms. -NE) and other unnamed small ponds are existing within study area.

The air emission from proposed unit will be controlled by providing 4th Hole Fume Extraction system with bagfilters and discharged through stack and the outlet dust emission will be less than 30 mg/Nm³.

- Dust suppression system will be provided at unloading areas. Conveyers will be covered to prevent fugitive dust.
- Internal roads are pucca.
- Water required for the proposed expansion will be sourced from Ground water source.
- The wastewater generated from Ferro Alloys unit will be sent to CMB and after ensuring compliance with SPCB norms, it will be utilized for Jigging plant, Briquetting plant, dust suppression & for greenbelt development.
- Sanitary waste water will be treated in proposed STP and treated wastewater will be utilized for Greenbelt development.
- In the existing plant, Zero Liquid Effluent discharge system is being maintained and same will be continued after the expansion
- Rain water harvesting structures helps in recharging the precious ground water .
- Slag generated will be reused/used in road construction and disposed as per norms.

Hence there will not be any impact on surrounding water bodies due to the proposed expansion project.

4.4 PREDICTION OF IMPACTS DUE TO NOISE

4.4.1 PREDICTION OF IMPACT DUE TO THE PROPOSED ACTIVITY

The sound pressure level generated by noise source decreases with increasing distance from the source due to wave divergence.

An additional decrease in sound pressure level with distance from the source is expected, due to atmospheric effect or its interaction with objects in the path of transmission. For hemispherical sound wave propagation through homogeneous loss free medium, one can

estimate noise levels at various locations, due to different sources using model based on first principle, as per the following equation:

$$Lp_2 = Lp_1 - 20 \log (r_2/r_1) - Ae_{1.2}$$

Where Lp_1 and Lp_2 are sound pressure levels at points located at distance r_1 and r_2 from the source and $Ae_{1.2}$ is the excess attenuation due to environmental conditions. Combined affect of all the sources then can be determined at various locations by logarithmic addition.

In first approximation one can assume that for all general population in the villages, every noise source in the plane is a point source. The average equivalent sound power level of such a point source can be estimated for different distances and directions from hypothetical source by applying following equation:

$$Lp = Lw - 20 \log r - Ae - 8$$

Where Lw is the sound power level of the source, Lp is sound pressure level at a distance r and Ae is environmental attenuation factor. A combined noise level Lp (total) of all the sources at a particular place is given by:

$$Lp \text{ (total)} = 10 \log (10^{Lp_1/10} + 10^{Lp_2/10} + \dots)$$

Major noise generating sources were identified from the proposed activity for prediction purposes. The major noise generating sources in the plant are Furnace Arcing, compressors & DG set. The predictions have been made to represent the worst case. The noise levels at various distances were calculated using wave divergence model.

Silencers are already been provided to the DG Set in the existing plant. All machinery will be manufactured keeping in view of the MOEF&CC/OSHA standards on Noise levels. The Ambient Noise levels will be within the standards prescribed by MOEF&CC, i.e. ambient noise levels will be less than 75 dBA during day time & less than 70 dBA during night time.

4.4.2 PREDICTION OF IMPACTS ON COMMUNITY

Day and Night sound pressure levels, L_{dn} are often used to describe the community noise exposure which includes 10 dBA night time penalties. There are no major noise generating sources on continuous basis. Extensive greenbelt already developed in the existing plant

premises will help to mitigate the noise levels further. The impact of noise on general population would be insignificant.

As per the WHO recommendation, there is no identified risk and damage of hearing due to the noise levels ($L_{eq} = 8$ hours) less than 75 dBA. Most of the international damage risk criteria for hearing loss permit ($L_{eq} = 12$ hours) upto 87 dBA. Further, WHO recommendation on community noise annoyance, permits day time out door noise levels of 55 dBA.

4.4.3 PREDICTION OF IMPACT ON OCCUPATIONAL HEALTH

The damage risk criteria as enforced by OSHA (Occupation Safety and Health Administration) to reduce hearing loss, stipulates that noise level upto 85 dBA are acceptable for 8 hour working shift per day. Plant authorities will provide ear plugs to the employees and will be enforced to be used by the employees when they enter into noise prone areas.

4.5 PREDICTION OF IMPACTS ON LAND ENVIRONMENT

Proposed expansion will be taken up in the existing plant of **2.91 Ha. (7.18 Acres)**. As there are no endangered species in the vicinity of the proposed activity, there will not be any concern for the loss of important germoplasm that needs conservation.

To control the fugitive emissions dust extraction system and dust suppression system will be installed at all the dust emanating areas. All required pollution control systems will be installed and operated to comply with the norms. Hence there will not be any impact on nearby top soil.

Proposed expansion project will maintain Zero effluent discharge and closed circuit cooling system will be implemented. Hence there will not be any adverse impact on land environment due to the proposed expansion project.

Solid waste generated from the plant will be disposed /utilized as per the norms. Hence there will not be any adverse impact on land environment due to the proposed expansion. The land use pattern of the study area will certainly be improved due to the proposed activity. Land price in the nearby area will increase which will benefit the local people. This industry may attract some ancillary works also which will also help in improving the land use

pattern of the area. Greenbelt is considered essential for maintaining the stability of the environment of the area. **1.17 Ha. (2.9 Acres) Acres (40%) of greenbelt (including existing)** will be developed in the plant premises & outside of the plant.

4.6 PREDICTION OF IMPACTS DUE TO VEHICULAR MOVEMENT [Gen.TOR # 6 (ix) & 7 (iii)]

- Major raw materials will be transported through railway rakes up to the nearest railway station (i.e. Barkakana RS – 12 Kms) and then to the site through road by covered trucks.
- All the trucks used for the transport of raw materials, products and wastes will be completely covered with tarpaulin and ensured no spillage during transportation.
- Total no. of trucks after proposed expansion will be **50 trucks / day**.
- Existing road is well connected to Ramgarh City Road & **NH # 20 (Ranchi – Hazaribagh)** which is at **7.0 Kms** from the plant site. Existing Road network is capable of taking additional traffic load due to expansion project.
- All the raw material required for the proposed expansion of plant will be stored on pucca platform above ground level.
- All the raw material yards are equipped with water sprinkling system, so as to avoid fugitive emission during the material handling.

No. of trucks due to the existing plant = 20 trucks/day

No. of trucks due to the expansion project = 30 trucks /day

Total no. of trucks during the operation of the expansion project = 50 trucks/day

The following table shows the baseline traffic, additional traffic due to the proposed expansion project.

PEAK HOUR VOLUME FOR THE ROAD:

TABLE No. 4.6.1: TRAFFIC COUNT DURING PEAK HOURS

Real time Traffic scenario at Ramgarh to Kuju (Ramgarh City Road) 2-lane Undivided Highway:

Time	TWO WHEELER Cycle, Motor Cycle or Scooter	LIGHT MOTOR VEHICLE Passenger car, Tempo, Auto rickshaw	HEAVY VEHICLE Truck, Bus, or Agricultural Tractor Trailer unit	Total
08 AM - 09 AM	46	38	86	171
09 AM - 10 AM	55	46	96	197
10 AM - 11 AM	58	49	105	213

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 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

Time	TWO WHEELER Cycle, Motor Cycle or Scooter	LIGHT MOTOR VEHICLE Passenger car, Tempo, Auto rickshaw	HEAVY VEHICLE Truck, Bus, or Agricultural Tractor Trailer unit	Total
11 AM - 12 PM	70	53	110	233
05 PM - 06 PM	53	43	95	190
06 PM - 07 PM	61	40	89	190
07 PM - 08 PM	50	45	96	192
08 PM - 09 PM	41	38	87	166
Note: The highest peak vehicular count observed during 11:00 hours to 12:00 hours i.e. 233 nos.				

TABLE No. 4.6.2: TRAFFIC COUNT DURING PEAK HOURS

 Real time Traffic scenario at Kuju to Ramgarh (Ramgarh City Road) 2-lane Undivided Highway):

Time	TWO WHEELER Cycle, Motor Cycle or Scooter	LIGHT MOTOR VEHICLE Passenger car, Tempo, Auto rickshaw	HEAVY VEHICLE Truck, Bus, or Agricultural Tractor Trailer unit	Total
08 AM - 09 AM	38	35	81	154
09 AM - 10 AM	45	40	89	174
10 AM - 11 AM	60	50	104	214
11 AM - 12 PM	48	44	98	191
05 PM - 06 PM	45	36	85	167
06 PM - 07 PM	53	35	100	188
07 PM - 08 PM	49	47	87	183
08 PM - 09 PM	37	39	89	165
Note: The highest peak vehicular count observed is during 10:00 hours to 11:00 hours i.e. 214 nos.				

TABLE NO. 4.6.3: VEHICULAR PCU FACTORS

Vehicle Type	Equivalent PCU Factors
Cycle, Motor Cycle or Scooter	0.5
Passenger car, Tempo, Auto rickshaw	1.0
Truck, Bus, or Agricultural Tractor Trailer unit	3.0

TABLE No.4.6.4: PCU CALCULATION FOR PEAK HOUR TRAFFIC (EXISTING BASELINE SCENARIO)

Type of vehicle	Total No. of vehicles (Ramgarh to Kuju)	Total No. of vehicles (Kuju to Ramgarh)	Total PCU/hr
Cycle, Motor Cycle or Scooter	70	60	65
Passenger car, Tempo, Auto rickshaw	53	50	103
Truck, Bus, or Agricultural Tractor Trailer unit	110	104	643
TOTAL	233	214	811

TABLE No.4.6.5: PCU CALCULATION FOR PEAK HOUR TRAFFIC (DUE TO THE PROJECT)

Type of vehicle	Total No. of vehicles (Ramgarh to Kuju)	Total No. of vehicles (Kuju to Ramgarh)	Total PCU/hr
Cycle, Motor Cycle or Scooter	4	4	4
Passenger car, Tempo, Auto rickshaw	1	1	2
Truck, Bus, or Agricultural Tractor Trailer unit	7	7	42
TOTAL	12	12	48

**TABLE No. 4.6.6: LEVEL OF SERVICE AT STUDY ROAD DURING PEAK HOUR
(After Operation of the Proposed Project)**

Ramgarh to Kuju (Ramgarh City Road)	Existing Baseline Scenario (V) (PCU/hr)	Due to the Project (V) (PCU/hr)	Total (PCU/hr)	Capacity of Road (C) (PCU/hr)	V/C ratio	LOS
PCU/Hour	810.9	48	858.9	1500	0.57	C

TABLE No. 4.6.7: Level of Service (LOS) of the Road as per IRC 106-1990

V/C	LOS	Performance
0.0 – 0.2	A	Excellent
0.2 – 0.4	B	Very Good
0.4 – 0.6	C	Good
0.6 – 0.8	D	Fair/ Average
0.8 – 1.0	E	Poor
1.0 & Above	F	Very Poor
V = Volume in PCU's /hr, C= Capacity PCU's /hr, LOS = Level of Service		

- As per the above the LOS of the ROAD is categorised under 'C', which implies "GOOD".
- Hence the existing road is capable of taking the additional vehicular traffic due to the proposed expansion project.

4.7 PREDICTION OF IMPACTS ON FLORA & FAUNA

- There are no National Parks, Wild life Sanctuaries and Bird Sanctuaries within 10 Km. radius of the plant site.
- Unnamed PF (0.5 Kms. – W), Unnamed PF (4.7 Kms-NW), Unnamed PF (4.0 Kms-S) present within 10 Kms. radius of the plant site. All the required Air Emissions Control systems will be installed and operated to comply with MoEF&CC/CPCB/CECB norms.

- Zero liquid effluent discharge is being maintained in the existing plant and similar practice will be maintained after expansion also.
- All solid waste disposal will be in accordance with the norms.
- Extensive Greenbelt was already been developed in the plant premises.

When all norms are complied and with proper implementation of Environment Management Plan, there will not be any adverse impact on Flora & Fauna due to the proposed expansion.

4.8 PREDICTION OF IMPACTS ON SOCIO ECONOMIC ENVIRONMENT

The local areas will be benefited by way of generation of employment opportunities, increased demand for local products and services. There will be an improvement in the income level of the local people.

The entire project will generate direct employment 750 nos. which will be employed officials, staff, skilled, semi -skilled labour & 200 nos. indirectly employed in contract works & transport.



BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

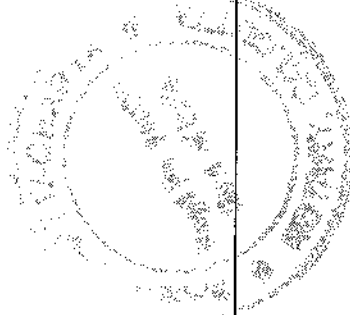
4.8.1 Socio-economic impacts of proposed project are predicted as follows

S.No.	Impact Parameter	Predicted Impacts		Budget Allocation / Remark
		Positive	Negative	
1	Human Settlement	No displacement of people or habitations would occur. As the plant is situated in Ramgarh Industrial Area. The land is taken on lease by the project proponent.	Nil	---
2	Livelihoods	- No loss of existing livelihoods. Direct or indirect is expected to occur. - Additional non-agricultural livelihood opportunities are expected both directly and as spinoffs. - Most of the workers are employed from local areas only.	A moderate influx of people in project construction and operation phases.	Priority will be given to local people in employment as part of expansion activity.
3	Employment Generation	- No loss of existing employment due to the proposed project is expected. - In the existing plant about 200 nos. of workers are employed most of them are Ramgarh district only. - Now as part of expansion activity there will be additional employment for about 750 skilled, semi-skilled & unskilled workers during project operation. - Indirect employment to about 200 persons as a sequel to income multiple effect and induced growth during construction & operation phases of the expansion project. - Majority of them will be from local areas mainly women and youth.	Nil	---
4	Incomes and Revenues	Sixty percent of the Study area population is dependent on agriculture-related traditional occupations for their livelihood. However, due to the inadequacy of irrigation facilities, most villagers are able to get employment only for about four months	Nil	---

BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

4.8.1 Socio-economic impacts of proposed project are predicted as follows

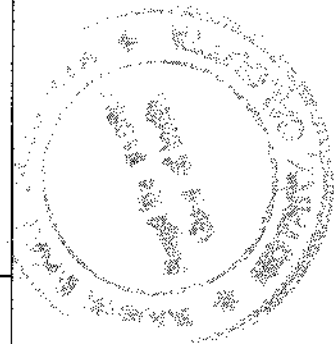
S.No.	Impact Parameter	Predicted Impacts		Budget Allocation / Remark
		Positive	Negative	
		in the year. The villages near the mines and Industries are slightly better off in this regard. Hence, the proposed expansion will create additional employment. - Improved tax revenues of Gram Panchayat. - The successful commissioning and running of the proposed plant will attract more industrial investments which in turn will benefit the society and the nation.		
5	Demographics	- The population levels of the neighbouring villages are not likely to change in any significant manner. - The lifestyles of people are expected to improve in tune with the rise in incomes and improvement in infrastructure facilities. - The skill sets of the local residents are expected to improve in keeping with the emerging employment opportunities.	Nil	---
6	Community Health	Health of people residing in all the three impact zones is not likely to be impacted adversely considering the nature of emissions and the state of the air pollution control systems planned. And the emissions will be confined with in the industrial park area only.	If Emission Control Systems are not operated & proper dust suppression systems not adopted for control of Particulate emissions from Stack & Fugitive emissions from Raw material handling areas, it may raise community health issues.	Budget of Rs. 4.5 Crores has been earmarked for Environment & health Protection.
7	Physical Infrastructure	The plant is situated in Industrial Park which is having well developed Road & Power network.	If massive Increase in vehicular traffic may lead to	Priority will be given to local people in

BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

4.8.1 Socio-economic impacts of proposed project are predicted as follows			
S.No.	Impact Parameter	Predicted Impacts	
		Positive	Negative
		• And the plant is well connected to Ramgarh City Road & NH # 20 (Ranchi – Hazaribagh) which is at 7.0 Kms from the plant site. Existing Road network is capable of taking additional traffic load due to expansion project. • Due to more industries in the study area Power fluctuations will not be there. • Few initiatives have already are taken up by the industries present in the study area and improving Sanitation facilities in the surrounding Villages. • Improvement in housing stock and educational facilities could be expected in the long run as industrialization in the area gains acceleration.	higher incidence of road accidents. • If influx of workers from outside areas then there will be an increased pressure on water supply and sanitation in the neighborhood during construction phase.
8	Social Infrastructure		employment as part of expansion activity. Priority will be given to local people in employment as part of expansion activity.



CHAPTER – 5

ANALYSIS OF ALTERNATIVES (TECHNOLOGY & SITE)



5.1 ALTERNATIVE TECHNOLOGIES

No technological failures are anticipated, the manufacturing of Ferro Alloys through Submerged Arc Furnaces are well known and proven technologies all over the world. Hence no alternative technologies are considered.

5.2 ALTERNATIVE SITES [Gen. ToR # 4 (i)]

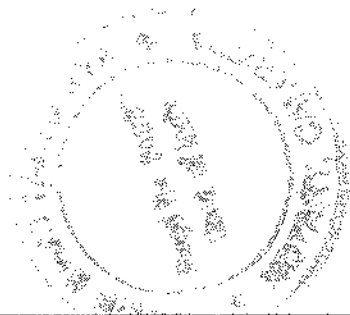
BIHAR FOUNDRY & CASTINGS LIMITED is an existing Ferro Alloy Plant of 96TPD (34,080TPA) capacity at Plot No 1405(P), Ramgarh Industrial Area, Marar Village, Ramgarh Tehsil & District, Jharkhand.

Proposed project is located in Ramgarh Industrial Area developed for Jharkhand Industrial Area Development Authority (JIADA) for development of Industrial Unit by providing infrastructure facilities like land, roads, water supply, drainage facilities and street lights etc. **BIHAR FOUNDRY & CASTINGS LIMITED** has been allotted 2.91 Ha. (7.18 Acres) of land by Jharkhand Industrial Area Development Authority (JIADA).

Proposed expansion will be taken up in the existing plant premises only, no alternate sites have been identified for the proposed expansion project.

However additional Greenbelt of will be developed to comply with Mechanism for Environmental Management of CPA / SPA vide CPCB circular 25-10-2019 by developing 40% of Greenbelt of total project area i.e. 1.17 Ha. (2.9 Acres). For this management has acquired Adjoining Additional land to develop additional Greenbelt.

Hence no alternative sites have been examined.



CHAPTER – 6

ENVIRONMENTAL MONITORING PROGRAM



6.1 TECHNICAL ASPECTS

6.1.1 METHODOLOGY

To know the effectiveness of environmental mitigation measures post project environmental monitoring program will be strictly followed as per the statutory requirement.

- The primary & secondary fugitive emissions from Submerged Electric Arc Furnaces during manufacture of Ferro alloys proposed under expansion will be treated in Fume extraction & cleaning system comprising of suction hoods, bag filters etc. The outlet dust emissions in the exhaust gases will be less than 30 mg/Nm³. The treated gases will be discharged into the atmosphere through a stack of adequate height for effective dispersion of gases into the atmosphere.
- Energy meters will be provided to all air emission control systems to ensure effective operation of the control systems.
- Fugitive emissions will be monitored as per CPCB norms.
- All air emission control systems will be taken-up for maintenance as per prescribed schedule and compliance with norms will always be ensured.
- Stack monitoring and Ambient air quality monitoring at regular interval by SPCB will also help in cross checking the performance of Pollution control systems installed in the plant.

6.1.2 FREQUENCY & LOCATIONS OF ENVIRONMENTAL MONITORING [Gen. TOR # 7 (xii)]

A comprehensive monitoring programme is given as under. This environmental monitoring will be entrusted to a third party.

TABLE NO. 6.1.1: MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

S.No.	Particulars	Frequency of Monitoring	Duration of sampling	Parameters required to be monitored
1. Water & Waste water quality				
A.	Water quality in the area	Quarterly once	Grab sampling	As per IS: 10500
B.	STP inlet & outlet	Quarterly once	Composite sampling (24 hourly)	As per EPA Rules 1996
2. Air Quality				

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

A.	Stack Monitoring	CEMS (existing & Proposed) Quarterly once	Continuous --	PM & NO _x PM & NO _x
B.	Ambient Air quality	CAAQMS Quarterly once	Continuous 24 hours continuously	PM ₁₀ PM _{2.5} , PM ₁₀ , SO ₂ , NO _x & CO
C.	Fugitive emissions	Quarterly basis	8 hours	PM
3. Meteorological Data				
A	Meteorological data to be monitored at the plant.	Daily	Continuous monitoring	Temperature, Relative Humidity, Rainfall, Wind direction & Wind speed
4. Noise level monitoring				
A	Ambient Noise levels	Quarterly once	Continuous for 24 hours with 1 hour interval	Noise levels

6.1.3 DATA ANALYSIS

All the parameters will be analyzed as per IS procedures specified for those parameters. All water samples will be analyzed for various parameters as per IS: 10500 & BIS: 2296 procedures.

The methodology adopted for monitoring & analysis of PM_{2.5} & PM₁₀ is as per IS: 5182 Part IV, SO₂ & NO_x as per IS: 5182 Part II & Part VI respectively. Samples were analyzed for SO₂ using improved West-Gaeke method for air samples using a spectrophotometer at a wavelength of 560nm. Samples were analyzed for NO_x using Jacob and Hocheiser modified (Na-As) method, for Air samples using a spectrophotometer at wavelength of 540 nm.

PM₁₀ & PM_{2.5} in ambient air are found by using Respirable Dust Sampler (RDS) & APM-550. CO was analysed on Gas Chromatograph.

6.1.4 REPORTING SCHEDULE

After completion of analysis, copies of all the analysis reports will be sent to Ministry of Environment, Forest & Climate Change and SPCB periodically. Copies of the reports will be maintained in the plant and will be made available to the concerned inspecting authorities as and when required.

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

6.1.5 EMERGENCY PROCEDURES

Whenever the Control system fails to comply with the norms, then immediately stop the supply of raw materials to the Furnace to have least environmental impact. Accordingly, applicable emergency procedures will be followed.

6.1.6 DETAILED BUDGET & PROCUREMENT SCHEDULES

The budgetary allocation for Environmental monitoring is **Rs. 4.1 Lakhs/Annum**. A third party will be engaged to monitor all the environmental parameters as per CPCB / SPCB norms once the expansion project comes into operation.

S.No.	Description	No. of units		Monitoring Parameters	Frequency of Monitoring	No. of Samples /annum	Cost / Sample (Rs.)	Total cost in (in Rs.)
		Existing	Proposed					
1	Stack	4	1	PM & SO ₂ , NO _x	Quarterly once	20	5000	100000
2	AAQ	0	4	PM ₁₀ , PM _{2.5} NO _x & CO	Quarterly once	16	7000	112000
3	Effluent	0	2	pH, TDS, TSS, O&G, Free Available Cl, Cu, Fe, Zn, Chromium, PO ₄	Quarterly once	8	6000	48000
4	Fugitive emissions	0	2	PM	Quarterly once	8	4000	32000
5	Ground water	0	1	As per IS: 10500	Quarterly once	4	7000	28000
6	Noise levels	0	4	---	Quarterly once (hourly)	384	100	38400
7	Performance Evaluation of APCD	0	1	---	Once in a year	1	50000	50000
Total								408400

Note : CEMS, CAAQMS & Continuous Weather Monitoring Station will be provided



CHAPTER – 7

ADDITIONAL STUDIES

7.1 INTRODUCTION

As per the Standard Terms of Reference (ToR) issued vide letter No. J-11011/384/2010-IAII(I) dated 24.11.2020 & Amendment to ToR vide no. IA-J-11011/384/2010-IA-II(IND-I) dated 19th December, 2022, following Additional Studies were required to be carried out for the proposed project:

- i. Public Consultation
- ii. Social Impact Assessment Study (Socio Economic Study)
- iii. Risk Assessment and Disaster Management Plan

7.2 PUBLIC CONSULTATION

Public Hearing has been conducted by Jharkand State Pollution Control Board for conduct public hearing/consultation for the proposed expansion project.

Public Hearing for proposed expansion project was conducted on 15-03-2021, at 11:00 AM, Gym Khana Club Ranchi road, Ramgarh, Ramgarh Tehsil & District, Jharkhand Following are the details of the Public Hearing.

1. Public Hearing Notice published in Local newspaper (Hindi) "THE PIONEER" dt. 10-02-2022 and in National newspaper (English) "HINDUSTHAN" dt. 10-02-2022
2. Public Hearing was hosted by Additional District Magistrate, Ramgarh District, Jharkhand
3. Management response for the issues raised during Public Hearing & action plan

7.2.1 PROCEEDINGS OF PUBLIC HEARING

Public Hearing Proceedings have been enclosed as **ANNEXURE – 11** along with this Final EIA/EMP Report.

BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

**Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand**

7.2.2 PUBLIC HEARING NOTICE IN NEWSPAPER

PH Notice in "THE PIONEER" on 10-02-2022

PH Notice in "HINDUSTHAN" dt. 10-02-2022

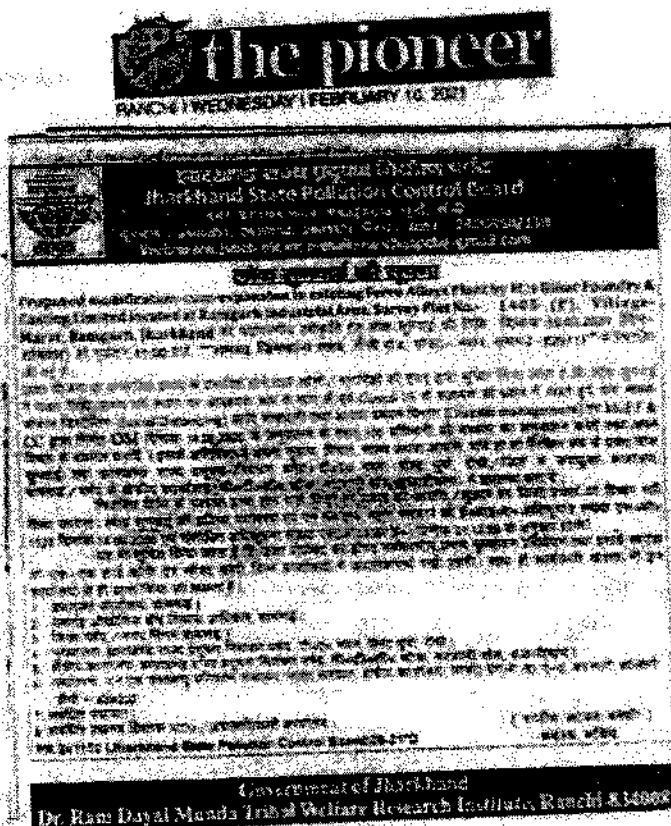
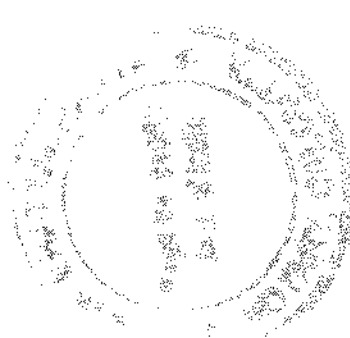


Figure 7.1: Public Hearing Notice in Newspaper

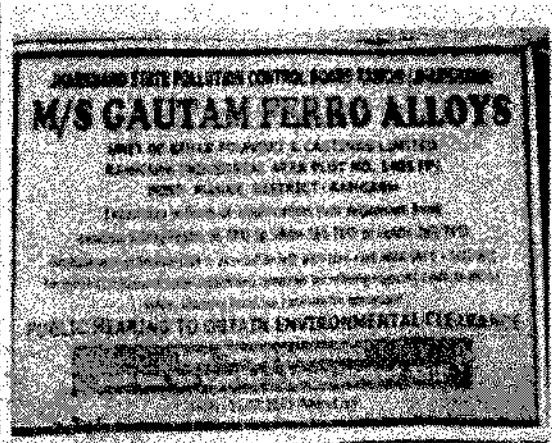
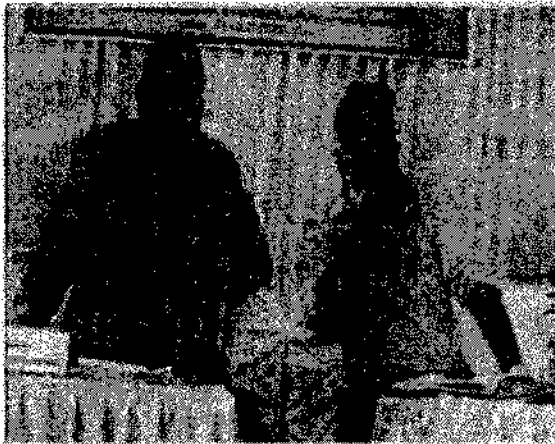


BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

7.2.3 PUBLIC HEARING PHOTOGRAPHS

PUBLIC HEARING PHOTOGRAPH



7.2.4 MANAGEMENT RESPONSE FOR THE ISSUES RAISED DURING PUBLIC HEARING & ACTION PLAN

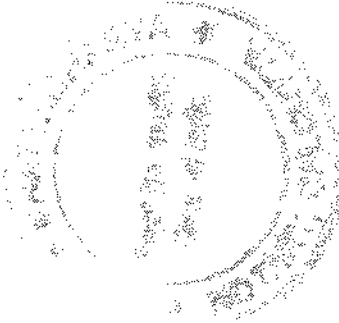
Table 7.2.1 - Issues raised during public hearing and commitment of the project proponent

S.No.	Issue raised	Management Response	Time schedule	Budgetary allocation	Reference in EIA report
1.	Employment for local people	The proposed expansion project will generate direct employment to 750 nos. which includes skilled, semi-skilled & unskilled. Local people will be given top priority in employment based on their qualification & experience. Skill development training program will be conducted.	--- 2023 2024 2025	--- Rs.0.15 Crores Rs.0.15 Crores Rs.0.15 Crores Total Rs. 0.45 Crores	
2.	Proper utilization of CSR fund	M/s. BFCL (Ferro Alloy unit) is also proposing to adopt the following Marar Village as a part of Social welfare development and has earmarked Rs. 1.34 Crores for Social & Infrastructure developmental activities based on Social Impact Assessment (SIA).	2023 2024 2025	Rs.0.45 Crores Rs.0.48 Crores Rs.0.41 Crores Total Rs. 1.34 Crores for Social & Infrastructure developmental activities	Page no. 8.2 of Chapter-8
3.	Pollution Control Measures	- In the existing plant Emission control systems such as 4th Hole Fume Extraction system with bagfilters have been provide to SEAFs and dust suppression system at unloading areas. - The flue gas emissions are within the stipulated norms.	2023 2024 2025	Budget of Rs. 4.5 Crores is earmarked for Environment Protection Measures	Page no. 10.24 of Chapter-8

BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

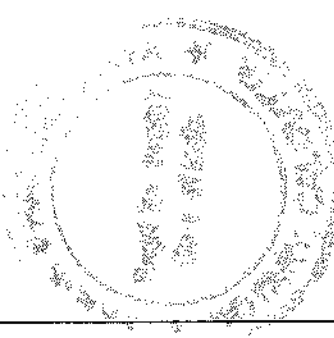
Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

	• Pucca internal roads has been laid in the plant area. • CEMS data shows the emissions are within the stipulated norms. Zero liquid discharge is followed. All solid wastes are utilized/disposed as per permitted procedures. • Greenbelt development in the existing plant helps in further mitigation of impacts due to the plant operations. • SPCB has issued CTO for the plant which is valid till 31/12/2025. Hence there is no adverse impact on health of people due to existing plant operations. In the proposed expansion project following environment protection measures will be provided for duly complying with norms stipulated by MOEF&CC / CECB: • 4th Hole Fume Extraction system with bagfilters will be provided to proposed SEAF to bring down the particulate emission to less than 30 mg/Nm³. • Net resultant Ground level concentrations during operation of the plant after superimposing the incremental concentrations over the maximum		

BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

		baseline concentrations are well within the National Ambient Air Quality Standards. - As the Plant is situated in Critically Polluted area (CPA) it is proposed to develop 40% of Greenbelt as part of the expansion i.e. in an extent of 1.17 Ha. (2.9 Acres). - To meet the requirement of 40% greenbelt development it is proposed to acquire additional land outside the existing plant. - Effluent will be treated in ETP consisting of RO plant also and after ensuring compliance with the norms, it will be utilised for dust suppression, ash conditioning and for greenbelt development within the premises. - No effluent will be discharged outside the premises. - Zero liquid discharge will be followed.			Page no. 10.24 of Chapter-8
4.	Water sprinkling on haul roads	Water tanker with water sprinkling system has been provided in the plant for regular water sprinkling on Roads.	---	Recurring cost of Rs.5.0 Lakhs/annum	

7.3 SOCIAL IMPACT ASSESSMENT STUDY [Gen. ToR No. 6 (xi)]

In view of the fact that the development is an ever-growing process, its impact is also ever increasing, leading to rapid deterioration in environmental conditional and human health. Impact assessment thus ensures that the potential problems are foreseen and addressed at an early stage in the projects plant and design. Environment Impact Assessment (EIA) & Social Impact Assessment provides a rational approach to sustainable development.

Social Impact Assessment includes the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, and developmental activities) on individual, social groups and community at large and any social change processes invoked by those interventions.

7.3.1 LEGISLATIVE & REGULATORY CONSIDERATIONS

According to the Specific TOR point no. 6 (xi), in the **ToR letter no. J-11011/384/2010-IAII(I) dated 24.11.2020 & Amendment to ToR vide no. File No. IA-J-11011/384/2010-IA-II(IND-I) dated 19th December, 2022.**

“The project proponent should carry out Social Impact Assessment of the project as per the Office Memorandum No. J-11013/25/2014-IA.I dated 11.08.2014 issued by the Ministry regarding guidelines on Environment Sustainability and CSR issues. The Social Impact assessment study so carried should form part of EIA and EMP report”

Towards the fulfilment of the above TOR, Functional Area Expert and his team has prepared the Social Impact Assessment report.

7.3.2 OBJECTIVE

The primary objectives of the Social Impact Assessment study are:

- Understanding the baseline socio-economic environment obtaining in the impact zone.
- Identifying the key stakeholders who are likely to be impacted by the establishment of the proposed project.
- Predicting the positive and negative impacts of the project on the socio-economic environment in the area.
- Suggesting mitigation measures to minimize the negative impacts.

7.3.3 SCOPE

In keeping with its objectives, the scope of the study extends to:

- Making a reconnaissance of the villages and human settlements within the 10 km radius from the proposed project site.
- Understanding the overall socio-economic profile of the impact area.
- Assessing the baseline socio-economic environment prevailing in the impact area focusing the core and buffer zones.
- Identifying key economic sectors and major sources of livelihood in the study area.
- Understanding social structures and lifestyles of people in the area who are likely to be affected the most by the proposed project.
- Assessing physical and social infrastructure facilities accessible to inhabitants in the project impact area.
- Predicting the likely socio-economic impacts as a consequence of establishing the project.
- Suggesting adverse impact mitigation measures in line with the felt needs, aspirations and expectations of the project affected population.
- Preparing an appropriate Socio Economic Environment Management Plan.

7.3.4 APPROACH & METHODOLOGY

The basic approach for carrying out the SIA is focused on:

- Zeroing-in on the project impact area, covering all the villages and other habitations falling within the 10 km radius from the project site.
- Collecting basic information with respect to constituent villages in terms of census village code, name of the Tehsil in which a particular village falls, number of households, population level (as per Census 2011) and growth of village population during the last decade, distance from the proposed project site etc.
- Identifying critical knowledge/information gaps which impede an objective and reliable assessment of the socio-economic impacts of the project.
- Zeroing-in on the data/information to be collected for a fair impact assessment and deciding upon the sources and means to collecting the same.
- Identifying the key stakeholders and potential respondents for collecting the required information.

- Drawing a sampling frame and sample size specifying villages and number of households to be contacted for primary data/information collection and agencies to be contacted for eliciting information on various aspects relevant to the study.
- Assessing the views raised in the Public Hearing and developing a plan (consisting of Cost, Budget, Monitoring and Evaluation) to implement the needs of people as per Public hearing outcome.

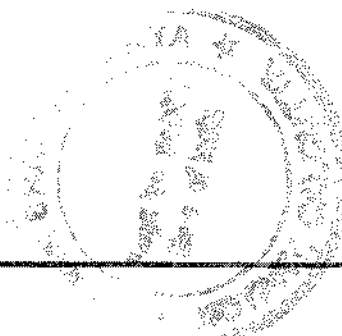
Methodology

- The Social Impact Assessment (SIA) of the proposed project is relied on a judicious mix of Secondary (i.e. Census 2011, Govt. Dept., Maps and Literature Research) and Primary data (i.e. Field survey and Interview / Interactions) collected from different sources.
- Various socio-economic aspects considered for impact assessment include livelihoods, relocation and rehabilitation, incomes, employment, skills, education, health and overall lifestyles. The cultural aspects considered are archaeological, historical, religious and aesthetic places of importance, arts and crafts etc.
- The SIA was carried out in the three distinct stage:
 - i. Desktop review / research
 - ii. Field Survey
 - iii. Data Analysis & its interpretation

7.3.5 SOCIO ECONOMIC STUDY AREA

The coverage of study extends to all the 53 Census villages and towns falling within the 10 km. radius, from the proposed project site, as mandated by MoEF&CC's ToR. The study area is 314 Sq. Km. The land utilisation pattern of the study area shows the dominance of Scrub Forest accounting for 9.2 %. The land under human settlement covers an area of 24.806 Sq. Km., which is mere 7.9 % of the total area. The detailed land use pattern of the study area is given below:

The pie diagram showing Land use pattern of the Study Area of 10 Km. radius



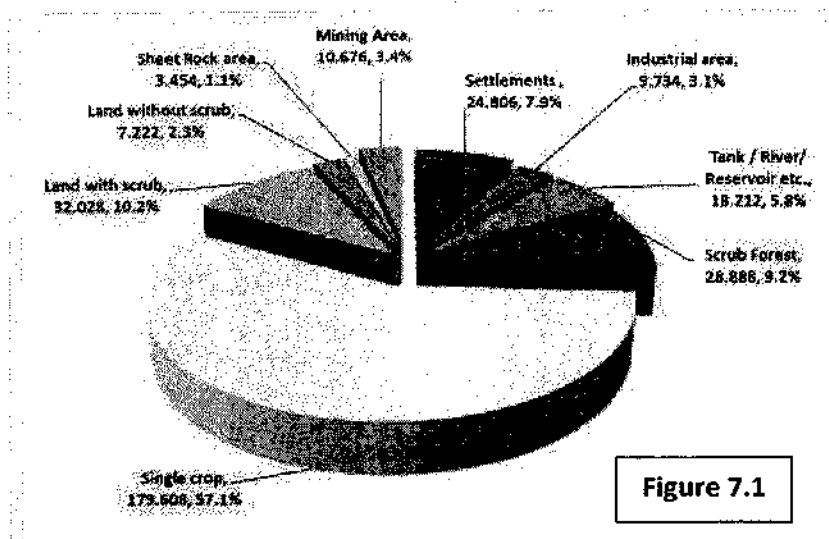


Figure 7.1

7.3.6 PROJECT IMPACT ZONES

The geographical area for impact assessment extends over 10 Kms. Radius from the project site and comprises of 53 Villages and towns (listed in census). To facilitate a more realistic and objective assessment, the 53 villages / towns are categorized into three zones:

- Core zone (within 2.0 Kms. Radial distance from the project site)
- Buffer zone (> 2 – 5 Kms.)
- Transition zone (> 5 – 10 Kms.)

The key demographic features of the villages / towns in the three impact zones are shown below:

Table 7.3.1: DEMOGRAPHIC FEATURES OF THE VILLAGES / TOWNS

S.No.	Village Name	Distance from Project Site (In Kms.)	Direction from Project site	Total Households	Population					
					Total	Male	Female	SC	ST	Average Literacy (%)
Villages within 0 - 2 Kms distance from the project site										
1	Marar (CT)	0.8	N	1086	5298	2777	2521	965	742	71.37%
2	Seota (CT)	1.9	NE	1295	6554	3459	3095	892	550	73.47%
3	Rauta	2	ENE	194	952	486	466	292	329	48.32%
Sub Total : I				2575	12804	6722	6082	2149	1621	64.4%
Villages within 2 - 5 Kms distance from the project site										
4	Phulsarai	2.3	WNW	545	3104	1584	1520	0	1415	53.0%
5	Manuan	2.5	W	682	3837	1961	1876	150	788	58.7%
6	Ramgarh	2.5	SSE	30523	161821	85780	76041	18133	23836	67.4%
7	Hathimara	3	ENE	243	1384	730	654	0	0	61.3%
8	Chapri	3.5	W	124	680	344	336	0	505	51.6%
9	Painki	3.6	E	219	1195	619	576	234	270	54.2%
10	Digwar	4.5	NE	1104	5833	3072	2761	368	705	59.7%
11	Kanjgi	5	WNW	416	2179	1110	1069	500	1124	49.2%

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

S.No.	Village Name	Distance from Project Site (In Kms.)	Direction from Project site	Total Households	Population					
					Total	Male	Female	SC	ST	Average Literacy (%)
12	Pochra	5	SSW	266	1486	765	721	14	52	65.2%
13	Bumri	5.5	NW	364	2075	1076	999	74	1678	41.0%
Sub Total : II				34486	183594	97041	86553	19473	30373	56.1%
Villages within 5 - 10 Kms distance from the project site										
14	Kaitha	5.5	SE	789	4359	2262	2097	587	690	55.2%
15	Jamira	5.6	SSW	515	2795	1466	1329	0	580	54.1%
16	Teliatu	5.8	SSW	583	3113	1581	1532	83	555	58.5%
17	Urlung	5.8	WSW	97	587	304	283	14	573	86.7%
18	Gobardarha	5.8	ESE	302	1465	762	703	169	198	64.6%
19	Sanri Alias Tilaiya (CT)	5.9	SSW	1217	6186	3216	2970	1154	1956	63.2%
20	Huhu	6.3	SE	587	3045	1528	1517	178	844	56.3%
21	Kothar	6.8	SE	720	3910	1953	1957	630	939	62.3%
22	Muram Kalan	6.8	SSE	873	4466	2325	2141	917	533	64.0%
23	Piri	6.9	SW	435	2195	1134	1061	22	1015	57.4%
24	Burhakhap	7	NE	78	430	214	216	0	0	54.4%
25	Karma	7	ENE	2205	12298	6263	6035	608	876	59.4%
26	Sugia	7	E	632	3235	1586	1649	125	1485	52.1%
27	Kankebar	7	SSE	217	1216	611	605	58	59	68.6%
28	Siur	7.1	S	163	847	430	417	159	464	41.2%
29	Orla (CT)	7.1	NNW	1163	5809	3015	2794	978	1984	65.4%
30	Kander	7.3	S	216	1079	554	525	5	1008	45.4%
31	Barka Chumba	7.6	WNW	1452	7853	4086	3767	1219	891	57.5%
32	Kuju (CT)	7.6	N	4059	21356	11246	10110	2688	2697	67.3%
33	Durgi	7.8	SW	619	3511	1826	1685	100	369	70.2%
34	Jatahadih Alias Gosa	7.8	SSE	102	556	277	279	0	6	50.0%
35	Kachudag	7.9	S	63	332	179	153	0	307	48.5%
36	Sirka	8	W	432	2165	1124	1041	587	398	66.1%
37	Ratwe	8	ENE	917	4940	2495	2445	301	288	55.0%
38	Chetar	8.2	SSE	227	1290	667	623	0	442	55.2%
39	Jobla	8.5	NW	68	432	215	217	6	426	60.9%
40	Burha Khukra	8.6	SSE	232	1181	601	580	0	190	58.2%
41	Sidhwar Kalan	8.8	SSW	174	906	461	445	1	532	44.2%
42	Chhotkidundi	8.8	ENE	315	1890	967	923	197	568	49.4%
43	Topa (CT)	8.8	NNW	1015	5028	2660	2368	871	1022	67.3%
44	Chhotka Chumba	8.9	WNW	328	1612	834	778	281	757	57.1%
45	Ara (CT)	8.9	NNE	2669	13547	7031	6516	1344	3795	66.9%
46	Chaingara	9	WSW	1185	6325	3246	3079	630	2270	57.4%
47	Chhotki Sihduar	9	SSW	51	280	134	146	165	67	38.9%
48	Harwe	9	NE	182	895	459	436	0	523	42.9%

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

S.No.	Village Name	Distance from Project Site (In Kms.)	Direction from Project site	Total Households	Population					
					Total	Male	Female	SC	ST	Average Literacy (%)
49	Lodhma	9	ESE	310	1509	808	701	0	808	59.4%
50	Masmohana	9.2	SW	297	1538	785	753	59	1308	46.3%
51	Hesla	9.2	WNW	511	2535	1310	1225	66	1304	62.2%
52	Datma	9.5	NNW	171	786	424	362	143	39	69.7%
53	Chaha	9.8	SE	175	797	399	398	41	588	45.2%
Sub Total : III				26346	138299	71438	66861	14386	33354	57.6%
Total				63407	334697	175201	159496	36008	65348	59.4%

It is obvious from the above data that only 3 no. of villages fall in core impact zone, accounting for just 3.83 % of the total population in the study area. 10 no. of villages accounting for 54.85 % of the total population fall in buffer impact zone, while 40 no. of villages accounting for 41.32 % of the total population fall in transition zone.

Given the nature of the project, its socio-economic impacts will be more pronounced on the people inhabiting the core and buffer impact zones rather than on the Transition zone. Hence the study focus was more on the socio-economic conditions obtaining among the households in the core and buffer zones.

7.3.7 BASELINE DATA AND ANALYSIS OF SURVEYED VILLAGES

7.3.7.1 DESKTOP REVIEW / RESEARCH

A fairly comprehensive desk research to understand the socio-economic setting of the project area was the first initiative towards carrying out SIA. Accordingly, published and unpublished information available on the subject was referred, reviewed and critical information gaps identified by the SIA team.

It was during this stage, the key stakeholders were identified and study instruments – schedules and checklists – prepared, tested and finalised. Similarly, the sampling frame and sample size were also designed and finalised. The sampling frame for the study consisted of villages, households and District and Tehsil level officials, key informants as also local opinion leaders.

A *proportional random sampling technique* was followed to select the sample village's and households. Accordingly, the sample villages were picked up at random from the three impact zones considered – Core, Buffer and Transition. The number of households to be contacted in each sample village was determined on the basis of the size of population of the respective

village. In the absence of household level information, the respondent households were selected randomly during the course of visit to the respective village. However, while selecting the respondent households, emphasis was on contacting households, who are economically poor, susceptible to shifts in livelihood patterns and belonged to vulnerable social communities.

To ensure the accuracy of the primary data collected from the study area, all the village specific information was verified from the data of Census 2011 and secondary information collected from various Govt. Dept., Map, Literature etc.

Accordingly following 13 no. of villages have been selected:

1. Marar (CT)
2. Seota (CT)
3. Phulsarai
4. Manuan
5. Hathimara
6. Painki
7. Digwar
8. Kanjgi
9. Pochra
10. Bumri
11. Kaitha
12. Jamira
13. Teliatu



7.3.7.2 FIELD SURVEY

Field survey helped in collecting fairly reliable primary data with respect to the major livelihood sources, education, health status, basic amenities and standard of living. It also helped in eliciting information from the natives about the negative environmental impacts of industrial units already existing in the area and the measures initiated by them (industrial units) to mitigate the impacts.

The potential respondents in the sample households were approached personally by members of the core study team and Field Investigators who explained the purpose of the visit and solicited their participation by sharing the intended information unbiasedly. The study team clarified the

doubts and addressed the apprehensions expressed by the respondents. Once the respondents were willing and ready to participate, household level socio-economic information was collected with the help of a structured questionnaire. A number of questions were open ended to facilitate capturing perceptions of the respondents objectively.

In addition, Participatory Rapid Assessment (PRA) tools comprising Villages / Town Transect Walks, Focus Group Discussions (FGD), Key Informant Interviews and Local Opinion Leader interviews were used for collecting qualitative information with regards to key socio-economic challenges of the area.

7.3.7.3 DATA ANALYSIS & ITS INTERPRETATION

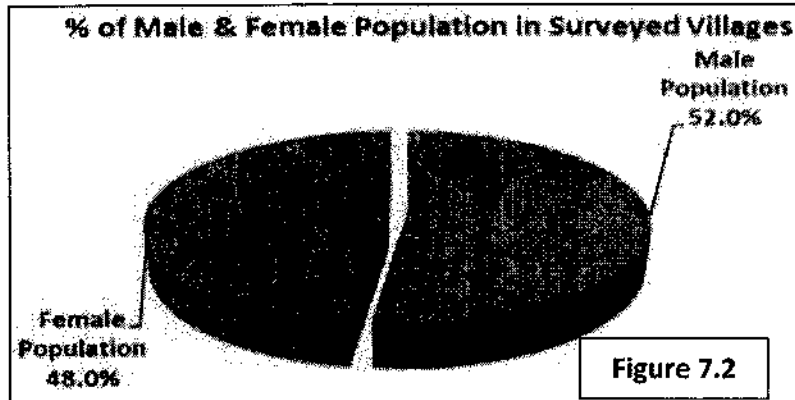
As per analysis of primary data & secondary data the distribution of population varies from place to place. In the study area, Seota (CT) & Digwar are densely populated areas. Avg. Literacy rate in surveyed villages is 58 %. The Avg. sex ratio of surveyed villages is 929. Total household population come out to be 43212. Average household size is 5.3. The percentage of Male population is 52.0 % and Female population is 48.0 % i.e. no major difference lies between Male and Female count.

Table 7.3.2 - Demography of the Surveyed villages

S.N o.	Village Name	Total House holds	Population						
			Total	Male	Femal e	SC	ST	Average Literacy (%)	Sex Ratio
1	Marar (CT)	1086	5298	2777	2521	965	742	71%	908
2	Seota (CT)	1295	6554	3459	3095	892	550	73%	895
3	Phulsarai	545	3104	1584	1520	0	1415	53%	960
4	Manuan	682	3837	1961	1876	150	788	59%	957
5	Hathimara	243	1384	730	654	0	0	61%	896
6	Painki	219	1195	619	576	234	270	54%	931
7	Digwar	1104	5833	3072	2761	368	705	60%	899
8	Kanigi	416	2179	1110	1069	500	1124	49%	963
9	Pochita	266	1486	765	721	14	52	65%	942
10	Bumri	364	2075	1076	999	74	1678	41%	928
11	Kaitha	789	4359	2262	2097	587	690	55%	927
12	Jamra	515	2795	1466	1329	0	580	54%	907
13	Teliatu	583	3113	1581	1532	83	555	58%	969
Total		8107	43212	22462	20750	3867	9149	58%	929

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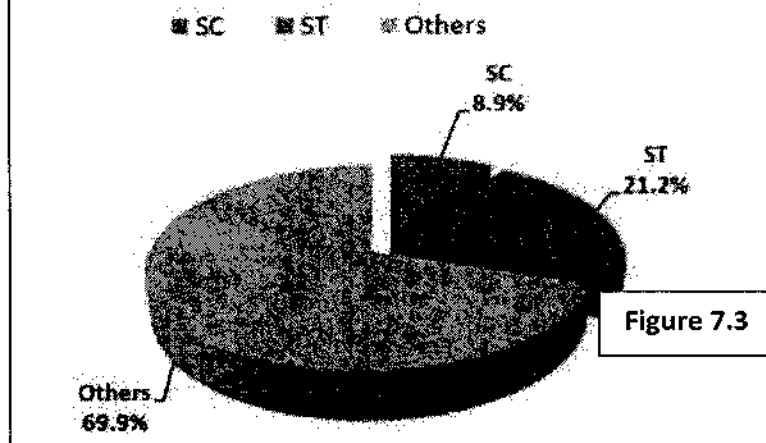
 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

Population Distribution

Vulnerable Group

There are particular groups who, for various reasons, are weak and vulnerable or have traditionally been victims of violations and consequently require special protection for the equal and effective enjoyment of their human rights. Such groups fall into reserve category and the Company has to take special measures to uplift the social strata in this section. The surveyed villages have less count of Schedule Caste and Schedule Tribe fraction is comparatively high i.e. **21.2 %**. The category falling in unreserved category shows the major occupancy in the area i.e. **69.9 %** of the total population.

TABLE NO. 7.3.3: DEMOGRAPHY OF VULNERABLE GROUPS

S.No.	Village Name	Population			
		Total	SC	ST	Others
1	Marar (CT)	5298	965	742	3591
2	Seota (CT)	6554	892	550	5112
3	Phulsarai	3104	0	1415	1689
4	Manuan	3837	150	788	2899
5	Hathimara	1384	0	0	1384
6	Painki	1195	234	270	691
7	Digwar	5833	368	705	4760
8	Kanjgi	2179	500	1124	555
9	Pochra	1486	14	52	1420
10	Bumri	2075	74	1678	323
11	Kaitha	4359	587	690	3082
12	Jamira	2795	0	580	2215
13	Teliatu	3113	83	555	2475
	Total	43212	3867	9149	30196

Vulnerable Group
Vulnerable population of surveyed villages

LITERACY LEVEL

Literacy denotes progress of a nation as a whole. The “multiplier effect” of literacy empowers people, enables them to participate fully in society and contributes to enables greater participation in the labour market; improved child and family health and nutrition; reduces poverty and expands life opportunities. In the surveyed villages male literacy is greater than female literacy rate. The Company will make efforts in order to fill the lacunae and indirectly contribute to the progress of the nation. As per the survey, the literacy rate (58.1%) is normal in the surveyed villages there is still some awareness is required in terms of education & education facilities are to be improved further. From the survey it is clear that the literacy rate of female (40.8 %) is lower as compared to male population (59.2 %). Male and female literacy rate of villages vary from place to place. On whole, female literacy level has to be enhanced to provide a balance in the society and pace towards economic progress of the area.

Table 7.3.4 - Literacy rate in the surveyed villages

S.No.	Name of Village	Total Pop.	Total Literate Population	Literacy Rate (%)	Male Literacy	Male Literacy Rate	Female Literacy	Female Literacy rate
1	Marar (CT)	5298	3781	71%	2162	57.2%	1619	42.8%
2	Seota (CT)	6554	4815	73%	2700	56.1%	2115	43.9%
3	Phulsarai	3104	1645	53%	987	60.0%	658	40.0%
4	Manuan	3837	2254	59%	1293	57.4%	961	42.6%
5	Hathimara	1384	848	61%	509	60.0%	339	40.0%
6	Painki	1195	648	54%	386	59.6%	262	40.4%
7	Digwar	5833	3484	60%	2059	59.1%	1425	40.9%

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

8	Kanjgi	2179	1072	49%	677	63.2%	395	36.8%
9	Pochra	1486	969	65%	544	56.1%	425	43.9%
10	Bumri	2075	851	41%	520	61.1%	331	38.9%
11	Kaitha	4359	2406	55%	1441	59.9%	965	40.1%
12	Jamira	2795	1512	54%	905	59.9%	607	40.1%
13	Teliatu	3113	1821	58%	1084	59.5%	737	40.5%
Total / Average		43212	26106	58.1%	15267	59.2%	10839	40.8%

LITERACY LEVELS
Gender wise average literacy rate in the surveyed villages

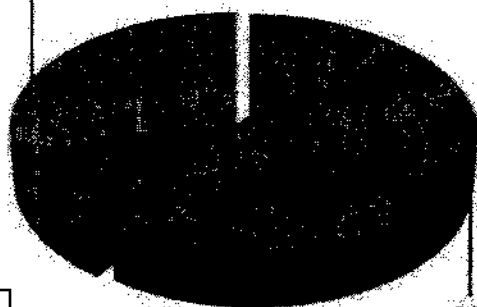
 Female Literacy
 rate
 40.8%


Figure 7.4

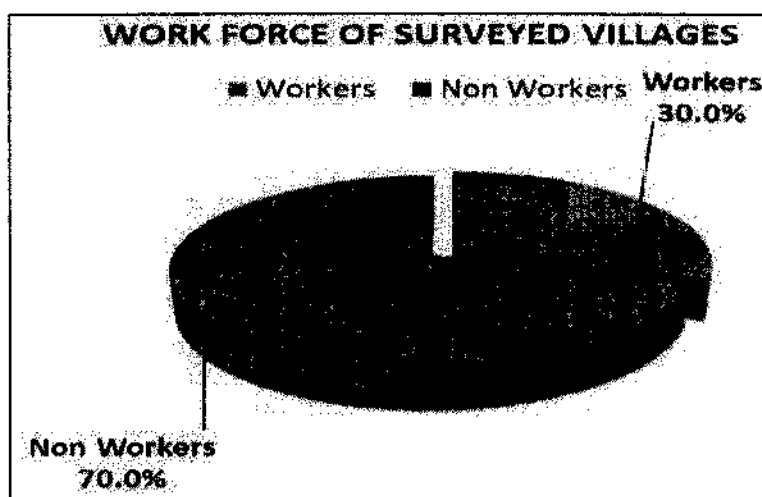
 Male Literacy rate
 59.2%

ECONOMIC ACTIVITIES

The economy of an area is defined by the occupational pattern and income level of the people in the area. The occupational structure of residents in the study area is studied with reference to work category. The population is divided occupation wise into three categories, viz., main workers, marginal workers and non-workers. The workers include cultivators, agricultural labourers, those engaged in household industry and other services. While the marginal workers are those workers, engaged in some work for a period of less than 180 days during the reference year. The non-workers include those engaged in unpaid household duties, students, retired persons, dependents, beggars, vagrants etc. besides institutional inmates or all other non-workers who do not fall under the above categories. The percentage of total working population and non-working population is 30 % & 70 % respectively in the study area.

Table 7.3.5 - Work force of the surveyed villages

S.No.	Name of Villages	Total Pop.	Total Workers	Main Workers	Marginal Worker	Non Workers
1	Marar (CT)	5298	1596	1529	67	3702
2	Seota (CT)	6554	1918	1697	221	4636
3	Phulsarai	3104	867	693	174	2237
4	Manuan	3837	1024	605	419	2813
5	Hathimara	1384	356	354	2	1028
6	Painki	1195	472	451	21	723
7	Digwar	5833	1658	1100	558	4175
8	Kanigi	2179	559	477	82	1620
9	Pochra	1486	368	366	2	1118
10	Bumri	2075	649	224	425	1426
11	Kaitha	4359	1623	915	708	2736
12	Jamira	2795	844	350	494	1951
13	Teliatu	3113	1051	1018	33	2062
Total		43212	12985	9779	3206	30227


Figure 7.5


It is evident from the above on the basis of information obtained from surveyed villages that the percentage of total working population is low and dependent population is high. This indicator shows that the economic conditions in the are not good.

They require livelihood opportunities to upgrade their economic status and fulfil basic needs. Due to the implementation of proposed for Modification-cum-Expansion of Ferro Alloy Plant **M/s.Bihar Foundry & Casting Limited**.Will certainly have some direct / indirect employment to the local people based on the qualification and will also provide training opportunity for self-employment generation.

7.3.8 SOCIO ECONOMIC STATUS

EDUCATION:

Observations

- The Primary & Secondary data reveals that literacy levels in all the villages is varying from 38.9 to 86.7 %.
- Most of the students in Villages in the study area are going to Ramgarh District for their studies, which is about 2.0 Kms. from the plant.
- The schools are also not having proper infrastructure facilities.
- College facilities are available in Ramgarh District.

Suggestions:

- Industries should come forward & needs to give support by providing School Benches, Books etc. & if possible, Library at least in High schools under CSR program.
- Industry requires manpower and that comes from education institutions, therefore it should get more and more involved in the process of education.
- Industries should support the education system by giving Scholarships to the merit students at least in High School range.

Health & Sanitation:

Observations

- The Primary & secondary data reveals that there are only 11 no. of Hospitals, 5 nos. of Sub Health Centers & 6 nos. of PHC's in the Study area.
- During FGD villagers made various issues in health care facilities, such as health facilities available at PHCs, Laboratory testing and Delivery facilities at Government Health Centers, availability of clean toilet and drinking water at PHCs, and distance of the nearest health center from the Village.
- To control the spread of diseases (Malaria & Dengue cases and seasonal diseases) and reduce the growing rates of mortality due to lack of adequate health facilities, special attention needs to be given to the health care in rural areas. The key challenges in the healthcare sector are low quality of care, poor accountability, lack of awareness, and limited access to facilities.

Suggestions:

- Various organizations such as NGOs also need to come together for improvements in health care and technology plays a crucial role to facilitate this. Information and communications Technology provide hosts of solutions for successful implementation of these changes.
- Industry need to renovate the existing Hospital in the nearby area from 10 bedded to 20 bedded Hospital.
- Industries should provide the sanitation facilities in all the PHCs in phased manner. Indirectly this will benefit the Industry & the management also.
- Industries should conduct regular Medical camps & Health camps once in Month.
- Industries in consultation with State Govt. should contribute to develop proper drainage facilities and avoid water logging to prevent waterborne diseases.
- Awareness programs shall be conducted in all the villages about the adverse effects on the growth of Children.
- 24-hour Ambulance facility shall be provided by the Project Proponent to the villagers on demand during emergency.

DRINKING WATER, SANITATION & INFRASTRUCTURE:

Observations

- It was observed that only 42 villages have Pucca Road facilities. It means nearly 80 % of the villages have road facility.
- It was observed that there is good improvement in Power Supply. As the study area comprises of Industrial Growth Centre. This ultimately solved the Power cuts & Power Fluctuations in the villages.
- It is observed that the source of water for Drinking & Agriculture in most of the Villages is groundwater. And the remaining villages which are proximate to the River use that as source of drinking water & for Agriculture.

Suggestions:

- Industries in consultation with State Govt. Should may come forward to lay the Village Roads in a phased manner. And shall also maintain these roads.
- The industries located in the study area mutually come forward to lay the roads in the villages which can create access to the Towns without any difficulty in phased manner.

- Industries may contribute in establishment of RO water plants in the Villages in a phased manner to prevent any waterborne diseases to the villagers.
- State Govt. should conduct awareness programs on sanitation and need to provide subsidy for construction of Toilets in their Houses. Sanitation facilities shall be established in the schools by the Project proponent under CER activity in a phased manner.
- There is need of Vocational training centres to train the un-employed youth in Computer / IT skills & other Industrial skills. It can be taken up under CER program along with other Project Proponent in Industrial Growth Centre; it can indirectly promote the establishment of more Internet Centers in the study area at least in Towns.

EMPLOYMENT, SPORTS & SOCIAL AILMENT ISSUES:

Observations

- The Primary & Secondary study reveals that employment in the study area is very less.
- It is observed that the Ramgarh (D) is having huge scope for employment as industrialization is more in this area and presence of Industrial Growth Centre. But due to lack of Vocational training centers / ITI Centers in the area the Industries are outsourcing some of the key employees from other areas.
- It is observed during FGD that there are only a few people got the benefit of Self-employment scheme and needs substantial improvement.
- It is observed that there is no encouragement for sports as there are less Schools & Colleges in the Study area. Ranchi District is the only place where Sports training facilities are available in entire District.

Suggestions:

- The study area has ample potential of generating employment / self-employment opportunities.
- Vocational Training Centres will enable the Industries to recruit the Local people & it will cost minimization for the Industries also.
- Industries in consultation with State Govt. Should may come forward to establish training institutes for unemployed youth as per their qualification such as Computer skills, Administration skills, Communication skills etc.
- Setting up the infrastructure will result in generation of employment opportunities.

7.3.9 CONCLUSION

The Social Impact Assessment of the study area for the surveyed village gives an idea of its Population, average household size, literacy rate and sex ratio. Literacy rate is average. A port of population is suffering from lack of regular job to run their day-to-day life and get basic facilities. The infrastructure and amenities available in the area denote the economic well-being of the region. The study area as a whole possesses average infrastructural facilities. The proposed enhancement & installation will contribute towards the improvement of the socioeconomic status of the surrounding areas.

M/s.Bihar Foundry & Casting Limited is committed to contribute in the development of basic need of the local area in order to uplift the social and economic structure of the area. The company will carry out various activities under CER in the nearby local area like community & infrastructure development programs, vocational training, Education, Health, Women empowerment etc. About **Rs. 1.34 Crores** is earmarked for CER activities. Detailed break up of activities to be carried out under CER is incorporated in **CHAPTER -8** of EIA report.

7.4 RISK ASSESSMENT [Gen. TOR # 7 (xiii)]

7.4.1 INTRODUCTION

Risk analysis deals with the identification and quantification of risks, the plant equipment's and personnel are exposed to, due to accidents resulting from the hazards present in the factory. Hazard analysis involves the identification and quantification of the various hazards that are likely to occur in the industry.

The various hazard analysis techniques that may be applied are Hazard and Operability (HAZOP) studies, Fault - Tree Analysis (FTA), event -tree analysis and, failure and effects mode analysis.

Risk analysis follows an extensive hazard analysis. It involves the identification and assessment of risks the neighboring populations are exposed to as a result of hazards present. This requires a through knowledge of failure probability, credible accident scenario, vulnerability of populations etc. Much of these information's are difficult to get or generate. Consequently, the risk analysis is oftenly confined to maximum creditable accident studies.

7.4.2 SCOPE OF THE STUDY

The scope of study includes the study of proposed operations, storage and handling of raw materials with respect to Hazard Identification. Risk Assessment and preparation of Disaster

Management plan. Based on the Hazard Identification and analysis, the major disaster scenarios would be worked out to estimate the consequence of failure. A Disaster Management Plan (DMP) would also be evolved to meet the emergency situation including the occupational health and safety.

7.4.3 FIRE PROTECTION SYSTEM

The following Fire Protection system has already been provided in the plant.

- Hydrant system covering the entire plant including all important auxiliaries and buildings. The system is complete with piping, valves, instrumentation, hoses, nozzles and hydrants, etc.
- Sprinkler system for cable galleries / vaults / spreader room etc.
- Portable fire extinguishers such as pressurized water type, carbon dioxide type and foam type are provided at strategic locations throughout the plant.
- Modular type carbon dioxide panel injection fire extinguishing system have already been provided in control equipment room, cable space below control room and at other unmanned electrical and electronic equipment room.

The following pumps are provided in the fire protection system.

Firewater pumps:

(Firewater reservoir is part of the main water reservoir)

- a) AC motor driven firewater pumps for hydrant, medium velocity water spray system and foam system.
- b) AC motor driven firewater pumps for high velocity water spray system.
- c) Diesel engine driven pump as stand by for the above.
- d) AC motor driven Jackey pump 1 No. for maintaining pressure.

Suitable number of electric motor driven and diesel engine operated hydrant and spray pumps with automatic starting are already been / will be provided for the above systems. The firewater pumps will take suction from the firewater reservoir to be created in the plant area.

7.4.4 METHODOLOGY OF MCA ANALYSIS

The MCA Analysis involved ordering and ranking of various sections in terms of potential vulnerability. The following steps were involved in MCA Analysis.

- Preparation of an inventory of major storages and rank them on the basis of their hazardous properties.
- Identification of potentially hazardous storage sections and representative failure cases from the vessels and the pipelines.
- Visualization of chemical release scenarios.
- Effect and damage calculation from the release cases through mathematical modeling.
- Inventory Analysis and Fire & Explosion and Toxicity Index (FETI) are the two techniques employed for hazard identification process.

7.4.5 FIRE & EXPLOSION AND TOXICITY INDEX

The role of Fire & Explosion Index (FEI) aids quantitative hazard identification. The FEI is calculated by evaluating the loss potential of all the units in the storage area and the hazardous areas are classified accordingly. The FEI plays an important role in

- Identification of the equipment/areas that could likely contribute to the creation or escalation of incident and relative ranking of the incidents.
- Quantification of the expected damage of potential fire and explosion incidents.
- Preparation of guidelines for mitigating fire hazards.

The loss potential which could actually be experienced under the most adverse operating conditions is quantitatively evaluated. The FEI is used for any operation in which a flammable, combustible or reactive material is stored, handled or processed.

$$FEI = MF * GPH * SPH$$

Where MF : Material factor
 GPH : General Process Hazard
 SPH : Special Process Hazard

TOXICITY INDEX

The Toxicity Index is calculated using the the following formula.

$$TI = \frac{(Nh + Ts) * (1 + GPH + SPH)}{100}$$

$$TI = \frac{(Nh + Ts) * (1 + GPH + SPH)}{100}$$

Where Nh:
 Ts:

GPH: General Process Hazard
 SPH: Special Process Hazard



BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand**7.4.6 ASSESSMENT OF RISK AT THE PROJECT SITE [Gen. TOR # 3 (ix)]**

Based on the storage inventory the following areas are identified as potential safety risk areas, shown in table 7.4.1.

TABLE 7.4.1: POSSIBLE RISKS, HAZARDS FROM THE PLANT & MITIGATION MEASURES

S.No.	Area of	Occupational & Safety Hazards And Causes	Their Impact	Actions Taken To Eliminate The Impact / Health And Safety Hazards
1	Raw Material Areas	- Exposure To Dust - Working In Open Areas	- Dust Allergy, - Fatigue Due To Physical Activity	- Providing Protective Appliances - Rotation Of Workers
2	Raw Material Feeding Systems Ferro Alloys	- Exposure To Dust While Handling Raw Materials In Yards - Exposure To Dust At Transfer Towers - Noise Levels Due To Impact At Batching System, Emv Feeders	- Dust Allergy, Lung Disorders, Respiratory Problems And Effect To Skin - Fatigue Due To Physical Activity - Scope of Accidents / Injuries Due To Improper Maintenance Practices. - Hearing Impairment, Sleep Disturbance, Hypertension	- All Conveyors Covered - Dust Suppression Systems At Transfer Towers To Eliminate Dust - Providing Proper Protective And Safety Appliances - Standing Instructions And Standard Operating Procedures - Providing Ear Plugs
3	Furnace Area Ferro Alloys	- Exposure To Heat At Furnace - Exposure To Dust At Furnace - Charging & Stroking System At Furnace - Suffocation At Operating Floor Level 1st Floor	- Dehydration and Cardio Vascular Disease. - Dust Allergy, Lung Disorders, Respiratory Problems And Effect To Skin - Metallic Dust Exposure - Scope Of Burns And Injuries And Effect To Eyes - Scope Of Injury Due To Spillage Of Hot Charge Mix At Furnace Operating Floor	- Low Hood Design Of Furnace Smoke Hood Eliminates Exposure To Dust And Fumes - Providing Safety And Protective Appliances - Proper Design Of Hood Top For Extraction Of Fumes To Eliminate Suffocation At Operating Floor Due To Fugitive Emission - Face Marks, Shoes, Helmets At Operating Floor Eliminates Injuries

BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

S.No.	Area of	Occupational & Safety Hazards And Causes	Their Impact	Actions Taken To Eliminate The Impact / Health And Safety Hazards
4	Process Ferro Alloys	- Fluctuations Due To Metallurgical Aspects - Furnace Erruptions - Variations In Process Parameters	- Burns And Injuries Due To Furnace Erruptions Due To Metallurgical Disturbances In Process - Excessive Heat / Radiation And Effect Due To Hold Up Of Slag / Metal In The Furnace Due To Process Variations	- Proper Selection Of Raw Materials And Quality Control Of Inputs Eliminates Process Variations And Related Hazards. - Provision Of Proper Safety And Protective Equipment Eliminates Injuries / Burns
5	Hot Metal Handling Areas	- Tapping Area Hot Liquid Metal Handling And Spillages - Exposure To Heat - Continuous Casting Machine Process	- Scope Of Burns Due To Liquid Metal Spillages - Accidents Due To Break Down / Failure Of Tools And Tackles Used In Hot Metal Handling Equipment - Burns Due To Liquid Metal Spillages During Process Of Pouring - Burns Due To Water Ingress To Hot Metal Areas	- Sops And Proper Maintenance Of Cranes / Tools & Tackles Eliminate Accidents - Proper Layout And Free Spaces For Movement In Hot Metal Handling Areas Eliminate Scope Of Injuries In Abnormal Conditions. - Providing Proper Safety And Protective Equipment Eliminate Scope Of Injuries
6	Product Handling Ferro Alloys	- Hot Metal & Slag Cakes Handling - Product Sizing Process - Product Loading Process	- Scope Of Burns Due To Hot Metal Cakes Handling - Metallic Dust Exposure - Scope Of Injuries During Sizing Process Of Metal And Slag - Failure Of Lifting Tools & Tackles And Equipment	- Providing Proper Safety And Protective Equipment To Eliminate Scope Of Injuries - Sops And Proper Maintenance And Testing Of Lifting Equipment To Eliminate Scope Of Injuries.
7	Equipment Ferro Alloys	- Break Down Of Cranes - Break Down Of Water Cooling Pumps - Break Down Of Blowers In Furnace Area	- Crane Break Down Cause Scope Of Lining Failures And There By Scope Of Injuries / Burns - Scope Of Steam Generation In The Water Cooling Circuit And Failure Of Water	- Proper Sops For O & M And Proper Maintenance Schedules And Equipment Testing Schedules Eliminate Scope Of Accidents Related To These Failures. - Proper Ventilation In The Plant Building Eliminates Scope Of Suffocation.

BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

S.No.	Area of	Occupational & Safety Hazards And Causes	Their Impact	Actions Taken To Eliminate The Impact / Health And Safety Hazards
		Break Down Of Hydraulic Systems	Hoses Due To Steaming And Scope Of Burns Break Down Of Blowers Scope Of Suffocation In 2nd Floor	
8	Furnace Transformers	- Possibilities Of Fire - Possibilities Of Electrical Failures	- Injuries / Burns Due To Fire At Transformer - Electrical Short Circuits Causing Transformer Failure And Scope Of Catching Fire	- Proper Fire Fighting Equipment And Nitrogen Purging Eliminates Fire Accidents In Transformers - Proper Protection Scheme And Isolation Of Furnace From Source Eliminate Any Scope Of Accidents Due To Failure Of Transformer
9	Hydraulic Systems	- Failure Of Hydraulic Hoses - Possibilities Of Fire Of Hydraulic Oil	- Failure Of Hydraulic Hoses Due To Electrical Short Circuits May Cause Accidents - Possibility Of Fire Accident Due To Oil Catching Fire	- Proper Sops For O & M Eliminate Failures - Using Carbon Free High Pressure Hoses Eliminate Hose Failure Accidents. - Separate Enclosed Room For Hydraulic Room Reduces Scope Of High Temperature And Eliminate Fire Accidents
10	Pollution Control Systems Ferro Alloys	- Sparks Causing Burning Of Bags In Bag Filters - Possibilities Of Sudden Surges In Furnace	- Fire Accidents At Bag House - Excessive Emissions Due To Failure Of Bags - Structural Failures Due To This Fire Accident	- To Avoid Scope Of Bags Catching Fire, Baffles In The Ducting To Arrest Sparks, Water Cooled Hood Top, Duct Length Of About 40 Metres Between Hood & Bag Filter, Providing Heat Exchanger And Dilution Dampers For Fresh Air. Completely Eliminate This Scope Of Fire Accident - PLC Based Interlocking System will Be Provided And Acts In Such A Way That

BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

S.No.	Area of	Occupational & Safety Hazards And Causes	Their Impact	Actions Taken To Eliminate The Impact / Health And Safety Hazards
11	Refining Process Areas	- Liquid Metal Handling Scope Of Burns - Break Down Of Cranes	- Scope Of Burns Due To Liquid Metal Spillages - Accidents Due To Break Down / Failure Of Tools And Tackles Used In Hot Metal Handling Equipment - Burns Due To Liquid Metal Spillages During Process Of Pouring	Whenever Bagfilters Fail, Then Furnace Will Be Shutdown - Sops And Proper Maintenance Of Cranes / Tools & Tackles Eliminate Accidents - Proper Layout And Free Spaces For Movement In Hot Metal Handling Areas Eliminate Scope Of Injuries In Abnormal Conditions. - Providing Proper Safety And Protective Equipment Eliminate Scope Of Injuries - Proper Safety Precautions And Protective Equipment's To Eliminate These Hazards
12	Testing Areas	- Hazards Due To Chemicals - Exposure To Reaction Fumes / Gasses	- Scope Of Burns And Skin Damages - Scope Of Lung Disorders	- Proper Sops For O & M Teams Will Eliminate Scope Of These Hazards - Proper Fire Fighting Scheme For Electrical Failures Eliminate These Hazards - Proper Design Of Electrical Equipment And Proper Isolation Eliminate These Hazards - Proper Ventilation Eliminates Heat - Proper Measure To Reduce Noise Levels And Keep Noise Levels Within Permissible - Proper Safety And Protective Equipment
13	Electrical Systems	- Exposure To Electrical Shocks - Scope Of Fire Due To Electrical Short Circuits - Exposure To Burns Due To Electrical Systems	- Burns Due To Electrical Accidents - Shocks Due To Electrical Accidents - Damages To Skin Due To Electrical Fire Accidents - Neurological Problems Due To Electrical Shocks	- Proper Sops For O & M Teams Will Eliminate Scope Of These Hazards - Proper Fire Fighting Scheme For Electrical Failures Eliminate These Hazards - Proper Design Of Electrical Equipment And Proper Isolation Eliminate These Hazards - Proper Ventilation Eliminates Heat - Proper Measure To Reduce Noise Levels And Keep Noise Levels Within Permissible - Proper Safety And Protective Equipment
14	Noise Related Hazards	- Exposure To Noise Of Various Equipment - Working At Furnace Areas	- Damage To Ears And Neurological Systems - Lung Disorders - Skin Diseases And Effect To Skin	- Proper Ventilation Eliminates Heat - Proper Measure To Reduce Noise Levels And Keep Noise Levels Within Permissible - Proper Safety And Protective Equipment

BIHAR FOUNDRY & CASTINGS LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

S.No.	Area of	Occupational & Safety Hazards And Causes	Their Impact	Actions Taken To Eliminate The Impact / Health And Safety Hazards
15	Fire Hazards Areas	- All Hot Metal Areas - Furnace Transformers - Furnace Operating Floor	- Scope Of Fire Accidents And Burns - Scope Of Damage To Skin	- Proper Sops For O & M And Good Fire Fighting Scheme Eliminate These Hazards - Proper Safety And Protective Equipments Eliminate Impact Of These Hazards
16	Safety Related Areas	- Tools And Tackels Used In Handling Areas - Furnace Working Areas - Vehicular Movement At Rm Yards	- Scope Of Mechanical Related Accidents Causing Injuries - Exposure To Dust Causing Dust Allergy	- Proper Sops For Testing Of Tool And Tackles And Lifting Equipment And Proper Maintenance Schedules Eliminate The Scope Of These Accidents And Hazards - Proper Layout Design Eliminates Accidents Due To Vehicular Movement In Project
17	Continuous Process Industry	- Fatigue Due To Long Working Hours - Age Related Constraints	- Absentism Causes Long Working Hours And Fatigue - Incapability In Some Working Areas Beyond Certain Age Limit	- Keeping Some Additional Manpower In Summers Eliminate Fatigue - Relocation / Rotation Of Working Area Will Eliminate Age Related Constraints
18	Seasonal Related Issues	- Exposure To Heat In Summers - Furnace Process During Monsoon Season - High Moisture Levels In Raw Materials	- Dehydration During Summers At Furnace Areas - Excess Moistures Cause Improper Porosity In The Furnace Causing Erruptions And Burning - Chocking Of Charging Systems And Spillages Due To Excess Moisture During Monsoon causing Work Load Fatigue To Maintenance Teams	- Proper Ventilation, Providing Additional Manpower During Summers Eliminate The Scope Of Impact Due To These Hazards. - Proper Selection Of Raw Materials During Monsoon, Storage Of Raw Material In Covered Sheds, Maintaining Proper Preventive Maintenance Schedules And Additional Manpower

S.No.	Area of	Occupational & Safety Hazards And Causes	Their Impact	Actions Taken To Eliminate The Impact / Health And Safety Hazards
19.	LDO / FO Storage Area	MS Tanks (1 x 25 Kl)	• Fire & Explosion	During Monsoon Eliminates These Hazards
20.	Failure Of APCS	Dust / Smoke	• Air Emission	- Precautions As Per TAC And OISD Will Be Implemented. • Emergency Alarm to Be Given To Villagers. • Water Sprinkling Arrangements

7.4.7 RISK & CONSEQUENCE ANALYSIS OF FIRE

The principle objective of this study is to identify the potential hazards, estimate the effects of hazards to people both within and outside the plant premises.

- Identification of possible failure cases of the facilities which might affect the population and property within the plant boundary.
- Assessment of consequential effect on surrounding population, property etc., due to onset of such failures.
- Suggest recommendations based on consequence analysis relevant to the situations.

7.4.7.1 METHODOLOGY

The hazards expected from this plant include the pool fire situation due to the leakage of FO from the storage tanks. There are one No. of HFO storage tank with a capacity of 25 KL. The tanks, made of Mild steel and provided with dyke. The most credible failure is due to the rupture of the pipe connecting the storage tank. The worst case can be assumed as when the entire contents leak out into the dyke forming a pool, which may catch fire after getting source of ignition.

FO STORAGE TANK - POOL FIRE SCENARIO

The maximum quantity of HFO stored at site would 1 x 25 KL capacity for Briquetting plant. In the event of oil spillage through a small leakage or due to rupture of pipeline connecting the tank fire will follow after getting ignition source. As the tanks are provided with dyke, the fire will be confined within the dyke. Threshold limit for first-degree burns is 4.5 kw/m^2 . Based on these results it may be concluded that the vulnerable zone in which the thermal fluxes above the threshold limit for first degree burns (4.5 kw/m^2) is restricted to 12 m.

The hazard distances for various radiation intensities are shown below:

HAZARD DISTANCES (Four Tanks on fire - scenario)

HFO Quantity: 1 x 25 KL

Radiation intensity	Hazard Distances
37.5 kw/m ² (100% lethality)	2 m
25.0 kw/m ² (50% lethality)	5 m
12.5 kw/m ² (1% lethality)	8 m
4.5 kw/m ² (1 st degree burns)	12 m

The hazard distances for Thermal radiation are confined to the plant premises only. Hence, there will not be any thermal radiation impact on outside the population due to the pool fire scenario. The thick green belt developed will help to further mitigate the radiation intensity level outside plant boundary.

7.5 DISASTER MANAGEMENT PLAN [Gen. TOR # 7 (xiii)]

7.5.1 DISASTERS

A disaster is catastrophic situation in which suddenly, people are plunged into helplessness and suffering and as a result need protection, clothing, shelter, medical and social care and other necessities of life.

Disasters can be divided into two main groups. The first group includes those disasters which result from natural phenomena like earthquakes, volcanic eruptions, cyclones, tropical storms, floods, avalanches, landslides etc. The second group includes disastrous events occasioned by humans, or by their impact upon the environment. Examples are industrial accidents, radiation accidents, factory fires, explosions, escape of toxic gases or chemical substances from an

industrial unit, river pollution, mining or other structural collapses; air, sea, rail and road transport accidents. These disastrous events can reach catastrophic dimensions in terms of human loss.

There can be no set criteria for assessing the gravity of a disaster because it depends, to a large extent, on the physical, economic and social environment in which it occurs. What would be considered a major disaster in developing country, equipped to cope with the problems involved, may not mean more than 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.

7.5.2 OBJECTIVES OF DISASTER MANAGEMENT OF PLAN

The disaster Management Plan 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. Effective implementation of Disaster Management Plan will be ensured by its wide circulation among the staff and workers and training of the personnel through rehearsals.

The Disaster Management Plan would reflect the probable consequential severity of undesired event due to deteriorating conditions or through knock on effects. Further the management should be able to demonstrate that their assessment of the consequences uses good supporting evidence and 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 Plan has to be formulated and this emergency plan is called Disaster Management Plan. The objective of the Industrial Disaster Management Plan is to make use of the combined resources of the Plant and the outside services to achieve the following:

- Minimize damage to the property and the environment.
- Effect the rescue and medical treatment of victims.
- Fulfill the needs of relatives.
- Provide authoritative information to news media.

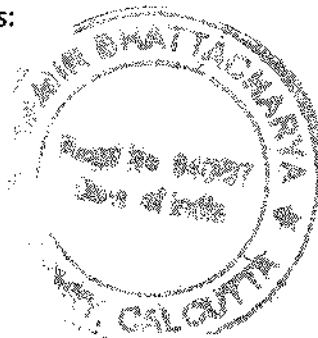
- Secure the safe rehabilitation of affected areas.
- Safeguard other people.
- Initially contain and then ultimately bring the situation under the control.
- Preserve subsequent records and equipment for subsequent enquiry of the cause and circumstances leading to emergency.

7.5.3 EMERGENCIES

7.5.3.1 GENERAL EMERGENCIES ANTICIPATED

The emergencies that could be envisaged in the Plant are as follows:

- Reduction/failure of cooling water
- Contamination of food / water.
- Sabotage / social disorder.
- Structural failures.
- Slow isolated fires.



7.5.3.2 SPECIFIC EMERGENCIES ANTICIPATED

During the study of risk assessment, the probabilities of occurrence of hazards are worked out along with the nature of damage. This is the reason why one should study risk assessment in conjunction with DMP.

7.5.3.3 EMERGENCY ORGANISATION

It is recommended to setup an Emergency Organization. A senior executive who has control over the affairs of the Plant would be heading the Emergency Organization. He would be designated as Site Controller. In the case of stores, utilities, open areas which are the not under the control of production heads, executive responsible for maintenance of utilities would be designated as Incident Controller. All the Incident Controllers would be reporting to the Site Controller.

Each Incident Controller organizes a team responsible for controlling the incident with the personnel under his control. Shift in-charge would be the Reporting Officer, who would report the incident to the Incident Controller.

Emergency Coordinators would be appointed who would undertake the responsibilities like fire fighting, rescue, rehabilitation, transport and support services. For this purposes, Security in-

charge, staff of the Personnel Department/ Essential services would be engaged. All these personnel would be designated as key personnel.

In each shift, electrical supervisor, pump house incharge and other maintenance staff would be drafted for emergency operations. In the event of Power communication system failure, some of staff members in the office/ Plant offices would be drafted and their services would be utilised as messengers for quick passing of communications. All these personnel would be declared as essential personnel.

7.5.3.4 EMERGENCY COMMUNICATION

Whosoever notices an emergency situation such as fire, growth of fire, leakage etc. would inform his immediate superior and Emergency Control Center. The person on duty in the Emergency Control Centre would appraise the site controller. Site controller verifies the situation from the Incident Controller of that area or the shift incharge and takes a decision about implementing on Site Emergency Plan. This would be communicated to all the Incident Controllers and Emergency Coordinators. Simultaneously, the emergency warning system would be activated on the instructions of the Site Controller.

7.5.3.5 EMERGENCY RESPONSIBILITIES

The responsibilities of the key personnel are appended below

7.5.3.5.1 SITE CONTROLLER

On receiving information about emergency, he would rush to Emergency Control Centre (ECC) and take the charge of ECC and the situation. He would assess the magnitude of the situation in consultation with the incident controller and decide:

- Whether affected area needs to be evacuated.
- Whether personnel who are at assembly points need to be evacuated.
- Declares Emergency and orders for operation of emergency siren.
- Organizes announcement by public address system about location of emergency.
- Assesses the areas which are likely to be affected, and need to be evacuated or alerted.
- Maintains a continuous review of possible development and assesses the overall situation to decide whether shutting down of any section or whole of the Plant is required.

- Directs personnel of rescue, rehabilitation, transport, fire brigade, medical and other designated mutual support systems, locally available, for meeting emergencies.
- Controls evacuation of affected areas. If the situation is likely to go out of control or effects are likely to go beyond the premises of the factory, informs to District Emergency Authority, Police, and Hospital and seeks their intervention and help.
- Informs Inspector of factories, Deputy Chief Inspector of factories, SPCB and other statutory authorities.
- Gives public statement, if necessary.
- Keeps record of chronological events and prepares an investigation report and preserves the evidences.

After managing the emergent situation and bringing the normalcy at the work place, he makes a statement accordingly.

7.5.3.5.2 INCIDENT CONTROLLER

- Assembles the incident control team.
- Directs operations within the affected areas with the priorities for safety to personnel, minimizes damage to the plant, property and environment and minimizes the loss of materials.
- Directs the shutting down and evacuation of Plant and areas likely to be adversely affected by the emergency.
- Ensures that all-key personnel help is sought.
- Provides advice and information to the Fire and Security officer and the local Fire Services as and when they arrive.
- Ensures that all non-essential workers / staff of the effected areas evacuated to the appropriate assembly points and the areas are searched for victims, if any.
- Understands the need for preservation of evidence so as to facilitate any enquiry into the cause and circumstances, which resulted or escalated the emergency.
- Coordinates with emergency services at the site.
- Provides tools and safety equipments to the team members.
- Keeps in touch with the team and advise them regarding the method of control to be used.
- Keeps the Site Controller informed continuously about the progress being made?

7.5.3.5.3 EMERGENCY COORDINATOR - RESCUE, FIRE FIGHTING

- Rushes to Emergency Control Centre after knowing about the emergency.
- Helps the Incident Controller in containment of the emergency.
- Ensures fire pumps in operating conditions and instructs pump house operator to be ready for any emergency.
- Guides the firefighting crew i.e. Firemen, trained Plant personnel and security staff.
- Organizes shifting the fire fighting facilities to the emergency site, if required.
- Takes guidance of the Incident Controller for fire fighting as well as assesses the requirements of outside help.
- Arranges the traffic control at the gate and the incident area.
- Directs the security staff to the incident site to take part in the emergency operations under his guidance and supervision.
- Evacuates the people in the Plant or in the nearby areas as advised by site controller.
- Searches for any casualties and arranges proper aid for them.
- Assembles search and evacuation team.
- Decides paths for the workers evacuating the site
- Maintains law and order in the area, and if necessary seeks the help of police and local administration.
- Arranges safety tools/equipments for the members of his team.

7.5.3.5.4 EMERGENCY COORDINATOR - MEDICAL, MUTUAL AID, REHABILITATION, TRANSPORT AND COMMUNICATION

- The event of failure of electric supply and there by internal telephone, sets up communication point and establishes contact with the Emergency Control Center (ECC) in the event of failure of electric supply and communication network.
- Organizes medical treatment to the injured and if necessary, will shift them to nearby hospitals.
- Mobilizes extra medical help from outside, if necessary
- Keeps a list of qualified first aid providers of the factory and seek their assistance.
- Maintains first aid and medical emergency requirements.
- Makes sure that all safety equipments are made available to the emergency team.
- Assists Site Controller with necessary data and coordinates the emergency activities.

- Assists Site Controller in updating emergency plan.
- Maintains liaison with Civil Administration.
- Ensures availability of canteen facilities and maintenance of rehabilitation centre.
- Remains in liaison with Site Controller / Incident Controller.
- Ensures availability of necessary cash for rescue / rehabilitation and emergency expenditure.
- Controls rehabilitation of affected areas at the end of emergency.
- Makes available diesel/petrol for transport vehicles engaged in emergency operation.

7.5.3.5.5 EMERGENCY COORDINATOR – ESSENTIAL SERVICES

He would assist Site Controller and Incident Controller

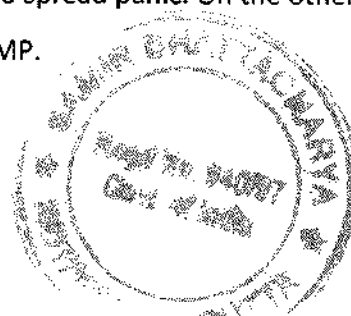
- Maintains essential services like Diesel Generator, Water, Fire Water, Compressed Air / Instrument Air, Power Supply for lighting.
- Plans alternate facilities in the event of Power failure, to maintain essential services such as lighting, etc.
- Organizes separate electrical connections for all utilities and during emergency ensures that the essential services and utilities are not affected.
- Gives necessary instructions regarding emergency electrical supply, isolation of certain sections etc to shift incharges and electricians.
- Ensures availability of adequate quantities of protective equipments and other emergency materials, spares etc.

7.5.3.5.6 GENERAL RESPONSIBILITIES OF EMPLOYEES DURING AN EMERGENCY

When an emergency warning is raised, the workers, if they are incharge of any process equipment, should adopt safe and emergency shut down and attend any prescribed duty as an essential employee. If no such responsibility has been assigned, he should adopt a safe course to assembly point and await instructions. He should not resort to spread panic. On the other hand, he must assist emergency personnel towards objectives of DMP.

7.5.3.6. EMERGENCY FACILITIES

7.5.3.6.1 EMERGENCY CONTROL CENTRE



During the emergency, the office block would function as Emergency Control Centre. It would have external Telephone & Fax facility. All the Incident Controllers, Officers, senior personnel would be available there.

The following information and equipments are already been provided at the ECC.

- Intercom, telephone
- Fire suit / gas tight goggles / gloves / helmets
- Factory layout, emergency site plan
- Emergency lamp / torchlight
- Plan indicating locations of hazardous inventories, Plant control room, sources of safety equipment, work road plan, assembly points, rescue locations, vulnerable zones, escape routes.
- Hazard chart
- Self-contained breathing apparatus
- Hand tools, wind direction, wind velocity indications
- Public Address Megaphone, Hand bell, Telephone directories (Internal and P&T).
- Address with telephone numbers of key personnel, Emergency coordinator.
- Important addresses, telephone numbers of experts from outside, government agencies, neighboring industries etc.
- Emergency shut down procedures.
- Nominal roll of employees.

7.5.3.6.2 EMERGENCY POWER SUPPLY

Plant facilities would be connected to Diesel Generator and would be placed in auto mode.

7.5.3.6.3 FIRE FIGHTING FACILITIES

First Aid and Fire Fighting equipment suitable for emergency will be maintained as per statutory requirements/ TAC Regulations. Fire hydrant line covering major areas would be laid. It would be maintained at 6 kg / sq.cm. pressure.

7.5.3.6.4 LOCATION OF WIND SOCK

On the top of production block and on the top of administrative block wind socks would be installed to indicate direction of wind during emergency period.

7.5.3.6.5 EMERGENCY MEDICAL FACILITIES

Gas masks and general first aid materials for dealing with chemical burns, fire burns etc. would be maintained in the medical centre as well as in the emergency control room.

Emergency medical Aid facility is available within the plant. Moreover, Multispecialty Hospitals / clinics are available in **Ramgarh**, which is 3.0 Kms. from our plant site.

Apart from Plant first aid facilities, external facilities would be augmented. Names of Medical Personnel, Medical facilities in Ramgarh Town would be prepared and updated. Necessary specific medicines for emergency treatment of burnt patients and for those affected by toxicity would be maintained.

Breathing apparatus and other emergency medical equipment would be provided and maintained. The help of nearby industrial managements in this regard would also be taken on mutual support basis.

7.5.3.7 EMERGENCY ACTIONS

7.5.3.7.1 EMERGENCY WARNING

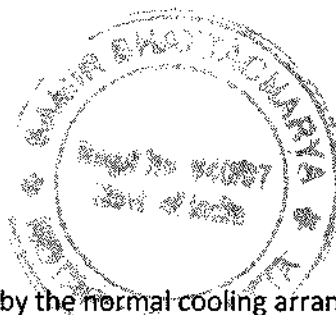
Communication of emergency would be made familiar to the personnel inside the plant and people outside. An emergency warning system would be established.

7.5.3.7.2 EMERGENCY SHUTDOWN

There are number of facilities which can be provided to help in dealing with hazardous conditions.

The suggested arrangements are

- Stop feed
- Deluge contents
- Remove heat
- Transfer contents



Methods of removing additional heat include removal by the normal cooling arrangements or by the use of an emergency cooling system. Cooling facilities which vaporizes liquid may be particularly effective, since a big increase in vaporization can be obtained by reducing pressure.

7.5.3.7.3 EVACUATION OF PERSONNEL

The area would have adequate number of exits and staircases. In the event of an emergency, unrelated personnel have to escape to assembly point. Operators have to take emergency shutdown procedure and escape. Time office maintains a copy of deployment of employees in each shift at Emergency Communication Centre. If necessary, persons can be evacuated by rescue teams.

7.5.3.7.4 ALL CLEAR SIGNAL

At the end of emergency, after discussing with Incident Controllers and Emergency Coordinators, the site controller orders an all clear signal.

7.5.4 OFF-SITE EMERGENCY

The help of following external agencies may be required during emergency

Fire fighting facilities :

Industry is already having its own fire fighting facilities but during emergency, Fire brigade may be called.

Police :

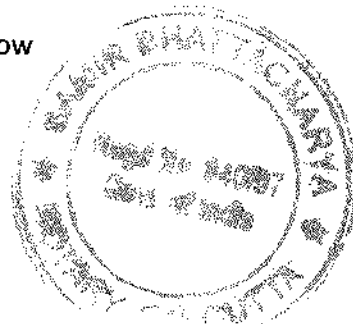
Police help will be required during emergency for evacuation of the people, Traffic control, security arrangements etc. shall be made available.

Medical help :

In case of emergency seriously injured personnel may be referred to the Hospital/Primary Health Centre depending upon the gravity and type of injuries.

List of Key persons of Off- Site Emergency Plan is given below

- Hon'ble District Magistrate (Collector)
- Superintendent of Police
- Assistant Labour Commissioner
- District Health Officer
- Fire Officer
- Controller of Explosive



➤ District Informatics Officer

7.6 OCCUPATIONAL HEALTH AND SURVEILLANCE

Large industries 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 booms, the industrialization generally brings several problems related with health and safety of the workmen.

7.6.1 OCCUPATIONAL HEALTH [Gen.TOR # 8 (i), (ii), (iii) & (iv)]

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

7.6.2 CONSTRUCTION & ERECTION

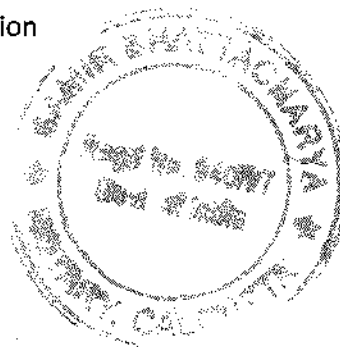
The occupational health problems envisaged at this stage can mainly be due to constructional activities and noise.

To overcome these hazards, in addition to arrangements required to reduce it within TLV'S, personnel protective equipments should also be supplied to workers.

7.6.3 OPERATION & MAINTENANCE

The working personnel would be given the following appropriate personnel protective equipments.

- Industrial Safety helmets
- 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 colour glasses
- Welders equipment for eye and face protection
- Cylindrical type earplug
- Ear plugs
- Canister gas masks
- Self contained breathing apparatus
- Leather apron



- Safety belt / line man's safety belt
- Leather hand gloves
- Asbestos hand gloves
- Industrial safety shoes with steel toe
- Electrical safety shoes without steel toe and gum boots

7.6.4 OCCUPATIONAL HEALTH

Anticipated Occupational & Safety Hazards

- Heat Stress & Stroke
 - Physical activity
 - Extremes of age, poor physical condition, fatigue
 - Excessive clothing
 - Dehydration
 - Cardiovascular disease
 - Skin disorders
 - Dust Exposure
- Metallic dust exposure
- Noise
- Illumination
- Burns and shocks due electricity

The health of workers can be protected by adopting the following measures:

- The health of workers can be protected by adopting the following measures:
- Proper Designing of building, Work area.
- Relaxation facilities to workers in working in furnace are in separate rooms with good ventilation & air circulation. This will help in relieving of thermal stress.
- Good Housekeeping practices
- Well engineered ventilation & exhaust system
- Enclosure
- Isolation of specific areas
- Enforcement of usage of Personal Protective Devices.
- Regular Work Environment Monitoring
- Statistical Monitoring
- Working hours
- Rotation of employees in specific areas to avoid continuous exposure



Frequency of Periodical Examination:

For employees once a year (All age groups)

Plan of pre-placement and periodical health status of workers:

Pre-employment checkup is being / will be made mandatory and following test will be conducted:

- Plan of evaluation of health of workers
- Chest x rays
- Audiometry
- Spirometry
- Vision testing (Far & Near vision, color vision and any other ocular defect)
- ECG
- Haemogram (examination of the blood)
- Urine (Routine and Microscopic)
- Complete physical examination
 - Musculo-skeletal disorders (MSD)
 - Backache
 - Pain in minor and major joints
 - Fatigue, etc.
- Medical records of each employee are being / will be maintained separately and is / will be updated as per finding during monitoring. Age, sex wise, department wise data on the above parameters are being / will be maintained and submitted to the ministry.
- Medical records of the employee at the end of his / her term are being/ will be updated.

List of equipments available in external Health Centres for Occupational Health Monitoring

- ECG
- Analytical Pan Balance
- Dust Sampling devices
- Heat stress monitoring device (Personal)
- Spectrophotometer
- Noise Monitoring device (dosimeter)



- Spiro meter
- Audiometric device
- Vision screener

An amount of Rs. 25 lakhs per annum is being allocated on Occupational health & Safety in the existing plant and will be continued after the expansion project also. Health reports of the existing employees are enclosed as **ANNEXURE-10**.

7.7 SAFETY PLAN

Safety of both men and materials during construction and operation phases is of great concern. The preparedness of an industry for the occurrence of possible disasters is known as emergency plan. The disaster in Project is possible due to collapse of structures and fire / explosion etc. The details of fire fighting equipment's are already installed / to be installed are given below:

- Carbon dioxide type
- Foam type
- DCP type
- Soda acid type
- Fire buckets
- Fire hydrants



Keeping in view the safety requirement during construction, operation and maintenance phases, **BIHAR FOUNDRY & CASTING LIMITED** has formulated safety policy with the following regulations.

- 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 allocate sufficient resources to maintain safe and healthy conditions of work.
- To ensure that adequate safety instructions are given to all employees.
- To provide where ever necessary protective equipment, safety appliances and clothing and to ensure their proper use.
- To inform employees about materials, equipment's or processes used in their work which are known to be potentially hazardous to health and safety.

- To keep all operations and methods of work under regular review for making necessary changes from the safety point of view 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 instructions, training and supervision to employee's health and safety, first aid and to ensure that adequate publicity is given to these matters.
- To ensure proper implementation of fire preventive methods and an appropriate fire fighting service along with training facilities for personnel involved in this service.
- To publish / notify regulations, instructions and notices in the common language of employees.
- To prepare separate safety rules for each type of process involved.
- To ensure regular safety inspection by a competent person at suitable intervals of all buildings, equipment's, work places and operations.

7.7.1 SAFETY ORGANISATION

7.7.1.1 CONSTRUCTION AND ERECTION PHASE

A highly qualified and experienced safety officer was appointed. The responsibilities of the safety officer include identification of the hazardous conditions and unsafe acts of workers and advice on corrective actions, conduct safety audit, organize training programmes and provide professional expert advice on various issues related to occupational safety and health. In addition to employment of safety officer, every contractor, whose employees will be more than 250, would also be asked to employ one safety officer to ensure safety of the workers in accordance with the conditions of the contract.

7.7.1.2 OPERATION & MAINTENANCE PHASE

After the completion of construction of expansion project, the posting of safety officer would be in accordance with the requirements of Factories Act and he would be assigned the duties and responsibilities accordingly.

7.7.1.3 SAFETY CIRCLE

In order to fully develop the capabilities of the employees in identification of hazardous processes and improving safety and health, safety circles would be constituted in each area of work. The

circle would consist of 5-6 employees from that area. The circle would normally meet for about an hour every week.

7.7.2 SAFETY TRAINING

Well trained safety officer was appointed at **BIHAR FOUNDRY & CASTINGS LIMITED**. Safety training 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 labours will also given safety training. To create safety awareness safety films are being / will be shown to workers and leaflets etc. will be distributed.

7.7.3 HEALTH AND SAFETY MONITORING PLAN

All the potential occupational hazardous work places are monitored regularly. The health of employees working in these areas monitored once in a year.

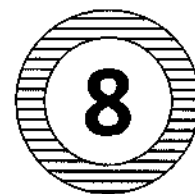
7.8 R & R ACTION PLAN

No rehabilitation and resettlement is required as proposed expansion will be taken up in the existing plant premises and the plant is located in Ramgarh Industrial Area.



CHAPTER – 8

PROJECT BENEFITS



8.1 PHYSICAL INFRASTRUCTURE

Once the proposed activity is commissioned, the socio-economic status of the local people will improve and there by infrastructure facilities like communication systems will improve.

8.2 SOCIAL INFRASTRUCTURE

With the implementation of the proposed plant, the socio-economic status of the local people will improve substantially. The land rates in the area will improve in the nearby areas due to the proposed activity. This will help in upliftment of the social status of the people in the area. Educational institutions will also come-up and will lead to improvement of educational status of the people in the area. Primary health and medical facilities will certainly improve due to the proposed plant.

8.3 EMPLOYMENT POTENTIAL [Std. ToR # 3 (vii)]

The proposed project will generate direct and indirect employment opportunity for about 750 persons, which will help in improving the socio-economic conditions of the region.

Manager	Supervisor	Semiskilled & Un-skilled	Total
150	225	375	750

8.4 SOCIO-ECONOMIC DEVELOPMENTAL ACTIVITIES PROPOSED

[Amend. Spec. ToR # (x) & Gen. ToR # 11(i)]

M/s. Bihar Foundry & Casting Limited is being actively contributing to improve the Socio-economic conditions of the area by providing assistance for local persons preferable from the nearby villages.

Earlier ESC has been changed to CER as per the O.M issued on 1st May 2018. Later on this O.M is nullified as per the O.M issued on 30th September 2020. As per this, the

budgetary allocation for commitment made by Project Proponent to address the concern raised during public hearing & based on Social Impact Assessment (SIA).

In pursuance to **MoEF&CC OMs dated 31st October, 2019 & 30th December, 2019** issued in compliance of the order of **Hon'ble NGT in OA No. 1038/2018 dated 19th August, 2019**, the compliance of all the conditions applicable to CEPI shall be prepared. **CER allocation shall be 1.5 times of the normal calculated amount.**

- As per the Normal calculation for CER the budget will be **Rs.0.893 Crores**
- 1.5 times of the normal calculated amount will be **Rs. 1.34 Crores**

Budget of **Rs. 1.34 Crores** will be allocated for social welfare activities based on Social Impact Assessment (SIA) & Public Hearing commitments furnished in below table.



BIHAR FOUNDRY & CASTING LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand**Table No. 8.4.1: Action plan as per MoEF&CC O.M. F.No. 22-65/2017-JA.III dated 30/09/2020**

M/s. BFCL (Ferro Alloy unit) is also proposing to adopt the following Marar Village as a part of Social welfare development and has earmarked Rs. 1.34 Crores for Social & Infrastructure developmental activities based on Social Impact Assessment (SIA) after completion of Public Hearing.

S.NO.	MAJOR ACTIVITY HEADS	YEAR OF IMPLEMENTATION			TOTAL EXPENDITURE (Rs. in Lakhs)
		1 st Year (Rs. in Lakhs)	2 nd Year (Rs. in Lakhs)	3 rd Year (Rs. in Lakhs)	
1	A). Need Based & SIA Study				
	Community & Infrastructure Development Programmes				
	i) Construction of public toilets	Physical Nos. & village	1 no. in Marar (v)	1 no. in Manuan(v) & 1 Nos. in Digwar(v)	10
		Budget in Lakhs	2.5	5	
	ii) Providing LED Street lighting with solar panels	Physical Nos. & village	2 nos. in Hathimara (v) & 3 Nos. in Marar (v)	2 nos. in Manuan Digwar (v) 3 nos. Pochra (v)	3
		Budget in Lakhs	1	1	
	iii) Mineral water plants	Physical Nos. & village	1 nos. in Marar (v)	1 no. in Manuan (v)	9
		Budget in Lakhs	3	3	
	iii) Village road repair & maintenance	Physical Nos. & village	1 nos. in Marar (v)	---	7
		Budget in Lakhs	7	---	
				Total	29

BIHAR FOUNDRY & CASTING LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

S.NO.	MAJOR ACTIVITY HEADS	YEAR OF IMPLEMENTATION			TOTAL EXPENDITURE (Rs. in Lakhs)
		1 st Year (Rs. in Lakhs)	2 nd Year (Rs. in Lakhs)	3 rd Year (Rs. in Lakhs)	
2	Education				
	i) Providing Sport kits for schools	5 nos. in Kanjgi (v) & 10 Nos. in Marar (v)	5 no. in Manuan (v) & 10 Nos. in Digwar (v)	10 nos. in Phulsarai(v) & 10 Nos. in Painki (v)	5
	ii) Construction of class rooms in schools of size 8m x 5m x 3 m	1.5	1.5	2	
	iii) Providing Model Anganwadi Centre in consultation with State Women and Child Development Department	2 nos. in Kanjgi (v)	2 nos. in Seota (V)	2 nos. in Marar (V)	15
3					
		5	5	5	
		---	Digwar (v) - 1 No.	Painki (v) -1 No.	20
		---	10	10	
				Total	40
				---	20

				TOTAL (A)	89
B). Based on Public Consultation/Hearing					
1	Impart training to the local villagers for skill development.	One DISHA centre in Ramgarh Town			45
	a) DISHA Centre" along with necessary infrastructure for				
		15	15	15	

BIHAR FOUNDRY & CASTING LIMITED

(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

S.NO.	MAJOR ACTIVITY HEADS	YEAR OF IMPLEMENTATION			TOTAL EXPENDITURE (Rs. in Lakhs)
		1 st Year (Rs. in Lakhs)	2 nd Year (Rs. in Lakhs)	3 rd Year (Rs. in Lakhs)	
	various vocational training program for employment generation in association with National Skill Development Mission (Automobile Repair, Welding, Electrical, Computer Hardware, Soft skills like computer programs etc.)				
	TOTAL	45	48	Total (B) 41	45
				Grand Total(A+B)	134

Recurring expenditures under CSR as per companies Act 2014

- Health checkup will be carried out periodically in surrounding villages i.e. Marar, Phulsarai, Hathimara villages @ Rs 5.0 Lakhs every year.



CHAPTER – 9**ENVIRONMENTAL COST BENEFIT ANALYSIS**

No specific TOR has been stipulated regarding Cost benefit analysis.

All the required environmental protection measures will be implemented in the proposed plant and will be operated to comply with the MOEF&CC/CPCB/SPCB norms.

Rs. 4.5 Crores is earmarked as capital investment in the proposed project & **Rs. 0.72 Crores/Annum** for Environment, Health & Safety measures. Detailed break-up of budget for environmental protection measures are furnished in Pg. no. 10.16 of **CHAPTER # 10**.



CHAPTER – 10

ENVIRONMENTAL MANAGEMENT PLAN



10.1 INTRODUCTION

The major objective and benefit of utilising Environmental Impact Assessment in project planning stage itself, is to prevent avoidable losses of environmental resources and values as a result of Environmental Management. Environmental Management includes protection / mitigation / enhancement measures as well as suggesting post project monitoring programme. Environmental management may suggest revision of project site or operation, to avoid adverse impacts or more often additional project operations may have to be incorporated in the conventional operation.

The industrial development in the study area needs to be intertwined with judicious utilization of non-renewable resources of the study area and within the limits of permissible assimilative capacity. The assimilative capacity of the study area is the maximum amount of pollution load that can be discharged in the environment without affecting the designated use and is governed by dilution, dispersion, and removal due to physico-chemical and biological processes. Environment Management Plan (EMP) is required to ensure sustainable development in the study area of the plant due to the proposed expansion. Hence it should be an all encompassive plan for which the proposed industry, Government, Regulating agencies like SPCB and more importantly, the affected population of the study area, need to extend their cooperation and contribution.

It has been evaluated that the study area will not be affected adversely and is likely to get additional economical fillip. The affected environmental attributes in the region are air quality, water quality, soil, land use, ecology and public health.

The Management Action Plan aims at controlling pollution at the source level to the possible extent with the available and affordable technology followed by treatment measures before they are discharged.

Environmental Management aims at the preservation of ecosystem by considering the pollution abatement facilities at the plant since inception. In the upcoming modern Ferro

Alloy manufacturing plants, pollution abatement has become an integral part of planning and design along with Techno economic factors.

10.2 MANAGEMENT DURING CONSTRUCTION PHASE [Gen. TOR # 10]

Environmental pollution is inevitable during the construction phase. The project proponent will take appropriate steps to control pollution during construction phase. The following are the factors requiring control during construction phase.

10.2.1 SITE PREPARATION

The proposed expansion will be taken up within the existing plant premises only. At the time of construction during expansion, there will be some quantity of soil and debris. The disturbed slopes will be well stabilized before the onset of the monsoon. The leveling operation will also involve piling up of backfill materials. Use of dust suppressant spraying to minimize fugitive dust during construction activities is recommended. In the existing plant premises, more than 1/3rd of the total plant area has already been developed with greenbelt development. This helps in attenuating the dust emission further.

10.2.2 WATER SUPPLY AND SANITATION

The employees at the plant are being provided with water for their requirement and for the construction activities. In the existing plant, suitable sanitary facilities have already been provided to maintain proper standards of hygiene. These facilities have been connected to septic tank followed by subsurface dispersion. Same facilities will be availed to the persons involved in construction activity of expansion project.

10.2.3 FUEL & REST ROOMS FACILITY

Fuel will be supplied to construction labour for cooking during construction period. This will prevent usage of fire wood for cooking. Rest rooms will be provided to construction labour during construction period and operational stage.

10.2.4 NOISE

Noise pollution is anticipated during the construction phase due to the usage of various construction equipment such as mechanical vibrator and mixers etc. The noise effect on the nearest inhabitations due to construction activity will be negligible.

However, as advised the onsite workers working near the noise generating equipments will be provided with noise protection devices like earplugs.

10.2.5 MAINTENANCE OF VEHICLES

One should be very careful in selecting the site for vehicle maintenance, so as to prevent the ground water contamination due to the spillage of oil. In the existing plant both diesel and petrol engine vehicles are maintained properly. Unauthorized dumping of waste oil is strictly prohibited. Wastes will be disposed off to the SPCB approved vendors. Similar system will be followed even after the expansion.

10.2.6 WASTE

The solid waste will be collected and disposed off as per norms.

10.2.7 STORAGE OF HAZARDOUS MATERIAL

The following hazardous materials need to be stored at the site during construction.

- a. Gas for welding purpose
- b. LDO
- c. Painting materials

All these materials would be stored as per international safety standards.



10.2.8 LAND ENVIRONMENT

The proposed expansion will not create any major impact on land environment. After the completion of construction activity, the surplus earth will be utilized to fill up low-lying areas, the rubbish will be cleared and all in- built surfaces will be reinstated. Appropriate vegetation will be planned and all such areas shall be landscaped. 2.9 acres / 1.17 Ha. of extensive greenbelt is being developed within the premises.

10.3 POST CONSTRUCTION PHASE

10.3.1 AIR EMISSION MANAGEMENT [Spec. ToR # (viii), Gen.ToR # 3 (vi) & 7 (v)]

The main sources of dust pollution are crushing operations of raw materials (such as, Mn Ore, Dolomite, Quartz, Coke, etc) and their transfer points. A separate de-dusting system will be provided to control the dust from various material transfer points by means of suitable ducting connected to an Induced Draught fan. The dust that is drawn from various points will

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

pass through bag filters. The following table shows the air emission control systems proposed in the expansion project to treat the flue gases and their outlet dust emissions.

Table 10.3.1: AIR EMISSION CONTROL SYSTEMS PROPOSED

S.No.	Source	Control Equipment	Emission at the outlet
1.	Submerged Electric Arc Furnaces (for new 1 x 9 MVA SEAF)	4 th Hole Fume Extraction system with bag filters	PM < 30 mg/Nm ³
2.	CLU converter (12 MT)	Fume Extraction system with bag filters	PM < 30 mg/Nm ³

Note :

4th Hole Fume Extraction system with bag filters are already provided to existing 2 x 5 MVA, 1x 7.5 MVA & 1x9 MVA SEAFs.

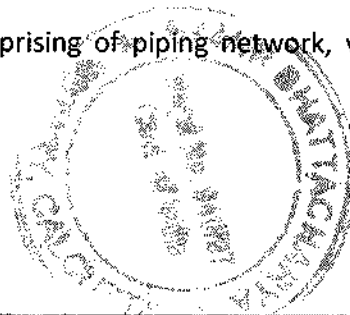
Apart from the above Dry fog system with dust suppression at transfer points, crushing plant, dust extraction system with bagfilters at other dust emanating areas, mechanical dust sweepers, etc. will also be provided.

SOURCES OF AIR POLLUTION & MITIGATION MEASURES
Table 10.3.2

IMPACT ENVIRONMENT	IDENTIFIED IMPACTS	MITIGATION MEASURES
Air Environment	Particulate emissions	
	• Raw material transportation	• Covered trucks
	• Unloading of Raw material	• Dust suppression system (fog type and water spray system)
	• Raw material transfer points	• Dust extraction system with bagfilters
	• Raw material conveying	• Covered conveyers to prevent flying of dust during conveying
	• Stacks attached to the Furnace	• Fume Extraction system with bag filters will be provided to bring down the PM to 50 mg/Nm ³ .
	• Vehicular movement	• All internal roads will be made pucca. • Avenue plantation on both sides of village roads and internal roads.

10.3.1.1 DUST EXTRACTION & SUPPRESSION SYSTEM

Dust suppression system with plain water - comprising of piping network, valves, pumps, instrumentation & control, water tank etc.



10.3.1.2 TECHNICAL SPECIFICATIONS OF CONTROL SYSTEMS
a) Fume Extraction system design (SEAF)
Table 10.3.3: Fume Extraction system design (SEAF)

Volume of fumes	60,000 m ³ /hr at 150 °C
Fixed elbow duct to combustion chamber	
Inner diameter	1800 mm
Approximate length	3200 mm
Combustion Chamber	
Inner diameter	5.2 M
Approximate Height	2.5 M
Forced draft cooled (FDC)	
Inner diameter	106 mm
Approximate length	36 mtr
Temp. at outlet of water cooled duct	120 °C
Fume Temp. at ID fan inlet	80-100 °C
Bag house	
Type	OFF-LINE BAG FILTER
Bag filter	Polyester Needle Felt Type 550 GSM, DTEE coating

b) Bag filter specifications (SEAF)
Table 10.3.4: Bag filter specifications (SEAF)

Make	Thermax
Flue gas Volume	60,000 m ³ /hr (max)
Flue Gas Temperature	350 °C (max)
Dust Load (Inlet)	5 gm / Nm ³ (max)
Clean Gas Dust Content	30 mg / Nm ³
Dust Characteristics	Non – Abrasive
Bag House Type	off line Reverse Pulse Jet Bag House
Total No. of Bags	1014 (50 % excess bags will be provided)
Bags Size	4880 mm Length x 160 mm dia
Air to Cloth Ratio	108
Pressure drop across Bag House inlet	150 mm/Wg
Collection efficiency	99 %
Pulsing Valve	Reverse Pulse Jet type
Compressed air Requirement (approx)	78-126 m ³ /Hr at 5-7 Bar
Dust discharge system	Rotary air Lock Valve 300 x 300

10.3.2 ACTION PLAN FOR CONTROL AND MONITORING OF FUGITIVE EMISSIONS

[Gen.TOR # 7 (vi)]

The emissions from proposed Submerged Electric Arc Furnaces will be controlled by providing a 4th hole fume extraction & cleaning system with bag filters and then let out into the atmosphere through a stack of adequate height. The out let dust emission will be less than 30 mg/Nm³.

A line diagram of the Fume extraction & cleaning system shown as Fig:10.1.

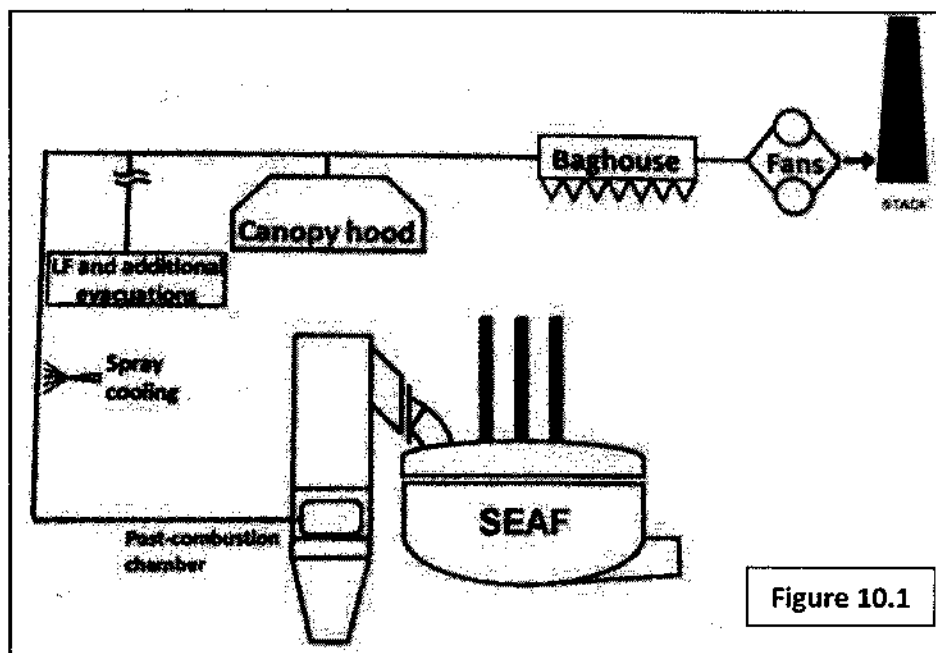


Figure 10.1

10.3.2.1 MONITORING OF SECONDARY FUGITIVE EMISSIONS

Fugitive emission will be monitored at specified intervals within a distance of 10 m away from the source of emission or from suction hood connected to control system. The reports will be submitted to MoEF&CC & SPCB regularly.

10.3.2.2 DUST SUPPRESSION SYSTEM

Water sprinkling arrangement using Tankers has been provided at the unloading areas of the raw materials for dust suppression.



10.3.2.3 INTERNAL ROADS

Internal roads are made pucca and which will prevent the fugitive dust emission due to vehicular movement. Industrial vacuum cleaners are being used to keep the plant clean and free of fugitive emission.

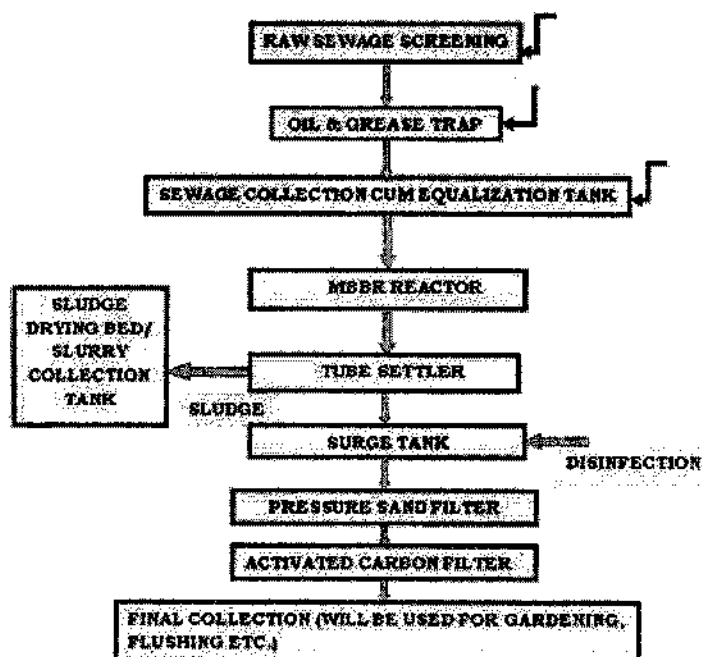
10.3.3 COMPLIANCE ON CREP RECOMMENDATIONS

No separate CREP recommendations have been stipulated for Ferro Alloy units. However, all required environmental management systems will be implemented and operated to comply with MoEF&CC / CPCB / JSPCB norms.

10.3.4 WASTEWATER MANAGEMENT [Spec. ToR # (vii), Gen.ToR # 3 (vi) & 7 (iv)]

- Total effluent generation after expansion project will be 61 KLD.
- The wastewater generated from Ferro Alloys unit will be sent to ETP and after ensuring compliance with SPCB norms, it will be utilized for Jigging plant, Briquetting plant, dust suppression & for greenbelt development.
- Sanitary waste water will be treated in proposed STP and treated wastewater will be utilized for Greenbelt development.
- Zero effluent discharge will be maintained in the proposed expansion project also.

STP Flow Diagram



BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

Treated Sewage Characteristics

S.No.	Parameters	Parameters limit
1.	pH	6.5 – 8.0
2.	BOD (mg/ L)	Not more than 10
3.	COD (mg/ L)	Not more than 50
4.	TSS (mg/ L)	Not more than 20
5.	NH ₄ -N (mg/ L)	Not more than 5
6.	N-Total (mg/ L)	Not more than 10
7.	Fecal Coliform (MPN/100 ml)	Less than 100

10.3.5 SOLID WASTE GENERATION & DISPOSAL

[Spec.ToR # (v), (vi), Gen.TOR # 3 (vi), 7 (vii), 7 (viii) & Addl. ToR # 12]

The following will be the solid waste generation from the proposed expansion project & proposed method of disposal.

Table 10.3.5: SOLID WASTE GENERATION & PROPOSED METHOD OF DISPOSAL

S.No	Waste / By Product	Quantity (TPA)			Method of disposal
		Existing	Proposed	After expansion	
1.	Slag from FeMn	13,820	28,780	42,600	After Jigging it will be reused in manufacture of SiMn as it contains high SiO ₂ and Silicon.
2.	Slag from SiMn	20,450	18,850	39,300	After Jigging will be used for Road construction / Used in Filling low lying areas etc.
3.	APCS dust	840	730	1575	Will be sent to Briquetting unit.
4.	Waste oil	80 Ltr/Annum	160 Ltr/Annum	240 Ltr/Annum	Will be sent to authorized recyclers

SLAG COMPOSITION [Addl. ToR # 10 & 11]
Composition of Fe Mn slag

MgO	:	3 to 4 %
CaO	:	5 to 8 %
Fe ₂ O ₃	:	0.4 to 1.0%
MnO	:	38 to 43 %
SiO ₂	:	26 to 33%
Al ₂ O ₃	:	7 to 10%



BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

Composition of Si Mn slag

MgO	:	3.5 to 5.5 %
CaO	:	14 to 20%
Fe ₂ O ₃	:	1 to 1.5%
MnO	:	10 to 15 %
SiO ₂	:	41 to 43%
Al ₂ O ₃	:	11 to 16%
K ₂ O	:	1.0 to 2.0 %
P ₂ O ₅	:	0.005 %



Hazardous waste generation, storage & disposal [Gen.TOR # 3 (vi) & 7 (vii)]

1. Waste oil: 0.24 KL / Annum

This will be stored in covered HDPE drums in a designated area and will be given to SPCB authorized recyclers & re-processors.

2. Used Batteries

Used batteries will be given back to the supplier under buy back agreement with supplier.

MUNICIPAL SOLID WASTE GENERATION & ITS DISPOSAL

Municipal (Organic) solid wastes from the Plant will be composted and used as manure for the green belt. Inorganic wastes (Non-biodegradable) will be sent to Authorized SPCB Recyclers.

10.3.6 NOISE LEVEL MANAGEMENT

The major noise generating sources in the plant are Furnace & DG set. All equipments will be of reputed make and the same will be manufactured in accordance of the MOEF&CC, OSHA & other international guidelines by the supplier. Silencers will be provided to DG set. The major noise levels will be confined to the working zones of the plant. The L_{eq} of eight hours will be within the prescribed standards. Community noise levels are not likely to be effected due to the green belt developed / being developed around the existing plant will become a physical barrier and attenuate the noise levels. The ambient noise levels during operation of the expansion project will be less than 75 dBA during day time & less than 70 dBA during night time. Hence there will not be any adverse impact on habitations due to the proposed expansion.

Recommendations

- a) Silencers will be provided to DG set.
- b) The Noise absorption will improve by using hollow concrete blocks in the construction of the expansion.
- c) Ear plugs shall be provided to the workers and this shall be enforced strictly.

10.3.7 LAND ENVIRONMENT

All the required Air Emission Control systems will be provided in the expansion project. Zero liquid effluent discharge system is maintained in the existing plant and will be continued after the expansion also. Hence there will not be any impact on land environment due to the proposed expansion. The solid waste generated from the expansion will be reused / disposed suitably as per norms. Hence, there will not be any adverse impact on land environment due to the solid waste generated from the proposed expansion. Extensive greenbelt already developed in the existing plant will have positive impact on land environment.

Recommendations

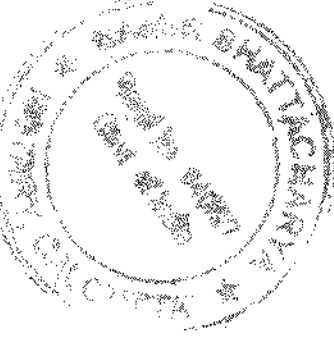
Landscaping can be done around the Administrative building, raw material storage sheds etc. This will help in preserving the ecological conditions.

Table 10.3.6: Impacts on Geology, Hydrology & Mitigation measures

S.No.	Major impacts identified based on Geology & Hydrology	Mitigation measures
1.	Impact on natural drainage pattern	No nallas of watercourses are passing through the plant area.
2.	Impact on Hydro geology of the area due to effluent from the proposed expansion project	The wastewater generated from the proposed unit will be sent to Settling pond after it will be recycled again as closed circuit cooling system will be adopted. The sanitary wastewater generated will be treated in Septic Tank followed by Subsurface dispersion. Similar practice will be continued after expansion also. Hence, there will not be any significant impact on Hydro-geology of the area & contamination of Ground water due to the proposed expansion project.
3.	Impact on downstream users of	The total water requirement for existing plant is 35

BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand

	Damodar River & on Groundwater Table 	m³/day which is being met from Groundwater source. NOC from CGWA has been obtained to abstract ground water of 35 m³/day for industrial use vide letter No. CGWA / NOC / IND / ORIG / 2021 / 10628 dated 02/01/2021 which is valid upto 01/01/2024. The total water requirement for the expansion project is estimated as 148 m³/day, which will be met from the Damodar river (Tenughat Reservoir) for which WRD, Govt. of Jharkhand has given a Recommendation letter. New Pipeline will be laid from Damodar River to the project site. Water permission obtained to the quantity of 0.598 MCM for both units i.e. DRI unit & adjacent Ferro Alloy unit. Hence, there will not be any impact on Groundwater table & surface water availability on the downstream users due to the proposed project.
4.	Impact on Geology due to Top soil excavation for construction activities (top soil preservation) pertaining to expansion project.	Preparation of site for expansion will involve excavations and fillings. The earthen material generated during excavations and site grading periods, will be properly dumped and slope stabilisation will be taken up. The topsoil generated during construction will be preserved and reused for plantations. Due to the Top soil preservation, no significant adverse impact on soil in the surrounding area is anticipated due to the construction activities.

10.3.8. MEASURES FOR IMPROVEMENT OF ECOLOGY

There are no notified National Parks, Wild life sanctuaries, Bird sanctuaries within 10 Km. radius of the plant. No significant vegetation occurs in and around the project site. As per the study carried out and Botanical Survey of India, it is found that No Endemic, Rare, Endangered and Threatened (RET) species of flora were found in the study area.

Hence, there will not be any adverse impact on flora & fauna due to the proposed expansion. Greenbelt will be developed covering 40% of the total land area within plant premises & outside the plant area.

10.3.8.1 GREEN BELT DEVELOPMENT [Gen.TOR # 7 (ix)]

The greenbelt has already been developed as per norms in the existing plant itself. No additional land is envisaged for the expansion project. This will further mitigate the pollution impacts.

Greenbelt plantation

The main purpose of greenbelt development is to contribute to the following factors.

- To maintain the ecological homeostatus.
- To attenuate the air emissions from the SEAF and the fugitive dust emissions.
- To prevent the soil erosion.
- To attenuate the noise levels

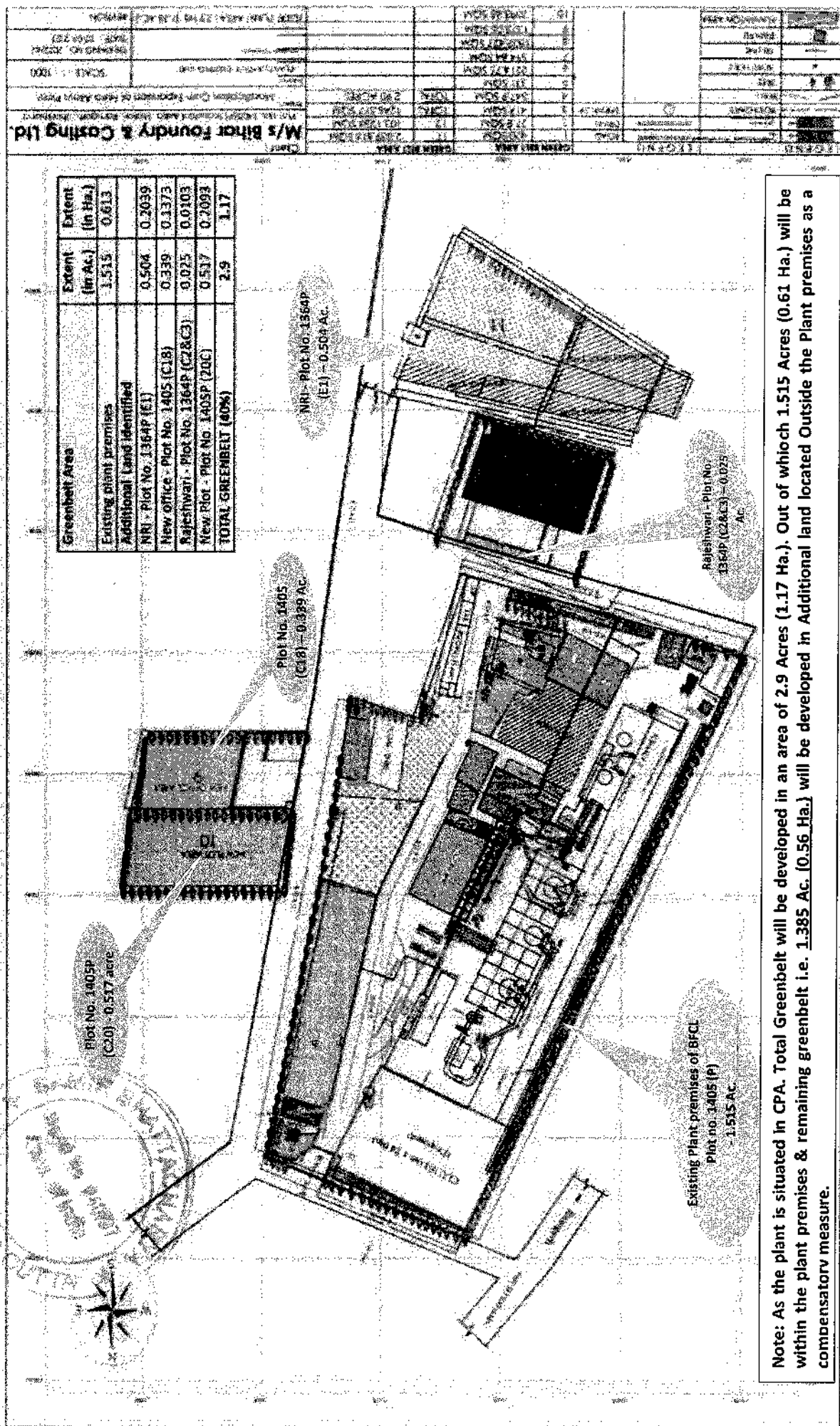
GREENBELT DEVELOPMENT PLAN

- Total land after proposed expansion will be **2.91 Ha. (7.18 Acres)**.
- As the Plant is situated in **Severely Polluted area (SPA)** it is proposed to develop **40% of Greenbelt as part of the expansion** i.e. in an extent of **1.17 Ha. (2.9 Acres)**.
- Additional safeguards such as 40% green belt is proposed to develop within the plant premises & outside the plant premises over an extent of **1.17 Ha. (2.9 Acres)**.
- Total 3000 nos. of plants will be developed over an extent of **1.17 Ha. (2.9 Acres)**.
- The total Greenbelt area proposed within the Plant premises is **1.515 Acres (0.61 Ha.)** which is inclusive of existing Greenbelt.
- To meet the requirement of 40% greenbelt development it is proposed to acquire additional land outside the existing plant.
- The details of additional land where greenbelt can be developed outside the premises is as follows:
 - Plot No. 1364P (E1) - 0.504 Acre (2039.6 SQM)
 - Plot No. 1405 (C18) - 0.339 Acre (1373.05 SQM)
 - Plot No. 1364P (C2&C3) - 0.025 Ac. (103.1238 SQM)
 - Plot No. 1405P (20C) - 0.517 Ac. (2093.65 SQM)

Hence the total greenbelt will be **2.9 Acres [1.515 Ac. (Plant Premises) + 1.385 Ac (outside plant premises) which amounts to 40 %]**.

BIHAR FOUNDRY & CASTINGS LIMITED (Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand



Note: As the plant is situated in CPA. Total Greenbelt will be developed in an area of 2.9 Acres (1.17 Ha.). Out of which 1.515 Acres (0.61 Ha.) will be within the plant premises & remaining greenbelt i.e. 1.385 Ac. (0.56 Ha.) will be developed in Additional land located Outside the Plant premises as a compensatory measure.

Plantation species

In the existing greenbelt, the following plant species are present

Table 10.3.7: Plantation In Existing Plant

S.No.	Common name	Scientific Name
1	Gulmohar Tree	Delonix regia
2	Nandi Flame	Spathodea campanulata
3	Yellow Flame	Peltophorum pterocarpum
4	Kaner	Nerium oleander
5	Peeli kaner	Cascabela Thevatia
6	White Frangipani	Plumeria obtusa
7	Naseberry	Manilkara zapota
8	Lemon Tree	Citrus limon
9	Pomegranate	Punica granatum
10	Mahua Tree	Madhuca longifolia
11	Neem Tree	Azadirachta Indica
12	Kadam Tree	Neolamarckia cadamba

10.3.9 RAINWATER HARVESTING [Spec. ToR # (i) & Gen.TOR # 7 (x)]

In the existing plant also rain water harvesting structure has been constructed. Now as part of expansion additional Rainwater harvesting structures will be constructed to harvest the run-off water from roof tops by laying a separate storm water drainage system for recharging of ground water.

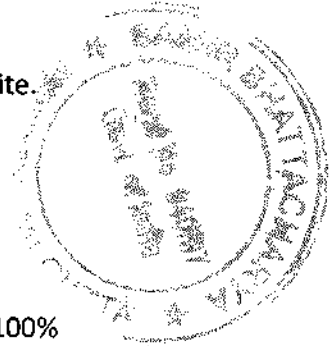
It is proposed to construct 2 nos. of Recharge structure as per design and all the Roof water inlet join to Recharge well so that Roof top water & surface run off storm water recharge into ground.

The following is the Plan for rain water harvesting measure at plant site.

Average annual rainfall = 1251 mm

Quantum of Rain water that can be harvested from the premises

a) Average annual rainfall = 1.251 m	
b) Runoff co-efficient	
c) Runoff co-efficient for water storage tank	= 100%
d) Runoff co-efficient for Roof area	= 85%
e) Runoff co-efficient for Roads and Paved area	= 65%
f) Runoff co-efficient for Open area	= 20%
g) Runoff co-efficient for Green belt area	= 15%


TABLE NO. 10.3.8 : DETAILS OF RAIN WATER HARVESTING POTENTIAL

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

S.No.	Type of area	Total Area (in m ²)	Runoff Co- efficient	Rainfall (in m)	Rainwater Collection Potential (in m ³)
1	Roof top area (60% of the total Built-up area & Storage Area)	14,468	0.85	1.251	15384.57
2	Internal roads	2,024	0.65	1.251	1645.41
3	Greenbelt	6,131	0.15	1.251	1150.52
4	Parking area & Misc. Area	607	0.20	1.251	151.88
5	Water Reservoir	0	1.00	1.251	0.00
	Total	23,230			18332.39

As per CGWA guideline 90% of total precipitation is suitable for recharge. Hence the potential rain water that can be recharged / utilized to meet the plant water requirement is 16,500 m³ / year. Accordingly, the net water requirement will reduce.

10.4 POST PROJECT MONITORING STRATEGY [Gen.TOR # 7 (xii)]

The monitoring of various environmental parameters is necessary which is part of the environmental protection measures. Monitoring is an important feature because the efficiency of control measures can only be determined by monitoring. A comprehensive monitoring programme is given here under. PM_{2.5}, PM₁₀, SO₂, NO_x & CO are monitored as per Ministry notification vide G.S.R. No. 826(E) dated 16th November, 2009.

Locations and frequency of monitoring as per the guidelines of SPCB and MOEF&CC are tabulated below.

Table 10.3.9 - MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

S.No.	Particulars	Frequency of Monitoring	Duration of sampling	Parameters required to be monitored
1. Water & Waste water quality				
A.	Water quality in the area	Quarterly once	Grab sampling	As per IS: 10500
B.	STP inlet & outlet	Quarterly once	Composite sampling (24 hourly)	As per EPA Rules 1996
2. Air Quality				
A.	Stack Monitoring	CEMS (existing & Proposed) Quarterly once	Continuous --	PM & NO _x PM & NO _x
B.	Ambient Air quality	CAAQMS Quarterly once	Continuous 24 hours continuously	PM ₁₀ PM _{2.5} , PM ₁₀ , SO ₂ , NO _x & CO
C.	Fugitive emissions	Quarterly basis	8 hours	PM
3. Meteorological Data				
A	Meteorological data to be	Daily	Continuous	Temperature, Relative

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

	monitored at the plant.		monitoring	Humidity, Rainfall, Wind direction & Wind speed
4. Noise level monitoring				
A	Ambient Noise levels	Quarterly once	Continuous for 24 hours with 1 hour interval	Noise levels

Infrastructure for Environmental Protection
Man Power

The project authorities will hire the services of external laboratory for carrying out periodical environmental monitoring during operation of the plant.

Environmental Engineer / Safety Officer

He will be a graduate engineer with adequate experience, responsible for implementing and monitoring the environmental impacts and all the safety aspects. He will act as a liaison officer between the proposed plant and regulatory agencies like SPCB, CPCB etc.

Monitoring system

Environmental monitoring during the operation phase of the plant will be entrusted to a third party which will cover Ambient air quality monitoring, stack monitoring, water quality, Noise levels, etc. Monitoring will be carried out as per CPCB / SPCB norms. A budgetary allocation of **Rs. 4.0 Lakhs** has been earmarked for Environmental monitoring.

10.5 COSTS FOR ENVIRONMENTAL PROTECTION [Gen.TOR # 7 (xi)]

Capital Cost for Environment Protection for proposed plant : 4.5 Crores

Recurring Cost per annum for Environmental protection : 0.72 Crores

Table 10.3.10 - COST BREAKUP FOR ENVIRONMENTAL PROTECTION MEASURES

S.No	Particulars	Capital Cost (Rs.in Crores)	Recurring Cost / Annum (Rs.in Lakhs)
1	Air Emission Management		
	• 4 th Hole FES with bag filters & Stacks	2.00	20
	• other APCS & Conveyor systems	0.50	5
	• for Water Sprinkling	0.10	0.5
2	Wastewater Management		
	• for STP	0.40	10
	• for Garland drains	0.03	1
	• for Settling ponds	0.02	0.2
3	Solid waste Management		

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

S.No	Particulars	Capital Cost (Rs.in Crores)	Recurring Cost / Annum (Rs.in Lakhs)
	Slag Handling & Disposal	0.20	5.0
4	Greenbelt development	0.10	2.0
6	Noise Management	0.10	1.5
7	RWH in Plant	0.10	0.2
8	Fire Safety Systems	0.50	5.0
9	Environmental Monitoring	---	4.1
	CEMS	0.20	3.0
10	Occupational Health & Safety		
	Occupational Health centre with Ambulance	0.15	4.5
	Personal Protective Equipment's (PPEs)	0.10	10
	TOTAL	4.50	72.0

10.6 ENVIRONMENT POLICY [TOR # 9 (i), (ii), (iii) & (iv)]

The management will periodically review the Environmental Management System (EMS) to ensure its effectiveness and sustainability. The need for possible changes in the environmental policy and objectives for continual improvement will be ascertained and revisions will be made accordingly.

A Copy of Environment Policy by the company is shown below.





CORPORATE ENVIRONMENTAL POLICY

The "BIHAR FOUNDRY & CASTINGS LIMITED." is committed for its contribution to the upliftment of the Society is forever committed to protect and save the Environment, keeping in mind the Sustainable Development.

Resolution: BIHAR FOUNDRY & CASTINGS LIMITED on 1st January 2023, the Management has taken a decision on Environment Policy, that it is committed to operate the Ferro Alloys Plant at Plot No. 1405(P), Ramgarh Industrial Area, Marar Village, Ramgarh Tehsil & District Jharkhand with the following objectives.

Corporate Environment Responsibility Policy

As a Corporate Organization we believe that it is our primary purpose to give back to society. Giving and sharing what we have received is embedded deeply in us. We will actively pursue to raise the quality of life of the people around us. We hold hands in our joint effort to create better tomorrows.

- Strict monitoring and compliance of the conditions stipulated in Environmental clearance & Environment Protection Act & Rules.
- Strict monitoring and compliance of the conditions stipulated in Consent for Establishment issued by Jharkhand State Pollution Control Board (JSPCB).
- Ensuring Implementation and regular operation of air emission control measures.
- Periodical monitoring of all environmental parameters such as Ambient air quality, stack emission monitoring, water quality, noise levels, soil quality, etc. and submission of the same to statutory authorities periodically.
- Maintaining good housekeeping practices.
- The compliance of the EC conditions / JSPCB norms will be reported to the Board of Directors every Six (6) months.
- Appropriate corrective measures will be taken along with sanction of the budget.

Quality Policy

- Delivering the required products at the right place at the right time at the right cost from our Plant form the very backbone of our Principles of Manufacturing.
- We view improvement as a continuous process. We are constantly aspiring to achieve betterment of our core processes, be it manufacturing, quality control, sales or delivery. There is a joint effort to achieve Manufacturing Excellence.

Cont.....

Bihar Foundry & Castings Limited

Works :- Ramgarh Industrial Area, P.O. Marar, Dist. Ramgarh, Jharkhand - 829317.
Registered Office :- Main Road, Ranchi, Jharkhand - 834001.
CIN No. : U27100JH1971PLC000912 & GST No. : 20AABCB1852D1Z1

BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand



Occupational Health & Safety Policy

We follow the occupational health and safety policy as below

- Create an environment which is safe and secure for everyone in its vicinity, be it a worker, contractor, visitor and even the local community. All identifiable risks and hazards are treated with the gravest concern.
- To constantly endeavour towards the highest level of health and safety such that injuries, waste and emissions are reduced to the bare minimum.
- Train all employees to work safely and responsibly thus preventing injury to themselves and others.
- Ensure that optimum conditions exist for the proper execution of all the stipulated health and safety norms.

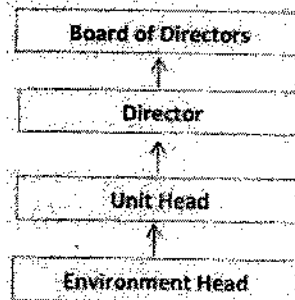
COMPLIANCE REVIEW MECHANISM

- Environmental Head will inform Non-compliances to the Unit Head.
- The Action plan and target date to close the non-compliance will be formulated by Unit Head in consultation with concern department.
- Unit head will inform to Director within 2 days.
- Director will inform the Board of Directors about the Non-compliances and Action plan within 3 days.
- This will be discussed with the Designated Director and necessary approval with Budget sanction will be made with 5 days after receiving information from Director.
- General Review of compliance on Environmental Clearance / JSPCB conditions by the Board of Directors will be carried out every Six months.

The following will be the communication chart for flow of the information pertaining to Environment Policy.



Place: Ramgarh
Date: 01.01.2023



For: Bihar Foundry & Castings Limited (Ferro Alloys Plant)

Gaurav Budhia
Gaurav Budhia
DIRECTOR

Bihar Foundry & Castings Limited

Works: Ramgarh Industrial Area, P.O. Marar, Dist. Ramgarh, Jharkhand - 829117.
Registered Office: Main Road, Ranchi, Jharkhand - 834001.
CIN No. - U27100JH1971PLC090912 & GST No. - 20AA8CB18520121

CHAPTER – 11

SUMMARY & CONCLUSION

(As per Appendix 3 of EIA Notification)

[Gen. TOR # 1]

11.1 INTRODUCTION

BIHAR FOUNDRY & CASTING LIMITED (BFCL) (existing Ferro Alloy Plant) of is in the production of ferro alloy FeMn/SiMn– 96 TPD (34,080TPA). The company has been promoted by a group of experienced businessmen who are presently engaged in manufacturing and trading business of various products. Environment Clearance was not applicable to the existing plant as CTE has been obtained in April, 2006 and was prior to EIA notification dated 14-09-2006. And project Located at Plot No 1405(P), Ramgarh Industrial Area, Marar Village, Ramgarh Tehsil & District, Jharkhand.

Meanwhile we have installed of 5th Furnace & CLU converter without completing the EC process. Hence we are here with submitting the Application A fresh under Violation for ToR.

Following is Chronology of Permissions obtained:

- Consent-to-Establish (CTE) obtained vide order No.T-551, dated 24.02.2000 for Ferro Alloy unit of 2x5 MVA SEAF's to manufacture 26 TPD of SiMn/FeMn.
- Consent-to-Establish (CTE) obtained vide order no. 2577 dated-20.05.2009 for Ferro Alloy unit of 1x7.5 MVA SEAF to manufacture 30 TPD of SiMn/FeMn.
- Environment Clearance (EC) from MoEF&CC, New Delhi, vide F. No. J- 11011/384/2010-IA (II) (I) dated 31.10.2011 to manufacture of ferro Alloys (SiMn/FeMn) of total 96TPD (34,080 TPA).
- The Consent-to-Establish (CTE) obtained vide order no. D-1510(N), Dated. 21.05.2014 for additional 40 TPD.
- Company has valid ConsentTo Operate from JSPCB vide no. JSPCB/HO/RNC/CTO-4412165/2020/1819 dated 10.11.2020 (which is in the name of GAUTAM FERRO ALLOYS (UNIT OF BFCL) which is valid upto 31/12/2025. **Now we have submitted request letter to JSPCB for name Change of CTO which is under process.**

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

Pioneer Enviro Laboratories & Consultants Private Limited, Hyderabad, which is accredited by NABET, Quality Council of India, vide certificate No. NABET/ EIA/ 1922/ SA 0148, for preparing EIA report for Metallurgical Unit, have prepared Environmental Impact Assessment (EIA) report for the proposed expansion project by incorporating the TOR approved by Ministry of Environment, Forests & Climate Change, New Delhi. The report contains detailed description of the following:

- Characterization of status of environment with in an area of 10 km radius from the plant for major environmental components including air, water, noise, soil, flora, fauna and socio-economic environment.
- Assessment of air emissions, liquid waste and solid waste from the proposed expansion project along with the noise level assessment.
- Environmental Management Plan comprising of emission control measures proposed to be adopted in the proposed expansion project, solid waste management, Greenbelt development.
- Post Project Environmental Monitoring & Budget for Environmental Protection Measures.

11.1.1 ENVIRONMENTAL SETTING WITHIN 10 Km. RADIUS OF THE PLANT SITE
Table 11.1.1: Environment Setting Within 10 Kms. Radius of the Plant Site

S.No.	Salient Features / Environmental features	Distance w.r.t. site / Remarks
1.	Type of Land (for Expansion)	Industrial
2.	Type of Land (Study Area)	As per LULC the land use within 10 Km. is as follows: Settlements – 7.9 %; Industrial Area- 3.1 %; Water Bodies / Tank / River etc.– 5.8 %; Scrub Forest area – 9.2 %; Single crop land – 57.2 %; Land with scrub – 10.2 %; Land without scrub – 2.3% & Sheet Rock area – 1.1 % Mining Area – 3.4%.
3.	National Park/ Wild life sanctuary / Biosphere reserve / Tiger Reserve / Elephant Corridor / migratory routes for Birds	There are no notified National Park/ Wild life sanctuary / Biosphere reserve / Tiger Reserve/ migratory routes for Birds with in 10 Km. radius of the plant.
4.	Historical places / Places of Tourist importance / Archeological sites	Nil
5.	Industrial areas / cluster (MoEF&CC Office Memorandum dated 13 th January 2010) and its subsequent amendments	Ramgarh district is declared Severely Polluted area (SPA) with CEPI index 65.11 by CPCB vide No.B29012/ESS(CPA)/2015-16/ dated 26th April 2016. Additional safeguards such as 40% green belt is

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

S.No.	Salient Features / Environmental features	Distance w.r.t. site / Remarks
		proposed to develop within the plant premises & outside the plant premises over an extent of 1.17 Ha. (2.9 Acres) and also Continuous Ambient Air Quality Monitoring station (CAAQMS) has been already established within the Plant premises.
6.	Defence Installations	Ramgarh Cantonment area
7.	Nearest village	Palamu Colony – 0.4 Kms. (NE) Marar – 0.8 Kms. (N)
8.	No. of Villages in the Study Area	53
9.	Nearest Hospital	Palamu Colony – 0.4 Kms. (NE) Marar – 0.8 Kms. (N)
10.	Reserved forests	Unnamed PF (0.5 Kms. – W), Unnamed PF (4.7 Kms-NW), Unnamed PF (4.0 Kms-S) present within 10 Kms. radius of the plant site.
11.	Water body	Damodar River (1.4 Kms- S), Raura Nala (2.5 Kms. -E) Meramgarh Nala (5.4 Kms. -E) Unnamed stream (0.5 Kms. – W) Ramgarh Village pond (4.0 Kms- S) Seota village Pond (1.5 Kms. -NE) and other unnamed small ponds are existing within study area.
12.	Nearest Railway station	Ranchi Road RS –0.8 Kms. (NE) Barkakana RS – 5.0 Kms (SW)
13.	Nearest Port facility	Nil in 10Kms radius
14.	Nearest Airport / Airstrip	Nil within 10 Kms. Radius [Birsu Munda Airport, Ranchi– 42 Kms. (Aerial)]
15.	Nearest Interstate Boundary	No interstate boundary within 10 Km radius of the plant site.
16.	Seismic zone as per IS-1893	Seismic zone – III
17.	R & R	There is no rehabilitation and resettlement issue, as the proposed expansion will be taken up in the existing plant premises only.

11.1.2 PLANT CONFIGURATION AND PRODUCTION CAPACITY
Table 11.1.2 – Plant Configuration and Production Capacity (Existing & Proposed)

S. No.	Existing Units		Proposed Units (Modification- Cum-expansion)		Total (Existing + Proposed)	
	Configuration	Production TPA	Configuration	Production (in TPA)	Configuration	Production (in TPA)
1	Ferro Alloy unit of 2x5 MVA +	34,080 (96 TPD) (SiMn /	Modification of existing 2x5 MVA to 2x6 MVA	SiMn- 24,495 (69 TPD)	2x6 MVA + 3x9 MVA SEAFs + 12MT CLU	SiMn- 58,575 (165 TPD)

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

1x7.5 MVA + 1x9 MVA SEAFs	FeMn)	SEAFs	or FeMn- 59,995 (169 TPD)	Converter	Or
		Modification of existing 1x7.5 MVA to 1x9 MVA SEAF		With Jigging unit and Micro Pelletizing facility	HC/MC/LC FeMn-94,075 (265 TPD)
		Existing 1x9 MVA SEAF			
		New 1x9 MVA SEAF*			
		New 12MT per batch CLU Converter for refining liquid HC FeMn to MC/LC FeMn			

Note:

* We would like to bring to your kind notice that we have constructed 5- Furnace i.e New 1 x 9 MVA SAF & CLU converter is under construction (hence we are applying a Fresh Application for E.C. under Violation)

11.1.3 Raw Materials

The following will be the raw material requirement for the proposed expansion project:

Table 11.1.3

S.No.	Raw Material	Quantity After Expansion (TPA)	Sources	Mode of Transport
1.	For Ferro Alloys (2x6 MVA + 3x9 MVA SEAFs)			
(i)	Ferro Manganese – 94,075 TPA			
a)	Manganese ore	2,35,188	Imported (Zambia)	By Rail & Road (through covered trucks)
b)	Pearl Coke	70,556	Imported	By Rail & Road (through covered trucks)
c)	Electrode Paste	1410	Local market	By road (through covered trucks)
d)	Quartz	28,222	Local market	By road (through covered trucks)
e)	Dolomite	23,518	Imported (Bhutan)	By Rail & Road (through covered trucks)
	(OR)			
(ii)	Silico Manganese – 58,575 TPA			
a)	Manganese Ore	1,46,438	Imported (Zambia)	By Rail & Road (through covered trucks)

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

S.No.	Raw Material	Quantity After Expansion (TPA)	Sources	Mode of Transport
b)	Pearl Coke	43,930	Imported	---
c)	Carbon paste	878	Local market	----
d)	Dolomite	14,643	Imported (Bhutan)	By road (through covered trucks)
e)	FeMn Slag	29,288	In house	By road (through covered trucks)

11.1.4 Manufacturing Process

Ferro manganese, silicon-manganese will be produced using manganese ore as main raw material in a sub-merged arc furnace using reducer (Coke) under high voltage.

11.1.5 Water Requirement

- Water required for the existing plant is 35 KLD and same is being sourced from Ground water source.
- NOC from CGWA has been obtained to abstract ground water of 35 m³/day for industrial use vide letter No. CGWA/NOC/IND/ORIG/2021/10628 dated 02/01/2021 which is valid upto 01/01/2024.
- The total water requirement for the expansion project is estimated as 148 m³/day, which will be met from the Damodar river (Tenughat Reservoir).
- New Pipeline will be laid from Damodar River to the project site.
- Water permission obtained to the quantity of 0.598 MCM for both units i.e. DRI unit & adjacent Ferro Alloy unit.

Table 11.1.4 - Breakup of Water Requirement

S.No.	Unit	Quantity in KLD		
		Existing Plant	Proposed Expansion	Total after Expansion
1.	Ferro Alloy Plant	30	40	70
2.	CLU	---	80	80
3.	Domestic	5	28	33
	Total	35	148	183

11.1.6 Waste Water Generation

Existing

- The wastewater generated from Ferro Alloys unit is being sent to ETP and after ensuring compliance with SPCB norms, it will be utilized for Jigging plant, Briquetting plant, dust suppression & for greenbelt development.
- Sanitary waste water is being treated in septic tank followed by Soak Pit.

Proposed

- The wastewater generated from Ferro Alloys unit will be sent to ETP and after ensuring compliance with SPCB norms, it will be utilized for Jigging plant, Briquetting plant, dust suppression & for greenbelt development.
- Sanitary waste water will be treated in proposed STP and treated wastewater will be utilized for Greenbelt development.
- Zero effluent discharge will be maintained in the proposed expansion project.

Table 11.1.5: Wastewater Generation Break Up

PARAMETER	Sanitary waste water untreated
pH	7.0 – 8.5
BOD (mg/l)	200 – 250
COD (mg/l)	300 – 400
TDS (mg/l)	800 – 900

11.2 DESCRIPTION OF ENVIRONMENT

Base line data has been collected on ambient air quality, water quality, noise levels, soil quality, flora and fauna and socio economic details of people within 10 km radius of the plant.

- Baseline data has been collected by earlier Consultant from **1st December 2019 to 29th February 2020** by M/s. Ampl Environ Pvt Ltd. Hyderabad.
- During of Final EC appraisal it was decided to submit the A fresh Application under Violation.
- Hence applying a fresh for ToR.
- Now due to unavoidable circumstances M/s. BIHAR FOUNDRY & CASTING LIMITED changing the Environment Consultant.
- Subsequently the baseline data has been collected for further period of One month i.e. in May 2022 for Re-validation of Baseline data for preparation of EIA report by

M/s. PIONEER ENVIRO LABORATORIES & CONSULTANTS PVT. LTD.

- The Public Hearing was held on 15/03/2021. We request your goodselves to consider the same for the present proposal submitting under Violation.
- There is no change in proposal & Production capacities.

11.2.1 Ambient air quality

Ambient air quality was monitored for PM_{2.5}, PM₁₀, SO₂, NO_x & CO at 8 stations including project site during 1st Dec 2019 to 29th Feb 2020 And One month revalidated baseline data collected from 1st May 2022 to 31st May 2022. The following are the concentrations of various parameters at the monitoring stations:

Table 11.2.1: Summary of Ambient Air Quality data

Parameter		Concentrations during study period Dec 2019 to Feb 2020	Concentrations during study period from 1 st March 2022 to 31 st May 2022 (Revalidation)
PM _{2.5}	:	34.7 to 42.8 µg/m ³	34.9 to 46.2 µg/m ³
PM ₁₀	:	68.9 to 86.3 µg/m ³	69.1 to 79.4 µg/m ³
SO ₂	:	7.8 to 13.5 µg/m ³	7.8 to 13.3 µg/m ³
NO _x	:	17.4 to 26.2 µg/m ³	15.5 to 27.1 µg/m ³
CO	:	410 to 600 µg/m ³	384 to 744 µg/m ³

11.2.2 Water Quality

11.2.2.1 Surface Water Quality

5 nos. of surface water samples have been collected, 2 nos. from Damodar river (1.7 & 1.8 Kms.), one sample from Marar Pond (1.6 Kms.), one sample from Ramarh Pond (3.7 Kms.) & other sample from Unnamed Nala near BFCL (0.6 kms.) are collected. The analysis of samples shows that all the parameters are in accordance with BIS-2296 specifications.

11.2.2.2 Ground Water Quality

8 Nos. of ground water samples from open wells / bore wells have been collected from the nearby villages to assess ground water quality impacts and analyzed for various Physico-Chemical parameters. The analysis of samples shows that all the parameters are in accordance with BIS: 10500 specifications.

11.2.3 Noise Levels

Noise levels were measured at 8 locations during day time & Night time. The equivalent day noise levels in the study zone are ranging from 52.10 dBA to 68.40 dBA & equivalent Night noise levels in the study zone are ranging from 42.70 dBA to 55.30 dBA during 1st December 2019 to 29th February 2020 carried out by M/s. AMPL ENVIRON PVT LTD. further Noise levels collected during revalidation of Noise levels in May 2022, the equivalent day noise levels in the study zone are ranging from 47.80 dBA to 66.80 dBA & equivalent Night noise levels in the study zone are ranging from 36.80 dBA to 53.20 dBA.

11.3 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

11.3.1 Prediction of impacts on air quality

The likely emissions from the proposed expansion project are PM₁₀, NO_x & CO. The predictions of Ground level concentrations have been carried out using Industrial Source Complex (ISC-3) model. Meteorological data such as wind direction, wind speed, max. and min. temperatures collected at the site have been used as input data to run the model.

The predicted max. Incremental PM₁₀ concentrations (24 hourly) due to the proposed expansion project will be **0.48 µg/m³** at a distance of 1500 m from the stack in the down wind direction over the baseline concentrations.

The predicted incremental rise in Particulate Matter concentration due to the Vehicular emission will be **0.10 µg/m³**.

There will not be any incremental SO₂ concentrations (24 hourly) due to the proposed expansion project.

The predicted max incremental NO₂ concentrations (24 hourly) due to the proposed expansion project will be **2.99 µg/m³** at a distance of 1500 m from the stack in the down wind direction over the baseline concentrations.

The predicted incremental rise in NO₂ concentration due to the Vehicular emission will be **0.80 µg/m³**.

The predicted incremental rise in CO concentration due to the Vehicular emissions will be **0.52 µg/m³**.

The net resultant concentrations (Maximum baseline conc. + predicted incremental rise in conc.) of PM, NO_x & CO are shown in Table below by considering the emissions from other

industries in the area will be well within the National Ambient Air Quality Standards (NAAQS) when the expansion project commences the operation. Hence there will not be any adverse impact on air environment due to the proposed expansion.

Table 11.3.1 - Net Resultant maximum concentrations due to the proposed expansion project

Item	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	CO ($\mu\text{g}/\text{m}^3$)
Maximum baseline conc. in the study area	79.4	13.3	27.1	744
Maximum predicted incremental rise in concentration due to proposed expansion project (Point Sources)	0.48	Nil	2.99	Nil
Maximum predicted incremental rise in concentration due to proposed expansion project (Vehicular emissions)	0.10	Nil	0.80	0.52
Net resultant concentrations during operation of the expansion project	79.98	13.3	30.89	744.52
National Ambient Air Quality Standards	100	80	80	2000

The net resultant Ground level concentrations during operation of the expansion project are within the NAAQS. Hence, there will not be any adverse impact on air environment due to the proposed expansion project.

11.3.2 Prediction of impacts on noise quality

The major noise generating sources in the plant are Furnace Arcing, compressors & DG set. Silencer has already been provided to the existing DG Set. The ambient noise levels will be within the standards prescribed by MoEF&CC i.e. the noise levels will be less than 75 dBA during day time and less than 70 dBA during night time. **2.9 Acres (1.17 Ha.)** of greenbelt will be developed covering 40% of the Plant area as the plant situated in SPA which helps in further attenuating the noise levels. Hence there will not be any adverse impact due to noise on population in surrounding areas due to the proposed expansion project.

11.3.3 Prediction of impacts on Water Environment

The wastewater generated from Ferro Alloys unit will be sent to CMB and after ensuring compliance with SPCB norms, it will be utilized for Jigging plant, Briquetting plant, dust suppression & for greenbelt development. Sanitary waste water will be treated in proposed STP and treated wastewater will be utilized for Greenbelt development. Zero effluent discharge will be maintained in the proposed expansion project. Rain water

harvesting helps in augmenting the water table. Hence there will not be any adverse impact on water environment due to the proposed expansion project.

11.3.4 Prediction of Impacts on Land Environment

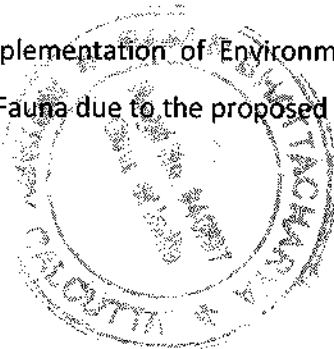
Zero effluent discharge will be adopted. All the required air pollution control systems will be provided to comply with CPCB / CECB norms. All solid wastes will be disposed / utilized as per CPCB / SPCB norms. **2.9 Acres (1.17 Ha.) i.e 40%** of greenbelt will be developed as per Compliance of Mitigation measures prescribed by CECB for plants situated in SPA. Hence there will not be any adverse impact on land environment due to the proposed expansion project.

11.3.5 Prediction of Impacts on Biological Environment

- There are no National Parks, Wild life Sanctuaries and Bird Sanctuaries within 10 Km. radius of the plant site.
- There are no notified National Park/ Wild life sanctuary / Biosphere reserve / Tiger Reserve/ migratory routes for Birds with in 10 Km. radius of the plant.
- Unname PF (0.5 Kms. – W), Unnamed PF (4.7 Kms-NW), Unnamed PF (4.0 Kms-S) Lakha PF's are exist within 10 Km. radius of the plant site.
- All the required Air emissions control systems in the expansion project will be installed and operated to comply with MOEF/CPCB/SPCB norms.
- Zero liquid effluent discharge is being maintained in the existing plant and similar practice will be maintained after expansion also.
- All solid waste disposal will be in accordance with the norms.
- **2.9 Acres (1.17 Ha.) i.e 40%** of the plant area greenbelt will be developed as per Compliance of Mitigation measures prescribed by CECB for plants situated in SPA.

When all norms are complied and with proper implementation of Environment Management Plan, there will not be any adverse impact on flora & Fauna due to the proposed expansion.

11.3.6 Socio - Economic Environment



BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

There will be lot of opportunities in employment to local people during construction as well as in operation phase. There will be further upliftment in Socio Economic status of the people in the area.

11.4 ENVIRONMENTAL MONITORING PROGRAMME

Post project monitoring will be conducted as per the guidelines of CECB and MoEF&CC are tabulated below:

Table 11.4.1 - MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

S.No.	Particulars	Frequency of Monitoring	Duration of sampling	Parameters required to be monitored
1. Water & Waste water quality				
A.	Water quality in the area	Quarterly once	Grab sampling	As per IS: 10500
B.	STP inlet & outlet	Quarterly once	Composite sampling (24 hourly)	As per EPA Rules 1996
2. Air Quality				
A.	Stack Monitoring	CEMS (existing & Proposed) Quarterly once	Continuous --	PM & NO _x PM & NO _x
B.	Ambient Air quality	CAAQMS Quarterly once	Continuous 24 hours continuously	PM ₁₀ PM _{2.5} , PM ₁₀ , SO ₂ , NO _x & CO
C.	Fugitive emissions	Quarterly basis	8 hours	PM
3. Meteorological Data				
A	Meteorological data to be monitored at the plant.	Daily	Continuous monitoring	Temperature, Relative Humidity, Rainfall, Wind direction & Wind speed
4. Noise level monitoring				
A	Ambient Noise levels	Quarterly once	Continuous for 24 hours with 1 hour interval	Noise levels

11.5 ADDITIONAL STUDIES

No rehabilitation and resettlement is required as proposed expansion will be taken up in the existing plant premises and the plant is located in Ramgarh Industrial Area.

11.6 PROJECT BENEFITS

With the establishment of the proposed expansion project employment potential will increase. Land prices in the area will increase. The economic status of the people in the

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
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area will improve due to the proposed project. Top priority will be given to locals in employment.

In pursuance to MoEF&CC OMs dated 31st October, 2019 & 30th December, 2019 issued in compliance of the order of Hon'ble NGT in OA No. 1038/2018 dated 19th August, 2019, the compliance of all the conditions applicable to CEPI shall be prepared. **CER allocation shall be 1.5 times of the normal calculated amount.**

- As per the Normal calculation for CER the budget will be **Rs.0.893 Crores**
- 1.5 times of the normal calculated amount will be **Rs. 1.34 Crores**

Hence a Budget of **Rs. 1.34 Crores** will be allocated for social welfare activities based on Social Impact Assessment (SIA) & Public Hearing commitments.

11.7 ENVIRONMENT MANAGEMENT PLAN

11.7.1 Air Environment

The following are air emission control systems proposed in the expansion project:

Table 11.7.1: PROPOSED AIR EMISSION CONTROL SYSTEMS

S.No.	Source	Control Equipment	Emission at the outlet
1.	Submerged Electric Arc Furnaces (for new 1 x 9 MVA SEAF)	4 th Hole Fume Extraction system with bag filters	PM < 30 mg/Nm ³
2.	CLU converter (12 MT)	Fume Extraction system with bag filters	PM < 30 mg/Nm ³

Note :
 4th Hole Fume Extraction system with bag filters are already provided to existing 2 x 5 MVA, 1x 7.5 MVA & 1x9 MVA SEAFs.

Apart from the above Dry fog system with dust suppression at transfer points, crushing plant , dust extraction system with bagfilters at other dust emanating areas, dust sweepers, etc. will also be provided.

The following air pollution control systems/ measures are proposed in the expansion project:

- All conveyors will be completely covered with G.I. sheets to control fugitive dust.
- All bins will be totally packed and covered so that there will not be any chance for dust leakage.

- All the dust prone points material handling systems will be connected with de-dusting system with bag filters.
- All discharge points and feed points, wherever the possibility of dust generation is there a de-dusting suction point will be provided to collect the dust.
- The Fugitive emissions from the Submerged Electric Arc Furnace will be sucked through hoods and will pass through a 4th Hole Fume extraction system with bag filters and then the treated gases will be discharged into the atmosphere through a stack of 30 m height for effective dispersion of emissions from the Furnace. The outlet dust emission in the exhaust gases will be limited to 30 mg/Nm³. The dust will be pneumatically carried to covered bins.

11.7.2 Water Environment

The wastewater generated from Ferro Alloys unit will be sent to CMB and after ensuring compliance with SPCB norms, it will be utilized for Jigging plant, Briquetting plant, dust suppression & for greenbelt development. Sanitary waste water will be treated in proposed STP and treated wastewater will be utilized for Greenbelt development. Zero effluent discharge will be maintained in the proposed expansion project.

11.7.3 Noise Environment

The major sources of noise generation in the proposed expansion project will be Furnace arcing, Compressor & DG set, etc. Silencer is already provided to existing D.G. set. All the machinery are being / will be manufactured in accordance with MoEF&CC norms on Noise levels. The employees working near the noise generating sources will be provided with earplugs. The greenbelt is being / will be developed within the plant premises and will help in attenuating the noise levels further.

11.7.4 Land Environment

ero effluent discharge will be maintained in the proposed expansion project. Solid wastes will be disposed off as per norms. 2.9 Acres (1.17 Ha.) i.e 40% of the plant area. Hence there will not be any impact due to the proposed expansion project.

Solid waste generation and disposal

The following will be the solid waste generation & proposed method of disposal.

BIHAR FOUNDRY & CASTINGS LIMITED
 (Modification-cum-Expansion of Ferro Alloy Plant)

 Ramgarh Industrial Area, Marar Village,
 Ramgarh Tehsil & District, Jharkhand

Table 11.7.2: SOLID WASTE GENERATION & PROPOSED METHOD OF DISPOSAL

S.No	Waste / By Product	Quantity (TPA)			Method of disposal
		Existing	Proposed	After expansion	
1.	Slag from FeMn	13,820	28,780	42,600	After Jigging it will be reused in manufacture of SiMn as it contains high SiO ₂ and Silicon.
2.	Slag from SiMn	20,450	18,850	39,300	After Jigging will be used for Road construction / Used in Filling low lying areas etc.
3.	APCS dust	840	735	1575	Will be sent to Briquetting unit.
4.	Waste oil	80 Ltr/Annum	160 Ltr/Annum	240 Ltr/Annum	Will be sent to authorized recyclers

11.7.5 Greenbelt Development

Total land after proposed expansion will be **2.91 Ha. (7.18 Acres)**.

- As the Plant is situated in Severely Polluted area (SPA) it is proposed to develop 40% of Greenbelt as part of the expansion i.e. in an extent of 1.17 Ha. (2.9 Acres).
- Additional safeguards such as 40% green belt is proposed to develop within the plant premises & outside the plant premises over an extent of **1.17 Ha. (2.9 Acres)**
- The total Greenbelt area proposed within the Plant premises is **1.515 Acres (0.61 Ha.)** which is inclusive of existing Greenbelt.
- To meet the requirement of 40% greenbelt development it is proposed to acquire additional land outside the existing plant.
- The details of additional land where greenbelt can be developed outside the premises is as follows
 - Plot No. 1364P (E1) - 0.504 Acre (2039.6 SQM)
 - Plot No. 1405 (C18) - 0.339 Acre (1373.05 SQM)
 - Plot No. 1364P (C2&C3) - 0.025 Ac. (103.1238 SQM)
 - Plot No. 1405P (20C) - 0.517 Ac. (2093.65 SQM)

Hence the total greenbelt will be **2.9 Acres [1.515 Ac. (Plant Premises) + 1.385 Ac (outside plant premises) which amounts to 40 %]**.

11.7.6 Cost for Environment Protection

Capital Cost for Environment Protection for proposed plant : Rs. 4.5 Crores
 Recurring Cost per annum for Environmental protection : Rs. 72 Lakhs

CHAPTER – 12

DISCLOSURE OF CONSULTANT ENGAGED



12.1 DISCLOSURE OF CONSULTANT ENGAGED [Gen. TOR # 2 (i)]

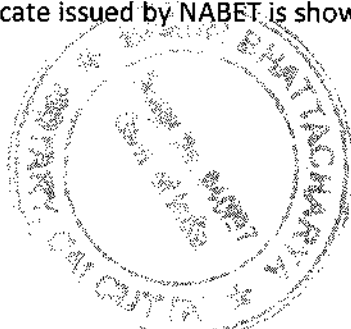
PIONEER ENVIRO LABORATORIES & CONSULTANTS PVT. LTD. is QCI-NABET accredited EIA Consultant, vide certificate No. NABET/ EIA/ 1922/ SA 0148 & ISO 9001-2008 certified company. It is one of the leading Environmental Consultancy organizations in South India and Chhattisgarh. Established in 1996 **PIONEER ENVIRO** has an excellent track record of serving several well-established Group companies across the Country.

PIONEER ENVIRO is a team of professionals in various disciplines such as Environmental Engineering & Environmental Management. The team is slated to double in next two years.

Our goals are to provide all of our clients with quality services at a fair, competitive price. By offering a turnkey service (excepting some specific areas), we can maximize the efficiency of data collection so that our clients pay one time for similar services. The technologies deployed at **PIONEER ENVIRO** are current and leading edge, duly validated.

PIONEER ENVIRO has an exceptional team of Environment professionals. **PIONEER ENVIRO** has the expertise to assess the impact of various industrial activities such Coal Washery, Power Plants, Steel Plants, Distilleries, Cement Plants etc., on the environment. These assessments will help the industry to install the best Environmental Management Systems and to maintain the plant in accordance with the norms stipulated for ISO-14001 & ISO-18000. **PIONEER ENVIRO** services range from site assessments, environmental audits, environmental impact statements and risk assessments to waste management.

A copy of certificate issued by NABET is shown below.



BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village,
Ramgarh Tehsil & District, Jharkhand



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



**National Accreditation Board
for Education and Training**



Certificate of Accreditation

Pioneer Enviro Laboratories and Consultants Private Limited

2nd Floor, A-Z Elite, Plot No. 197, Kavuri Hills, Guttala Begumpet Village, Madhapur,
Hyderabad-500081

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	MOEFCE	
1	Mining of minerals - Opencast mining only	1	1 (a) (i)	A
2	River Valley projects	3	1 (c)	A
3	Thermal power plants	4	1 (d)	A
4	Coal Washeries	6	2 (a)	A
5	Mineral beneficiation	7	2 (b)	B
6	Metallurgical industries (ferrous & non-ferrous)	8	3 (a)	A
7	Cement plants	9	3 (b)	A
8	Asbestos milling and asbestos based products	12	4 (c)	A
9	Distilleries	22	5 (g)	A
10	Sugar Industry	25	5 (j)	B
11	Building and construction projects	38	8 (a)	B
12	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in SAAC minutes dated Sep. 17, 2021 and supplementary minutes dated Mar. 28, 2022 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/22/2227 dated Feb. 01, 2022. The accreditation needs to be renewed before the expiry date by Pioneer Enviro Laboratories and Consultants Private Limited, Hyderabad following due process of assessment.

NABET

Sr. Director, NABET
Dated: Apr. 16, 2022

Certificate No.
NABET/EIA/1922/SA 0148 (Rev.01)

Valid up to
Sep. 21, 2022

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

BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village
Ramgarh Tehsil & District, Jharkhand



National Accreditation Board for Education and Training



QCI/NABET/ENV/ACO/22/2615

Dec 12, 2022

To

Pioneer Enviro Consultants Pvt. Ltd.
Plot No.197, 2nd Floor, A-Z Elite, Kavuri Hills,
Guttala Begumpet Village, Madhapur,
Hyderabad, Telangana-500081

Sub: Extension of Validity of Accreditation till March 11, 2023 – regarding
Ref. Certificate no. NABET/EIA/1922/SA 0148

Dear Sir/Madam

This has reference to the accreditation of your organization under the QCI-NABET EIA Scheme, the validity of Pioneer Enviro Consultants Pvt. Ltd is hereby extended till March 11, 2023 or completion of the assessment process, whichever is earlier.

The above extension is subject to the submitted documents/required information with respect to your application and timely submission and closure of NC/Obis during the process of assessment.

You are requested not to use this letter after expiry of the above stated date.

With best regards.

(A.K. Jha)
Sr. Director, NABET



Institute of Love Pioneer India: 6th Floor, 4A, Ring Road, 17 Estate, New Delhi-110 002, India
Tel: +91-11-234 23 418, 417, 418, 419, 420, 421, 422 Email: info@pioneer.org Website: www.pioneer.org

CHAPTER 13

ASSESSMENT OF ECOLOGICAL DAMAGE, REMEDIATION PLAN, NATURAL AND COMMUNITY RESOURCE AUGMENTATION PLAN

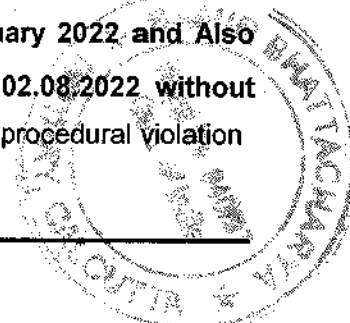
13.1 ABOUT THE PROJECT

Bihar Foundry & Castings Limited (BFCL) Ferro-Alloy Plant has proposed for modification-cum-expansion of existing smaller size furnaces with 2×6+3×9 MVA SAF's+1×12 MT per batch CLU converter with matching associated facilities. The product mix shall be SiMn-165 TPD (58, 575 TPA) or HC/MC/LC FeMn-265 TPD (94, 075 TPA) depending on the market demand within the existing premises of the plant located at Survey No. 1405 (P) in the Notified Ramgarh Industrial Area, Village – Marar, Ramgarh (Jharkhand). The total plot area is 7.18 acres (2.91 Ha.). The environmental clearance for manufacturing of Ferro-Alloy for the existing project is issued on 31.10.2010 vide letter No. 1-11011/384/2011 - IA-II (1) from MoEFec, New Delhi and consent to operate renewal for the existing unit was accorded by Jharkhand state pollution control Board vide letter No. Ref.:- No. JSPCB/HO/RNC/CTO/4412165/2020/1819 dated 10/11/2020. The validity of CTO is upto 31.12.2025. The ever increasing demand for the products has encouraged the promoter to undertake the modification and expansion of the proposed project.

13.2 PRESENT STATUS OF THE PROJECT

The date of commencement for the Ferro-Alloy Division was 21st February 2008 and date of completion of the project was 07/0/2014 in the name of M/s Bihar Foundry & Casting Limited for which Environmental clearance was granted in the year 31.10.2011 for manufacturing of Ferro Alloys from Ministry of Environment Forest & Climate change, New Delhi. The CTO for the existing project was accorded on 10.10.2020 which was valid up to 31.12.2025 by Jharkhand State Pollutions Control Board.

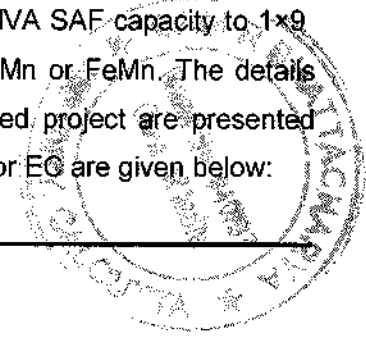
M/S BFCL now proposed for the modification-cum-expansion of the project to increase the manufacturing capacity of the project as per the marking scenario and demand. During this process M/s. BLCL has started the construction of 1×9 MVA SAF on 1st Nov. 2021 and completed the installation on January 2022 and Also CLU activities started on 1st Jan. 2022 and completed on 02.08.2022 without obtaining Environmental clearance. The proponent has made a procedural violation



being started the construction work and completed without obtaining the Environmental clearance as per the Ministry's Notification No. S.O. 1533 (E) dated 14.09.2006 **and under violation**. As per EIA notification and its amendment there of M/s Bihar Foundry & Casting Limited had applied for the proposed expansion project on 12.09.2020 to get environmental clearance and to start the EIA process. Accordingly to carryout EIA studies, standard and specific terms of reference (TOR) was issued by MoEF & CC, New Delhi on dated November 24, 2020 for assessing the Impact of the proposed plant activities on Environmental components for the preparation of EMP to mitigate adverse impacts. Accordingly EIA / EMP report was prepared as per the requirements and guidelines of MoEF & CC New Delhi. The Public Hearing was conducted as per the EIA notification 2006 and its amendments thereof on March 15, 2021 to seek the views, opinion and suggestions regarding the proposed expansion project. The Final EIA report after incorporating the issues raised during the public hearing and response of the project proponent was prepared and submitted to MoEFCC for getting environmental clearance. The project was considered for appraisal on 13-14 September 2021 in 44th EAC (Re-constituted) meeting. The committee recommended to return the proposal into present form due to shortcomings in the EIA report. Now, the proponent changed the earlier environmental consultant and a fresh EIA report is prepared incorporating the Chapter-13 related to the Assessment of Ecological Damage, Remediating plan, Natural and Community Resource Augmentation Plan for the violation done by the project proponent by installation of one new SAF & CLU without prior environmental clearance.

13.3 ACTIVITIES CARRIED OUT BEFORE GRANTING PRIOR ENVIRONMENTAL CLEARANCE

As mentioned earlier, Bihar Foundry & Casting Limited started construction work of installation of one new SAF on 1st Nov. 2021 and completed the erection work on Jan. 2022 and construction of CLU started on 1st Jan. 2022 and completed on 02.08.2022 without prior environmental clearance. **However the installed new SAF and CLU converter both are non-operative at present** and applied for getting environmental clearance along with modification-cum-expansion of the existing 2×5 MVA SAF to 2×6 MVA SAF, modification of existing 1×7.5 MVA SAF capacity to 1×9 MVA SAF capacity to increase the production capacity of SiMn or FeMn. The details about the configuration and production of existing + proposed project are presented earlier. The details regarding construction work carried out prior EC are given below:



Bihar Foundry & Casting Limited (BFCL) Ferro-Alloy Plant

1	Company Name	M/s. Bihar Foundry & Casting Limited
2	Location	Survey Plot No. 1405 (P), Ramgarh Industrial Area, Village - Marar, Ramgarh District, Jharkhand
3	Total Plant Area	3.14 Ha.
4	Construction made (Prior EC)	One New 1×9 MVA SAF (5 th) and CLU converter
5	Construction Period	- New SAF 1×9 MVA : 1st Nov. 2021 to Jan. 2022 - CLU converter : 1st January 2022 to 02.08.2022
6	Actual working days	- One New SAF 1×9 : 65 days - One CLU converter : 186 days
7	Number of workers engaged for construction	- New SAF 1×9 MVA : 100 (civil + Engineering) - CLU converter : 140 (70 civil + 70 mechanical)
8	Water Required during construction and Domestic use	- New SAF 1×9 MVA : 15 m³/d (construction) + 5 m³/d domestic = 20 m³/d - One CLU converter : 10 m³/d domestic and 10 m³/d construction = 20 m³/d
9	RCC / PCC work / Material used	(A) One New 1×9 MVA SAF (RCC/PCC Work) - Furnace column foundation PCC : 34.685 cum - Cooling tower PCC : 9.24 cum - RMHS Foundation PCC : 9.09 cum - GCP Column Foundation PCC : 7.636 - RMHS : 86.067 cum - Cooling tower : 154.51 cum - Day bin : 28.306 cum - GCP : 63.115 cum - Tapping chamber : 30.86 cum - ID Fan : 33.79 cum - Shell : 156.055 cum - Column Foundation : 241.788 cum - Slab and beam : 222.263 cum - Incasing : 8.148 cum - Floor PCC : 37 cum - Total (B) ONE CLU Converter - Steel 200 MT : 255.04 - Cement in Bags : 34900 - Sand and Aggregate (2010.04×5400 = 10854000 cum structural steel Fabrication in MT : 1200 - Structural Steel Erection : 750 - Concrete Volume : 2010.04 cum - Paint (red oxide & oil paints) 200 liters - Oil & Lubricants 2 MT - Miscellaneous materials like water proofing chemicals, welding rods, oxygen and acetylene gas cylinders etc 2 MT (Lump sum / Lot)

13.4 NEED OF THE STUDY

The terms of reference granted to the project under the provision of MOFECC's notification 2006 regarding conducting EIA study for obtaining environmental clearance to the project considering violation of EIA notification 2006 and its subsequent amendments. The EIA studies were carried out and the report was prepared including separate chapter on environmental damages done during construction of one new 1×9 MVA SAF and one CLU (under violation) and their remediation with natural and community as resource augmentation plan as given below:

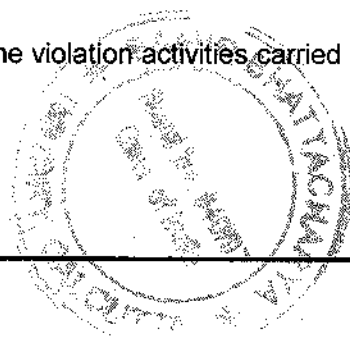
- Assessment of damage done with respect to environmental attributes air, noise, water, land, ecology and other environmental attributes.
- A remediation plan and natural community resource augmentation plan to be prepared corresponding to the ecological damage assessed due to violation.

13.5 OBJECTIVE OF THE STUDY

The objective of Damage Assessment Report (DAR) and Natural Community Resource Augmentation Plan (NCRAP) includes the study of effects which are caused by change in the environment due to the project activities and to identify the corrective measures to compensate or replace those resources such as land, air, water and others in order to mitigate the adverse effects on such resources. The damage is assessed based on negative changes brought on the various environmental aspects due to construction work carried out under violation.

However, any industrial activity does threat on the environment due to the construction of the new unit, and its operation, a remediation plan is necessary. Also, a Natural and Community Resource Augmentation Plan (NCRAP) is required to pay for the ecological damages as well as economic benefits derived at the cost of the environment and the local community. Both of these, with respect to violation unit, have been elaborated in the subsequent sections.

The following studies were carried out with respect to the violation activities carried out prior to get Environmental clearance.



- Ecological / environmental damage assessment.
- Remediation plan.
- The Natural and Community Resource Augmentation Plan.

13.6 ECOLOGICAL DAMAGE ASSESSMENT AND REMEDIATION PLAN

The assessment of environmental damages caused due to construction activity under violation of the regulatory framework needs to be measured or quantify across different aspects viz. biotic and abiotic environment and social environment. The environmental damage assessments have studied for the following parameters:

- Air Environment
- Water Environment
- Ecological Environment
- Noise Environment
- Land Environment
- Socio-economic Environment

13.7 AIR ENVIRONMENT : DAMAGE ASSESSMENT AND REMEDIATION PLAN

Construction Phase : Impacts occurred on air environment due to constructional activities (i) New SAF (1×9 MVA) under violation have been studied and accordingly damage assessment has been carried out thereby remediation plan has been given. The details of the various components and aspects considered are given below :

Components & Aspects for Air Environment

Sr. No.	Component / Aspect
1	Impact / Pollution
2	Probable Mitigation Measures
3	Remediation Plan
4	Remediation Plan cost consideration
5	Total Cost

(a) Impacts on ambient air during construction phase (New 5th SAF 1×9 MVA)

A New SAF (1×9 MVA) was constructed in an area of 892 Sq. m. out of 29100 Sq. m. for carrying out construction activities, excavation was carried out. During construction dust and gaseous emissions may cause health problem in the form of respiratory problem, eyes irritation etc. The construction activities were carried out from

Bihar Foundry & Casting Limited (BFCL) Ferro-Alloy Plant

1st November 2021 to Jan. 2022 in 892 Sq. mt. area for construction of New SAF 1×9 MVA. The impact on ambient air quality was due to excavation, loading and unloading activities and transportation.

The ambient air quality was monitored during the construction period at plant site and surrounding locations for conventional Parameters viz. PM₁₀, PM_{2.5}, SO₂ and NO_x and observed PM₁₀ 89.52 ug/m³, PM_{2.5} 51.73 ug/m³, SO₂ level 12.40 ug/m³ and NO_x 36.25 ug/m³ indicating that during the construction period, the ambient air quality was within the NAAQ Standards and there was no significant impact on the surrounding area. However during excavation and transportation fugitive dust emission was there and may impact on the workers working during construction phase.

(b) Impacts on ambient air during construction phase (New CLU Converter)

A New CLU Converter was constructed in an area of 1833 Sq. m including CLU building and cooling tower out of 31400 Sq. m for carrying out construction activities. Excavation was carried out. During construction, dust and gaseous emissions may cause health problem in the form of respiratory problem and eyes irritation etc. The construction activities were carried out from 1st Jan 2022 to 2nd Aug 2022 in 1833 Sq. m area for construction of CLU. The impact on ambient air quality was due to excavation, loading and unloading activities and transportation.

The ambient air quality was monitored during the construction period at project site and surrounding locations for conventional parameters viz. PM₁₀, PM_{2.5}, SO₂ and NO_x and ranged between PM₁₀ : 80.09 to 89.52 ug/m³, PM_{2.5} : 48.17 to 53.53 ug/m³, SO₂ : 7.69 to 12.40 ug/m³ and NO_x ranged from 26.55 to 36.25 ug/m³ indicating that during the construction period, the ambient air quality was within the NAAQ standards and there was no significant impact on the surrounding area. However during excavation and transportation fugitive dust emission was there and may impact on the workers working during construction phase.

Emission Load during construction (Violation period)

Sources of Emissions : Main sources of emissions were particulate matter and gaseous during excavation and transportation. However the construction activities were for short duration and regular water sprinkling were in operation to suppress

the dust emission. Hence no significant emission load with respect to PM and SO₂, NO_x was observed during the construction phase.

Measures : Materials required for construction were stored only within the marked area and wastes prohibited. The earth work was done in a discrete manner, Regular water sprinkling was in practice. Regular servicing of Machineries and vehicles were ensured. However there were no barricades in the construction areas to restrict the fugitive dust emission and noise.

Remediation Plan with cost Estimate

- (1) Dust suppression through water sprinkling system during construction of a new SAF 1×9 MVA consisting of

Particulars	Cost Estimate	
	For SAF (1×9 MVA)	For CLU
Water Sprinkler Nozzles 20+10 Nos. Additional for CLU @ Rs. 1000 / No.	Rs. 20,000 /-	Rs. 10,000 /- (Additional)
Twin Filtration system 1 No. @ Rs. 15,000/-	Rs. 15,000 /-	-
Pump @ Rs. 10,000/- 1 No.	Rs. 10,000 /-	-
Water distribution pipeline 200+100m additional for CLU m@ Rs. 105/M	Rs. 21,000 /-	Rs. 10,500 /- (Additional)
MS framed in surrounding construction area vertical barricates Total No. of Barricades 100+100 additional for CLU @ Rs. 400/- barricade	Rs. 40,000 /-	Rs. 40,000 /- (Additional)
Total Remediation cost.	Rs. 1,06,000 /-	Rs. 60,500 /-

Note : The water sprinkler system used for dust suppression during excavation for construction of SAF was used for CLU construction activities for dust suppression with some addition since excavation area and duration of time of excavation was different.

Total Remediation cost 1 + 2 i.e. Rs. 1,06,000 + Rs. 60,500 = Rs. 1,66,500/-

13.8 NOISE ENVIRONMENT

Damage Assessment and Remediation plan. The physical description of sound concerns its loudness as a function of frequency. Noise in general is sound which is composed of many frequency range. The impact of noise sources on surrounding community depends on :

Bihar Foundry & Casting Limited (BFCL) Ferro-Alloy Plant

- Characteristics of noise sources (instantaneous, intermittent or continuous). It can be observed that steady noise is not as annoying as one which continuously varying in loudness.
- The location of the noise source with respect to noise sensitive land use, which determines the loudness and period of exposure.

Components and Aspects for Noise Environment.

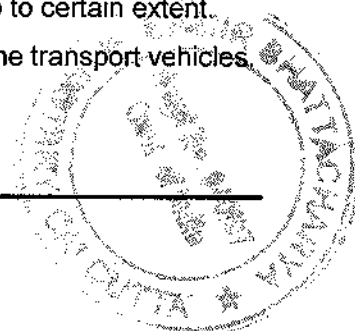
Sr. No.	Component / Aspect
1	Impact / Pollution
2	Probable mitigation measures
3	Remediation plan
4	Remediation plan cost estimates
5	Total remediation cost in Rs.

Impact / Pollution during Construction Phase

Construction Activities were carried out for erection of a new SAF (1×9 MVA) in 892 Sq. m. area out of 31400 sq. m. area in possession in Ramgarh Industrial Area, Village Marar, Jharkhand and 1833 Sq. m area for construction of CLU. Impact on construction workers due to construction activities and nearby habitation due to transportation of construction materials. There would have been some noise generation due to use of excavator and transportation vehicles. Noise monitoring was carried out at plant site and surrounding during construction period (1st November 2021 to Jan 2022) and during Jan 2022 to August 2022 for CLU construction indicating that noise levels at the surrounding location were ranging from 43.6 dB (A) to 46.7 in day time and 36.4 to 39.2 dB (A) in night time. The noise levels monitored at work zone locations were 70.6 dB (A) to 74.6 dB (A) in day time and 60.4 dB (A) to 62.4 dB (A) at night time which is within the prescribed standards of CPCB. The noise levels in the surrounding area were low due to low transportation activities and restriction to work at night time.

Probable Mitigation measures

- Plantation or greenbelt within and around the plant area up to certain extent.
- Use of PUC certified vehicles and proper maintenance of the transport vehicles.
- Provision of PPE's to the construction workers.
- No construction work at night time.



Remediation Plan

Total Number of workers involved in construction activities were 240 for construction of New SAF and CLU. PPEs in the form of Helmet, Boots, handgloves and earmuffs were essential to project the workers health. Moreover development of green belt to the tune of 40% of the total area acquired. Total area is 29100 sq. m. (2.91 Ha), So, plantation and greenbelt within and around the plant area should have been 40% i.e. 1.17 Ha @ 2500 trees per hectare and approximately 2925 trees should be planted. At present 1769 trees plantation has been carried out and deficiency of a plantation and green belt within and around the plant area is plantation of 1156 trees.

Damage Cost

Cost of PPEs for 240 workers @ Rs. 1000 per person	Rs. 2,40,000
Deficiency of plantation and green belt within and around the plant area i.e. 1156 plants @ Rs. 500 per plant	Rs. 5,78,000
Total	Rs. 8,18,000

Remediation Plan Cost

(A) Greenbelt Development

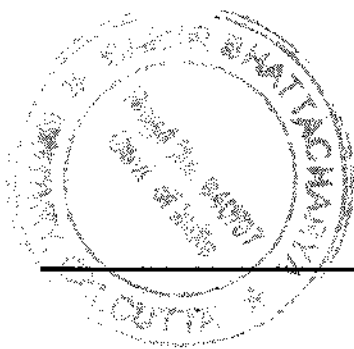
- For plantation and green belt development cost, provision has been made in EMP cost i.e. Rs. 16 lakhs for 2925 trees with maintenance. **So Remediation plan cost for above is considered as Nil.**

(B) Remediation Plan cost is applicable here as PPEs were not provided to the workers working for construction of a New SAF 1×9 MVA and CLU converter.

Cost of PPE_s for 240 workers @ Rs. 1000 per person = Rs. 2,40,000

Total Remediation cost : A = Nil as provision in EMP
 B = Rs. 2,40,000
 (A+B) = Nil + Rs. 2,40,000
 = Rs. 2,40,000

(Signature)



13.9 WATER ENVIRONMENT : DAMAGE ASSESSMENT AND REMEDIATION PLAN

Damage Assessment

Damage Assessment during construction of a New SAF (1×9 MVA) and CLU

Construction activities were carried out from 1st Nov. 2021 to Jan. 2022 for the construction of a new SAF (1×9 MVA) and Jan. 2022 to August 2022 prior to environmental clearance and considered under violation of MOEF & CC'S notification 2006. Total 240 number of workers (100+240) involved in construction of both in 891 and 1833 Sq. m. area out of 29100 Sq. m of total area under possession : total No. of working days were 75 and 214 respectively for construction.

Water requirement / consumption was for construction and domestic use. There has been the possibility of change in water quality (surface and groundwater) due to spillages and wastewater generation through runoff and seepages. However it was observed that there was no deterioration of surface and ground water quality as shown in the monitoring results of water (surface and ground) quality during construction of both (SAF & CLU). The results of physico-chemical characteristics of ground water (bore wells 1 & 2) showed pH in the range of 6.80 to 6.82, total dissolved solids ranged from 780 to 810 mg/l, Hardness in the range of 210 to 230 mg/l, Sulphate ranged from 71.80 to 76.50 mg/l and chloride ranged from 64.4 to 71.69 mg/l respectively indicating water is good physico-chemically with no coliform bacteriologically. Similarly surface water (Domodar River) quality was found to be good physico-chemically and within the limits/standards of drinking water (IS-10500, 2012). But contaminated bacteriologically and need disinfection before consumption. The quality of waste water (Settling Tank) was also found within the prescribed norms of SPCB with respect to pH, TSS, oil and grease, COD and BOD and TDS. Since ZLD will be adopted by the industry, No deterioration is envisaged in surface and ground water. The wastewater quality is shown below:

W.W.	Results	Norms
pH	7.14	5.5 - 9.0
TSS	21 mg/l	100 (mg/l)
Oils & grease	2.0 mg/l	10 (mg/l)
COD	58 mg/l	250 (mg/l)
BOD	11 mg/l	30 (mg/l)
TDS	560 mg/l	-

Bihar Foundry & Casting Limited (BFCL) Ferro-Alloy Plant

Damage Assessment cost calculation (New SAF and CLU)

(A) For SAF Construction

		Damage Cost
No. of Construction Workers	100	
No. of working days for construction	- Construction – 65 days - Domestic / Drinking – 75 days	
Water consumed for spraying and sprinkling for dust suppression (12m³/d)	12 × 75 = 900 m ³	@ Rs. 25/- m ³ being critical area = Rs. 22500/-
Actual construction work at site for curing concrete, masonry work, washing and cleaning floor areas (15 m³/d) for 65 days.	15 × 65 = 975 m ³	@ Rs. 25/- per m ³ being critical area = 975 × 25 = Rs. 24375/-
Domestic/Drinking purpose (5 m³/d) for 75 days	5 × 75 = 375 m ³	@ Rs. 25/- per m ³ , being critical area = 375 × 25 = Rs. 9375
		Total Damage Cost = Rs. 56,250/-

(B) For CLU Construction

		Damage Cost
No. of Construction Workers	140	
No. of working days for construction	- Construction – 186 days - Domestic – 214 days	
Water consumed for spraying and sprinkling for dust suppression (Nil, as mentioned above in A)	As mentioned in above (A)	As mentioned in above (A)
Actual construction work at site for curing concrete, masonry work, washing and cleaning floor areas (10 m³/d) for 186 days.	10 × 186 = 1860 m ³ @Rs. 25/- m ³ being critical area	1860 × 25 = Rs. 46500/-
Domestic/Drinking	7 × 214 = 1498 m ³	1498 × 25

Bihar Foundary & Casting Limited (BFCL) Ferro-Alloy Plant

purpose (6 m ³ /d) for 214 days for 140 workers	@ Rs. 25/- m ³ being critical area	= Rs. 37,450/-
		Total Damage Cost = Rs. 83950/-

Total Damage cost for water consumed
During construction of one New SAF (1×9 MVA) and CLU

$$= A + B = \text{Rs. } 56,250 + 83,950 = \text{Rs. } 1,40,200/-$$

Loss of Rainwater

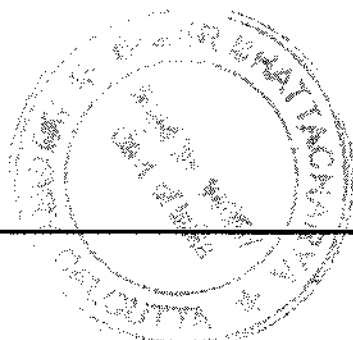
Rainwater Harvesting At Plant

Sr. No.	Particular	Area in Sq. m	Runoff coefficient	Average Rainfall	Runoff volume (m ³)
1	Built-up Area	19149.79	0.85	1121.60	18246.55
2	Internal Roads	3076.92	0.40	1121.60	1379.69
3	Green belt / plantation Area	7935.22	0.40	1121.60	3558.15
4	Open Area	1255.06	0.20	1121.60	281.38
Total Rainwater					23466.1 m ³

At present, existing rainwater Harvesting done of 17760 m³. So deficiate rainwater harvesting is 57061.1 m³ for which additional provision is made in EMP with a cost of Rs. 10 lakhs. So Damage cost towards rainwater harvesting is considered as NIL.

Probable Mitigation Measures

The effluents generated from the construction workers during construction period of New SAF is estimated to be 4 m³/d and 5.6 m³/d during the construction period of CLU. It is sent to soak pit / septic tank or portable type of STP for treatment.



Bihar Foundry & Casting Limited (BFCL) Ferro-Alloy Plant

Remediation Plan and its Cost Consideration

Sr. No.	Remediation Plan details	Remediation Plan Cost Considerations (Rs.)
1	Construction of Rain water Harvesting structure and storage tank to harvest rain water	Considered in EMP Cost (Approx. Rs. 10 lakhs)
2	STP / ETP for domestic waste treatment and effluent treatment plant (as per manpower)	Provision has been made in EMP cost for STP (Approx. 40 lakhs)
	So, Damage Cost for Water Environment Remediation Cost	Rs. 6,46,450/- Provision made in EMP cost.

13.10 LAND ENVIRONMENT (DAMAGE ASSESSMENT AND REMEDIATION PLAN)

Site Specific features.

- Site for BFCL (Ferro-Alloy) is in Ramgarh Industrial Area which has a plain topography.
- No Agriculture activities at the site.
- No forest land is involved.
- No plantation available at site, No cutting of trees.
- No surface water bodies available at site.

Impact due to change in Land use / Land cover

Total land area for the plant at Ramgarh Industrial Area is 29100 Sq. m (2.91 Ha.) acquired by M/s BFCL Ferro-Alloys, out of acquired land, 2361.646 m³ excavation was carried out for construction of new SAF and 34949.67 m³ excavation was carried out for CLU construction under violation. Top soil loss is 472.32 m³ in case of new SAF construction and 789.99 m³ in case of CLU construction which is a medium productive soil as per the soil analysis report. There was improper storage of excavated soil and loss of soil quality with chocking of drains due to surface runoff in rainy season with loss of surface soil. There was soil deterioration due to contamination of solid wastes generation and improper disposal of solid wastes generated during of construction activities and increase in nuisance value.

Physico-Chemical Characteristics

Texture	:	Sandy loam
Moisture	:	6.2 %
Bulk Density	:	1.44 gm / cc
Water Holding Capacity	:	28.69 %
pH (at 25°C)	:	6.78
Electrical conductivity	:	0.326 mS / cm
Available Nitrogen	:	236.24 kg / ha
Available Phosphorous	:	22.51 kg / ha
Available Potassium	:	133.36 kg / ha
Organic Matter	:	0.63 %
Sodium Absorption Ratio	:	2.0

**Measures**

There should have been proper storage of top soil and its use for plantation.

Damage cost due to excavation of soil during construction of a New SAF (1× 9 MVA) and CLU**(A) During construction of New SAF (1×9 MVA)**

Top soil quantity	=	470.32 m ³
other Earth quantity	=	1891.32 m ³
damage cost of top soil loss	= 470.32 × 15	= Rs. 7054.8/-
damage cost of Remaining earth	= 1891.32 × 7.5	= Rs. 14184.9/-
Total Damage cost	= Rs. 7054.8 + Rs. 14184.9	= Rs. 21239.7/-

(B) During construction of CLU

Top soil quantity	=	789.99 m ³
other Earth quantity	=	3159.68 m ³
damage cost of top soil loss	= 789.99 × 15	= Rs. 11849.85/-
damage cost of Remaining earth	= 3159.68 × 7.5	= Rs. 23697.6/-
Total Damage cost	= Rs. 11849.85 + Rs. 23697.6	= Rs. 35547.45

So, Damage cost due to excavation for construction of New SAF (1×9 MVA) and CLU is $A + B = 21239.7 + Rs. 35547.45 = Rs. 56787.17$

Remediation Plan

There should have been provision of leachate / erosion proof storage facility in designated area for top soil and solid wastes of Rs. 30,000 each and importing productive soil for plantation.

Remediation plan cost

$$\text{Rs. 30,000} + \text{Rs. 30,000} = \text{Rs. 60,000/-}$$

13.11 DAMAGE ASSESSMENT AND REMEDIATION PLAN-SOLID AND HAZARDOUS WASTE

Solid wastes generated during the construction activities were the wastes constructed materials and the solid wastes generated from the workers engaged in construction. These solid wastes if not managed properly may deteriorate soil quality, contaminate water quality (surface and ground water) due to surface run off and leaching effect respectively. This will create odour problem in the surrounding area, and mosquito nuisance and ultimately lead to human health.

1. Solid Wastes Impacts / Pollution

- Contamination and deterioration of soil quality.
- Contamination of surface and ground water due to surface runoff and leaching effect.
- Create odour problem and mosquito nuisance
- Impact on human health

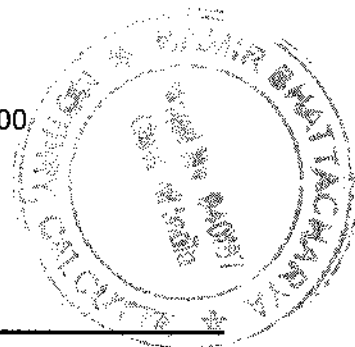
Measures

Proper collection, segregation, Transportation and disposal as per MOEFCC's notification 2016

Damage Assessment**(A) During construction of a New SAF (1×9 MVA)**

- Total number of workers involved in construction work = 100
- Number of construction working days = 65
- Solid wastes generation = $100 \times 0.2 \times 65 = 1300 \text{ kg}$

$$\text{Damage cost} = 1300 \times 10 = \text{Rs. 13000/-}$$



(B) During construction of CLU

- ✓ Total number of workers involved in construction work = 140
- ✓ Number of construction working days = 186
- ✓ Solid wastes generation = $140 \times 0.2 \times 186 = 5208$ kg
- ✓ Damage cost = $5208 \times 10 = \text{Rs. } 52080/-$
- ✓ **Proper collection and storage system was not observed as per notification 2016**

Damage cost :

Total solid waste generation during construction period of SAF and CLU = 1300
+ 5208 = 6508 kg

Total Damage Cost = $6508 \times 10 = \text{Rs. } 65080/-$

Remediation plan and cost

- ✓ Provision of coloured bins should have been there for collection of segregated wastes.
- ✓ Total number of coloured bins requirement = 30

Remediation Cost = $2000 \times 30 = \text{Rs. } 60,000/-$

So **1) Damage Cost = Rs. 65080/-**

2) Remediation Cost = Rs. 60,000/-

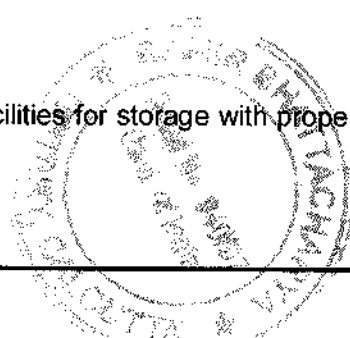
2. Hazardous wastes

Generation of hazardous wastes ie. empty cans of paints, warnish etc.

Impacts

Unmanaged dumping creates nuisance, handling may create toxicity and human health. There will be contamination of soil, toxicity effect on soil productivity and also on water. Effect on human health due to handling of paints, warnish and other chemicals etc.

Measures: Provision of secured leachate proof facilities for storage with proper handling at isolated area with fencing and display.



Bihar Foundry & Casting Limited (BFCL) Ferro-Alloy Plant

Damage cost of Hazardous wastes : Rs. 10,000 (Lump sum)

Total Damage cost of Solid and Hazardous wastes

1) Solid wastes	:	Rs. 65,080/-
2) Hazardous wastes	:	Rs. 10,000/- (Lump sum)
Total	:	Rs. 75,080/-

Remediation Plan and cost for Hazardous wastes

As mentioned there should be provision of secured leachate proof facilities for storage with proper handling at isolated area with fencing and display.

Remediation Cost : Rs. 50,000/- (Lump sum)

Total Remediation plan cost of solid and Hazardous wastes

1) Solid wastes	:	Rs. 60,000/-
2) Hazardous wastes	:	Rs. 50,000/-
Total Rs. 60,000 + Rs. 50,000 : Rs. 1,10,000/-		

13.12 ECOLOGICAL ENVIRONMENT (DAMAGE ASSESSMENT AND REMEDIATION PLAN)

Observations

- Land acquired by M/s BFCL in Ramgarh Industrial Area is 31400 Sq. m
- Land is barren / plain
- No plantation available in the plant area so no cutting of trees.
- No Forest area nearby and No wildlife or any sensitive flora and fauna

Damage Assessment (Deficiency in plantation)

Total Area acquired for plant is 29100 Sq. mt. As per the TOR & MOM, 40% of the total area i.e. 11700 sq. m area @ 2500 trees / ha i.e. 2925 trees should be used for plantation and greenbelt development. At present 1769 trees are planted in 0.7935 Ha. Area. The deficiency is 1156 trees to be planted in 0.4631 Ha. area within and around the plant site.

Bihar Foundry & Casting Limited (BFCL) Ferro-Alloy Plant

Damage Assessment cost

Total trees / plants to be planted in 0.4631 ha. area : 1156

Cost of per tree / plant with maintenance : Rs. 500

Cost of 1156 trees / plants with maintenance : $1156 \times 500 = \text{Rs. } 5,78,000$

Remediation plan with cost estimates

As per TOR / MOM, 1156 trees / plants should have been planted within and around the plant site which costs Rs. 5,78,000/-. Since the provision has been made in EMP of Rs. 10 lakhs to plant more than 2500 trees in and around the plant site NO remediation cost is applicable here. So remediation cost is considered as Nil here.

Damage Assessment and Remediation Plan: Socio-Economic Environment**Occupational Health and Amenities**

240 (100+140) constructional workers were involved in the construction activities (erection of new SAF and CLU). Health aspects and facilities to be given related to hygiene and sanitation for workers are very important and necessary to secure the health of the construction workers in the form of providing first-aid kit to the construction site and health check-up.

Impact on workers

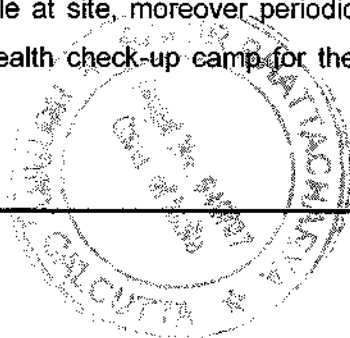
If proper facilities related to the safety, sanitation and hygiene are not maintained properly, there is possibility of impact on health of the workers involved in construction activities.

Mitigation Measures

Secure health related facilities to the construction workers.

Damage Assessment

Provision of first-aid kit should have been available at site, moreover periodic health check-up should have been there by arranging health check-up camp for the construction workers.



Bihar Foundry & Casting Limited (BFCL) Ferro-Alloy Plant

Damage Assessment Cost

Non availability of first-aid kit	=	Rs. 10,000
Non-arrangement of Health Check-up Camp	=	Rs. 15,000
Total Damage Cost	=	Rs. 25,000

Remediation Plan and cost

Provision of first-aid kit	=	Rs. 10,000
Health Check-up Camp for workers	=	Rs. 15,000
Provision of Medicines	=	Rs. 10,000
Total	=	Rs. 35,000
Total Damage Assessment Cost	=	Rs. 25,000
Total Remediation Cost	=	Rs. 35,000

13.13 DAMAGE ASSESSMENT AND REMEDIATION PLAN:**ENERGY CONSUMPTION**

The construction work was carried out for erection of new SAF and CLU for 65 and 186 days respectively prior to Environmental clearance. So energy / electricity was required in temporary houses for the workers and also for construction activities (welding etc.) So, there was consumption of electricity.

Assessment of Impact

There was loss of energy as consumed during the construction activities i.e. Impact on power generation and distribution system.

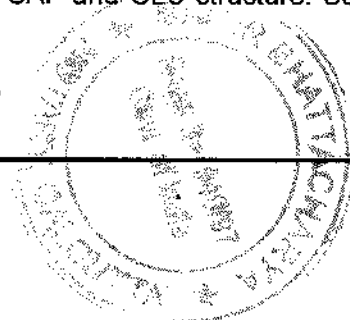
Damage Assessment

There was loss of energy due to supply in construction activities and also providing in temporary houses of workers. So extra load on distribution system.

Damage Cost

Total units consumed per 17 Nos welding machines with a consumption of 103 units per hour for a period of 4 hrs per day is estimated to be 412 units / day. Welding work was continued for 120 day both for erection of SAF and CLU structure. So total power consumption was $412 \times 120 = 49440$ units.

Damage cost = $49440 \times 4.70 = \text{Rs. } 232368/-$



Bihar Foundry & Casting Limited (BFCL) Ferro-Alloy Plant

Remediation plan and cost

Installation of Solar panels should have been done for supply of electricity to the construction activities and in temporary houses of the construction workers.

Remediation cost : Rs. 2,50,000/- (lumpsum)



Bihar Foundary & Casting Limited (BFCL) Ferro-Alloy Plant

Damage Assessment and Remediation Plan (Air Environment)

Sr. No.	Component/ Aspect	Causes of Impact/ Pollution	Probable Impact and Mitigation Measures	Remediation Plan	Remediation plan cost consideration	Total Cost New SAF (1×9 MVA)+CLU
1	Ambient Air	Air Emission from • Site preparation • Top soil removal (Excavation) • Heavy machinery movement • Vehicular movement	Dust generation, gaseous emission, impact on workers within the plant and surrounding, health affect. Measures • Materials required for construction were stored only within the marked area, wastes prohibited. • Earth work was done in discrete manner. • Regular water sprinkling. • Regular servicing of machineries and vehicles is ensured. • Non provision of Barricades.	• Dust suppression and water sprinkling system of construction site in vicinity and surrounding. • Providing wind breakers at construction site area. Provision of barricades in construction areas	Dust suppression through and water sprinkling system consists of : • Water sprinkler Nozzles • Twin Filtration System @ Rs. 15000 per pc • Pump @ Rs. 10000 • Water distribution pipeline 200m + 100m @ Rs. 105/m Total no. of barricades 200 @ Rs. 400 per barricade	Rs. 20,000 + 10,000=30,000/- (Additional) Rs. 15,000/- Rs. 10,000/- Rs. 21,000+ 10,500=31,500/- Rs. 200000 = Rs. 80,000/-

Total cost : Dust suppression / sprinkling + = Rs. 1,66,500/-
Provision of Barriers
Total
= Rs. 1.665 Lakhs

Bihar Foundary & Casting Limited (BFCL) Ferro-Alloy Plan

Damage Assessment and Remediation Plan (Noise Environment)

Sr. No.	Component/ Aspect	Causes of Impact/Pollution	Probable Impact and Mitigation Measures	Remediation Plan	Remediation Plan Cost Consideration	Total (Rs.)
2	Noise Environment	✓ Movement of construction equipment and machineries ✓ Construction Activities ✓ Movement of Transportation vehicles	✓ Noise generation and increase in noise levels ✓ Effect on health of workers and nearby villagers ✓ Measures ✓ Supply of PPEs to the workers involved in construction activities	✓ Supply of PPEs to the workers involved in construction ✓ Development of green belt in and around the plant site to attenuate the noise levels	Total No. of construction workers 240 PPEs in the form of Helmet, Boots, Hand-gloves and Ear-Muffs @ Rs. 1000/- per person For deficiate green belt/plantation	$240 \times 1000 = 2,40,000$ Rs. 5,78,000 provision in EMP

Total cost of Remediation Plan = Rs. 2,40,000/-



Bihar Foundry & Casting Limited (BFCL) Ferro-Alloy Plan

Damage Assessment and Remediation Plan (Water Environment)

Sr. No.	Component/ Aspect	Causes of Impact/ Pollution	Probable Impact and Mitigation Measures	Remediation Plan	Remediation Plan Cost Consideration	Total (Rs.)
3	Water Environment During Construction [A] For SAF (1×9 MVA) - Water consumption - Deterioration of water quality - Construction Work carried out for construction = 65 days - domestic/ drinking = 75 days - Total No. of workers and staff involved 100 [B] For CLU construction - Water consumption - Deterioration of water quality - Construction work carried out for 186 days - For drinking/ domestic - 214 days	- Consumption of fresh water during construction work. - Consumption of fresh water for temporary stay of construction workers for drinking and domestic purposes. - Generation of domestic waste water during construction phase.	[A] - About 15 m³/d fresh water was used for the construction activities. Construction work at site, for curing of concrete and masonry and water for washing and cleaning of floor areas. - Dust suppression, spraying and sprinkling (12 m³/d), actual - Water consumption for drinking and domestic purposes was (5 m³/d) - Total water consumed for domestic use for 100 workers for 75 days was = 375 m³ @ Rs. 25/- m³ being critical Area. - Generation of domestic waste during construction - Total water requirement for construction work = 975 m³ and sprinkling for dust suppression = 900	There should have been provision of portable	- During construction phase there should be provision of portable toilet - Provision is made in EMP for STP Rs. 40 lakhs.	15,000/- Provision in EMP for Rs. 40 Lakhs for STP.

Bihar Foundary & Casting Limited (BFCL) Ferro-Alloy Plan

Sr. No.	Component/ Aspect	Causes of Impact/ Pollution	Probable Impact and Mitigation Measures	Remediation Plan	Remediation Plan Cost Consideration	Total (Rs.)
			m³ and Mitigation Measures - The effluent generated from construction phase sent to soak-pit and septic tank or portable type STP. Damage cost - Total water consumed during construction phase (domestic + construction) = 900 + 975 + 375 = 2250 m³ Total damage cost for SAF construction = Rs. 22500 + Rs. 24375 + 9375 = Rs. 56,250 [B] - Water requirement for construction work at site for curing, concrete, masonry work and for washing and cleaning floor (10 m³/d for 186 days) = 1860 m³ - Water requirement for domestic / drinking (7 m³/d for 214 days and 140 workers = 1498 m³)			

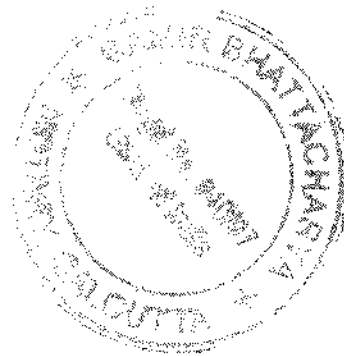
Bihar Foundary & Casting Limited (BFCL) Ferro-Alloy Plan

Sr. No.	Component/ Aspect	Causes of Impact/ Pollution	Probable Impact and Mitigation Measures	Remediation Plan	Remediation Plan Cost Consideration	Total (Rs.)
			Water requirement for spraying and sprinkling – NIL as provision is made in [A] Mitigation Measures The efficient generated from construction phase sent to septic tank / soak pit or portable STP. Damage Cost Total water consumed during construction phase (construction + domestic) = 1860 m³ + 1498 m³ = 3358 m³ Damage cost = 3358 × Rs. 25 = Rs. 83,950/- Total Damage cost for SAF and CLU construction = A + B = Rs. 56,250 + Rs. 83,950 = Rs. 1,40,200/-			

Bihar Foundary & Casting Limited (BFCL) Ferro-Alloy Plant

Sr. No.	Component/ Aspect	Causes of Impact/ Pollution	Probable Impact and Mitigation Measures	Remediation Plan	Remediation Plan Cost Consideration	Total (Rs.)
	Surface water damage (run off)	✓ Loss of rain water ✓ Deterioration of water quality if not managed properly after mixing with the water body ✓ Loss in groundwater recharging	Provision of Rainwater harvesting ✓ Rainwater from roof top area, open space, paved road and green belt area ✓ Total Rainwater = 23466.1 m³. ✓ As present existing RWH done of 17760 m³. So, deficiate rainwater harvesting is 5706 m³	✓ Rain water harvesting structure (tanks) of 500 m³ (10mϕ 10mϕ 3m)	This is considered in EMP as provision is made for Rs. 10 lakhs.	NIL as provision is made for Rs. 10 lakhs.

Total remediation cost for water environment = Rs. 15000 = Rs. 0.15 lakhs + Provision in EMP for Rs. 40 lakhs for STP and ETP



Bihar Foundary & Casting Limited (BFCL) Ferro-Alloy Plant

Damage Assessment and Remediation Plan -- Land Environment

Sr. No.	Component/ Aspect FOR SAF (1x9 MVA) construction and CLU construction	Causes of Impact/ Pollution	Probable Impact and Mitigation Measures	Remediation Plan	Remediation Plan Cost Consideration	Total (Rs.)
4a	Land Environment Soil (Excavation) Total Area = 31400 sq.m.	- Improper storage of excavated soil - Loss of soil quality (texture, fertility and productivity) - Chocking of drains due to surface run off in rainy season. - Loss of Productive surface soil	- Change in soil quality. (excavation of top soil) - Soil degradation - Overflow of drains due to chocking with soil during rainy season.	Providing leachate/ erosion proof storage facility in designated area for top soil and other wastes materials storages	Rs. 60,000	Rs. 60,000
4b	- Total Excavation for New SAF = 2361.646 m³ - Total Excavation for CLU construction = 3949.67m³ - Top soil loss : 472.32 m³ for SAF construction and 789.99 m³ for CLU construction	- Soil contamination due to improper disposal of waste during construction phase - Soil contamination due to improper disposal of construction wastes	- Effect on plant growth - Increase in nuisance value Measures - Proper storage of top soil and its use for plantation [A] Damage cost for SAF Topsoil = 472.32 m³ Cost 472.32 @ 75=Rs. 7054.8 Remaining earth = 1891.32m³ (rate Rs. 7.5/- per m³) Cost = Rs. 14184.9 Total damage cost = Rs. 7054.8 + 14184.9 = Rs. 21239.7			

[B] Damage cost for
CLU construction
Topsoil = 789.99 m^3
Cost $789.99 \times 5 = \text{Rs.}$
 11849.85
Remaining earth =
 3159.68 m^3
Cost = $3159.68 \times 7.5 =$
 $\text{Rs. } 23697.6$
Total damage cost
= $\text{Rs. } 11849.85 + \text{Rs.}$
 $23697.6 = \text{Rs. } 35547.45$
Total Damage Cost
= A + B
= $\text{Rs. } 21239.7 + \text{Rs.}$
 35547.45
= $\text{Rs. } 56787.17$

Total cost of remediation plan = Rs. 60,000/-



Bihar Foundary & Casting Limited (BFCL) Ferro-Alloy Plant

Damage Assessment and Remediation Plan – Ecology

Sr. No.	Component/ Aspect	Causes of Impact/ Pollution	Probable Impact and Mitigation Measures	Remediation Plan	Remediation Plan Cost Consideration	Total (Rs.)
5	Biological Env.	- Site clearance - Cutting of existing trees/ shrubs/ herbs/ grasses	- Loss of vegetation in project site - Loss of shrubs/herbs/ grasses - Habitat loss of fauna specially to reptile and avi-fauna - Improper aesthetic atmosphere - Non availability of GB and plantation in and around plant site Measures - Plantation and greenbelt requirement as per MOEFCC EIA notification - No loss of vegetation as the plant site area is barren Damage Cost - As per TOR/MOM, 40% of the total area should have been covered in and around the plant area which	- No loss of vegetation as the plant site area / constructed area was barren - Provision has been made in EMP of Rs. 10 lakhs for plantation and greenbelt in and around the plant site - However, plantation in the plant area and around the plant is proposed in EMP provision of more than 2500 trees is proposed.	For plantation and green belt in and around plant site. Provision is made in EMP of Rs. 10 lakhs.	NIL (no cost) as Provision is made in EMP cost, for Rs. 1 lakhs.

		was not observed. Total land acquired is 2.91 Ha. 40% of this is 1.17 Ha. So plantation and greenbelt development should have been in 1.17 Ha area.	
		Total No. of trees to be planted 2925 Existing plantation carried out within and around plant site in 0.7935 Ha. Area was 1769 tree. Deficiate plantation to be carried out 1156 trees in 0.4631 Ha. Area @ Rs. 500 per tree. Damage Cost = Rs. 578000 = 5.78 lakhs	

Total cost of remediation plan for ecology = NIL as Provision is made in EMP for Rs. 10 lakhs

Damage Assessment and Remediation Plan – Solid & Hazardous Waste

Sr. No.	Component/ Aspect	Causes of Impact/ Pollution	Probable Impact and Mitigation Measures	Remediation Plan	Remediation Plan Cost Consideration	Total (Rs.)
[A]	Solid Waste during construction of New SAF	Dumping of solid wastes generated during construction	Contamination of soil/soil quality	Providing coloured separate Bins as per guidelines for storage of segregated solid wastes	Total number of bins = 30 @ Rs. 2000/- per bin	30 @ 2000 = Rs. 60,000/-
	During construction Workers = 100	Generation of solid wastes from construction workers	Leaching of organics and inorganic from solid wastes and contamination of ground water			
	Solid wastes generation = 100 @ 20 kg/day = 20 kg/day during construction phase	Contamination of soil due to spread of solid wastes generated from construction workers and during construction	Contamination of surface water due to surface run off during rainy season			
	Number of working days 65.		Odour nuisance in the surrounding area			
	Total Solid wastes generation 20 @ 85 = 1300 kg/d	Leaching of organics and inorganic from solid wastes and contamination of ground water	Mosquito nuisance and health impact			
[B]	Solid waste generation during CLU construction	Contamination of surface water due to surface runoff during rainy season	Proper collection, segregation, disposal system as per solid & Hazardous notification 2016.			
	Total Number of workers = 140		Treatment of organic wastes via composting/ vermin-composting			
	No. of construction		Handling of			

Bihar Foundary & Casting Limited (BFCL) Ferro-Alloy Plan

Sr. No.	Component/ Aspect	Causes of Impact/ Pollution	Probable Impact and Mitigation Measures	Remediation Plan	Remediation Plan Cost Consideration	Total (Rs.)
	working days = 186 Solid wastes generation = 5208 kg		inorganics to authorized recyclers Damage cost due to non-provision of collection/ treatment system during construction phase of New SAF and CLU Total Damage cost = Rs. 52080 + 130000 = Rs. 65080/-			
2	Hazardous wastes	- Generation of hazardous wastes i.e. empty cans of paints, warmish, etc. - Unmanaged dumping	- Unmanaged dumping, nuisance creation, toxicity, health effect - Contamination of solid and water - Effect on flora and fauna - Health effect due to handling of paints, warmish and chemicals, etc. Measures - Providing leachate proof and isolated storage facilities - Damage cost of Hazardous waste =	Secured leachate proof facilities for storage	Separate and secured leachate proof facilities with safety barricades	Rs. 50,000 (Lumpsum)

Bihar Foundary & Casting Limited (BFCL) Ferro-Alloy Plan

Sr. No.	Component/ Aspect	Causes of Impact/ Pollution	Probable Impact and Mitigation Measures	Remediation Plan	Remediation Plan Cost Consideration	Total (Rs.)
			Rs. 10,000 (lumpsum) Total damage cost (solid+ Hazardous waste) = Rs. 65,080 + 10,000 = Rs. 75,080/-			

Total cost of remediation plan for solid + hazardous waste = Rs. 60,000 + Rs. 50,000 = Rs. 1,10,000/- = Rs. 1.10 lakhs



Bihar Foundary & Casting Limited (BFCL) Ferro-Alloy Plan

Damage Assessment and Remediation Plan – Socio-economic Environment

Sr. No.	Component/ Aspect	Causes of Impact/ Pollution	Probable Impact and Mitigation Measures	Remediation Plan	Remediation Plan Cost Consideration	Total (Rs.)
1	Occupational Health and Amenities	Health aspects of the construction workers and facilities regarding hygiene and sanitation	- Secure facilities to the construction workers Damage Cost - Non-availability of first-aid kit for constructional workers = Rs. 10,000 - Non-arrangement of Health check-up camp = Rs. 15,000 Total Damage Cost = Rs. 25,000/-	- Providing first-aid kit to the construction site - Health check-up camp for the workers with supply of medicines	Rs. 10,000/- Rs. 25,000/-	Rs. 10,000/- Rs. 25,000/-

Total cost of remediation plan for socio-economic = Rs. 10,000/- + Rs. 25,000/- = Rs. 35,000/- = Rs. 0.35 lakhs

Bihar Foundary & Casting Limited (BFCL) Ferro-Alloy Plan

Damage Assessment and Remediation Plan – Energy Consumption

Sr. No.	Component/ Aspect	Causes of Impact/ Pollution	Probable Impact and Mitigation Measures	Remediation Plan	Remediation Plan Cost Consideration	Total (Rs.)
1	Energy consumed during construction	- Loss of energy - Consumption of energy	Impact on power generation : Loss of Energy Total units consumed per 17 no. welding machines with consumption of 103 units per hour for a period of 4 hrs. per day is estimated to 412 units/day. Welding work was continued for 120 days for both erection of new SAF and CLU under violation. So total power consumed = $412 \times 120 = 49440$ units. Damage cost Total power consumed 49440 units @ Rs. 4.70/unit = $49440 \times 4.70 =$ Rs. 2,32,368/-	Installation of solar system (panels)	Solar panels	Rs. 2,50,000/- (lumpsum)

Total cost of remediation plan – Rs. 2,50,000/-

Bihar Foundary & Casting Limited (BFCL) Ferro-Alloy Plant

Total Damage and Remediation cost for construction activities carried out under violation

Sr. No.	Environmental Component	Total Damage Cost (Rs.)	Total Remediation Plan Cost (Rs.)
1	Air Environment	No damage cost as water sprinkling was there to suppress emitted dust during excavation for construction	Rs. 1,66,500 for sprinklers and baricades
2	Noise Environment	Non-availability of PPEs	Rs. 2,40,000/-
3	Water Environment	Rs. 1,40,200/- for water consumed for SAF and CLU construction and domestic/drinking use.	Rs. 50,00,000 (considering provisions made in EMP for STP/ETP & RWH. Rs 40 Lakhs for STP/ETP & Rs. 10 Lakhs for RWH).
4	Land Environment	Rs. 56,787/-	Rs. 60,000/-
5	Solid & Hazardous waste	Rs. 65,080/-	Rs. 70,000/-
6	Biological Environment	Deficiate plantation and greenbelt in and around the plant (1156 trees in 0.4631 Ha) Rs. 5,78,000/-	Rs. 10,00,000 (10.0 lakhs) for plantation and green belt in and around the plant (provision in EMP)
7	Socio-economic Environment (occupational health)	25,000/-	Rs. 35,000/-
8	Energy Consumption	Rs. 2,32,368/-	Rs. 2,50,000/- solar system
	Total	Rs. 60,97,435	Rs. 68,21,500 (out of which 50 lakhs provision for STP, ETP, RWH and plantation and 10 Lakhs for greenbelt in and around plant site) NET AMOUNT: Rs. 8,21,500

Bihar Foundry & Casting Limited (BFCL) Ferro-Alloy Plant

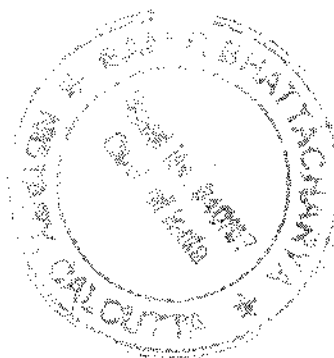
Remediation Plan and Budgetary Provisions for 3 years

Sr. No.	Environmental component	Activities Proposed	Budgetary provision			Total (in Rs.)
			1st Year	2nd Year	3rd Year	
1.	Air Environment a) Ambient Air b) Air Pollution	- Dust Suppression and water sprinkling. - Provision of Barricades	65,000	55,000	46,500	1,66,500
2	Noise Environment	Supply of personnel protective equipments	1,00,000	80,000	60,000	2,40,000
3	Water Environment	☐ STP and ETP ☐ Rain water harvesting structure	50,00,000	----	----	50,00,000
4	Land Environment	Leachate proof storage facility for productive soil and waste material	20,000	20,000	20,000	60,000
5	Ecology	G.B. and plantation in and around plant site Provision made in EMP for Rs. 10 lakhs	10,00,000	-----	----	10,00,000
6	Solid and hazardous waste	- Provision of coloured bins - Provision of storage facility	25,000	25,000	20,000	70,000
7	Socio-economic (occupational health)	First aid kit and health check up	20,000	10,000	5,000	35,000
8	Energy consumption	Construction of Solar panels	1,00,000	1,00,000	50,000	2,50,000
		TOTAL	63,30,000	2,90,000	2,01,500	68,21,500

Natural Resources Augmentation Plan

Sr. No.	Activities Proposed	Yearwise Implementation and Budgetary provision in Rs.			Total cost (Rs.)
		1 st Year	2 nd Year	3 rd Year	
1.	Development of Greenery in the surrounding area and road side plantation (along the state highway abutting the project side (100 trees in the surrounding area and 100 trees roadside Total 200 with maintenance @ 500/- per tree, total cost Rs. 1,00,000/-)	50,000	25,000	25,000	1,00,000
2	Provision of drinking water facilities through hand pumps/ dugwells/ tubewells (hand pump/ well per year in the nearby villages each year with maintenance) i.e. two tubewells per village in 3 villages	30,000	30,000	30,000	90,000
3	Repair and maintenance of roads in the nearby 6 villages with the help of gram panchayat considering 2 villages each year	40,000	40,000	40,000	1,20,000
	TOTAL	1,20,000	95,000	95,000	3,10,000

Total Budget for natural augmentation plan = Rs. 3,10,000/-



Bihar Foundry & Casting Limited (BFCL) Ferro-Alloy Plant

Community Welfare Augmentation Plan

Sr. No.	Activities Proposed	Year wise Implementation and Budgetary provision in Rs.			Total cost (Rs.)
		1 st Year	2 nd Year	3 rd Year	
1.	Development of sanitation facilities in (provision of 2 toilets in each village)	2,00,000	2,00,000	2,00,000	6,00,000
2	Medical check-up camp in nearby areas for villages and supply of medicines (2 villages per year)	1,00,000	1,00,000	1,00,000	3,00,000
3	Assistance in providing study materials, uniforms, books to the poor students (50 students) each year	50,000	50,000	50,000	1,50,000
	TOTAL	3,50,000	3,50,000	3,50,000	10,50,000

Total = Rs. 10,50,000

Total Budget for community augmentation plan = 10.50 lakhs

Summary of Remediation plan, Natural Resource and Community Augmentation Plan

Sr. No.	Activity Proposed	Total (Rs.)
1.	Cost of damage / Remediation plan	8,21,500 (excluding provisions of EMP cost of Rs. 60 lakhs)
2.	Natural Resource Augmentation Plan	Rs. 3,10,000/-
3.	Community Augmentation Plan	Rs. 10,50,000/-
	Total	Rs. 21,81,500/-

CONCLUSION

- M/s Bihar Foundry & Casting Limited started and completed construction activities for erection of a new SAF (1×9 MVA) and CLU on land available with BFCL at Ramgarh Industrial area, Jharkhand.
- The construction work was carried out without the prior of Environmental clearance and was under violation of MOEFCC's notification 2006. The environmental damage done during the construction period is estimated and quantified with respect to environmental attributes concerned and remediation plan with budgetary estimate is carried out. Similarly, the Natural and community

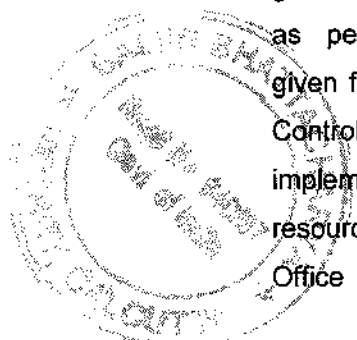
Bihar Foundry & Casting Limited (BFCL) Ferro-Alloy Plant

Augmentation Plan with budgetary provision is also estimated. The details are given in the earlier tables.

- Remediation plan budget is estimated to be **Rs. 8.215 lakhs.**
- Natural Augmentation Plan budget is estimated to be **Rs. 3.10 lakhs.**
- Community Augmentation Plan budget is estimated as **Rs. 10.5 lakhs.**
- Total Remediation Plan budget, Natural and Community Augmentation Plan budget is worked out to be of **Rs. 21.815 Lakhs**
- Request to EAC committee to do the needful and any suggestions regarding will be highly appreciated and will be incorporated for getting Environmental Clearance as per the EIA Process.
- As per the office memorandum No. F.No. 22-21/2020-IA-III dated July 7, 2021 regarding the subject matter of "Standard Operating Procedure (SOP) per identification and handling of violation cases under EIA Notification 2006 in compliance to order of Hon'ble National Green Tribunal in O.A. No. 34/2020 WZ- Regarding, Penalty Provisions for violation cases and applications :

A) For expansion projects : Where operation production with expanded capacity has not commenced, 1% of the total project cost attributable to the expansion incurred upto the date of filling application alongwith EIA/EMP report.

B) As per above, the cost of the construction of SAF and CLU convertor Rs. 1817.80 lakhs and 7111.80 lakhs respectively totalling Rs. 8929.6 lakhs. 1% of it is Rs. 89.296 lakhs. Calculation of bank guarantee amount as per Notification No. S.O. 804(E), dated 14-03-2017 will be Rs. 89.296 Lakhs (after approval of EAC - Industry) as per details given here-in-above and the Penalty to be paid to SPCB as per as per Notification dated 07-07-2021 .The Bank guarantee shall be given for a period of 3 years, with the Jharkhand State Pollution Control Board which will be released after successful implementation of the remediation plan and natural and community resource augmentation plan and after recommendation by Regional Office of the Ministry/ Expert Appraisal Committee, MoEF&CC.



BIHAR FOUNDRY & CASTINGS LIMITED
(Modification-cum-Expansion of Ferro Alloy Plant)

Ramgarh Industrial Area, Marar Village
Ramgarh Tehsil & District, Jharkhand

List of Annexures

Annexure No.	Annexure details
Annexure – 1	Credible action initiated by State PCB for Violation
Annexure – 2	Compliance to conditions as situated in SPA
Annexure – 3	Letter submitted for CTO Name change
Annexure – 4	A copy of NOC from CGWA
Annexure – 5	Water Permission issued by DVRRC
Annexure – 6	EC issued for existing plant
Annexure – 7	CCR issued by IRO, MOEF&CC, Ranchi
Annexure – 8	Lease deeds for 7.18 Acres
Annexure – 9	One month AAQ data
Annexure – 10	Health Reports of workers
Annexure – 11	Proceedings of Public hearing & Action Plan





क्षेत्रीय कार्यालय सह प्रयोगशाला,
झारखण्ड राज्य प्रदूषण नियंत्रण पर्वद,
पी०टी०सी० चौक, मटवारी रोड, हजारीबाग।

Ref.no....09....

Dated....07/01/2023

From,

Ashok Kumar Yadav
Regional Officer

To,

The C.J.M.,
Ramgarh.

Sub : Regarding credible action against M/s Bihar Foundary and Casting Ltd.,
Industrial Area, Marar, Ramgarh as per direction of Member Secretary, JSPCB,
Ranchi vide letter no. B - 54, dtd 06.01.2023.

Sir,

With reference to the above subject I would like to inform you that I have been directed to file a complaint case against the above Unit, the complaint petition is enclosed.

It is therefore, I beg to pray to acknowledge the case, I would be highly oblige and appreciated to you.

Encl. - As above

Your Faithfully

Ashok Kumar Yadav
(Ashok Kumar Yadav) 07/01/2023

Regional Officer





Case No. 15/0202

2020-39-4/e-weccourts/filing/acknowledge

Acknowledgement

CNR: JHR0500017045



Filing No. Complaint

Case/117/2022

Complainant: ASHOK KUMAR

Defendants: SHRI RAM CHAND

Advocate: Rom Sharma

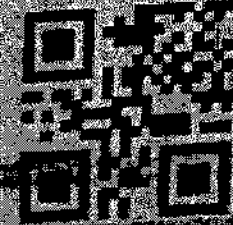
Police Station

Amount: 0.00

03/11/2022

133550

M/S. BILAL FOUNDRY AND
CASTING LIMITED

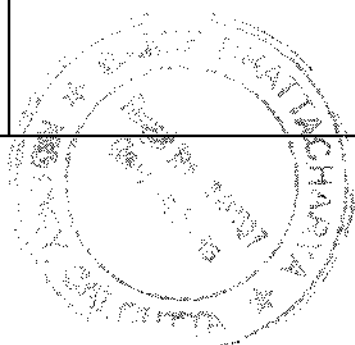


ANNEXURE - 2

PROPOSED MITIGATION MEASURES AS PER CEPI GUIDELINES

As the Plant area falls in Raipur area which is **Critically Polluted Area** as categorized by CPCB with CEPI of – 79.94. Proposed mitigation measures are being taken up as per CEPI guidelines.

Environment	Stipulation of Conditions	Compliance of Mitigation measures	Remarks
Air	SPCB has already stringent particulate matter emission limit to 50 mg/Nm ³ . However, units shall adhere to stringent air pollutants standards i.e. 60 % of existing flue gas and process emission standards. Particulate matter emission limit may be prescribed as 30 mg/Nm ³ for new and expansion / diversification activities. For expansion or diversification activity, the pollution load shall not exceed the existing load for which consent has been granted. If any industrial group has another unit(s) in the critically polluted area, then reduction in pollution load from both units together may be considered.	The company is maintaining the limit of particulate matter emission below prescribed standard. We assure that the Particulate Emission at the Chimney Outlet will be maintained less than 30 mg/Nm ³ .	Complied
	Large and medium red category industries shall install and commission Continuous Emission Monitoring System- CEMS (as per CPCB guidelines for relevant parameters) which shall be connected with SPCB/CPCB server	CEMS installed in stack of all Units and connected with SPCB/CPCB Server.	Complied
	Units shall adhere to sector specific guidelines / SOP published by CPCB from time to time for effective fugitive emission control. The raw materials, solid fuels, products (which have tendency to generate dust while handling / transportation) and solid wastes shall be stored in covered shed with arrangement of water sprinkling / dust suppression systems.	Noted for compliance. Transportation of raw materials/ solid wastes is ensured through covered trucks only. Regular Water Sprinkling is being done using Water Tankers. Major raw material is kept in closed shed	Complied.

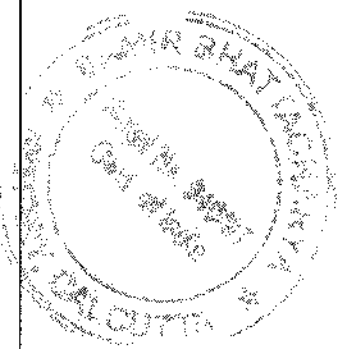


ANNEXURE - 2

Conveying system / conveyor belt shall be completely closed. All transfer points / junction points shall be fitted with dust suppression system followed by bag filter.	All conveyor belt is used where ever required.	Complied.
Vehicle movement areas / roads within premises shall be made pucca from drain to drain to avoid dusting.	All vehicle movements roads within all premises are pucca and regular road sweeping is being carried through road sweeping machine.	Complied.
Odour generating unit shall take adequate measures to control odour nuisance from the industrial activities which may include measures like - use of masking agent with atomizer system (water curtain), closed / automatic material handling system, containment of the odour Vulnerable areas etc.	Not applicable.	Not applicable
Units shall provide wheel wash system at entry and exit point of plant to control wheel generated dust.	Wheel washing system will be installed.	Will be Complied
Transportation of raw materials, solid fuels, products (which have tendency to generate dust while handling / transportation) and solid wastes shall be transported through mechanically covered / properly covered vehicles.	All the material transportation by road is done through fully covered truck.	Complied
Units shall not use coal, pet-coke, furnace oil, LSHS as a fuel for new And expansion / diversification activities.	Pearl Coke is used instead of Pet Coke	Complied
Units shall adopt sectorial Best Available Technology - BAT (Like use of induction Furnace, Electric Arc Furnace instead of Cupola furnace, Caustic Recovery System in Cotton Textile units etc.)	Ferro alloys will be manufactured through Submerged Electric Arc Furnace.	Complied
Units shall provide green belt of 40% of the total plot area. In case there is restriction of land available within plant premises for 40 % green belt development, then the unit shall carry out balance plantation within 05	Additional safeguards such as 40% green belt is proposed to develop within the plant premises & outside the plant	Will be Complied



ANNEXURE - 2

	km radius from its premises to achieve the required plantation of 40%. 	premises over an extent of 1.17 Ha. (2.9 Acres) Total land after proposed expansion will be 2.91 Ha. (7.18 Acres). <u>As the Plant is situated in Severely Polluted area (SPA) it is proposed to develop 40% of Greenbelt as part of the expansion i.e. in an extent of 1.17 Ha. (2.9 Acres).</u> The total Greenbelt area proposed within the Plant premises is 1.515 Acres (0.61 Ha.) which is inclusive of existing Greenbelt. To meet the requirement of 40% greenbelt development it is proposed to acquire additional land outside the existing plant. The details of additional land where greenbelt can be developed outside the premises is as follows Plot No. 1364P (E1) - 0.504 Acre (2039.6 SQM) Plot No. 1405 (C18) - 0.339 Acre (1373.05 SQM) Plot No. 1364P (C2&C3) - 0.025 Ac. (103.1238 SQM) Plot No. 1405P (20C) - 0.517 Ac. (2093.65 SQM)	

ANNEXURE - 2

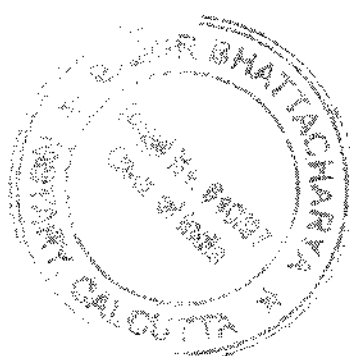
		Hence the total greenbelt will be 2.9 Acres [1.515 Ac (Plant Premises) + 1.385 Ac (outside plant premises) which amounts to 40 %].	
	Development of green belt /plantation outside project premises in adjacent areas such as avenue plantation, plantation in vacant areas, social forestry, etc. shall be ensured.	Avenue plantation/road side has been carried out.	Complied.
WATER	Units shall only use treated effluent for preparation of lime /neutralization slurry / other slurry for use in ETP. No fresh water shall be utilized for such purposes.	Noted for compliance.	Complied.
	Units shall use treated effluent for make-up of cooling water / process water as maximum as possible.	Treated wastewater is being used for make-up of cooling purpose as maximum as possible.	Complied.
	Large and Medium Red category industries shall install system for continuous monitoring of effluent quality / quantity as per CPCB guidelines for relevant parameters (like pH, Flow, Temperature, TOC/COD etc.) and shall be connected to SPCB server. Unit shall also install flow meter.	Not applicable as it is only Ferro Alloy plant	Complied.
	No ground water withdrawal shall be allowed without permission of CGWA. Units shall use harvested rainwater in the process as maximum as possible.	Permission obtained from CGWA of 35 KLD for domestic use.	Complied
	Units shall submit calculation regarding total storm water received in the premises, potential of rain water harvesting and quantity to be harvested along with details of proposed structures.	the potential rain water that can be recharged / utilized to meet the plant water requirement is 16,500 m ³ / year. Accordingly, the net water requirement will reduce. In the existing plant also rain water harvesting	Will be Complied.

ANNEXURE - 2

	Units shall ensure recharging of ground water by rainwater harvesting of at-least double the quantity of water use by them, which shall be done within or outside the premises.	structure has been constructed. Now as part of expansion It is proposed to construct 2 nos. of Recharge structure as per design and all the Roof water inlet join to Recharge well so that Roof top water & surface run off storm water recharge into ground.	Complied.
	Units shall explore Techno-Economic feasibility of Zero Liquid Discharge (ZLD) and if feasible, ZLD should be adopted.	ZLD maintained.	Complied.
	Units having domestic waste water generation more than 10 KLPD shall install STP of adequate capacity and treated effluent shall be reused /recycled within plant premises.	30 KLD of STPs will be installed and treated water will be used for greenbelt development.	Will be Complied.
Land	Units shall provide green belt of 40% of the total plot area. In case there is restriction of land available within plant premises for green belt development, and then the unit shall carry out balance 40 % plantation within 05 km radius from its premises to achieve the required plantation of 40%.	40 % of the land area will be covered with green belt.	Will be Complied.
	Development of green belt / plantation outside project premises in adjacent areas such as avenue plantation, plantation in vacant areas, social forestry, etc. shall be ensured.	Avenue plantation/road side plantation has been carried out.	Complied.
	Units shall strictly carry out handling, storage and disposal of fly-ash, slag, red-mud, sludge etc. (High Volume- Low Effect Wastes) as per prevailing guidelines and its disposal at designated locations approved by the Board.	Not applicable as it is a Ferro Alloy plant	---
	Units shall dispose its hazardous wastes through co-processing, preprocessing to the extent possible prior its disposal to incineration/landfill as per provisions of Hazardous and Other Wastes (Management	The unit is followed the guidelines of Hazardous and other wastes (Management and Transboundary Movement) rules, 2016.	Complied.

ANNEXURE - 2

	and Transboundary Movement) Rules, 2016. Units shall strictly comply with all the measures specified in guidelines for spent solvent management, spent acid management, and other guidelines / directions published from time to time by CPCB / MoEF&CC. Units shall carry out transportation of hazardous wastes through GPS mounted vehicles only	Noted for compliance. Being Followed.	Complied. Complied.
Other Condition (Additional)	All Environmental Clearance granted units shall submit report of compliance of the conditions of EC every year to the Board prepared by third party. New and expansion / diversification units which will obtain Environmental Clearance shall enhance CER fund allocation to at least 1.5 times the slabs given in the OM dated 01/05/2018 for SPA and 2 times for CPA in case of Environmental Clearance.	Being Done Noted for compliance.	Complied Noted for Compliance.



Ref: 2021-22/247

Date: 14.09.2021

To
The Member Secretary
Jharkhand State Pollution Control Board
T.A. Building, HEC Complex, Dhurwa
Ranchi 834004

Sub: Request for change of name of industry from Gautam Ferro Alloys to Bihar Foundry & Castings Ltd. as per EC issued by MoEFF & CC, Govt. of India, New Delhi.

Ref:- 1) EC Ref. No.- F.No. J-11011/3842010-IA-II(I) dated 31.10.2011
2) CTO Ref. No. JSPCB/HO/RNC/CTO-4412165/2020/1819 dated 10.11.2020

Sir,

It is submitted that as per the Environmental Clearance No. F.No. J-11011/3842010-IA-II(I) dated 31.10.2011 issued by the MoEF & CC, Govt. of India, New Delhi the Environmental Clearance to our Ferro Alloys unit has been issued in the name of M/s Bihar Foundry & Castings Ltd. but CTO has been issued in the name of M/s Gautam Ferro Alloys by J.S.P.C.B., Ranchi which is calling the name of our M/s Ferro Alloys unit but name M/s Gautam Ferro Alloys has no legal entity.

Since, EC and all other statutory clearances/permissions are in the name of M/s Bihar Foundry & Castings Ltd. So, it is requested to reissue CTO of our Ferro alloys unit in the name of M/s Bihar Foundry & Castings Ltd.

Thanking You,

Yours faithfully,

For Bihar Foundry & Castings Ltd.


(Binay Kumar Gupta)
General Manager (Environment)

**Bihar Foundry & Castings Limited**

Works :- Ramgarh Industrial Area, P.O. - Marar, Dist. - Ramgarh, Jharkhand - 829117.

Registered Office :- Main Road, Ranchi, Jharkhand - 834001.

CIN No - U27100JH1971PLC000912 & GST No - 20AABCB1852D121

Landline :- 0651-2202699 Fax :- 0651-2202799 Email :- bfcgfa@gmail.com

Ph.:0651-2403851

Ph.:0651-2403850

**JHARKHAND STATE POLLUTION CONTROL BOARD, RANCHI****SCHEDULE I**

(From - IVA)

For Industries

(To be submitted in triplicate)

Application for consent for discharge Continuation of discharge under section 25/26 of water
(Prevention and Control of Pollution) Act, 1974
(See Rule 22)

From

Dated : 14/09/2021

BIHAR FOUNDRY & CASTING LIMITED

AT + P.O. MARAR, RAMGARH INDUSTRIAL AREA, RAMGARH, DIST. RAMGARH
(JHARKHAND)

RAMGARH

RAMGARH

To

The Member-Secretary,
Jharkhand State Pollution control Board
Ranchi.

Sir,

1. I/We apply for consent under section 25/26 of the water (Prevention and Control of pollution) Act, 1974 (6 of 1974)* to bring into use new or altered outlets for the discharge of* Sewage/trade effluent* from land/premises owned by BIHAR FOUNDRY & CASTING LIMITED for a period upto 31/12/2025 years as per details given in the Annexure;

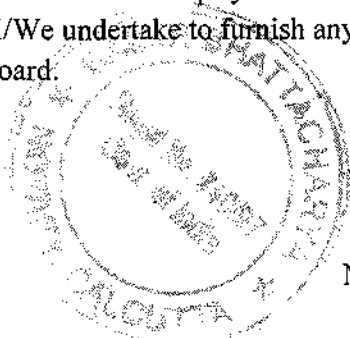
2. The Annexure, appendices, other particulars and plans are attached herewith in triplicate

3. I/We further declare that the information furnished in the Annexure/appendices and plan is correct to the best of my/our knowledge.

4. I/We hereby submit that in case of change either of the point or the quantity of discharge or its quality, a fresh application for CONSENT shall be made and until such CONSENT is granted no change shall be made.

5. I/We hereby agree to submit to the Board an application for renewable consent one month in advance to the date of expiry of the consented period for outlet/discharge, if to be continued thereafter.

6. I/We undertake to furnish any other information within one month of its being called for by the Board.



Yours faithfully,

Signature

Name of the Applicant :BIHAR FOUNDRY & CASTING LIMITED

Address of the Applicant : MAIN ROD, RANCHI

Accompaniments :

1. Other Documents (Attached)
2. Copy of CTE and CTO with compliance report (with required documents) (Attached)
3. EC copy with compliance report, if applicable (Attached)

Bank Details:-

Amount	Bank Draft No.	Date

ANNEXURE TO FORM

Outlet/discharge
(Existing/New/Altered)

Note: Any applicant knowingly giving incorrect information or suppressing any information per-
Training there to shall be liable for any actions under the provisions of the Act.

While filing the annexure the applicant shall, for such of the items not pertaining to his
Activity shall, for such Applicable against the relevant one and not leave blank.

1.

(a) Full name of the applicant with address	BIHAR FOUNDARY & CASTING LIMITED
(a) Is the firm registered?	YES
(b) If yes, give the number & date of registration	2388/SIA/
(c) Full address of the registered office	AT + P.O. MARAR, RAMGARH INDUSTRIAL AREA, RAMGARH, DIST. RAMGARH (JHARKHAND)
(d) Name, designations and full address of occupier/occupiers/e.c. of persons like, partners, Managing Director/Directors/ Manager etc. incharge of the company:-	Name : Dr. H.K. Budhia Designation: Managing Director Address: Main Road, Ranchi Period of Tenures: Full time Telephone No.: 0651-2202699

2.

Full location premises/Institutes/factory/Industry with detail address.	BIHAR FOUNDARY & CASTING LIMITED AT + P.O. MARAR, RAMGARH INDUSTRIAL AREA, RAMGARH, DIST. RAMGARH (JHARKHAND) RAMGARH RAMGARH

3. Give revenue/city Survey number of land/premises for which the application is made.

Tel.No.	0651-2202699
Telegraphic Address	MAIN ROD, RANCHI
District	RANCHI

Taluk	RAMGARH
Town	RANCHI
Village	RANCHI
Survey No/Mauza No/Revenue Survey No.	PLOT NO.1405 (P)
Area in Hectares	7.26 acres

4. State month and year in which the land/premises Institute/Factory/Industries was actually put into commission or is proposed to be into commission : September 1996

5.

State the Civil/Military/Collectorate/Defence/Industrial Estate etc. under whose administrative jurisdiction the applicant's land/premises is situated.	Industrial Estate
Corporation	RANCHI INDUSTRIAL AREA DEVELOPMNT AUTHORITY
Vill. Panchayat	MARAR
Contonment	NA
Defence Deptt	NA
Port Trust	NA
State Govt.	Jharkhand
Prohibited areas	No

6. (a) State whether the land/premises Industry/factory/has been declared as prohibited area : NO

(b) If yes, state the name of the authority and furnish a certified copy of the order vide which the area has been declared as prohibited area :

7. State working season per year for the Industry/factory : Apr to Mar

8. (a) No. of workers attending the factory per day. : 254

(b) No. of persons residing in the premises. : 22

9.(a) Give the list of materials, such as metals, alloys' chemicals oil, fuel per month in metric tones :

Metals and Alloys	Name	Weight

(b). Give the List of Name of Product Details and By-Product manufactured per month in (MT):

Sr.No.	Name of products	Qty. in M.T per month

C. Give the list of Intermediate Product Details :

Sr.No.	Name of products	Qty. in M.T per month

10 & 11. Water Consumption Details :

Source Consumption	Quantity(KL/D)

12. State whether storm water drains are kept separate from industrial/ domestic effluents : Yes

13. Is Domestic effluent allowed to get mixed in industrial effluent. : No

14. State if treatment for industrial or domestic effluent or one for combined effluent is made.If yes, state the process of treatment in brief(separately for each treatment plant) : NO

15 & 16. Effluent Disposal Details :

Name	Status(Already made)	Status(Proposed to be made)

17. Give Quantative disposal of effluent in kilo litres provided for the place mentioned below:

Place	Domestic	Industrial	Mixed

18. Is There any provision for equalizing or holding lagoons tank to store the effluent during unfavorable streams ortidal conditions:

Type of Provision	Already made	Proposed to be made

19. Details of land available/can be made available in case pumping of effluent on lands have to be considered. No

20. Give details of composition of Domestic/Industrial/Combined effluent in respect of the following :

Quality Parameter	Effluent Before treatment	Effluent After treatment

Note : Furnish a copy of the analysis report of representative samples carried out by the approved laboratory.

21. Indicate the facilities available for waters.

22. :

Type of Wastes	Description	Quantity	Method of Collection	Method of Disposal

23. :

(a) Total investment on the industry and the year of investment.

45.00 crores , 2019

(b) Estimated expenditure for implementation the schemes to control water pollution

(c) Expenditure incurred up-to date and progress achieved(Physical)for treatment of effluent, if any and the year/years of investments along with Physical Progress achieved.(The Firm should give details of action taken to date and the expenditure incurred and the required for the completion of the same.)

(d) Annual operation and maintenance cost of effluent treatment plants, if any,

(e) Further action that is being taken by the firm to control water pollution.

Scheme completed at a total cost of Rs. 2.50 crors

Rs.1.5 crores per year

Water Pollution does not exist as the water is used mainly for cooling purpose and is re-circulated through cooling towers.

Signature

Name & Address of applicant on behalf of : HARI KRISHNA BUDHIA
MAIN ROD, RANCHI

Name & Address of the firm : BIHAR FOUNDRY & CASTING LIMITED
AT + P.O. MARAR, RAMGARH INDUSTRIAL AREA, RAMGARH, DIST. RAMGARH
(JHARKHAND)
RAMGARH
RAMGARH

The applicant is hereby instructed to make himself familiarized with the water(Prevention & Control of Pollution)Act,1974 before attempting to fill up the from.





भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास
और गंगा संरक्षण विभाग
केन्द्रीय भूमि जल प्राधिकरण
Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Ground Water Authority

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)

NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:	Bfcl- Gautam Ferro Alloys		
Project Address:	Plot1405 (p), Marar Industrial Area, Ps Ramgarh		
Town:	Mandu (ct)	Block:	Mandu
District:	Ramgarh	State:	Jharkhand
Pin Code:			
Communication Address:	Managing Director, M/s Bihar Foundry And Castings Ltd, Main Road, Ranchi-834001, Namkum, Ranchi, Jharkhand - 834001		
Address of CGWB Regional Office :	Central Ground Water Board Mid Eastern Region, 6th & 7th Floor, Lok Nayak Jai Prakash Bhawan, Frazer Road Dak Banglow, Patna, Bihar - 800011		

1. NOC No.:	CGWA/NOC/IND/ORIG/2021/10628						
2. Application No.:	21-4/590/JH/IND/2019			3. Category: (GWRE 2017)	Semi Critical		
4. Project Status:	Existing Project			5. NOC Type:	New		
6. Valid from:	02/01/2021			7. Valid up to:	01/01/2024		
8. Ground Water Abstraction Permitted:							
Fresh Water		Saline Water		Dewatering		Total	
m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year	m ³ /day	m ³ /year
35.00	12775.00						
9. Details of ground water abstraction /Dewatering structures							
Total Existing No.:2				Total Proposed No.:1			
	DW	DCB	BW	TW	MP	MPu	
Abstraction Structure*	0	0	2	0	0	0	
*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps							
10. Ground Water Abstraction/Restoration Charges paid (Rs.):	76650.00						
11. Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.	No. of Piezometers			Monitoring Mechanism			
				Manual	DWLR**	DWLR With Telemetry	
**DWLR - Digital Water Level Recorder	1			1	0	0	

(Compliance Conditions given overleaf)

This is an auto generated document & need not to be signed.

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011

Phone: (011) 23383561 Fax: 23382051, 23386743

Website: cgwa-noc.gov.in

पानी बचाये - जीवन बचाये
SAVE WATER - SAVE LIFE

Validity of this NOC shall be subject to compliance of the following conditions:

Mandatory conditions:

- 1) Installation of digital water flow meter (conforming to BIS/ IS standards) having telemetry system in the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate through the web-portal.
- 2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.
- 3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II.
- 4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.
- 5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.
- 6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.
- 7) The firm shall report compliance of the NOC conditions online in the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.
- 8) The firm shall submit the water audit report in case of water requirement is in excess of 100 m³/day through certified auditors within three months of completion of the same to CGWA.
- 9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.
- 10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

General conditions:

- 11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).
 - 12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).
 - 13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.
 - 14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.
 - 15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.
 - 16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.
 - 17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is / are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.
 - 18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.
 - 19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.
 - 20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.
 - 21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.
 - 22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.
 - 23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.
- (Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)



भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन नदी विकास एवं गंगा संरक्षण विभाग
केंद्रीय जल आयोग
दामोदर घाटी जलशाय नियंत्रण यूनिट
मैथन, धनबाद (झारखण्ड)



Government of India
Ministry of Jal Shakti
Depl. of Water Resources, RD&GR
Central Water Commission
Damodar Valley Reservoir Regulation Unit
Maitihon, Dhanbad (Jharkhand)

No. MD/DVRR/W-6(145)/2022/ 738-43

Date: 20.12.2022

To,

The Managing Director,
Bihar Foundry & Casting Limited,
Ramgarh Industrial Area,
P.O.- Marar, Ramgarh, Jharkhand.

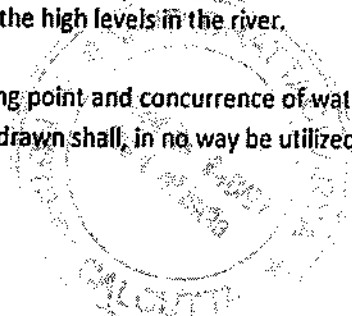
Sub:- Concurrence for drawl of raw water 0.36 MGD (0.598 MCM) from River Damodar Upstream of Tenughat reservoir at village Marar, Ramgarh :- reg.

Ref: (1) Your application No. 2019-20/232	dt. 30.12.2019
(2) Govt letter No.- 1/PMC/MISC/958/2020/174	dt. 09.03.2022
(3) DVRR letter No.- MD/DVRR/W-6/145/2022/718-37	dt. 16.12.2022

Sir,

Please refer the letter under reference (i) vide which request was made for allocation of 0.36 MGD (0.598 MCM) of raw water from River Damodar Upstream of Tenughat reservoir at village Marar, Ramgarh for your project Bihar Foundry & Casting Limited, Ramgarh. NOC was also obtained from the Engineer-in-Chief, Water Resources Department, Govt. of Jharkhand vide letter under reference (ii). On the recommendation of the 29th Sub-Committee of DVRRC, the case was submitted for consideration in 145th meeting of DVRR Committee held on 24.11.2022 at Ranchi and was accepted. The minutes of the 145th DVRRC meeting has already been circulated to the concerned officials vide letter under reference (iii). The concurrence of DVRRC for allocation of 0.36 MGD (0.598 MCM) of raw water is hereby conveyed for drawl from River Damodar Upstream of Tenughat Reservoir subject to the following conditions :

- (A) Exact location for drawl of water may be decided in consultation with DVC. The water shall be drawn from the reservoir as and when available and intake structure/conveyance system should be designed accordingly. As sufficient water in the reservoir may not be available during certain days in the year particularly during summer months, you may have to make arrangement for captive storage to meet water requirement in such situations.
- (B) Adequate care should be taken in design and construction of the intake structure to ensure availability of water even during summer months. The intake structure should also be able to withstand the high levels in the river.
- (C) The sourcing point and concurrence of water drawl 0.36 MGD (0.598 MCM) is project specific. The water drawn shall, in no way be utilized by the firm for any other purposes.



(D) You shall have to execute an agreement with DVC and pay charges to DVC for the water drawn by it as per the terms and conditions in force. The allocation will come into effect from the day of execution of the agreement with DVC. The allocation of water will be treated as cancelled, if your office does not apply to DVC for executing an agreement for drawl of water within a period of 3 (three) months from the date of issue of this letter.

(E) Drawl of water should start within 24 months from the date of issue of this letter. In case of non drawl after lapse of 24 months from the date of issue of this letter, the allocation shall deemed to be cancelled and the firm will have to apply a fresh for revalidation of allocation.

The present allocation is temporarily allocated subject to fulfilment of all the primary formalities within the stipulated time period.

Yours faithfully

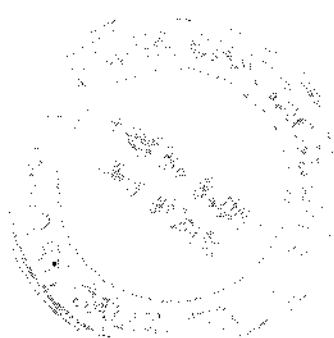


(Shashi Rakesh)

Member Secretary, DVRRRC

Copy to the:

1. Secretary, Industrial Department, Government of Jharkhand, Nepal House, Doranda Ranchi - 834002.
2. Chief Engineer (P&M), Water Resources Department, Government of Jharkhand, Nepal House, Doranda, Ranchi - 834002.
3. Chief Engineer, Water Resources Department, Government of Jharkhand, Jheel Road, Dist.- Hazaribagh.
4. Executive Director (Civil) & H.O.P, Damodar Valley Corporation, Maithon.
5. Manager, Reservoir Operation, DVC, Maithon.



एरिया नंबर 2
मैथन डैम - 828207
दूरभाष: 06540-274214
ई मेल: sehocmaithon-cwc@gov.in
जन संरक्षण-सुरक्षित अभिव्यक्ति



Area No 2,
Maithon Dam-828207
Tel: 06540-274214
E-mail: sehocmaithon-cwc@gov.in

Conserve Water- Save Life

Page 2 of 2

F. No. J-11011/384/2010-IA-II (I)
 Government of India
 Ministry of Environment and Forests
 (I.A. Division)

Paryavaran Bhawan
 CGO Complex, Lodhi Road
 New Delhi - 110 003
 E-mail: ms.industry-mef@nic.in
 Tele/fax: 011 - 2436 3973
 Dated: 31st October, 2011

To,
 The Director,
 M/s Bihar Foundary and Casting Limited
 Main Road, Ranchi- 834 001

Ph: 0651- 2202699

E-mail: consafescience@gmail.com / bfcldga@gmail.com

Sub: Expansion of Ferro Alloy Plant by installing SAF (9 MVAx1= 40 TPD) for manufacture of Ferro Silicon/Ferro-Manganese at Plot No. 1405, Ramgarh Industrial Area, Marar Village, Ramgarh District in Jharkhand by M/s Bihar Foundary and Casting Limited- regarding Environmental Clearance

Sir,

This has reference to your letter no. nil dated 10.04.2011 along with copies of EIA/EMP reports and subsequent communication dated 30.06.2011 seeking environmental clearance under the provisions of EIA Notification, 2006.

2. The Ministry of Environment and Forests has examined your application. It is noted that M/s Bihar Foundary and Casting Limited have proposed for expansion of Ferro Alloy Plant by installing SAF (9 MVAx1= 40 TPD) to manufacture Ferro Silicon/Ferro-Manganese at Plot No. 1405, Ramgarh Industrial Area, Marar Village, Ramgarh District in Jharkhand. The proposed expansion will be in the existing plant area of 14 acres and green belt will be developed in 33% of the project area. No additional land is required for the proposed expansion. No R&R is involved. No national park / wildlife sanctuary and reserve forests are located within 10 km radius of the project site. Mn ore, Dolomite, Quartz and Coke will be used as raw materials. Total cost of the project is Rs. 20.0 Crores and the budget for Environment Management and Pollution Control measures is Rs. 2.0 Crores.

3. Following are the details of existing and proposed expansion facilities:

S.No	Name of the project	Existing	Proposed Expansion
1	Ferro Alloy (2x5 MVA)	26 TPD (Silico / Manganese)	---
2	Ferro Alloy (7.5 MVA)	30 TPD (Silico / Manganese)	---
3	Ferro Alloy (9 MVAx1)	---	40 TPD (Ferro Silicon/Ferro-Manganese)

4. Fume extraction system followed by bag filter to control the emissions from the submerged arc furnace and crushing house will be installed. The emissions will be dispersed

-2-

through stack of adequate height as per the GPCB / SPCB standards. Total water requirement will be 35m³/day which will be sourced from bore wells. There will be no generation of wastewater from the process. Domestic effluent will be treated in septic tank followed by soak pit. Rain water harvesting system to recharge the ground water and reduce the fresh water consumption will be installed. Presently slag is collected and sent for crushing where the crushed slag is segregated through screen into the metallic and non metallic. The silica waste is sold for road works for filling and the metallic parts are reused in the process.

5. The Ferro Alloy Plants are listed at S.No. 3(a) in Primary Metallurgy Industry in Category 'A' under the schedule of EIA Notification, 2006 and appraised by the Expert Appraisal Committee -1 (Industry).

6. The proposal was considered by the Expert Appraisal Committee-1 (industry) in its 24th meeting held during 19th - 20th May, 2011. The Committee sought additional information for reconsideration of project. On receipt of additional information, the committee reconsidered the project in its 26th meeting held during 21st - 22nd July, 2011. The Committee recommended the proposal for environmental clearance subject to stipulation of specific conditions along with other environmental conditions. Public hearing is not required as per Para 7(i) III (b) of EIA Notification, 2006 as the project is located in notified industrial area.

7. Based on the information submitted by you, presentation made by you and consultant, M/s Consafe Science (India), Hyderabad, the Ministry of Environment and Forests hereby accords environmental clearance to the above project under the provisions of EIA Notification dated 14th September 2006 subject to strict compliance of the following Specific and General conditions.

A. SPECIFIC CONDITIONS :

- i. Compliance to all the specific and general conditions stipulated for the existing plant by the Central/State Government shall be ensured and regular reports submitted to the Ministry's Regional Office at Bhubaneswar, SPCB.
- ii. No charcoal shall be used as fuel. Pet coke shall be used as fuel instead of charcoal from unknown sources.
- iii. Continuous monitoring facilities for all the stacks and sufficient air pollution control equipments viz. fume extraction system with bag filters, ID fan and stack of adequate height to submerged arc furnace shall be provided to control emissions below 50 mg/Nm³.
- iv. The National Ambient Air Quality Standards issued by the Ministry vide G.S.R. No. 26(E) dated 16th November, 2009 shall be followed.
- v. Secondary/fugitive emissions from all the sources shall be controlled within the latest permissible limits issued by the Ministry and regularly monitored. Guidelines / Code of Practice issued by the GPCB shall be followed.
- vi. Regular monitoring of influent and effluent surface, sub-surface and ground water shall be ensured and treated wastewater shall meet the norms prescribed by the State Pollution Control Board or described under the Environment (Protection) Act, 1986 whichever are more stringent. Leachate study for the effluent generated and analysis should also be regularly carried out and report submitted to the Ministry's Regional Office at Bhubaneswar, SPCB and CPCB.

-3-

- vii. The total water requirement shall not exceed 35m³/day. Permission to draw the water from the Competent Authority shall be obtained. Zero effluent discharge shall be strictly followed and no wastewater should be discharged outside the premises.
- viii. Efforts shall be made to make use of rain water harvested. If needed, capacity of the reservoir should be enhanced to meet the maximum water requirement. Only balance water requirement should be met from other sources.
- ix. Slag produced in Ferro Manganese (Fe-Mn) production shall be used in manufacture of Silico Manganese (Si-Mn). All the other ferro alloy slag shall be used in the preparation of building materials.
- x. Risk and Disaster Management Plan along with the mitigation measures should be prepared and a copy submitted to the Ministry's Regional Office at Bhubaneswar, SPCB and CPCB within three months of issue of environment clearance letter.
- xi. As proposed, green belt should be developed in at least 33 % of the project area. Selection of plant species shall be as per the CPCB guidelines in consultation with the DFO.
- xii. At least 5 % of the total cost of the project should be earmarked towards the Enterprise Social Commitment based on locals need and item-wise details along with time bound action plan should be prepared and submitted to the Ministry's Regional Office at Bhubaneswar. Implementation of such program shall be ensured accordingly in a time bound manner.
- xiii. The company shall provide housing for construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
- xiv. The Company shall submit within three months their policy towards Corporate Environment Responsibility which should inter-alia address (i) Standard operating process/ procedure to bring into focus any infringement/deviation/violation of environmental or forest norms/conditions, (ii) Hierarchical system or Administrative order of the Company to deal with environmental issues and ensuring compliance to the environmental clearance conditions and (iii) System of reporting of non compliance/violation environmental norms to the Board of Directors of the company and/or stakeholders or shareholders.

A. GENERAL CONDITIONS:

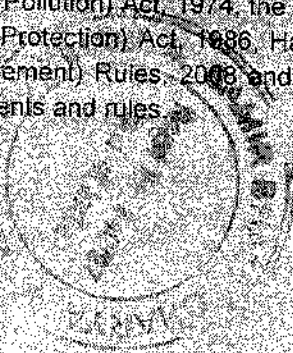
- i. The project authorities must strictly adhere to the stipulations made by the Jharkhand State Pollution Control Board and the State Government.
- ii. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.
- iii. The gaseous emissions from various process units shall conform to the load/mass based standards notified by this Ministry on 19th May, 1993 and standards prescribed from time to time. The State Board may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location.

-4-

- iv. At least four ambient air quality monitoring stations should be established in the downward direction as well as where maximum ground level concentration of PM₁₀, SO₂ and NO_x are anticipated in consultation with the SPCB. Data on ambient air quality and stack emission shall be regularly submitted to this Ministry including its Regional Office at Bhubaneswar and the SPCB/CPCB once in six months.
- v. Industrial wastewater shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose.
- vi. The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).
- vii. Occupational health surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.
- viii. The company shall develop surface water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table.
- ix. The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/EMP report. Further, the company must undertake socio-economic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc.
- x. Requisite amount shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. An implementation schedule for implementing all the conditions stipulated herein shall be submitted to the Regional Office of the Ministry at Bhubaneswar. The funds so provided shall not be diverted for any other purpose.
- xi. A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.
- xii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MOEF at Bhubaneswar, the respective Zonal Office of CPCB and the CECB. The criteria pollutant levels namely: PM₁₀, SO₂, NO_x (ambient levels as well as stack emissions) or critical sectoral parameters indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.

-5-

- xiii. The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry at Bhubaneswar/ CPCB / SPCB shall monitor the stipulated conditions.
 - xiv. The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company alongwith the status of compliance of environmental conditions and shall also be sent to the respective Regional Office of the MOEF at Bhubaneswar by e-mail.
 - xv. The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment and Forests at <http://envfor.nic.in>. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional office at Bhubaneswar.
 - xvi. Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.
8. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
9. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
10. The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 and the Public (Insurance) Liability Act, 1991 along with their amendments and rules.



P. Ahujra
(Dr. P.L. Ahujra)
Scientist -F

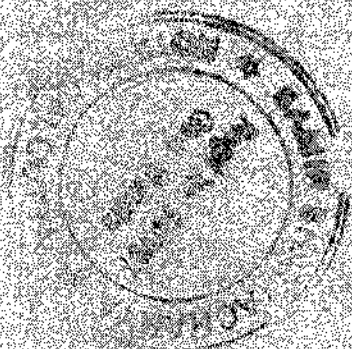
Copy to:-

- 1. The Secretary, Department of Forest, Govt. of Jharkhand, Nepal House, Ranchi.
- 2. The Chief Conservator of Forests, Ministry of Environment & Forests, Regional Office, (EZ) A-3, Chandrashekharpur, Bhubaneswar-751023.
- 3. The Chairman, Central Pollution Control Board Parivesh Bhavan, CBD cum-Office Complex, East Arjun Nagar New Delhi - 110 032.

-6-

4. The Chairman, Jharkhand State Pollution Control Board, T.A. Division Building
(Ground Floor) HEC Campus, Dhurwa, Ranchi -834004.
5. Guard File/Monitoring File/Record File.

(Dr. P. L. Ahujara)
Scientist 'F'





भारत सरकार / Government of India
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Ministry of Environment, Forest & Climate Change
एकीकृत क्षेत्रीय कार्यालय/Integrated Regional Office
पता: द्वितीय मं, झारखण्ड राज्य आवास बोर्ड मुख्यालय, हरमू चौक, राँची, झारखण्ड - 834002
Add: 2nd Floor, Headquarters-Jharkhand State Housing Board, Harma Chowk, Ranchi, Jharkhand - 834002
Tel: 0651-2410002, 2410007; E-mail: ro.ranchi-mef@gov.in



File No. 103-325/11/EPE/742

Date: 01.12.2022

सेवा में,

वैज्ञानिक ई / अपर निदेशक (अनुवीक्षण सेल),
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय,
इंदिरा पर्यावरण भवन, जोर बाग रोड, अलीगंज,
नई दिल्ली - 110003

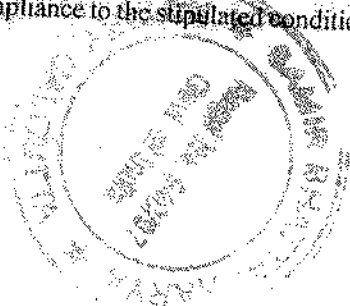
विषय: Site Inspection/Monitoring Report of Expansion of Ferro Alloy Plant by Installing SAF (9 MVA X 1) = 40 TPD) for manufacture of Ferro Silicon / Ferro-Manganese at plot No.1405, Ramgarh Industrial Area, Marar village, Ramgarh Dist. in Jharkhand by Ms. Bihar Foundary and Casting Limited.

सन्दर्भ: 1. Ministry's clearance letter no. J-11011/384/2010-IA.II(I) dated 31.10.2011.
2. Ministry's letter no. J-11014/23/2022-IA.I dated 30.03.2022 and 12.05.2022.

महोदय/महोदय,

This is to inform that Expansion of Ferro Alloy Plant by Installing SAF (9 MVA X 1) = 40 TPD) for manufacture of Ferro Silicon / Ferro-Manganese at plot No.1405, Ramgarh Industrial Area, Marar village, Ramgarh Dist. in Jharkhand by Ms. Bihar Foundary and Casting Limited was monitored by Integrated Regional Office, Ranchi on 05-01-2022 and the non-compliances/ partial compliances observed had been communicated to Ministry vide letter no. 103-325/11/EPE/98 dated 11.02.2022. Ministry vide letter no. IA-J-11014/23/2022-IA-I dated 30-03-2022 issued a letter and directed PP to submit clarification, Action taken report, action plan. Further, Ministry vide letter dated 12-05-2022 forwarded the action taken report submitted by PP against Ministry's clarification letter and directed this office to verify the inputs submitted by PP and submit the report to Ministry.

Accordingly, the project was monitored by this office on 16.11.2022 and status of compliance to the stipulated conditions, as observed at site during the visit is enclosed herewith.



This issues with the approval of Dy. DGF(C) and HoD, IRO Ranchi.

Encl: As above

Yours faithfully,

U.R. Prasad
(एम. आर. प्रसाद)

वैज्ञानिक 'C'

Copy to:

1. PPS to DGF&SS, पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, इंदिरा पर्यावरण भवन, जोरबाग रोड, अलीगंज, नई दिल्ली- 110003 (को सूचनार्थ)।
2. वन महानिरीक्षक (ROHQ), पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, इंदिरा पर्यावरण भवन, जोरबाग रोड, अलीगंज, नई दिल्ली- 110003 (को सूचनार्थ)।
3. वैज्ञानिक ई, आई ए डिविजन, (Kind attention: Dr. R.B.Lal), पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, इंदिरा पर्यावरण भवन, जोरबाग रोड, अलीगंज, नई दिल्ली- 110003।
4. सदस्य सचिव, झारखण्ड राज्य प्रदूषण नियंत्रण पर्यट, टी. ए. डिवीजन भवन, एच. ई. सी. कैम्पस पी. ओ. धुर्बा, राँची- 834004, झारखण्ड।
5. महाप्रबंधक(पर्या), Ms. Bihar Foundary and Casting Limited, Dist - Ramgarh, Jharkhand. (Reply/action taken report to the above points must be submitted to IRO Ranchi within 15 days of receipt of this letter).

U.R. Prasad
(एम. आर. प्रसाद)
वैज्ञानिक 'C'



MONITORING REPORT

The project was initially monitored at site on 05.01.2022 by Dr. T.H. Mahato, Scientist 'D' from the Integrated Regional Office Ranchi with respect to verification of the status of compliance to the conditions of Environment Clearance granted to the project by the Ministry vide letter No. J-11011/384/2010-IA.II(I) dated 31.10.2011 to M/s Bihar Foundry and Castings Limited. The monitoring report was sent to the Ministry by the IRO Ranchi vide letter no. 103-325/11/EPE/98 dated 11.02.2022.

The Ministry, upon reviewing the inspection report sent by the Integrated Regional Office, Ranchi, had communicated to the project proponent vide letter No. J-11014/23/2022-IA.I dated 30.03.2022 to submit clarification on the non-compliances observed during monitoring along with the Action Taken Report on the stipulations stated. In response, the project authorities had submitted Action Taken Report to the Ministry on 29.04.2022. The Ministry, has on reviewing the Report, vide letter No. J-11014/23/2022 dated 12.05.2022 has requested the Regional Office to verify the facts and inputs submitted by the project proponent in reference to the observations made by the IRO during the monitoring of the project earlier.

In compliance to the Ministry's letter, the project was inspected at site by the undersigned on 16.11.2022 to monitor the facts and submissions made by the project in compliance to the stipulated conditions mentioned in the Environment clearance granted by the Ministry and observations made by the Regional Office during earlier monitoring on 05.01.2022. During the monitoring the following Officials of the project were present:

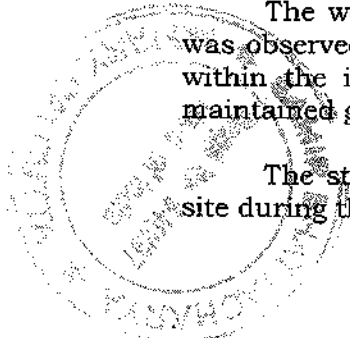
1. Shri Bishnu Upadhaya G.M.Administration
2. Shri Anant Seth (VP-GFA)
3. Shri B. K. Gupta (GM-Env.)
4. Shri Kailash Tripathi (AGM-Env.)

PRESENT STATUS OF THE PROJECT:

It was observed that the plant was in operation with four furnaces. Civil Construction activities for the 5th EAF has been completed and CLU was in progress and it was reported that 70% of the construction has been completed. This has been reported to the Ministry earlier by this Office.

The workers were provided with PPE kits and were wearing them. It was observed that renovation works for drainage system and water storage within the industrial plant were in progress. The project proponent has maintained good housekeeping within the plant.

The status of compliance to the stipulated conditions, as observed at site during the visit, is given below:



Point No.1 **Project Proponent (PP) not using Pet Coke instead of charcoal as per condition stipulated in the Environment Clearance (EC).**

Status: The stipulation in the Environment clearance letter issued to the project vide Ministry's letter No. J-11011/384/2010-IA.II(I) dated 31.10.2011, the specific condition number 2 states that:

" No charcoal shall be used as fuel. Pet coke shall be used as fuel instead of charcoal from unknown sources."

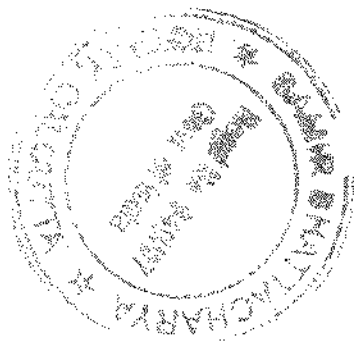
In compliance to the stipulation, the project is not using charcoal and Pet coke as fuel in the industry. It is reported by the project authorities that electricity is being used as the fuel for the ferro alloy plant.

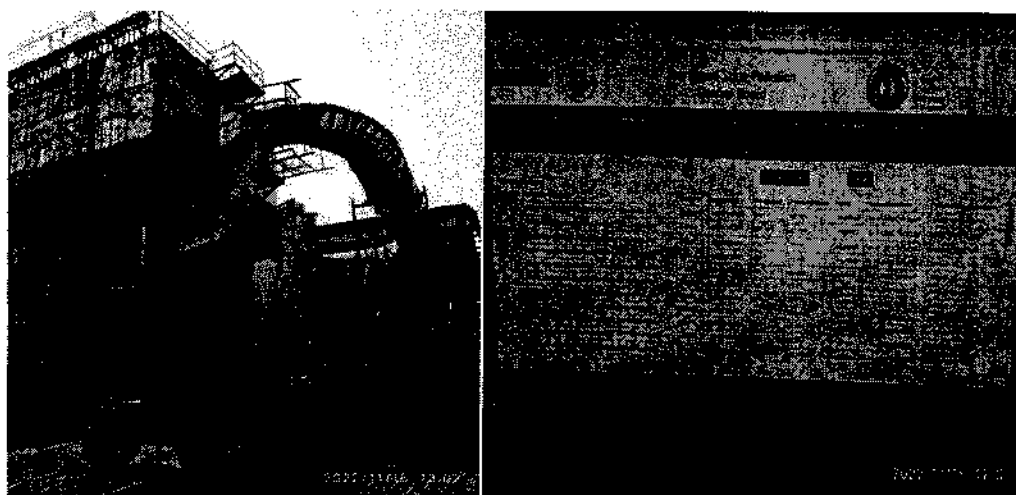
With respect to using of Pearl coke in the plant, it is submitted by the project authorities that Pearl coke is being used as a raw material for reduction of carbon content in the finished products. The use of Pearl coke varies from 400 kg to 500 kg per tonne of Ferro silicon / Ferro manganese product produced, depending on the quality of pearl coke being used.

REMARKS: **BEING COMPLIED.**

Point No.2 **As on the day of visit, there is inefficient fume extraction system. Need necessary action from the PP**

Status: During the site visit, it was observed that the project authorities have installed Online Continuous Stack emission monitoring system (CEMS) in both Stack No. 1 and Stack No. 2 and these are connected to servers of Jharkhand State Pollution Control Board and Central State Pollution Control Board. It was noted that they were in operation and recording of readings were being done.





Pollution control system installed in plant and CEMS reading.

From the site visit and reports submitted by the project, it was noted that

- i. Fume extraction system with bag filters, ID Fans have been provided
- ii. Stack height of submerged arc furnace is 45 metres.

Sn	Particulars of stack	Recordings of readings (mg/Nm ³)				
		1	2	3	4	5
1	Stack No. 1	41.686	41.506	41.60	41.347	43.23
2	Stack No. 2	40.829	45.951	40.889	35.615	41.836

From the above table, it is noted that the readings recorded have emission of dust levels below 50 mg/Nm³.

REMARKS: BEING COMPLIED.

Point No.3 Risk and Disaster Management Plan as per the capacity of the unit has not been furnished.

Status: The proponent has prepared Onsite Emergency Plan and has been duly approved from the Chief Inspector of Factories, Jharkhand vide letter dated 20.04.2022.

Copy of the same has been furnished to this Office.

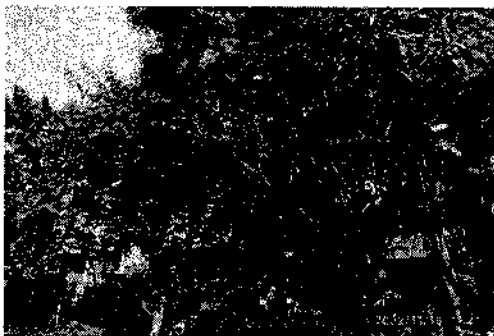


Point No.4: Green Belt has not been developed as per the CPCB Norms.

Status As observed at site, the project has developed plantation all along the boundary of the industry. However, due to constraints of space within the plant, the project proponent has acquired additional land, outside the plant measuring around 1 acre and 10 decimal over which it is proposed to raise plantation. The project proponent has given an undertaking that they would raise green belt as stipulated by the next monsoon.



Plantation done all along the boundary, inside the industrial unit.



The project proponent has purchased 5000 nos. Of plants from Bihar State Forest Department in July, 2022 and 1140 numbers of plants from M/s Shalimar Sadabahar Nursery during October, 2022 for plantation.

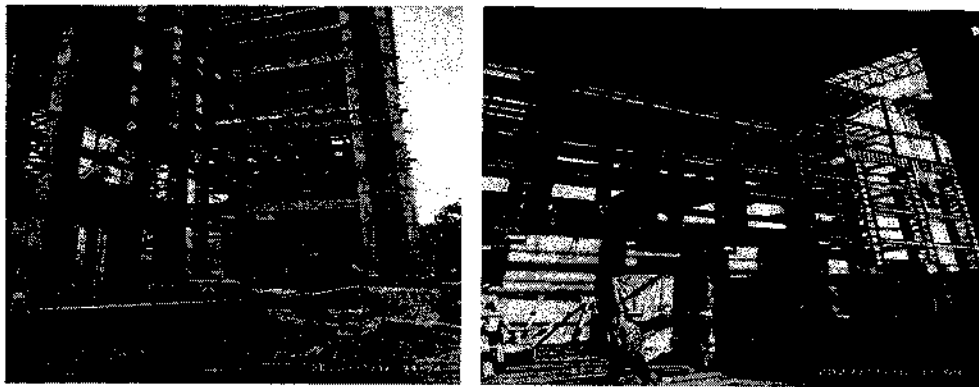
REMARKS: PARTIALLY COMPLIED AND ACTION IS BEING TAKEN FOR COMPLIANCE.



Point No.5: **Expansion / Modification of SAF has been observed without prior approval of the Ministry of Environment and Forests.**

Status:

1. It is a fact that the project has started construction of the 5th SAF without prior approval of the Ministry.
2. M/s. Bihar Foundry & Casting Limited has made an online application vide proposal no.IA/JH/IND1/400084/2022 dated 21.10.2022 along with the application in prescribed format(Form-I)
3. Based on the submission by the project proponent to the Ministry that they have started construction of the 5th Furnace without prior approval by the Ministry, the proposal submitted has been taken up under the violation category as per the provisions contained in the MoEF&CC, Standard Operating Procedure dated 07.07.2021.
4. The Ministry has taken cognizance of the facts and the project was duly appraised in the EAC dated 03.11.2022. The proposal is being considered by the Ministry under the Violation Project category.



The 5th Furnace in construction stage as observed on the day of site visit.

REMARKS: **The Ministry has taken cognizance of this violation made by the project and it is under consideration by the Ministry.**

Point No. 6 **Details of consultation with the SPCB for installation of Ambient Air Quality stations has not been furnished.**

Status: From the reports and documents submitted by the project proponent, it is noted that there has been communication made by the project authorities to the SPCB in the year 2016 for fixing AAQ Stations. With no response received, another letter was sent on 10th of February, 2018

on the same. Subsequently, during the meetings held with the SPCB officials, it is reported by the project proponent that present station locations have been fixed for AAQ monitoring. Further, it is also noted that the project proponent submits AAQ data to the SPCB on regular basis and so far there has not been any query or objection raised by SPCB.

REMARKS: BEING COMPLIED.

Point No. 7: Prescribed methods for collection and treatment of runoff rain water from raw materials storage area has not been followed by the project proponent.

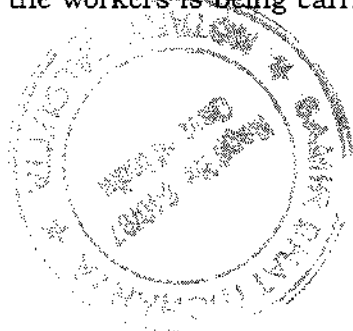
Status: During the visit, it was observed that raw materials were temporarily stored near the coal stack area. It was in the open, without covering. The project proponent has assured that the storage of materials is temporary due to construction works being undertaken and would be removed at the earliest.

It was observed at site that the project authorities are renovating and reconstructing the storm water storage tank/pond near the main entrance gate. The site has been earmarked and civil works are reported to start shortly. The project authorities have assured that drainage around the raw material storage is under construction and the surface runoff is to be collected in a pond/tank which is scheduled for completion within 3 months.

REMARKS: PARTIALLY COMPLIED AND UNDERTAKING GIVEN BY THE PROJECT PROPONENT FOR COMPLETION WITHIN 3 MONTHS.

Point No. 8: Occupational Health Surveillance of the workers has not been carried out regularly.

Status: From the reports submitted by the project authorities, it is observed that the Occupational Health Surveillance is being carried out by the project on regular intervals at their dispensary located within the plant premises. During the last one year, it is noted that the project has carried out Health Surveillance of the workers during October - November, 2021 and April, 2022. On perusal of the records, it is noted that parameters like Pure Tone Audiometry, Pulmonary function test, ECG and general medical check-up of the workers is being carried out. No abnormal cases have been reported.





Medical dispensary, First Aid Centre and Health care facility at the plant.

REMARKS: BEING COMPLIED.

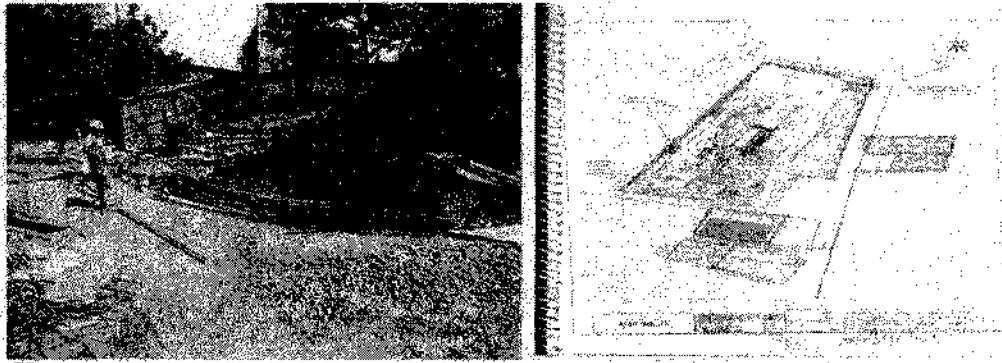
Point No. 9: Surface water harvesting structure has not been constructed.

Status: It was observed at site that the project authorities are renovating and reconstructing the storm water storage tank/pond near the main entrance gate. The site has been earmarked and civil works are reported to start shortly. The project authorities have assured that drainage around the raw material storage is under construction and the surface runoff is to be collected in a pond/tank which is scheduled for completion within 3 months.



Surface drainage within the plant under renovation





Site for the proposed Surface water collecting Tank / pond with the design / layout

REMARKS: ASSURED TO COMPLY. PLEASE REFER TO POINT No.7 FOR THE STATUS OF COMPLIANCE.

Point No. 10: EIA / EMP report copy has not been provided. Protection measure such as to channelize the fume through the stack dust extraction system in raw material unloading area, rain water storage pond, etc has not been implemented.

Status: The project authorities, M/s. Bihar Foundry & Casting Limited has made an online application vide proposal no. IA/JH/IND1/400084/2022 dated 21.10.2022 along with the application in prescribed format(Form-I) for the expansion of the project to the Ministry.

The project has submitted copy of the EIA Report, to the Ministry, for expansion of the existing unit along with the plan for installation of updated technology for pollution control measures to be adopted. The Report is uploaded in the Ministry's website.

REMARKS: COMPLIED.



M.R. Prasad
(M. R. Prasad) 01/12/2022
Scientist 'C'

एम. राजेश्वर प्रसाद / M. Rajeshwar Prasad
श्रेणीक 'सी' / Scientist 'C'
भारत सरकार / Govt. of India
पर्यावरण, वन एवं जलवायु परिवर्तन विभाग
Min. Environment, Forest & Climate Change
एकीकृत क्षेत्रीय कार्यालय, राँची
Integrated Regional Office, Ranchi



Ref: 2022-23/

Date: 15.11.2022

To,
The Ministry of Environment, Forest & Climate Change
East Central Zonal Office, Ranchi
Ranchi-834002

Ref: Our Ref. No.GFA/ENV/2022/06 dated 29.04.2022

Dear Sir,

We undertake that the greenbelt development as per CPCB norms is under progress and shall be completed as per norms in the ensuing rainy season.

We further undertake that we have already developed greenbelt in the existing area and we are further increasing it by way of raising new plants thus making it more dense and environment friendly.

We further undertake to develop greenbelt in the newly acquired adjacent land by our company. The purchase of adjacent land was necessitated for meeting requisite greenbelt area of 33% which will be accomplished by the next rainy season.

Yours faithfully,

Bihar Foundry & Castings Ltd.


(Gaurav Budhia)
Director



Bihar Foundry & Castings Limited

Works :- Ramgarh Industrial Area, P.O.- Marar, Dist.- Ramgarh, Jharkhand - 829117.
Registered Office :- Main Road, Ranchi, Jharkhand - 834001.
CIN No :- U27100JH1971PLC000912 & GST No :- 20AABCB1852D1Z1
Landline :- 0651-2202699 Fax :- 0651-2202799 Email :- bfcgfa@gmail.com

Ref: 2022-23/

Date: 15.11.2022

To,
The Ministry of Environment, Forest & Climate Change
East Central Zonal Office, Ranchi
Ranchi-834002

Ref: Our Ref. No.GFA/ENV/2022/06 dated 29.04.2022

Dear Sir,

We refer to the above letter and your observation as under:-

The prescribed method for collection and treatment of runoff rain water from the raw material storage area has not been followed:-

Our Compliance

We were forced to use area for greenbelt temporarily for raw material storage due to ongoing expansion /renovation of plant and machinery which is likely to be completed in three months.

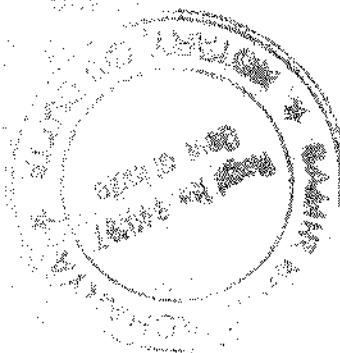
We undertake to follow the prescribed method for collection and treatment of rain off water from the raw material storage, immediately following the ongoing expansion.

Thanking you,

Yours faithfully,

Bihar Foundry & Castings Ltd.


(Gaurav Budhia)
Director

**Bihar Foundry & Castings Limited**

Works :- Ramgarh Industrial Area, P.O.-Marar, Dist.-Ramgarh, Jharkhand - 829117.
Registered Office :- Main Road, Ranchi, Jharkhand - 834001.
CIN No. :- U27100JH1971PLC000912 & GST No. :- 20AABCB1852D1ZI
Landline :- 0651-2202699 Fax :- 0651- 2202799 Email :- bfcfgfa@gmail.com

By Speed Post/Online



F. No. IA-J-11014/23/2022-IA-I
Government of India
Ministry of Environment, Forest and Climate Change
(I.A. Division)

Indira Paryavaran Bhavan
Jor Bagh Road, Aliganj
New Delhi-110 003
Email: shruti.rai@nic.in
Dated: 30th March, 2022

To,

The Director,
M/s Bihar Foundry and Casting Ltd.,
Main Road, Ranchi,
Jharkhand-834001.
Email- bfcgfa@gmail.com

Sub: Non compliances observed with respect to the project on "Expansion of Ferro Alloy Plant by Installing SAF (9MVAx1=40 TPD) for manufacture of Ferro Silicon/Ferro-Manganese at Plot no 1405, Ramgarh Industrial Area Marar District Ramgarh, Jharkhand by M/s Bihar Foundry and Casting Ltd."

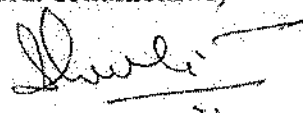
Ref: (i). IRO Ranchi Monitoring Report No. 103-325/11/EPE/98 dated 11.02.2022.
(ii). Ministry's EC letter No. J-11011/384/2010-IA-II (I) dated 31.10.2011 to M/s Bihar Foundry and Casting Ltd.

Environmental Clearance (EC) was granted to M/s Bihar Foundry and Casting Ltd. located at plot no 1405, Ramgarh Industrial Area, Marar District Ramgarh, Jharkhand vide letter No. J-11011/384/2010-IA-II (I) dated 31.10.2011 subject to implementation of the various conditions and environmental safeguards contained therein, and

2. The project was monitored by the Regional Office of this Ministry at Ranchi on 05.01.2022, which has submitted their reports to Ministry vide letter No. 103-325/11/EPE/98 dated 11.02.2022 (copy enclosed) which is self-explanatory.

3. The inspection report has been examined by the Ministry and following are observed non-compliances with respect to EC on the basis of review of IRO's report.

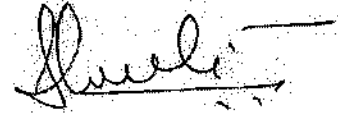
- i. PP not using a Pet coke instead of charcoal as per condition stipulated in EC (Specific Condition: 2).
- ii. As on site visit, there is an inefficient fume extraction system. Need necessary action from PP (Specific Condition: 3).
- iii. Risk and Disaster Management Plan as per the capacity of the unit has not been furnished (Specific Condition: 10).
- iv. Green belt has not been developed as per CPCB norms (Specific Conditions: 11).
- v. Expansion/modification for SAF has been observed without prior approval of the Ministry of Environment and Forests. (General Conditions: 2)
- vi. Details of consultation with the SPCB for installation of Ambient Air Quality stations has not been furnished (General Conditions: 4)



- vii. Prescribed method for collection and treatment of runoff rain water from the raw materials storage area has not been followed by PP (General Conditions: 5)
- viii. Occupational health surveillance of the worker has not been carried out regularly by PP (General Conditions: 7)
- ix. Surface water harvesting structure has not been constructed (General Conditions: 8)
- x. EIA/EMP report copy has not been provided. Protection measure such as to channelize the fume through the stack, dust extraction system in raw material unloading area, rain water storage pond, etc. has not been implemented. (General Conditions: 9)

4. In view of the foregoing, the Project proponent (PP) is hereby directed to submit the (i) clarification for non-compliance observed during the site visit, (ii) **Action Taken Report (ATR)** and (iii) Action plan with respect to the above non-complied conditions within next 30 days from the date of issuance of this letter. It may be noted that, if no satisfactory reply is received within the prescribed time frame, the Ministry will be constrained to take necessary action as deemed fit and appropriate in the circumstances of the case which inter-alia include issuance of Show-Cause Notice under the provision of section (5) of the Environment (Protection) Act, 1986.

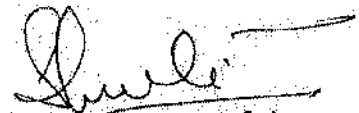
This issues with the approval of the Competent Authority.



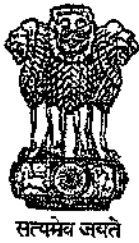
(Dr. Shruti Rai Bhardwaj)
Addl. Director/Scientist 'E'

Copy to:

1. Deputy Director General of Forests (C), Ministry of Env, Forest and Climate Change, Integrated Regional Office, Bungalow No. A-2, Shyamali Colony, Ranchi - 834002.
2. The Member Secretary, Jharkhand State Pollution Control Board H.E.C., Dhurwa, Ranchi-834004 (Jharkhand).
3. The Chairman, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi-110032.
4. Member Secretary Industry-I, MoEFCC, New Delhi-110003.

(Dr. Shruti Rai Bhardwaj)
Addl. Director/Scientist 'E'



भारत सरकार / Government of India
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Ministry of Environment, Forest & Climate Change
एकीकृत क्षेत्रीय कार्यालय/Integrated Regional Office
पता-बंगला सं० ए-2, श्यामली कॉलोनी, राँची- 834002
Address:-Bungalow No. A-2, Shyamli Colony, Ranchi- 834002
Tel: 0651-2410002, 2410007; E-mail: ro.ranchi-mef@gov.in



File No. 103-325/11/EPE/38

Dated 11-02-2022

सेवा में,

The Joint Secretary,
Impact assessment division- Monitoring Cell,
Ministry of Environment, Forest and Climate Change,
Indira Paryavaran Bhavan, Jorbagh Road,
Aliganj, New Delhi-110003

विषय : Observations during monitoring of Expansion of Ferro Alloy Plant by Installing SAF (9MVAx1=40TPD) for manufacture of Ferro Silicon/Ferro-Manganese at Plot no 1405, Ramgarh Industrial Area Marar District Ramgarh, Jharkhand by M/s Bihar Foundry and Casting Ltd-reg.

संदर्भ : Ministry's EC letter No. J-11011/384/2010-IA-II (I) dated 31.10.2011.
Madam/ Sir,

I am directed to inform that the Expansion of Ferro Alloy Plant by Installing SAF (9MVAx1=40TPD) for manufacture of Ferro Silicon/Ferro-Manganese at Plot no 1405, Ramgarh Industrial Area Marar District Ramgarh, Jharkhand by M/s Bihar Foundry and Casting Ltd. was monitored by the Integrated Regional Office Ranchi on 05.01.2022. The following condition needs special attention:

Following condition is not complied

1. (General Condition ii) During visit five SAF has been observed at the site. Four SAF was in operation and one said to be in maintenance. As per the EC accorded four SAF with 96 TPD ferro silicon/ ferro manganese has been indicated. Production reported has been tabulated below:

Year	Fe-Si	Fe-Mn
2017-18	32215.610	00

2018-19	30146.060	00
2019-20	21511.995	9666.605
2020-21	6034.5	21998.971
2021-22 (6M)	0000	17606.190

Following condition are partially complied

1. (Specific condition ii) Charcoal has not been observed to be used as fuel. However, project authority using pearl coke and coal in place of pet coke.
2. (Specific condition iii) Two stack has been provided for the four furnace. One furnace has not been connected to stack. Continuous monitoring facility has been provided for particulate matter for two stack. Fume extraction system with bag filter has been provided. During visit stack emission observed to be less than 50 mg/Nm³. However, fumes were found to be escape sideways also which indicate inefficient fume extraction system.
3. (Specific Condition x) A copy of approved Risk and Disaster Management Plan for one SAF has been furnished. Risk and Disaster Management Plan as per the capacity of the unit needs to be furnished.
4. (Specific Condition xi) Plantation has been observed in patches, not all along the boundary as per CPCB norms.
5. (General Condition iv) Ambient air quality monitoring data of four location has been furnished to Regional Office. However, details of consultation with the SPCB for installation of Ambient Air Quality stations need to be furnished.
6. (General Condition v) Cooling water recycle through cooling tower and storage tank. However, proper collection and treatment of runoff rain water from the raw materials storage area needs to be provided.
7. (General Condition vii) Project Proponent reported in the submitted six monthly compliance that Periodical medical examinations of employees are organized as per factory act. Project Proponent has furnished fifteen medical checkup records. However, occupational health surveillance of the worker needs to be carried out regularly.

8. (General Condition viii) Ground water recharge structure has been constructed; however, surface water harvesting structure need to be constructed.
9. (General Condition ix) Status of environmental protection measure has already been depicted in the environmental clearance conditions. EIA/EMP has not been available at IRO Ranchi. Protection measure such as to channelize the fume through the stack, dust extraction system in raw material unloading area, rain water storage pond, etc has not been implemented. Project authority reported an expenditure of Rs. 128.763 Lakhs from April 2018 to August 2021 on health, education, medical social work etc.

This issue with the approval of Dy.DGF(C), IRO, Ranchi.

Your's faithfully

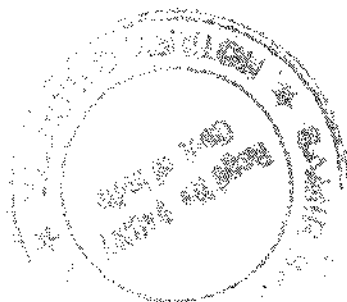


(Dr. T.H. Mahato)

Scientist 'D'

Copy to:

1. Member Secretary, Jharkhand State Pollution Control Board, T.A Division Building, HEC campus, Dhurva, Ranchi-834004.
2. General Manager -Environment, M/s Bihar Foundry & Casting Ltd. (Ferro Alloys Unit), Ramgarh Industrial Area, Marar Dist-Ramgarh, Jharkhand-829117- *(You are requested to take necessary corrective actions to comply with the above non-compliances and send action taken report on the implementation within a month with necessary documents.)*



Government of India
Ministry of Environment, Forests and Climate Change (MoEF&CC)
Integrated Regional Office - Ranchi

MONITORING REPORT

PART I
DATA SHEET

File No: 103-325/11/EPE/

- 1 Project Type : Industry
River valley / Mining / Industry /
Thermal / Nuclear / Other Specify
- 2 Name of the project : Bihar Foundry & Casting Ltd.
(Ferro Alloys Unit)
- 3 a. Clearance letter(s) / OM No. and : J-11011/384/2010-IA-II (I) Dated-
dated 31.10.2011
b. CTE and CTO CTE- Memo No. T-551, Dated-
24.02.2000 & 2577 Dated- 20.05.2009
and PC/NOC/HBZ/288/09/ D-1510 (N)
Ranchi Dated- 21.05.2014.
CTO- JSPCB/HO/RNC/CTO-
4412165/2020/1819 dated 10.11.2020
with validity up to 31.12.2025.
- 4 Locations : Industrial Area, Marar, Ramgarh
a. Taluk(s) : Mandu
District Ramgarh
b. State (s) : Jharkhand-829117
c. Latitudes / Longitudes : 23°39'33.79"N 85°30'20.85"E
23°39'33.67"N 85°30'24.03"E
23°39'25.52"N 85°30'25.28"E
23°39'25.35"N 85°30'19.63"E
- 5 Address of correspondence
a. Address of concerned project Chief : Shri Gaurav Budhia (Director)
Engineer (with Pin Code & Main Road Ranchi -834001 Jharkhand
telephone / telex / fax numbers Mo. 9631087691
Email- bfcgfa@gmail.com
b. Address of Executive Project : Shri B.K. Gupta (General Manager -
Engineer/ Manager (with Pin Environment) Industrial Area, Marar
Code/fax numbers) Dist- Ramgarh,
Jharkhand-829117
Mo. 9955989422
Email- bfcgfa@gmail.com
- 6 Salient features:
a. Salient features of the project 2x5 MVA, 1x7.5 MVA and 1x9 MVA
Submerged Arc Furnaces
b. of the environmental management Covered in the EIA/EMPs submitted to
plans the Ministry of Environment, Forests
and Climate Change (MoEF&CC) from
time to time for approval at the time of
grant of Environmental clearance (EC).
- 7 Breakup of the project area:
a. Project area : 14 acres (As per the EC accorded).

Mehab

- 8 Break up of project affected population with enumeration of those losing houses / dwelling units only, agricultural land only, both dwelling units and agricultural land and landless labourers / artisans
- a SC,ST/Adivasis : Not Applicable
- b Others : Not Applicable
- 9 Financial Details:
- a Project cost as originally planned and subsequent revised estimates and the years of price reference : 20.00 Crores. (As per the EC accorded).
- b Allocations made for environmental management plans, with item wise and year wise breakup : Rs 2.0 Crore (As per the EC accorded).
- c Benefit cost ratio / internal rate of return and the years of assessment : Details not furnished
- d Whether (c) includes the cost of environmental management as shown in (b) above : -
- e Total expenditure on the Project so far : Details not furnished
- f Actual expenditure incurred on the environmental management plans so far : April 2019 to Sept 2021
Rs.27,252,621.65 (as reported by PP).
- 10 Forest land requirement:
- a The status of approval for a diversion of forest land for non-forestry use : Not applicable as no forest land is involved (as reported by PP).
- b The status of compensatory afforestation, if any :
- c The status of clear felling :
- d Comments on the viability and sustainability of compensatory afforestation programme in the light of actual field experience so far :
- 11 The status of clear felling in non-forest area (such as submergence area of reservoir, approach road), if any, with quantitative information : Not Applicable (as reported by PP).
- 12 Status of construction:
- a Date of commencement : 21.05.2014 (as reported by PP).
- Date of completion (actual and / or planned) : 07.07.2014 (as reported by PP).
- 13 Reasons for the delay if the project is yet to start : Not Applicable
- 14 Date of site visit:



- a The dates on which the project : 02.10.2020
was monitored by the Regional
Office on previous occasions, if
any
- b Date of site visit for this : 05.01.2022
monitoring report

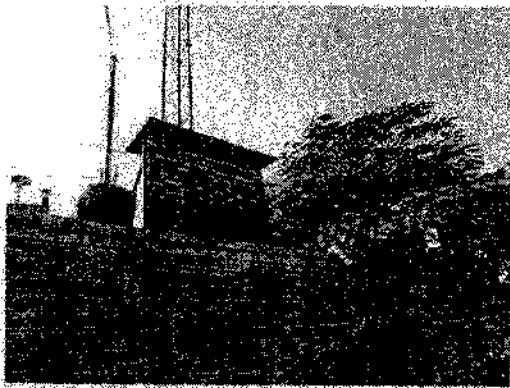


Photo1: A view of the display board



Photo2: A view of the briquetting unit



Photo3: A view of tarpaulin covered raw material



Photo 4: A view of the green belt along the boundary



Photo 5: A view of rain water recharge pit



Photo6: A view of the coal kept in covered shed.



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PART-II&III
DESCRIPTIVE REPORT ON STATUS OF COMPLIANCE TO THE CONDITIONS OF
THE ENVIRONMENTAL CLEARANCE AND ENVIRONMENTAL MANAGEMENT

Subject: Expansion of Ferro Alloy Plant by Installing SAF (9MVAx1=40TPD) for manufacture of Ferro Silicon/Ferro-Manganese at Plot no 1405, Ramgarh Industrial Area Marar District Ramgarh, Jharkhand by M/s Bihar Foundry and Casting Ltd.

Reference: EC letter no. J-11011/384/2010-IA-II (I) dated 31.10.2011.

PRESENT STATUS OF THE PROJECT

Ministry of Environment, Forests and Climate Change accorded Environmental Clearance vide letter no. J-11011/384/2010-IA-II(I) dated: 31.10.2011 to M/s Bihar Foundry and Casting Ltd. for Expansion Ferro Alloy Plant by Installing SAF (9MVAx1=40TPD) for manufacture of Ferro Silicon/Ferro-Manganese at Plot no 1405, Ramgarh Industrial Area Marar District Ramgarh, Jharkhand. The above project was monitored by the Integrated Regional Office Ranchi on 05.01.2022 along with the following representatives of the PP:

- i. Mr Anant Seth, Vice President
- ii. Mr. Ganapati Verma GM Production
- iii. Mr Vinay Gupta, GM Environment

As per the Environmental Clearance accorded vide letter dated 31.10.2011 details of existing and proposed expansion facilities indicated are as follows.

Sl No	Name of the Project	Existing	Proposed Expansion
1	Ferro Alloy (2x5MVA)	26 TPD (Silico Manganese)	--
2	Ferro Alloy (7.5MVA)	30 TPD (Silico Manganese)	--
3	Ferro Alloy (9MVAx1)	--	40 TPD (Ferro silicon/ Ferro manganese)

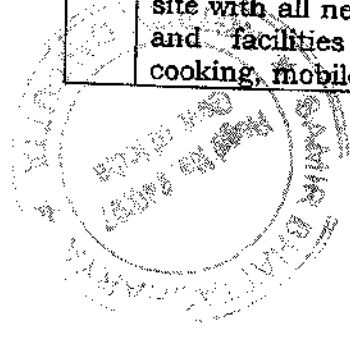
During visit five SAF has been observed at the site. Four was in operation and one said to be in maintenance. The report is submitted on the basis of field visit and as per the information provided by the Project Proponent. The status of compliance on the stipulated conditions contained in the EC cited above is given below:

SL NO	A. SPECIFIC CONDITIONS	STATUS OF COMPLIANCE
01.	Compliance to all the specific and general conditions stipulated for the existing plant by the Central/State Government shall be ensured and regular reports submitted to the Ministry's Regional Office at	BEING COMPLIED Six Monthly compliance for the period April 2021 to September 2021 has been submitted to the Integrated Regional Office vide email dated 26.11.2021.

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SL NO	A. SPECIFIC CONDITIONS	STATUS OF COMPLIANCE
	Ranchi/SPCB.	
02.	No charcoal shall be used as fuel. Pet coke shall be used as fuel instead of charcoal from unknown sources.	PARTIALLY COMPLIED Charcoal has not been observed to be used as fuel. However, project authority using pearl coke and coal in place of pet coke.
03.	Continuous monitoring facilities for all the stacks and sufficient air pollution control equipments viz. fume extraction system with bag filters, ID fan and stack of adequate height to submerged arc furnace shall be provided to control emissions below 50 mg/Nm ³ .	PARTIALLY COMPLIED Two stack has been provided for the four furnace. One furnace has not been connected to stack. Continuous monitoring facility has been provided for particulate matter for two stack. Fume extraction system with bag filter has been provided. During visit stack emission observed to be less than 50 mg/Nm ³ . However, fumes were found to be escape sideways also which indicate inefficient fume extraction system.
04.	The National Ambient Air Quality Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16 th November, 2009 shall be followed.	BEING COMPLIED Ambient air quality monitoring data has been furnished for twelve parameter, vide report dated 25.11.2021. The parameters are within NAAQS 2009.
05.	Secondary fugitive emissions from all the sources shall be controlled within the latest permissible limits issued by the Ministry and regularly monitored. Guidelines / Code of Practice issued by the CPCB shall be followed.	BEING COMPLIED Coal was found to be kept in covered shed. Raw materials were mostly covered with tarpaulin. Fugitive emission monitoring data dated 20.11.2021 has been furnished. Data reported to be 476.59µg/M3 and 479.12 µg/M3.
06.	Regular monitoring of influent and effluent surface, sub-surface and ground water shall be ensured and treated wastewater shall meet the norms prescribed by the State Pollution Control Board or described under the Environment (Protection) Act, 1986 whichever are more stringent. Leachate study for the effluent generated and analysis shall also be regularly carried out and report submitted to the Ministry's Regional Office at Ranchi, SPCB and CPCB.	BEING COMPLIED Cooling water has been recycled. Ground water monitoring has been done from the bore well, and monitoring data dated 20.11.2021 has been furnished. Leachate analysis data of dated 20.11.2021 has been furnished.
07.	The total water requirement shall not exceed 35 m ³ /day and prior Permission to draw the water from Competent Authority shall be obtained. Zero' effluent discharge	BEING COMPLIED As per the environmental statement for the year 2020-21, water consumption reported to be 35m ³ /day. Bore well was found to be fitted with water meter.

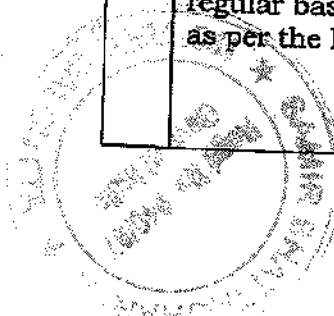
SL NO	A. SPECIFIC CONDITIONS	STATUS OF COMPLIANCE
	shall be strictly followed and no wastewater shall be discharged outside the premises.	Approval has been obtained from CGWA vide letter no CGWA/NOC/IND/ORIG/2021/10628 dated-02.01.2021 which is valid up to 01.01.2024. Cooling water has been re-circulated.
08.	Efforts shall be made to make use of rain water harvested. If needed, capacity of the reservoir should be enhanced to meet the maximum water requirement. Only balance water requirement should be met from other sources.	BEING COMPLIED Rain water recharge pit has been constructed. Approval has been obtained from CGWA for withdrawal of ground water vide letter no CGWA/NOC/IND/ORIG/2021/10628 dated 02.01.2021 which is valid up to 01.01.2024.
09.	Slag produced in Ferro Manganese (Fe-Mn) production shall be used in manufacture of Silico Manganese (Si-Mn). All the other ferro alloy slag shall be used in the preparation of building materials.	BEING COMPLIED As per the production data furnished presently only ferro manganese are being produced. It was informed that ferro manganese slag are being sized and sent to jigging plant for extraction of metals and remaining slag sold to silico manganese manufacturing unit.
10.	Risk and Disaster Management Plan along with mitigation measures should be prepared and a copy submitted to the Ministry's Regional Office at Ranchi, SPCCB and CPCB within three months of issue of environment clearance letter.	PARTIALLY COMPLIED A copy of approved Risk and Disaster Management Plan for one SAF has been furnished. Risk and Disaster Management Plan as per the capacity of the unit need to be furnished.
11.	As proposed, green belt shall be developed in at least 33 % of the project area. Selection of plant species shall be as per the CPCB guidelines in consultation.	PARTIALLY COMPLIED Plantation has been observed in patches, not all along the boundary as per CPCB norms.
12.	At least 5% of the total cost of the project should be earmarked towards the Enterprise Social Commitment based on locals need and item-wise details along with time bound action plan should be prepared and submitted to Ministry's Regional Office at Ranchi. Implementation of such program shall be ensured accordingly in a time bound manner.	BEING COMPLIED As per the EC accorded total cost of the project is Rs. 20.00 crores. 5% of that is Rs. 1.00 crores. Project authority reported an expenditure of Rs. 128.763 Lakhs from April 2018 to August 2021 on health, education, medical, social work etc.
13.	The company shall provide housing for construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, safe drinking	PLEASE REFER BELOW During visit the industry was in operation. Condition can't be verified at present.



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SL NO	A. SPECIFIC CONDITIONS	STATUS OF COMPLIANCE															
	water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.																
14.	The Company shall submit within three months their policy towards Corporate Environment Responsibility which should inter-alia address (i) Standard operating process/ procedure to being into focus any infringement/deviation/violation of environmental or forest norms/conditions, (ii) Hierarchical system or Administrative order of the Company to deal with environmental issues and ensuring compliance to the environmental clearance conditions and (iii) System of reporting of non compliance/violation environmental norms to the Board of Directors of the company and/or stakeholders or shareholders.	BEING COMPLIED Project Proponent furnished a copy of the environment policy of Gautam Ferro Alloy unit of BFCL. The policy inter-alia includes sustainability, control of air pollution, control of water pollution, solid waste management, implementation of policy, annual environmental budget etc.															
B. GENERAL CONDITIONS:																	
01	The project authorities must strictly adhere to the stipulations made by the Jharkhand State Pollution Control Board and the State Government	BEING COMPLIED Consent to Establish has been obtained vide letter no. T-551 dated 24.12.2000, Memo No. - 2577 dated 20.05.2009 and Memo no. PC/NOC/HBG/288/09/D-1510(N) dated 21.05.2014. Consent to Operate has been obtained vide letter no. JSPCB/HO/RNC/CTO-4412165/2020/1819 dated 10.11.2020 for Ferro Alloy Silico/Manganese - 96 TPD with a validity up to 31.12.2025.															
02	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.	NOT COMPLIED During visit five SAF has been observed at the site. Four SAF was in operation and one said to be in maintenance. As per the EC accorded four SAF with 96 TPD ferro silicon/ ferro manganese has been indicated. Production reported has been tabulated below:															
		<table> <tr> <th>Year</th><th>Fe-Si</th><th>Fe-Mn</th></tr> <tr> <td>2017-18</td><td>32215.610</td><td>00</td></tr> <tr> <td>2018-19</td><td>30146.060</td><td>00</td></tr> <tr> <td>2019-20</td><td>21511.995</td><td>9666.605</td></tr> <tr> <td>2020-21</td><td>6034.5</td><td>21998.971</td></tr> </table>	Year	Fe-Si	Fe-Mn	2017-18	32215.610	00	2018-19	30146.060	00	2019-20	21511.995	9666.605	2020-21	6034.5	21998.971
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2020-21	6034.5	21998.971															

SL NO	A. SPECIFIC CONDITIONS	STATUS OF COMPLIANCE		
		2021-22 (6M)	0000	17606.190
03	The gaseous emissions from various process units shall conform to the load/mass based standards notified by this Ministry on 19 th May, 1993 and standards prescribed from time to time. The State Board may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location.	BEING COMPLIED During visit stack emission observed to be less than 50 mg/Nm ³ . Fugitive emission monitoring data dated 20.11.2021 has been furnished. Data reported to be 476.59 µg/M3 and 479.12 µg/M3.		
04	At least four ambient air quality monitoring stations should be established in the downward direction as well as where maximum ground level concentration of PM ₁₀ , SO ₂ and NO _x are anticipated in consultation with the SPCB. Data on ambient air quality and stack emission shall be regularly submitted to this Ministry including its Regional Office at Ranchi and the SPCB / CPCB once in six months.	PARTIALLY COMPLIED Ambient air quality monitoring data of four location has been furnished to Regional Office. However, details of consultation with the SPCB for installation of Ambient Air Quality stations needs to be furnished.		
05	Industrial wastewater shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19 th May, 1993 and 31 st December, 1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose.	PARTIALLY COMPLIED Cooling water recycle through cooling tower and storage tank. However, proper collection and treatment of runoff rain water from the raw materials storage area needs to be done.		
06	The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).	BEING COMPLIED As per the noise level Monitoring data furnished for dated 20.11.2021 Noise level varies from 74.0 dBA to 48.1 dBA during day time and 58.6 dBA to 49.2 dBA during night time.		
07	Occupational health surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.	PARTIALY COMPLIED Project Proponent reported in the submitted six monthly compliance that Periodical medical examinations of employees are organized as per factory act. Project Proponent has furnished fifteen medical checkup records.		



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SL NO	A. SPECIFIC CONDITIONS	STATUS OF COMPLIANCE
		However, occupational health surveillance of the worker needs to be carried out regularly.
08	The company shall develop surface water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table.	PARTIALLY COMPLIED Ground water recharge structure has been constructed; however, surface water harvesting structure needs to be constructed.
09	The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/EMP report. Further, the company must undertake socio-economic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc.	PARTIALLY COMPLIED Status of environmental protection measure has already been depicted in the environmental clearance conditions. EIA/EMP has not been available at IRO Ranchi. Protection measure such as to channelize the fume through the stack, dust extraction system in raw material unloading area, rain water storage pond, etc needs to be implemented. Project authority reported an expenditure of Rs. 128.763 Lakhs from April 2018 to August 2021 on health, education, medical social work etc.
10	Requisite amount shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. An implementation schedule for implementing all the conditions stipulated herein shall be submitted to the Regional Office of the Ministry at Ranchi. The funds so provided shall not be diverted for any other purpose.	BEING COMPLIED As per the EC accorded Rs. 2.00 crores has been allotted for environmental management and pollution control measure as capital cost for pollution. PP reported an expenditure of Rs 27252623.62 from April 2019 to September 2021.
11	A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.	BEING COMPLIED EC letter has been uploaded at the website. A letter has been furnished from ward parshad, Ramgarh indicating receipt of Environmental clearance of M/s Bihar Foundry and Casting Limited.
12	The project proponent shall upload the status of compliance of the	BEING COMPLIED Six monthly compliance for the period

SL NO	A. SPECIFIC CONDITIONS	STATUS OF COMPLIANCE
	stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MOEF at Ranchi, the respective Zonal Office of CPCB and the CECB. The criteria pollutant levels namely; PM10, SO ₂ , NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	Apr21 to Sep21 has been furnished to IRO Ranchi vide email dated 26.11.2021 and uploaded on the website of the company. Display board has been provided at the main gate to display the online stack particulate monitoring data and online PM10 monitoring data.
13	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry at Ranchi/ CPCB / SPCB shall monitor the stipulated conditions	BEING COMPLIED Six monthly compliance for the period Apr21 to Sep21 has been furnished to IRO Ranchi vide email dated 26.11.2021.
14	The environmental statement for each financial year ending 31 st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental conditions and shall also be sent to the respective Regional Offices of the MOEF at Ranchi by e-mail.	BEING COMPLIED Environmental statement has been submitted to IRO Ranchi vide email dated 06.08.2021 and uploaded on the website.
15	The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of	COMPLIED As per the document furnished advertisement regarding accord of Environmental clearance has been published in the Ranchi express and Sunmarg on 04.11.2011



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SL NO	A. SPECIFIC CONDITIONS	STATUS OF COMPLIANCE
	Environment and Forests at http://envfor.nic.in . This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional office at Ranchi.	
16	Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	COMPLIED The date of financial closure for Silico/Ferro manganese reported as 01 st June 2014, and date of start of construction of 40 TPD furnace reported to be 21 st May 2014.

Comments and End note:-Status of implementation of stipulated conditions: - It is inferred from above that following are the non-compliances observed against the stipulated conditions of the Environmental Clearance

Following condition is not complied

1. (General Condition ii) During visit five SAF has been observed at the site. Four SAF was in operation and one said to be in maintenance. As per the EC accorded four SAF with 96 TPD ferro silicon/ ferro manganese has been indicated. Production reported has been tabulated below:

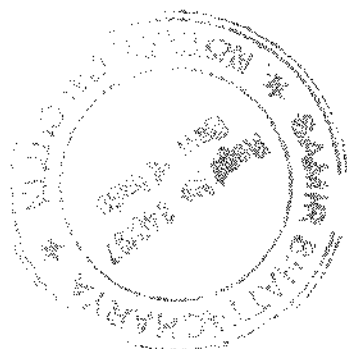
Year	Fe-Si	Fe-Mn
2017-18	32215.610	00
2018-19	30146.060	00
2019-20	21511.995	9666.605
2020-21	6034.5	21998.971
2021-22 (6M)	0000	17606.190

Following condition are partially complied

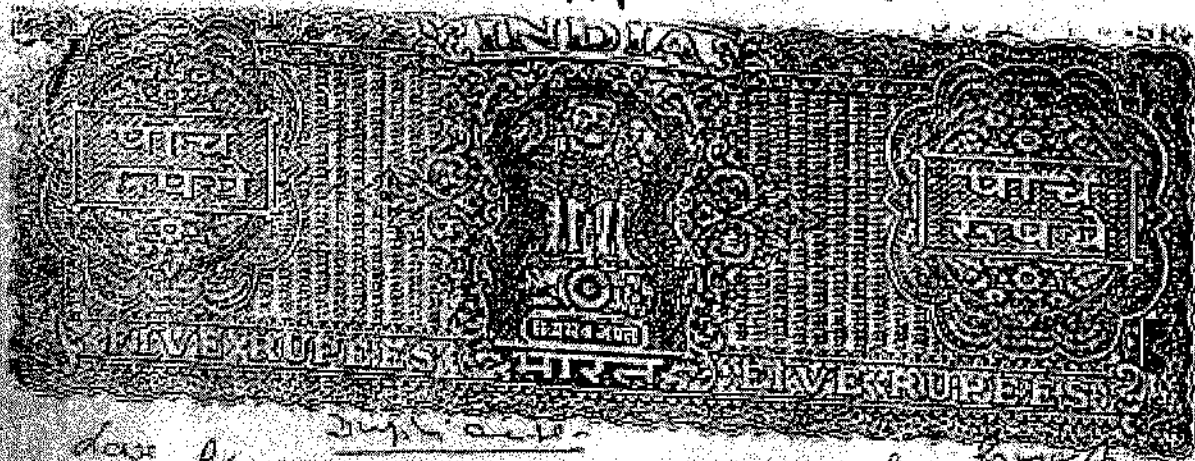
1. (Specific condition ii) Charcoal has not been observed to be used as fuel. However, project authority using pearl coke and coal in place of pet coke.
2. (Specific condition iii) Two stack has been provided for the four furnace. One furnace has not been connected to stack. Continuous monitoring facility has been provided for particulate matter for two stack. Fume extraction system with bag filter has been provided. During visit stack emission observed to be less than 50 mg/Nm³. However, fumes were found to be escape sideways also which indicate inefficient fume extraction system.

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3. (Specific Condition x) A copy of approved Risk and Disaster Management Plan for one SAF has been furnished. Risk and Disaster Management Plan as per the capacity of the unit needs to be furnished.
4. (Specific Condition xi) Plantation has been observed in patches, not all along the boundary as per CPCB norms.
5. (General Condition iv) Ambient air quality monitoring data of four location has been furnished to Regional Office. However, details of consultation with the SPCB for installation of Ambient Air Quality stations need to be furnished.
6. (General Condition v) Cooling water recycle through cooling tower and storage tank. However, proper collection and treatment of runoff rain water from the raw materials storage area needs to be provided.
7. (General Condition vii) Project Proponent reported in the submitted six monthly compliance that Periodical medical examinations of employees are organized as per factory act. Project Proponent has furnished fifteen medical checkup records. However, occupational health surveillance of the worker needs to be carried out regularly.
8. (General Condition viii) Ground water recharge structure has been constructed; however, surface water harvesting structure need to be constructed.
9. (General Condition ix) Status of environmental protection measure has already been depicted in the environmental clearance conditions. EIA/EMP has not been available at IRO Ranchi. Protection measure such as to channelize the fume through the stack, dust extraction system in raw material unloading area, rain water storage pond, etc has not been implemented. Project authority reported an expenditure of Rs. 128.763 Lakhs from April 2018 to August 2021 on health, education, medical social work etc.



T. Mahato
(Dr. T.H. Mahato)
Scientist 'D'



done Simple Calc.
 A. $2,110 \times 0.1 + 1 \text{ hour} \times \frac{0.10}{0.3333} + 7644 - 80$ p.e. $\frac{1000}{1000}$
 - 1000 = 500

1. 2. (9) 46, 14-75

$\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$
 $\frac{1}{4} \times \frac{1}{4} = \frac{1}{16}$
 $\frac{1}{16} \times \frac{1}{16} = \frac{1}{256}$
 $\frac{1}{256} \times \frac{1}{256} = \frac{1}{65536}$
 $\frac{1}{65536} \times \frac{1}{65536} = \frac{1}{4294967296}$

815/88

This indenture made this 28th day of January, one thousand nine hundred and eighty eight between the Industrial Area Development Authority, Ranchi (hereinafter called the LESSOR, which expression shall when the context so admits or implies, include his successors in office and permitted assigns) of the ONE PART AND Shri Hari Krishna Budhia S/o late Radha Budhia, Main Road, Ranchi- 834001 Managing Director of M/s. Bihar Foundry and Castings Limited carrying on business at Plot No. 3/1 Hazarath Industrial Area, Hazaribagh and having registered office at Main Road, Ranchi- 834001 (Bihar) (hereinafter called the LESSEE, which expression shall where the context so admits or implies, include their successors, legal representatives and permitted assigns) of the OTHER PART.

WHEREAS the lessee has applied for land to this Authority and has been allotted the piece of land described and specified in Part-I of the schedule appended hereto with all rights, easements and appurtenances thereto belonging except and reserving unto the lessor all mines, minerals in and under the said land or any part thereof for establishment





a factory for manufacture of ROLLING MILL.

NOW THIS INDENTURE WITNESSETH

In consideration of the payment to the lessor by the lessee of the tentative premiums or salary of Rs. 2,11,070/- (Rupees two lacs eleven thousand seventy) only calculated adhoc basis at Rs. 60,134/- (Rupees sixty thousand one hundred thirty four) only per acre including adhoc proportionate development cost of the area, if any, administrative charges etc. on or before the execution of these presents and of the rent hereby reserved and of the covenants and agreements on the part of the lessee fully mentioned in Part-II of the schedule which too is an integral part of this deed the lessor doth hereby devise unto the lessee all that piece of land mentioned and described in Part-I of the schedule of this deed.

SCHEDULE

PART-I

Details of the land to be leased out hereinafter referred to as "the said land."

FORWARD BY THE GOVERNMENT OF INDIA

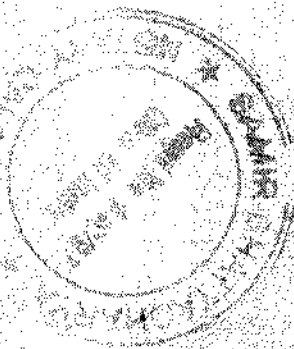
1947

3/-

10

11

12



- 3 -

VILLAGE- HASAR, THANA- RANGARH, THANA NO.- 144, DISTRICT-
HAZARIBAGH.

Industrial plot No.	Khata No.	Survey plot No.	Area
	1	1405 Part.	3.51 acre
		Total Area	3.51 Acres.

Plot No. 1

shown in

red wash in the plan attached and bounded as follows :-

- North- Survey plot No. 1405 P. and Industrial Road.
- South- Survey plot No. 1364 P. and Industrial Road.
- East - Survey plot No. 1405 P. and Industrial plot No. C-5, D-8, C-9, 10, F-11 and 12.
- West - Survey plot No. 1404 P., 1405 P. and IFICO land and Road

PART-II

TERMS AND CONDITIONS OF THE LEASE

1. That the lease of land detailed in Part-I of the schedule is given for ninety nine years to the lessee by the lessor subject to renewal at the option of either party for such period as may be mutually agreed upon.
2. That the lessee would pay to the lessor the proportionate cost of development of land so leased which would include the cost of construction of roads for communication

4/-



purposes, laying of sewerage and water pipes, construction of electric lines, administrative charges, interest etc. and such other expenditure, as may be decided to be part of the development cost by the lessor. The decision of the lessor as to what would constitute to the development cost would be final. Such cost would be subject to revision by the lessor periodically and the revised cost would be applicable to lessee applying for land after such revision of cost. The lessee would also be liable to pay any escalation amount due to court decrees and proportionate rehabilitation cost, if any.

a) In case the lessee is a registered Medium Scale Industry he will have the option to pay the total cost of land and development cost and other charges after allowing subsidies to the extent of 25% in five instalments. The delivery of possession of the land has already been made to the lessee on 22.8.1966 on payment of Rs. 42,214/- (Rupees forty two thousand two hundred fourteen) only, payment of subsequent four instalments of Rs. 42,214/- (Rupees forty two thousand two hundred fourteen) only first falling due on 1st April, 1966 and the remaining three instalment will be due for payment on 1st April of every year till finally liquidated in case of failure or default on the part of the lessee so to pay the said amount in the said manner the lessee shall have



to pay the interest @ 12% per year or the current rate of interest payable to the Banks whichever is more.

3. That in case the actual cost of the development, if any, cannot be finally determined for any reason at the time the lessee is put in possession of the land the lessee shall pay the tentative cost of development as may be fixed by the lessor and shall also execute a bond in favour of the lessor undertaking to pay on demand the administrative charges and the balance of the cost of development of the land as and when finally determined by the lessor on the basis of actual cost of development alongwith interest @ 12% and such other dues, if any, that may be found to be payable by the lessee in terms of the lease.

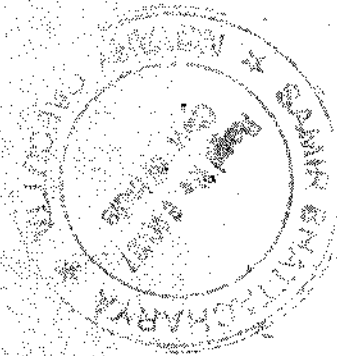
4. That the lessee shall pay annually to the lessor or their nominee as rent a sum of Rs. 175.50 (Rupees one hundred seventy five and paise fifty) only @ Rs. 50/- (Rupees fifty) only per acre in one instalment on or before the 31st March every year. The said rent is liable to be doubled after four years and thereafter revised after every 20 years in accordance with the provisions of the LAW OR ANY RULES FRAMED BY GOVERNMENT OF INDIA OR THE INDUSTRIAL AREA DEVELOPMENT AUTHORITY, MUMBAI, as the same may be in force for the time being and in the absence of any such law or rules, as may be fixed by the lessor.



- 5 -

In addition to price and rent of land the lessees will also have to pay Rs. 50/- (Rupees fifty) only per 1000 sqt. per year as maintenance charge i.e. Rs. 7,544.80 (Rupees seven thousand six hundred forty four and paise eighty) only which will have effect from two years after the date of allotment or from the date from which the unit comes into production whichever is earlier. The other condition being that the rate of maintenance charge can be modified/revised with the prior approval of the Authority.

5. If and whenever any part of the rent and or administrative charges, development cost including interest etc. hereby reserved shall be in arrears the same may be recovered from the lessee as an arrear of land revenue under the provisions of the Bihar Public Demands Recovery Act or such other Act as may be in force for recovery of public demands. The decision of the Area Development Authority with regard thereof shall be final (as in clause 7 of the bond). The lessor also reserves its right to forfeit the lease or allotment of land and to enter upon the same and to realise the said amount by sale of the structures and other things standing and found on the land and free other properties (moveable and immoveable) belonging to the lessee debtor.



-: 7 :-

6. The lessor and the lessee hereby covenant and agree as follows :-

- (i) That the lessee will not assign mortgage, underlet or part with the possession over the land or any right or interest therein or in respect thereto without the previous consent of the lessor or his nominee in writing, provided that in case of registered Small Scale Industries no separate permission will be required to be obtained by the lessee for mortgaging it with any financial institution, for raising loan for the purpose of the industry for which the land was allotted. And in that case the dues of the Industrial Area Development Authority, Ranchi shall also be a first charge on the properties under mortgage Pari-Passu with the charge of the financing institution. Further, the properties offered as security against the loan of the financing institutions should be adequate to cover the full dues of the lessor as well as the loans given by the financing institutions. In that case also the Industrial Area Development Authority, Ranchi will retain "PARI-PASSU" (first) interest with the institution.
- (ii) No change in the lease, proprietorship or partnership if it is private limited or un-limited company or a registered or un-registered firm shall be recognised without the previous written consent of the lessor or his nominee.
- (iii) If the lessee assigns its lease hold interest with the written consent of the lessor in the land described in Part-I of the schedule hereunder written the assignee shall duly get

2/-



- 8 -

his/its or their name or names registered with the lessor or his nominee within four calendar months after obtaining possession of the holding and will possess and use the land and be bound by all terms, covenants and condition herein contained.

iv) That if subsequently any part or parts of the said land is/are required by the State Government or the Industrial Area Development Authority, Ranchi for a public purpose (of which matter the State Government or the Industrial Area Development Authority, Ranchi shall be the sole judge) the lessee shall on being asked by the State Government or the lessor transfer to them such part or parts of the said land as the State Government or the lessor shall specify to be necessary for the purpose aforesaid and in consideration of such transfer the State Government or lessor shall pay back to the lessee a sum proportionate or equal, as the case may be, to the cost of land and its development, if any, earlier realised from him together with compensation for the buildings and other structures erected with approval in writing of the lessor or his nominee on such part or parts of the land at a valuation to be determined by the State Government or the Managing Director of the Industrial Area Development Authority, Ranchi on a report from a Civil Engineer authorised by them in this behalf and the decisions of the State Government or the Managing Director, Industrial Area Development Authority, Ranchi shall be final and binding on the parties and shall not be questioned in any Court or Tribunal or before any authority.

Provided that for the purposes of this sub-clause the State Government or the lessor would be entitled to resume only



- 1 3 -

such part or parts of the land leased out to the lessee as were not actually being used for the purpose of the manufacture and are not essentially required for any purpose connected with the industry.

vi) If at any time the said land or any part or parts thereof shall no longer be required by the lessee for the purpose for which it is leased out to him the lessee shall while selling or assigning the said land or such part or parts as aforesaid first make an offer of the same to the lessor at a price proportionate or equal, as the case may be, to the cost of the land and its development, if any, realised earlier from him and he shall not make any sale or assignment thereof to any other party unless such offer shall have been declined by the lessor.

When such offer has been made by the lessee, lessor may accept it in respect of such part or parts of the land so offered as it may deem fit and decline it in respect of the remainder.

When the first offer of selling or assigning the said land or such part or parts thereof aforesaid has been declined by the lessor the lessee while selling or assigning the said land or parts thereof as aforesaid to any other party shall do so with prior approval of the lessor in writing.

vii) If the lessor accepts the offer made under the foregoing clause the lessee shall be entitled within six months from the date on which acceptance is communicated to him to remove all buildings or structures erected on the said land or part thereof unless the lessor also wish to accept the standing building and structures in which case the lessee shall be entitled to compensation for same in accordance with the valuation as indicated in clause (iv) above.

vii) That the lessee will not make an excavation upon any of the said land hereby devised nor remove any stone, sand, gravel or earth therefrom except for the purpose of digging foundation of building for other purpose of executing any work pursuant to the terms of this lease.

viii) That the lessee shall at his own cost construct and maintain an access road leading from the state road to the said land in strict accordance with specification and details prescribed by the lessor or his nominee.

ix) That no building or erection to be erected hereafter shall be commenced unless and until specifications, plan, elevations, sections and details thereof shall have been submitted by the lessee in triplicate for scrutiny of and be approved in writing by the lessor or his nominee.

Provided that if the decision of the lessor or his nominee is not available within 45 days of the submission of the plan etc. it would be presumed that the lessor or his nominee has no objection to the commencement of the building or erection as the case may be.

x) Both in completion of any such building or erection and all the times during the continuance of this demise, lessee shall observe and conform to the building regulations and to all by-laws, rules and regulations of the Municipality or the Municipal Corporation, as the case may be, in existence or to be framed by the Department of Industries, Government of Bihar or the Industrial Area Development Authority, Ranchi or any other authority authorised by the Department of Industries to frame such rules or having authority in this behalf and any other statutory rules or regulation as may be in force for the time being relating in any way to the devised premises and any building thereon.

xi) The lessee shall submit the plan for building or erection to the lessor within 14 months of the delivery of possession of land to the lessee by the lessor.

Provided that the lessor may extend the period for submission of the plan for building or erection on the individual merit of the case. In the case of failure or default on the part of the lessee to do so by the stipulated date the lessor will have the right to take back the land and the lessee shall have no right to challenge such order of the lessor.

xii) That the lessee shall correctly mark and keep demarcated

(iii) That the lessee shall not except with the written consent of the lessor or his nominee use the land for any purpose other than those specified above subject to such restriction and conditions as may be enjoined by different laws which are or may be in force.

xiv) That the lessee shall use the land for the specified purpose within a period of six months from the date of the lease failing which the lease may be terminated and the lessee evicted from the lands without notice. In case extension is required it can be granted within the discretion of the lessor.

xv) That the lessee shall provide reasonable facilities for the training of the local people in his factory.

xvi) The lease shall stand cancelled if the allottee is found encroaching upon the land of the Authority.

xvii) Other things being equal the lessee shall give preference to the local people in employment in his industrial undertakings.

7. In case of breach by the lessee of any of the terms and conditions the lessor shall have right to resume and enter upon the whole of the said land without payment of any compensation to the lessee and upon such re-entry, all and every interest of the lessee in the said land shall cease and determine.

Provided that the lessee shall be given by the lessor reasonable opportunity to show-cause and to rectify the omissions or defects, if any.

8. In the event of re-entry by the State Government or the lessor the lessee shall be entitled to remove within six months from the date of such re-entry, all buildings, structures, installations, machineries and other assets from the said land.

9. Should any dispute or difference arise concerning the meaning or interpretation of any clause or provisions contained in this lease the same shall be referred to the Managing Director, Industrial Area Development Authority, Ranchi and the decision of the Managing Director or his nominee on such disputes or differences shall be final, conclusive and binding on the parties hereto.

10. That the lessee paying the rent and other charges and observing the several covenants and conditions contained in these conditions shall hold and enjoy the lands upto the terms of the lease without interruption by the lessor or by any person lawfully claiming under him.

11. That the Lessor and Lessee shall have their rights and liabilities of a lessor and lessee respectively in accordance

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clause (1) and (p) thereof and it is hereby declared that the lessor shall have the fullest liberty to postpone for any time and from time to time any action open to him under any of the powers exercisable by him against the lessee and to either enforce or forbear any of the conditions and covenants contained in these presents.

The cost and expense incidental to the preparation, execution and registration of this lease deed shall be borne and paid by the lessee.

IN WITNESS WHEREOF the common seal of M/s. Bihar Foundry and Castings Limited, Ramgarh Industrial Area, Hazarib. here unto been affixed and these presents signed.

For and on behalf of the

For Bihar Foundry and Castings Limited,
Hazarib. Ramgarh Industrial Area,
Hazarib. District, Bihar.

Witness:

1. Shri. Shambhu Singh
28.1.88
Shri. Shambhu Singh, Director

2. Dinesh Kumar Singh
28.1.88
Dinesh Kumar Singh, Manager

IN WITNESS WHEREOF the hand of Shri R. N. Prasad, Secretary, Industrial Area Development Authority, Ranchi for and on behalf of the Authority has been affixed on the date and year first above written.

Secretary,

For and on behalf of the Industrial Area Development Authority, Ranchi.

Witness:

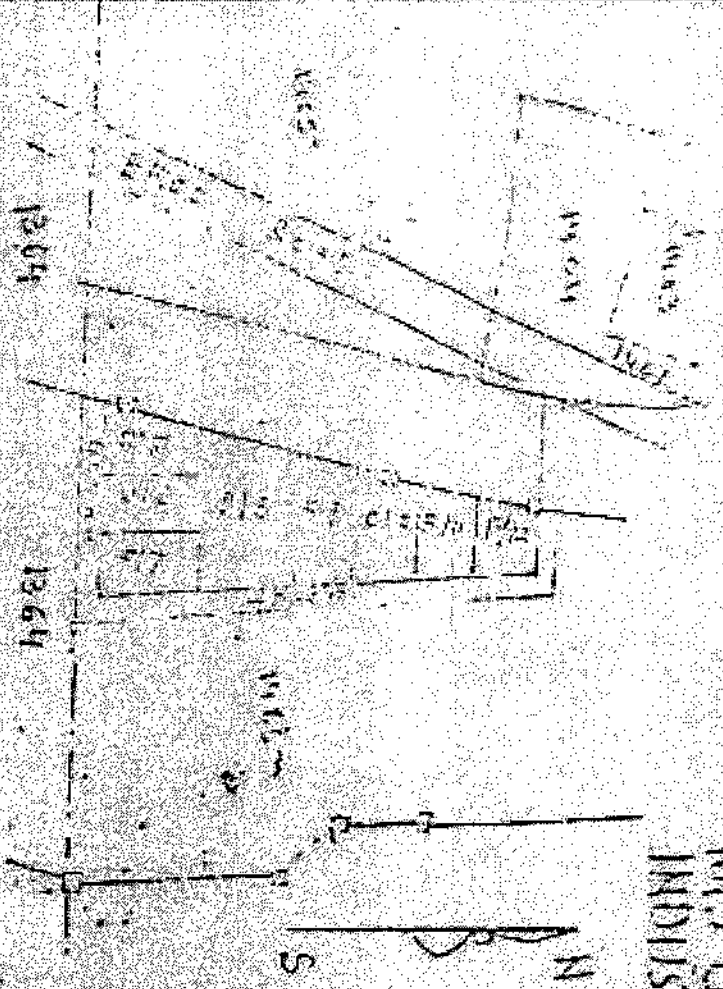
1. H. N. Prasad, 23/1/88

2. Arun Kumar, 27/1/88

Certified that the original and duplicate lease deed are true, exact and reproduction of each other.

Secretary,

INDUSTRIAL AREA KAMGARU (MARR)



BOUNDARY

NORTH : BY S.P. NO. 11054 P. IND. ROAD
 SOUTH : BY S.P. NO. 1364 P. IND. ROAD
 EAST : BY S.P. NO. 1405 P. IND. ROAD
 WEST : BY S.P. NO. 1405 P. IND. ROAD

Carried that the original a duplicate lease plan
 for the area of 3.51 acres of each other.

3.51 ACRES

Director of Lands and Survey
 J. R. P. M. S. M.

Survey No. Survey Plan No. Area

1405 P. IND. ROAD 3.51 ACRES



2. 18. 1968
 D. 1. 1. 1968

SECRETARY
 D. 1. 1. 1968

झारखण्ड औद्योगिक क्षेत्र विकास प्राधिकार, राँची प्रक्षेत्र
जियाडा भवन, नामकुम औद्योगिक क्षेत्र, लोबाडीह, राँची।

पत्रांक- 34

दिनांक- 20/01/2020

प्रेषक:

श्री निरंजन तिकी,
विकास पदाधिकारी।

सेवा में,

जिला अवर निबंधक,
रामगढ़।

विषय:-M/s BIHAR FOUNDRY & CASTING LTD., रामगढ़ औद्योगिक क्षेत्र का
पट्टाकरण के संबंध में।

महाशय,

उपर्युक्त विषयक के संबंध में कहना है कि M/s BIHAR FOUNDRY &
CASTING LTD., रामगढ़ औद्योगिक क्षेत्र का पट्टाकरण कागजात निबंधन करने
की कृपा की जाय। प्राधिकार की ओर से श्री इन्द्रभूषण प्रसाद सिन्हा,
आशुटंकक, जियाडा, राँची प्रक्षेत्र कागजात उपस्थापित करेंगे जिनका हस्ताक्षर
नीचे अभिप्रमाणित है।



(इन्द्रभूषण प्रसाद सिन्हा)
आशुटंकक, जियाडा, राँची प्रक्षेत्र।

विश्वास भाजन,

20/1/2020
विकास पदाधिकारी।



382

377

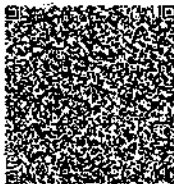


सत्यमेव जयते

INDIA NON JUDICIAL Government of Jharkhand

e-Stamp

Certificate No.	: IN-JH23873502661903R
Certificate Issued Date	: 30-Nov-2019 01:47-PM
Account Reference	: GOVACC (GV)/ jhsrogv07/ RAMGARH/ JH-RG
Unique Doc. Reference	: SUBIN-JHJHSROGV0733867626513194R
Purchased by	: BIHAR FOUNDRY AND CASTINGS LIMITED : B P UPADHAYA
Description of Document	: Article 35 Lease
Property Description	: MARAR 144 RAMGARH
Consideration Price (Rs.)	: 1,96,32,280 (One Crore Ninety Six Lakh Thirty Two Thousand Two Hundred And Eighty only)
First Party	: JHARKHAND INDUSTRIAL AREA DEVELOPMENT AUTHORITY
Second Party	: BIHAR FOUNDRY AND CASTINGS LTD
Stamp Duty Paid By	: BIHAR FOUNDRY AND CASTINGS LTD
Stamp Duty Amount(Rs.)	: 7,85,500 (Seven Lakh Eighty Five Thousand Five Hundred only)



Please write or type below this line

FOR BIHAR FOUNDRY & CASTINGS LTD.

Ganesh Baidya
20/11/2020

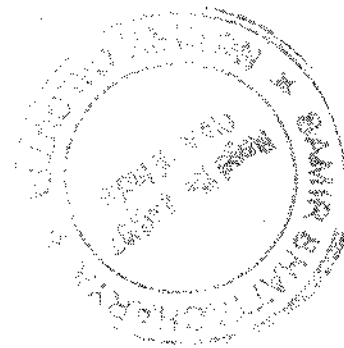
DIRECTOR



विकास परामित्तारी

संघी औद्योगिक क्षेत्र विकास प्राधिकरण
तारीख 20/11/2020

0002218510



Lease for (30) thirty years only

PS. Ramgopal

SI-2855002

पुनरीक्षित न्यूनतम
मूल्य मार्गदर्शिका
पीपी में मार्बलर/
मूल्य से मिलान किया।
न्यूनतम मूल्य से कम नहीं।
4/1/2020

नियम 21 के अधीन ग्राह मा जीय
स्टाम्प अधिनियम (इंडियन स्टाम्प
एक्ट) 1899 के अनुच्छेद 1 बर्दे 1 के
सो की अधिनियम स्टाम्प सहित
(या स्टाम्प शुल्क से निम्न या स्टाम्प
शुल्क अधिशित नहीं)
रा०.....20.....

Stamp Paid-

Area-

Anchal-

Rent-

Fees Paid-

At-

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P 1000-

Area- 588969 = 00

2000 = 00

590969 = 00

अथ निबंधन पदाधिकारी

समय

उपायुक्त रामगोपाल का पत्रांक 414/20 दिनांक 22/07/2020 के
अनुसार निबंधन निष्पादित /

LEASE DEED

THIS DEED OF LEASE IS made on this the _____ day of _____
20 _____ at _____

BETWEEN

The Jharkhand Industrial Area Development Authority, Ranchi Region, JIADA
Bhawan 5th floor, Namkum Industrial Area, Lowadih, Ranchi-834010.

Represented by its Regional Director/his authorized representative Sri Niranjana

Trikey S/o Late Abraham Trikey aged about 52 years, by Faith-Christian,

Nationality-Indian, Permanent Resident of JIADA Bhawan Namkum Lowadih,

Ranchi. Local Resident of JIADA Bhawan Namkum Lowadih, Ranchi P.O.

Namkum, P.S-Namkum Town-Ranchi, District-Ranchi, State-Jharkhand

hereinafter to be referred to as the 'Authority' which terms shall include its

successors in office, hereinafter to be referred to as the 'LESSOR' or the

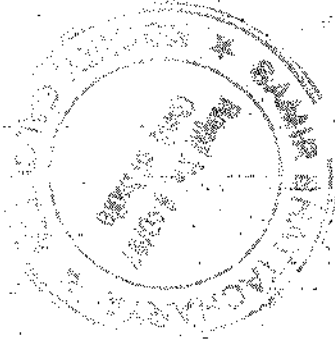
'AUTHORITY' which expression shall, where in the context show admits or

implies, includes successor in office and permitted assign of the first part

FOR BIHAR FOUNDRY & CASTINGS LTD.

उपायुक्त रामगोपाल का पत्रांक 414/20 दिनांक 22/07/2020 के

से
रस्तावेज
विशेष
की जांच



श्री० एकनाथ हठ
दस्तावेज लेखक

सा.प. नं०-23/02, रामगढ़

Signature
०५/११/२०



देकता का नाम

निवास

लेखकरी हाथेदर भा. जिला अंतर्गत निबंधक रामगढ़

द्वारा प्रमाणित पुरस्कारनाम स.प. नं० ११/२०१०

अधीन लेखककारियों र.प. नं० ११/२०१० में एक श्री

श्री. २५२९ के अंतर्गत निबंधक र.प. नं० ११/२०१०

पुस्तक (ग. अ.प.रा.ह.ग.) के जिला अंतर्गत निबंधक

कमिशनरी रामगढ़ में निबंधन के लिए पेश किया

निबंधन के हस्ताक्षर

Signature

निबंधन पदाधिकारी

रामगढ़

Signature

प.प. नं० ३५ दि० २०/०१/२०२०

-2-

AND

Shri Gaurav Budhia S/o Shri Hari Krishna Budhia aged about 29 years, by occupation-Business by Caste-Hindu, by Faith-Hindu, Nationality-Indian, Permanent Resident of Near Surendranath Centenary School H.B.School, H.B. Road Dipatoli, Ranchi-834009 Jharkhand EMAIL ID: bfcgfa@gmail.com representing the allottee Shri Gaurav Budhia, Director of M/s.BIHAR FOUNDRY & CASTING LTD., Plot No. C5,C6,D8,C9,C10,F11 & F12, Ramgarh Industrial Area, Ramgarh hereinafter to be referred to as the 'LESSEE' which terms shall include the legal heirs, successors, legal representatives, assigns of the other part.

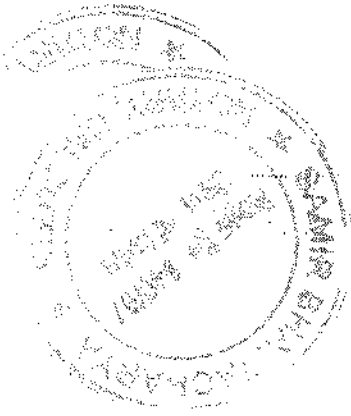
PART-I**SHORT RECITAL**

1. Whereas, the lessor is an Authority created under section 3 of Bihar Industrial Area Development Authority Act, 1974 as adopted by the Government of Jharkhand vide Notification No.339 dated 02.03.2001 issued by the Department of Science Technology, Information Technology and Industry as Jharkhand Industrial Area Development Authority Act, 2001 and is committed for planned development of industrial area and promotion of industry and matters appurtenant thereto under its command area.
2. Whereas, for fulfillment of its objective the lessor Authority has been making the land available to the intending entrepreneur on lease term basis for setting up industry as per actual requirement and subject to the provisions of Jharkhand Industrial Area Development Authority Act, 2001 as amended from time to time, Jharkhand Industrial Area Development Authority Rules, 2001, Jharkhand Industrial Policy as applicable on the relevant date and the Regulations 2015 of the Authority made in exercise of powers conferred under section 15 of Jharkhand Industrial Area Development Authority Act, 2001.

FOR BIHAR FOUNDRY & CASTINGS LTD.

Gaurav Budhia
20/11/2020 DIRECTOR

20/11/2020
विकास पदाधिकारी
सैन्य औद्योगिक क्षेत्र विकास प्रधिकार
सैन्य



-3-

3. Whereas, the lessee applied for allotment of Addl. 3.67 Acres area of land for setting up " Ferro-Alloys " industry in the command area of the lessor and the lessor after considering the requirement of land of the lessee, allotted Addl. 3.67 Acres area of land/ shed/ plot, more fully described in the Land Schedule below, vide allotment order No. 1173 dated 16.09.2019 and upon payment of Rs.19,19,188.00 (Rupees Nineteen Lakhs Nineteen Thousand One Hundred Eightyeight only) (Land Price Rs.1,91,91,880.00 1st installment Land Price Rs.19,19,188.00) towards full premium of land / first installment in case of mega IT industry (*whichever is applicable*), execution of indemnity bond dated Nil and the lessee has been handed over physical possession of allotted land on 19.11.2019.
4. Whereas, in terms of Authority's Regulations 2015, the lessee has to get the lease deed executed by the lessor and registered within a period of three months from the date of taking possession of the allotted land/ shed. Since the lessee has fulfilled the conditions for execution of lease deed, the lessor executes the lease deed.

FOR BIHAR FOUNDRY & CASTINGS LTD.

Gaman Rudra
20/11/2020 DIRECTOR

20/11/2020
विकास प्रदायिका
संघी औद्योगिक क्षेत्र विकास प्राधिका
संघी

-4-

LAND SCHEDULE

DETAILS OF LAND TO BE LEASED OUT
M/S. BIHAR FOUNDRY & CASTING LTD.,

Ramgarh Industrial Area

Village : Marar

Thana No. : 144

Thana : Ramgarh

Dist. : Ramgarh

Corresponding to Industrial Plot No. C5, C6, D8, C9, C10, F11 & F12

Khata No.	Survey Plot No.	Area
1	1405P	3.67
		Total Area : 3.67 Acres

Calculation of Industrial Plot No. C5, C6, D8, C9, C10, F11 & F12

BOUNDARY

As per Survey Plot No. As per Industrial Plot No.

North	:	By Survey Plot No. 1405P & Indl. Road
South	:	By Survey Plot No. 1405P & Indl. Plot No. C/7 & Indl. Road
East	:	By Survey Plot No. 1405P & Indl. Plot No. C7 & Indl. Road
West	:	By Survey Plot No. 1405P & Indl. Plot No. 45

Possession taken over the plot on: 19.11.2019

FOR BIHAR FOUNDRY & CASTINGS LTD.

Ganesh Prasad
20/11/2020

DIRECTOR

20/11/2020
विकास पदाधिकारी
हरी औद्योगिक क्षेत्र विकास प्राधिकरण
रांची





-5-

PART-II

TERMS AND CONDITIONS OF LEASE DEED

The lessor and the lessee hereby covenants and agrees as follows:-

1. That the scheduled land has been allotted to the lessee by the lessor for setting up "M/s.BIHAR FOUNDRY & CASTING LTD.," industry in the command area of the lessor for manufacturing "Ferro-Alloys."
2. That the period of tenure of lease in respect of the scheduled land/ shed shall be for a period of 30 (thirty) years from the date of allotment and annual rent and other charges shall be paid by the lessee to the lessor as decided by the Managing Director of the Authority.
3. That the tenure of lease as above shall be subject to renewal at the option of the parties. In order to get the tenure of lease renewed, the lessee shall make a written request to the lessor three months prior to expiry of lease period. After considering the request of the lessee objectively, the lessor shall renew the tenure of lease for another period of 30 (thirty) years on payment of processing fee of Rs.10,000.00 for land upto 1.0 acres, Rs.25,000.00 for land above 1.0 acres upto 3.0 acres and Rs.50,000.00 for land over 3.0 acres or as decided by the lessor from time to time and on furnishing declaration by the lessee that it/he/she shall utilize the land only for the purpose it has been allotted and that the conditions of allotment order, indemnity bond and this lease deed is acceptable to it/him/her and that the lessee is not in default in payment of dues of the Authority and any statutory dues or dues of any financial institution payable by the lessee.

FOR BIHAR FOUNDRY & CASTINGS LTD.

Ganesh Prasad
20/11/2020

DIRECTOR

20/11/2020
बिहार प्रवासाधिकारी
जिला औद्योगिक क्षेत्र विकास प्राधिकरण
पटना



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-6-

4. That if the lessee is a mega, Textile industry it shall have option to pay the total land premium, land development charges calculated and fixed by the lessor, in Ten equal installments spread over period of 5 (Five) years. The lessee is held and firmly bound to pay the land premium in remaining Nine installments which shall be spread over period of 4 ½ (Four and half) years within one month of demand from the lessor Authority. For deferred payment, the lessor shall charge interest on balance amount @15% p.a subject to revision by the lessor from time to time. If the lessee fails to make payment of any installment within the time frame fixed by the lessor, additional charge at prevailing rate accruing upon the footing of yearly computed interest shall be borne by the lessee. No rebate shall be admissible in this regard and the lessor reserves its right to make change in the rate of interest. Delivery of possession of land/ shed has been made to the lessee by the lessor on payment of first installment and the schedule for payment for the remaining nine installments are fixed as follows:-

Sl.No.	Installment	Amount	Amount	Interest	Total Amount	Due Date
1	1 st installment	Rs. 1,91,91,880.00	Rs. 19,19,188.00	Rs. Nil	Rs. 19,19,188.00	02.08.2019
2	2 nd installment	Rs. 1,72,72,692.00	Rs. 19,19,188.00	Rs. 4,31,817.00	Rs. 23,51,005.00	02.02.2020
3	3 rd installment	Rs. 1,53,53,504.00	Rs. 19,19,188.00	Rs. 3,38,838.00	Rs. 22,58,026.00	02.08.2020
4	4 th installment	Rs. 1,34,34,316.00	Rs. 19,19,188.00	Rs. 3,35,858.00	Rs. 22,55,046.00	02.02.2021
5	5 th installment	Rs. 1,15,15,128.00	Rs. 19,19,188.00	Rs. 2,87,878.00	Rs. 22,07,066.00	02.08.2021
6	6 th installment	Rs. 95,95,940.00	Rs. 19,19,188.00	Rs. 2,39,899.00	Rs. 21,59,087.00	02.02.2022
7	7 th installment	Rs. 76,76,752.00	Rs. 19,19,188.00	Rs. 1,91,919.00	Rs. 21,11,107.00	02.08.2022
8	8 th installment	Rs. 57,57,564.00	Rs. 19,19,188.00	Rs. 1,43,939.00	Rs. 20,63,127.00	02.02.2023
9	9 th installment	Rs. 38,38,376.00	Rs. 19,19,188.00	Rs. 95,959.00	Rs. 20,15,147.00	02.08.2023
10	10 th installment	Rs. 19,19,188.00	Rs. 19,19,188.00	Rs. 47,980.00	Rs. 19,67,168.00	02.02.2024

FOR BHAR FOUNDRY & CASTINGS LTD.

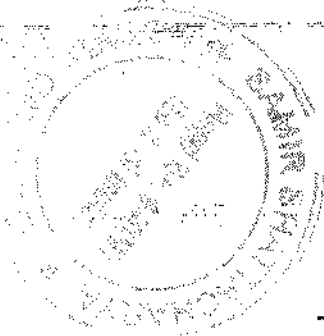
Gagan Rudra
20/11/2020 DIRECTORविकास प्रशासक
संजीवनी विकास अधिकारी
गया



- FOR BIHAR FOUNDRY & CASTINGS LTD.

Gawa Budrio
20/1/2020 DIRECTOR

विज्ञानस भद्राभिवादी
शैली वैज्ञानिक क्षेत्र विकास प्राधिकरण
शैली



-8-

9. That the lessee shall get the boundaries of land allotted to it/him/her demarcated correctly at the time of taking physical possession thereof from the lessor/ representative of the lessor.
10. That the lessee shall go into production or show substantial progress towards the implementation of project within six months from the date of approval of plan and shall start construction work with the margin money showed in the project report as input out of it/his/her own resources. Similarly, in the matter of installation of machineries etc, the lessee shall put machineries and other infrastructure with his share of working capital. Non financing by the financial institution shall not be considered by the lessor as non adherence of schedule of implementation of the project by the lessee and the lessor shall be at liberty to take appropriate action against the lessee for non adherence of schedule of project implementation.
11. That the lessee shall obtain water, drainage and power connection by making application in prescribed form to the respective authorities. Environmental clearance, fire clearance as well as ground water clearance, if required to be obtained at any stage during the tenure of allotment, the lessee shall obtain these clearances on its own and the lessor Authority shall in no way be responsible for the delay or rejection of application of the unit for the above.
12. That the lessee shall be responsible for construction and maintenance of any road or drainage or any electrical installation within the allotted plot/shed as per approved plan at his own cost and expenses.

FOR BINAR FOUNDRY & CASTINGS LTD.

Ganesh Budhia
20/11/2020 DIRECTOR

20/11/2020
विकास प्रशासिका
सूची अधीन: क्षेत्र विकास प्रभाग
रैको



-9-

13. That the lessee shall obtain required consent under concerned pollution laws or No Objection Certificate as the case may be before commencement of construction work and consent to operate (as applicable) before commencement of production in the unit from Jharkhand State Pollution Control Board.
14. That the mortgage of lease hold right on land in favor of nationalized and scheduled banks or any other financial institution in any sector for financing the project on the scheduled land, shall be permissible with prior written consent of the Managing Director of the Authority only for the project duly cleared by the PCC on the allotted plot and where time limit for bringing the unit to production exists. _____
15. That the application for consent made by the lessee to the Managing Director of the Authority for mortgage of the lease hold right in respect of the scheduled property in favor of nationalized or scheduled banks shall be disposed of within 15 days from the date of submission of application.
16. That in case of mortgage, the Authority shall have the first charge on the assets/ property (built space/ shed) towards transfer charges, extension charges, lease rent interest and any other dues, taxes, charges etc payable to the Authority from time to time. _____
17. That the lessee/ allottee shall submit to the Authority application for grant of consent to mortgage along with consent/ commitment letter from the financial institution to the effect that the financial institution shall make the finance available to the allottee.

14. That the mortgage of lease hold right on land in favor of nationalized and scheduled banks or any other financial institution in any sector for financing the project on the scheduled land, shall be permissible with prior written consent of the Managing Director of the Authority only for the project duly cleared by the PCC on the allotted plot and where time limit for bringing the unit to production exists.

15. That the application for consent made by the lessee to the Managing Director of the Authority for mortgage of the lease hold right in respect of the scheduled property in favor of nationalized or scheduled banks shall be disposed of within 15 days from the date of submission of application.

16. That in case of mortgage, the Authority shall have the first charge on the assets/ property (built space/ shed) towards transfer charges, extension charges, lease rent interest and any other dues, taxes, charges etc payable to the Authority from time to time.

17. That the lessee/ allottee shall submit to the Authority application for grant of consent to mortgage along with consent/ commitment letter from the financial institution to the effect that the financial institution shall make the finance available to the allottee.

FOR BINAR FOUNDRY & CASTINGS LTD.

Gaurav Sudhik
20/1/2020 DIRECTOR

सिद्धार्थ पदार्थ शास्त्री
पुर्वी औद्योगिक क्षेत्र-14004 प्रोद्योगिक
सर्वो



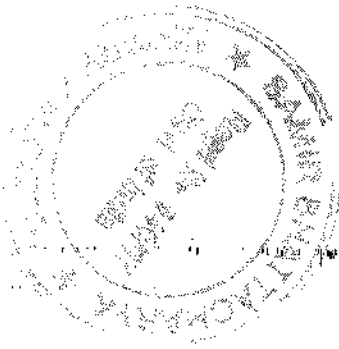
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18. That the financial institutions which take the mortgage of the lease hold scheduled property or any part thereof, in the event of sale of lease hold right in the mortgaged plot/shed shall obtain information from the Authority about its dues, processing fees, land premium, lease rent, interest or any other dues including taxes and charges etc payable to it by the lessee atleast 7 (seven) days prior to the auction sale of the scheduled property. If the financial institution proceeds to sell the property by auction, the intending bidders must be informed in writing through notice or otherwise that the successful bidder shall be given possession of the lease hold right on the scheduled property only after production of No Dues Certificate from the office of the lessor.
19. That the mortgaged lease hold right in the scheduled land auctioned by the bank/ financial institution/ statutory authority may be considered for regularization by the lessor in favour of the successful bidder identified by the bank/ financial institution/ statutory authority for substitution on payment of transfer fee of 15% in case of small and medium scale enterprises or 25% in case of others, of the lease premium of land from the successful bidder at the prevalent rate and other charges prevalent at the time of consideration along with all dues of the lessor.
20. That the lessee shall submit a plan of the factory/ shed or and building plan etc along with necessary documents within six months from the date of taking delivery of possession of the allotted plot/land/shed for approval of the Managing Director of the Authority as 'Controlling Authority' under the Building Bye Laws of Authority and/or Bihar /Jharkhand Restrictions of Uses of Land Act or/and for approval of Chief Inspector of Factories, Jharkhand through Inspector of Factories of the Circle

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Ganesh Budhise
20/11/2020 DIRECTOR

11/20/11/2020
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रांची



-11-

concerned. Failure on the part of the lessee in submitting factory/ shed plan/ building plan for approval shall entail late action fee @ Rs.1.00 per sqft per month and the lessee binds itself/himself/ herself to pay late action fee at the aforesaid rate to the Authority on demand. The Chief Inspector of Factories, Jharkhand/ Inspector of Factories shall dispose of application for factory/ shed and/or building plan within thirty days of the date of receipt of plan from Managing Director of the Authority. The lessor shall respond to the lessee within ninety days from the date of submission of plan with necessary approval. However, if warranted lessor may ask for any clarification/ modification and submission of revised plan. In case no communication is received from the lessor within 90 days from the date of submission of plan/ revised plan, it shall be construed and deemed to have been approved/ sanctioned by the competent authority and the lessee shall commence construction/ further activity as per plan/ revised plan submitted for approval.

21. That the lessee shall at its/his/own cost construct and maintain access road leading from the State Road to the shed /allotted plot strictly in accordance with the specifications and details prescribed by the lessor or his nominee.
22. That the lessor shall organize periodic inspection of allotted plot/ shed/ land to the lessee to ensure proper utilization of allotted land/ shed/ plot and progress about factory/ shed/ building as per plan towards implementation of the project and the lessee binds itself/ himself/ herself to extend all co-operation to the inspecting personnel and provide realistic information and shall not conceal any aspect of the ongoing activities on the plot, failing which, the lessee shall make itself/ himself/ herself liable for initiation for action for cancellation of plot/shed. Non co-operation

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-21/1/2020 DIRECTOR

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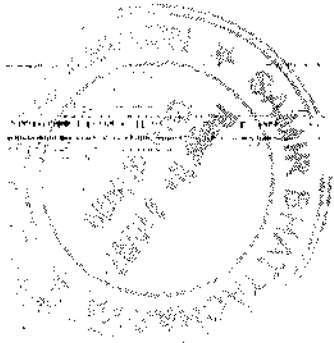
of the lessee shall also mean and include avoiding and refusing to receive any valid communication including notice from the Authority by the lessee including its/his/her representative, not allowing entry of the officials of the Authority inside the factory/plot and refusing to sign on the spot report prepared by the inspecting officials.

23. That the lessee shall start construction as per approved factory/ shed/ building plan within 6 (six) months from the approval/ deemed approval of plan, extendable to maximum period of an another spell of 6 (six) months under extra ordinary circumstances to the satisfaction and with prior approval of Managing Director of the Authority. In the event of failure of the above, late action charges @ Rs.1.00 per sqft per month from the last day of extended period shall be payable by the lessee to the Authority on demand and in the event of failure on the part of the lessee in payment of demanded amount, the lessee shall make itself liable for action as warranted under the facts and circumstances of the case.
24. That in the event of making any construction without prior approval of Managing Director of the Authority or any deviation from the approved plan of construction or use of land/ shed for any non industrial purposes or the lessee putting the land to use for purposes other than the purposes for which it was allotted, the Managing Director of the Authority shall have the option to charge the cost and rent of the land/ shed of the entire period of remaining in use of such land/ shed at the prevailing/ current market rate to be determined by the Managing Director of the Authority and shall also cancel the allotment, terminate the lease deed, if executed, and forfeit the land premium and resume land/ shed in question after 30 (thirty) days from the date of order of cancellation and no compensation shall be payable to the lessee either for the unexpired period of lease or for the structure, building, installations and immoveable assets in any shape/ form erected thereon.

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-13-

25. That in the event of the lessee either not utilizing or underutilizing the allotted land/ plot/ shed for the purpose it was allotted, the Managing Director of the Authority shall initiate action for cancellation of under/unutilized portion of land/plot/ shed in accordance with the principles of natural justice. In reply to the show cause, if the lessee gives an undertaking to utilize the under/unutilized portion of land/plot/ shed within a specified time frame, then in that event of violation of such undertaking, the lessee shall be liable for payment of non action charges @ Rs.10.00 (Ten) per sqft per month from the date of execution of undertaking. Even after imposition of said non action charges, if the lessee fails to abide by the undertaking so given, the allotment of such concerned portion of land/plot/ shed shall be cancelled by observing the principles of natural justice, lease deed, if executed, terminated and land premium forfeited by the Managing Director of the Authority and action shall be taken for recovery of non action charges under Bihar & Orissa Public Demand Recovery Act, 1914.
26. That in case of violation of provision 29(ii) of the Authority's Regulations 2015, the lessee shall be punishable with fine which may extend upto Rs.10,000.00 or simple imprisonment for a term which may extend to six months or both and in case of continuance of violation with a further fine which may extend to Rs.100.00 every day after conviction as above.
27. That the lessee shall not make any change either in the name of the lessee or the constitution of the lessee or lease hold right of the lessee or merge/ demerge/amalgamate the lessee without prior permission of the lessor.
28. That at any stage of the leasehold period if any part or parts of the allotted plot/land/shed is required by the State government or the Authority for public purposes, of which the State government or the Authority shall

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-14-

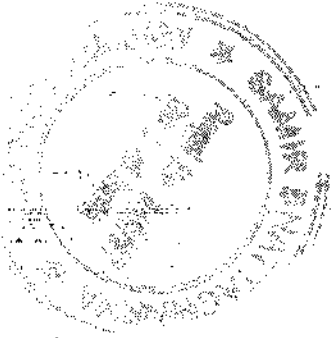
be the sole judge, or if it is found that any portion of the land/ shed is not required by the lessee for the purposes it was allotted, the lessee shall on being asked by the State government or the Authority transfer such part or parts of the shed/land/plot as the State government or the Authority shall specify to be necessary for the purpose aforesaid and in consideration of such transfer the State government or the Authority, as the case may be, shall pay back to the lessee a sum proportionate or equal as the case may be, the cost of land/shed/ plot and its development, if any earlier realized from him together with compensation for buildings and other structures erected with approval in writing of the Authority or its nominee on such part or parts of the land/shed/plot at the valuation to be determined by the State government or the Authority on obtaining report from the Civil Engineer authorized by them in this behalf and the decision of the State government or the Authority shall not be questioned before any Authority or in any Court of law.

29. That any allottee shall be at liberty to surrender the allotted plot to the Authority at any point of time by giving prior written application to the Managing Director of the Authority at least three months in advance and the Authority shall accept the surrender subject to the condition that the surrender is not in default in paying dues of the Authority and he/she/it produces a no dues certificate from the concerned financial institution, concerned statutory authorities and that he is not in default in payment of statutory due to its employees along with a declaration cum undertaking cum indemnity bond on a non-judicial stamp paper of Rs. 100.00 along with self-attested photograph of all promoting stake holders, Authority shall refund/release partial payment of allotment price for the land (full or partial) surrendered as per following terms:

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-15-

- 75% of allotment price, in case of surrender within one year from date of allotment of land.
- 65% of allotment price, in case of surrender within two years from date of allotment of land.
- 55% of allotment price, in case of surrender within three years from date of allotment of land.

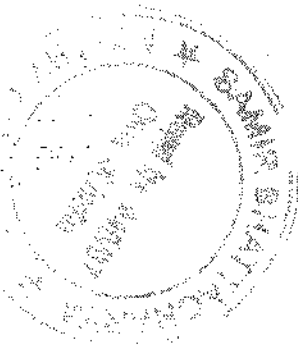
The aforementioned payment by Authority shall be released only after peaceful surrender of full or partial land (unutilized land) by the allottee/lessee. However, no request for surrender shall be accepted by the Authority beyond three years of allotment of land. In such cases Authority shall cancel the allotment order, terminate the lease deed and forfeit the lease premium and take possession by observing the principles of natural justice.

30. That the application for surrender of allotted plot shall be disposed within 60 days from the date of submission of application to the lessor, failing which the surrender application shall be deemed to have been allowed.
31. That the lessee shall not be entitled to sub lease or hand over physical possession of the allotted plot to any other person/ entity/ entrepreneur/ organization without having been authorized by the lessor and the lessor shall treat possession of that person/ entity/ entrepreneur/ organization over the plot/land/shed as unauthorized and take recourse for recovery of possession including invoking the provisions of Public Premises (Eviction of Unauthorized Occupants) Act, 1971. The lessee shall also be liable to pay irregularity charges @ Rs.5.00 (Five) per sqft per month to the Authority besides making itself/ himself/ herself liable for initiation of cancellation proceeding. Recovery of irregularity charges as above as be subject to Bihar & Orissa Public Demand Recovery Act, 1914.

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Ganesh Budhia
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-16-

32. That the lessee shall not be allowed to use the allotted land/ shed for any other purposes including residential or any other commercial activities than for which the plot has been allotted. Violation of this provision shall be treated as violation of Regulation of the Authority, conditions of allotment order, conditions of indemnity bond and conditions of this lease deed and shall result in cancellation of plot by the lessor.
33. That the lessee shall not take any action to Merge/demerge/amalgamate or to be acquired by any entity without the prior permission in writing of Managing Director of the Authority. On application of the lessee, the lessor after considering the facts and circumstances of the case and after realizing 15% in case of MSME or 25% in case of others, of the prevailing land premium of the lessor at the time of consideration, may grant such permission for Merger/demerge/amalgamation or acquisition provided that the lessee has not violated the condition of land allotment order/lease deed/bond. In case of violation of condition of land allotment order/lease deed/bond, the full land cost shall be charged at the rate prevailing at the time of consideration.

Irrespective of any condition put by or order passed by any Court or Tribunal, the merger/demerger/amalgamation or acquisition will be allowed subject to the payment of land premium provided in this clause.

34. That the lessee (Proprietorship Firm/Partnership Firm/Private Ltd. Co/Public Ltd Co etc) intending to change its constitution of firm shall file an application for change in Constitution, accompanied by all required documents as mentioned in the Clause No. 26 and 27 of the Regulation 2015 of the Authority duly attested by the Chartered Accountant of the respective entity seeking change along with bank demand draft in favor of lessor towards fees as mentioned in the Regulation referred to above.

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Gaurav Budh
28/11/2020 DIRECTOR

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-17-

35. That the lessor may consider the request of lessee for whose unit EM-II/PMT/SSI PMT/DOP has been issued either running or sick or closed, for the transfer of leasehold rights of the scheduled property in favor of a new Entrepreneur as identified by the lessee during the currency of lease subject to the following conditions:-
- i. The lessee is not holding any dues to authority and shall submit NOC from financial institutions for which Lessor has accorded permission/no objection for mortgage or the lessee has pledged lease deed with any financial institution.
 - ii. The new entrepreneur to whom the lessee wants to transfer the leasehold right must have a viable/feasible/implementable project, duly approved by PCC to be executed on the available plot of land or may continue the existing project.
 - iii. If at any stage, stake holding/ownership interest of proprietor/ promoter/ partners in the firm at the time of plot/land allotment as the case may be, goes down below 51% in the firm, the same shall be treated as transfer of allotted plot for the purposes of this Regulation and processing fee and land premium as mentioned in sub-clause (vi) of this condition as prescribed shall be charged.
 - iv. No change in Shareholding (CIS) charges shall be applicable for transfer of shareholding (up to 100%) from husband to wife, parent to children, grandfather, grandmother, grandchildren and/or vice versa. However, processing fee as mentioned in sub-clause (vii) of this condition as prescribed shall be charged along with application for the same.
 - v. Any change in the Director who is not the shareholder of the concerned industrial unit has to inform the lessor in writing by the lessee within 30 days of such change along with concerned statutory form with acknowledgement in the office of concerned RoC under the Companies Act, 1956/2013, either induction or deletion of Director.

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Gaurav Baidya
20/11/2020 DIRECTOR

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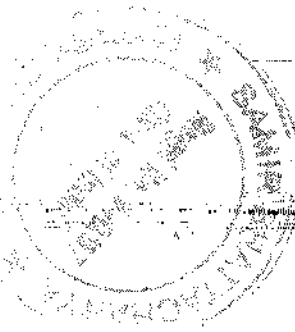
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- vi. The transferee must pay 15% in case of MSME or 25% in case of others of the prevailing land premium in the Authority at the time of seeking transfer of lease hold right. The payment at aforesaid rate shall be condition precedent for transfer of lease hold right.
 - vii. In all cases of transfer, ownership change, a processing fee of Rs. 10,000.00 for plot area up to 1.00 acre and additional Rs. 2,000.00 per acre for land in excess of 1.00 acre shall be charged.
 - viii. The new entrepreneur or new lessee shall give undertaking/ indemnity bond for making payment of all dues of previous entrepreneur or old lessee, statutory, legal or financial liability of government or financial institutions on a non-judicial stamp paper of Rs. 100.00 affixing self-attested passport size photograph.
36. That if the original lessee, to whom the land was allotted for a particular project makes a new/ company / entity for a new project besides the existing company and transfers the whole or part of the allotted land to such newly formed company, this shall be treated as transfer of lease hold rights and shall be charged full land premium as per relevant clause of this regulation even if the share of the original lessee in this new company/entity does not go down below the 51% of the total share.
37. That if the shareholding of any the blood relations as defined in clause 21(d) of the original allottee from amongst the existing immediate past and immediate future generations becomes less than 50%, 15% in case of MSME or 25% in case of others of land premium at the existing rate shall be payable to the Authority by the shareholders seeking change in the shareholding. Failure of payment of land premium shall entail cancellation of allotment, forfeiture of land premium and termination of lease deed, if executed.

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Gaurav Pruthi
20/1/2020 DIRECTOR

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संस्था



-19-

38. That the vacant plot or units for which EM-II/PMT/SSI PMT/DOP has not been issued, shall not be considered for transfer. The lessee shall have to surrender the allotted plot to Authority under Clause 22 of the Regulation of the Authority shall evict the lessee after following due process under the Regulation of the Authority.
39. That in case the lessee fails to implement the project within a period of two years in case of micro and small enterprises and five years for others or within such extended period as the Authority may allow after considering the circumstances, amount deposited by the lessee towards premium of land/ shed along with construction, installation, fixtures and equipment thereon shall be liable to be forfeited by the lessor. In case necessary effective steps are not taken within the fixed/ extended period for establishing the unit, the Managing director of the Authority shall under such circumstances, cancel the allotment order of such plot/shed, forfeit the amount deposited in this connection, terminate the lease deed and resort for taking physical possession of the plot/ shed so that the same could be allotted to the entrepreneurs who are serious, competent and solvent to implement the project.
40. That the lessee after coming to production shall get its unit permanently registered (EMII) with the lessor or its nominee within the prescribed period and shall possess and make optimum utilization of land by observing all terms, covenants and conditions contained therein.
41. That the lessee shall keep the allotted land for plantation for maintenance of ecological balance in the industrial area and shall utilize that portion accordingly as per approved building/ shed plan.

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Ganes Prasad
20/1/2020
DIRECTOR

20/1/2020
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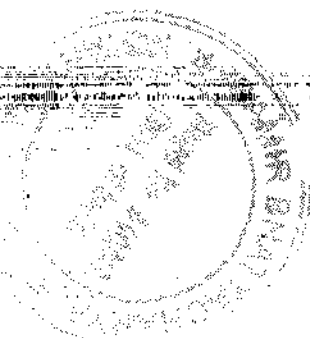
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42. That the lessee may, subject to valid and legal ground for closure and cessation of work as legally permitted under the provisions of Industrial Disputes Act, 1947 in general and any other law applicable to the unit in particular and other labour legislation on the subject, continuously keep and maintain the factory established on the scheduled premises in running condition and submit all statutory returns required under various laws in the prescribed Performa failing which the lessor shall presume that the factory established on the lease hold land has not been continuously running and this circumstance may be treated as independent and an additional ground for cancellation of allotment order, forfeiture of lease premium and termination of lease and then following actions by the lessor.
43. That the lessee shall be compliant of the provisions of Bihar Industrial Area Development Authority Act, 1974 (Bihar Act 16 of 1974 and Bihar Act 27 of 1992) as adopted by the Government of Jharkhand vide Notification No.339 dated 02.03.2001 issued by the Department of Science Technology, Information Technology and Industry as Jharkhand Industrial Area Development Authority Act, 2001 and Rules made under the said Acts, Regulations 2015 of the Authority, conditions of land/ shed allotment order, conditions of indemnity bond executed by the lessee, conditions of lease deed and violation of conditions of any of the aforesaid shall entitle the lessor to cancel the allotment order, terminate the lease deed and forfeit the lease premium and take possession of the leased property by observing the principles of natural justice and pass orders to this effect.
44. That the lessee shall be compliant of all statutory provisions applicable to its unit and shall submit statutory returns and furnish information if required by the Authority responsible for implementation of the respective laws.

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Gaurav Pruthi
20/11/2020 DIRECTOR

20/11/2020
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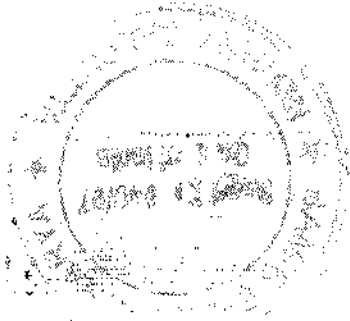
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45. That non adherence to the schedule in the matter of setting up the industry/ services/ activities for which the scheduled land/ shed has been allotted, not setting up industry for which the scheduled premises has been allotted, unauthorized surrender in favour of another entity or person, unauthorized change in the constitution of lessee, unauthorized change of project, unauthorized mortgage to any financial institution or otherwise, making false declaration, giving false undertaking and/or any other circumstances, which the Managing Director of the Authority considers against the interest of the objectives of the Act, rules and regulations made there under, nonpayment of any dues of the Authority including late action charges, non action charges or any penalty under the Authority's Regulations shall constitute public demand recoverable under Bihar & Orissa Public Demand Recovery Act, 1914 and shall be considered as violation of the terms of allotment order, Jharkhand Industrial Policy, Indemnity Bond, Regulation of the Authority, terms and conditions of the lease deed warranting initiation of action for cancellation proceeding by the lessor or shall have right to resume and enter upon the scheduled premises without payment of any compensation to the lessee and also to forfeit the money paid in land head and other sums paid by the lessee and re enter on the lease hold property and on such re entry the interest of the lessee in the lease hold property shall cease and the lease deed shall stand terminated.
46. That if any dispute or difference arises concerning the meaning and interpretation of any of the Clauses of the provisions contained in this lease deed, the same shall be referred to the lessor and the decision of the lessor relating to such dispute or difference shall be final, conclusive and binding on the parties hereto. That any violation of the conditions of land allotment order, lease deed, Indemnity Bond, or the provisions of Industrial Policy as applicable on the relevant date and/or the provisions

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Ganar Budhis
24/1/2010 DIRECTOR

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रांची



-22-

- of Bihar Industrial Area Development Authority Act, 1974 (Bihar Act 16 of 1974 and Bihar Act 27 of 1992) as adopted by the Government of Jharkhand vide Notification No. 339 dated 02.03.2001 issued by the Secretary Department of Science Technology, Information Technology and Industries as Jharkhand Industrial Area Development Authority Act, 2001 shall entitle the Managing Director to cancel the allotment order, terminate the lease deed and forfeit the lease premium and take possession by observing the principles of natural justice and pass orders to the effect.
47. That the Managing Director of the Authority shall, before cancelling the allotment allows one month time to the allottee to put up his/her/its case. The lessee on being dissatisfied with the order of the Authority may file an appeal to the Department of Industries, Government of Jharkhand within one month and the State Government shall, after due consideration dispose it of within two months from the date of receipt of the appeal. The authority shall, after cancellation of allotment of the plot/shed take possession of the said land/shed.
48. That if the lessee continues to be in possession of the cancelled plot and carry out any activity either alone or with cooperation of somebody else, possession by such lessee shall be treated unauthorized for which he/it shall be liable for penalty @ Rs. 15.00 per sq. ft. per month until he/it hands over vacant possession of the allotted plot to the Authority or the Authority recovers possession by invoking the provisions of Public Premises (Eviction of Unauthorized Occupants) Act, 1971.
49. That the lessee paying the rent and other charges and observing the several covenant and conditions contained in these presents shall hold and enjoy the land up to the terms of the lease without interruption by the lessor or by any person lawfully claiming under him.

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Ganesh Budhis
20/10/2020 DIRECTOR

20/10/2020
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परीक्षणकर्ता द्वारा जारी किया
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-23-

50. That the lessor and lessee shall have their right subject to the liabilities of a lessor and lessee respectively in accordance with section 108 of the Transfer of Property Act., 1882. except Clause (1) and (P) thereof and it is declared that the lessor shall have the fullest liberty to postpone for anytime, and from time to time, any action open to him under any or the powers exercisable by him against the lessee and to either enforce or forbear any of the conditions and covenants contained in those presents. The cost and expenses incidental to the preparation, execution and registration of this lease deed shall be borne and paid by the lessee.

Note: It is to be mentioned here that another plot comprising 5.00 Acre & Addl. 1.784 Acre of land was also allotted by the Lessor to the Lessee vide allotment letter No.1306 dt.01.10.2015, No.1326 dt.03.11.2017 for which separate lease has been executed vide Deed No.2790/2723/2015 dt.28.10.2015 & No. 2790/2723/2015 dt.28.10.2015, No.1889/1844/2018 d.29.11.2018

Thus both the lease deed shall be considered one for all practical purposes including obtaining loan from Bank & financial institution. Hence both lease deed are interrelated & complimentary to each other there by separately can't be used by lessee.

For and on behalf of

FOR BIHAR FOUNDRY & CASTING LTD.,
Gauria Rudra
20/11/2020

M/s. BIHAR FOUNDRY & CASTING LTD.,

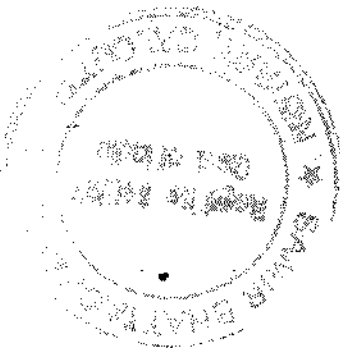
WITNESSES:

1. Bishma Prasad Upadhyaya 20/11/2020
302 Sarsar and lane near A.C. colony P.O. Dorenda P.S. - 835 001
 2. Manoj Kumar
Retired Colony, Madhuban, Sindhi, Tumb, Dhanbad 20/11/2020
- IN WITNESS WHEREOF THE HAND OF Sri Niranjan Trikey, Development Officer, Authorized Representative of the Regional Director, Jharkhand Industrial Area Development Authority, Ranchi Region for and on behalf of the Jharkhand Industrial Area Development Authority, Ranchi Region has been a fixed on the date and year first above written.

Development
Officer, Authorized
Representative of the
Regional Director
Ranchi

WITNESSES:

1. Indira Bhushan Prasad Singh, Steno, JIADA Ranchi Region. 20/11/2020
2. Manoj Kr. Sam, Typist, JIADA, Ranchi Region.
S/o Kishan Saur. 20/11/2020



-24-

Certified that the original and duplicate copy of this lease deed are exact true and are reproduction of each other.

FOR BIHAR FOUNDRY & CASTINGS LTD.

For and on behalf of

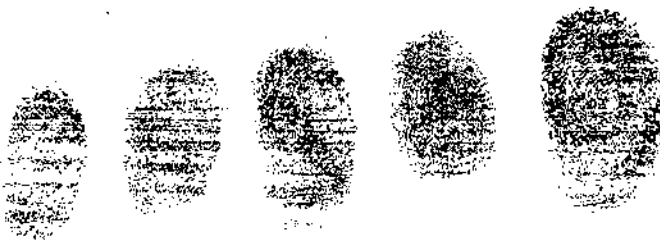
Ganesh Prasad
20/11/2020 DIRECTOR

20/11/2020
बिहार पदाधिकारी
संघी औद्योगिक क्षेत्र विकास प्राधिकरण
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M/s. BIHAR FOUNDRY & CASTING LTD.,
Rangarh Indl. Area

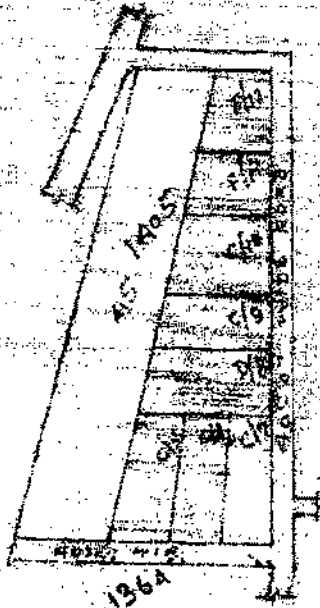


20/11/2020
श्री ० हजरामूल इक
दस्तावेज लेख ६
नं० २०-२३/०२/मगद



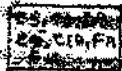
20/11/2020
श्री ० हजरामूल इक
दस्तावेज लेख ५
नं० २०-२३/०२/मगद

M/S BIHAR FOUNDRY & CASTING LTD.
IN THE INDUSTRIAL AREA RAMGARH.



VILLAGE: MARGAR
THANA: RAMGARH
THANA NO: 144
DISTRICT: RAMGARH

SCALE: 1/6" = 1 MILE



ALLOTTED INDU. PLOT NO. CS. 66/80/9/10,
P. 11, P. 12
SHOWN IN RED WASH

KHATA No.	SURVEY PLOT No.	AREA
1	1405P	3.67 Acres

BOUNDARY

NORTH: BY SURVEY PLOT NO. 1405P & INDUSTRIAL ROAD

SOUTH: " " " " 1405P & INDU. PLOT NO. 27, INDU. ROAD

EAST: " " " " 1405P & INDU. PLOT NO. 27, INDU. ROAD

WEST: " " " " 1405P & INDU. PLOT NO. 25

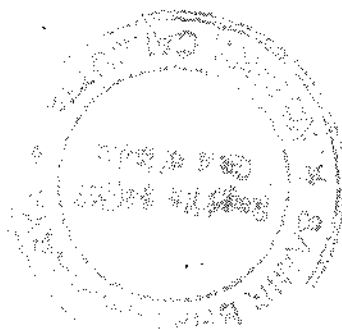
CERTIFIED THAT THE ORIGINAL AND DOUBLED UP LEASE PLAN
ARE TRUE, EXACT & REPRODUCTION OF THE OTHER

CHECKED BY: *[Signature]*

FOR BIHAR FOUNDRY & CASTING LTD.

[Signature]
20/11/2020
DIRECTOR

20/11/2020
पञ्जाब प्रमोशन
पञ्जाब प्रमोशन
पञ्जाब प्रमोशन

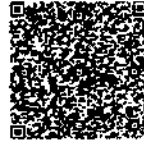




भारत सरकार



इन्द्र भूषण प्रसाद सिन्हा
Indra Bhushan Prasad Sinha
जन्म तिथि / DOB : 05/09/1962
पुरुष / MALE



9768 9816 2175

- आम आदमी का अधिकार -



ग्राम पंचायत पहचान प्राधिकरण
UNIQUE IDENTIFICATION AUTHORITY OF INDIA

पता:

S/O स्वर्गीय तेज नारायण सिंह,
ईडब्ल्यूएस 132, हरमू हाउसिंग
कॉलोनी, एन आई-34 के सामने,
हरमू, डोरान्डा, राँची, झारखण्ड,
834002

Address:

S/O, Late Tej Narayan Singh,
Ews. 132, Harmu Housing
Colony, Infront Of HI-34, Harmu,
Doranda, Ranchi, Jharkhand,
834012

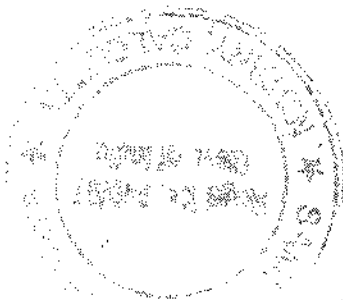


1947
1800 300 1947

help@uidai.gov.in
www.uidai.gov.in

WWW

P.O. Box No. 1947,
Bengaluru-560 061



Signature

Mobile - 700 4403173



भारत सरकार

Unique Identification Authority of India
Government of India

सामाजिक कर्म / Enrollment No 1093/51009/01379

To
बिष्णु प्रसाद उपध्याय
Bishnu Prasad Upadhaya
S/O Late G.D. Upadhaya
302 sansar enclave
new s.g. colony
near dav kapil dev school P.O doranda P.S argora
Kadru
Ranchi
Jharkhand-834002
6532340514

Ref: 249 / 12C / 254868 / 255346 / P



UE185391581IN



आपका आधार क्रमांक / Your Aadhaar No. :

6022 4705 9243

आधार - आम आदमी का अधिकार



भारत सरकार
GOVERNMENT OF INDIA

बिष्णु प्रसाद उपध्याय
Bishnu Prasad Upadhaya

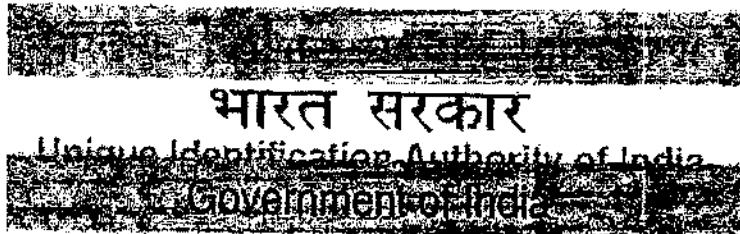
जन्म वर्ष / Year of Birth : 1971

पुरुष / Male



6022 4705 9243

आधार - आम आदमी का अधिकार



नामांकन क्रमांक Enrolment No.: 1218/10116/00607

To,
Manoj Kumar
मनोज कुमार
S/O Pallu Rawani
RETIERD COLONY p.s - madhuban
SINIDIH Tundoo
Dhanbad
Jharkhand 828128
Mobile:

15/11/2011



UC 06519205 2 IN

Ref No: A12B3E9X-6519205



आपका आधार क्रमांक / Your Aadhaar No. :

9068 0723 7613

आधार — आम आदमी का अधिकार



भारत सरकार

GOVERNMENT OF INDIA



मनोज कुमार
Manoj Kumar

जन्म वर्ष / Year of Birth : 1979
पुरुष / Male

9068 0723 7613



(M)Kumar

आधार

आम आदमी का अधिकार



Ref:2019-20/355

Date: 20.01.2020

To,
The Sub Registrar
Ramgarh Office
Ramgarh.

Sub: Authorisation letter

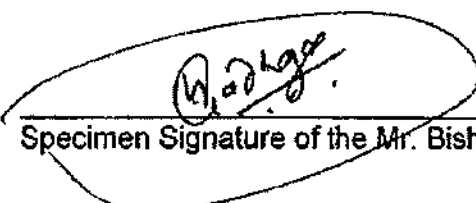
Dear Sir,

We hereby authorize Mr. Bishnu Prasad Upadhaya, General Manager (Administration) to execute the lease deed between JIADA on behalf of the Company. Mr. Upadhaya specimen signature is attached below:-

Thanking you,

Yours faithfully,
For Bihar Foundry & Castings Ltd.

Gaurav Budhia
(Gaurav Budhia)
Director


Specimen Signature of the Mr. Bishnu Prasad Upadhaya

Attached by

Gaurav Budhia
(Gaurav Budhia)
Director



Bihar Foundry & Castings Limited

Works :- Ramgarh Industrial Area, P.O.- Marat, Dist.- Ramgarh, Jharkhand - 829117.

उद्योग एवं प्राथमिक शिक्षा विभाग (उद्योग)।

अधिसूचना

२७ फरवरी १९७४

सं० २०३८ — विभागीय अधिसूचना सं० २३३६, दिनांक १३ फरवरी १९७३ के क्रम में उपायुक्त तालिका में वर्णित रामगढ़ औद्योगिक क्षेत्र को रांची औद्योगिक क्षेत्र विकास प्राधिकार के अन्तर्गत औद्योगिक क्षेत्र, रांची के लिए समावेश किया गया है।

बिहार-राज्यपाल के आदेश से,
राधा सिंह, उप-सचिव।

औद्योगिक क्षेत्र, रामगढ़ की भूमि की विवरणी।

- १ ग्राम—मरार।
- २ जिला—हुजारीबाग।
- ३ थाना—मांडु।
- ४ थाना नं०—१४४।
- ५ प्लॉट नं०—१३६४ पार्ट एवं १४०५।
- ६ रकबा—३८.४० एकड़।

सीमा।

उत्तर—आवाद प्लॉट नं० १३०७ एवम् १३०८।
दक्षिण—आवाद प्लॉट नं० १३६१, १३६२ एवं १३६३।
पूरव—आवाद प्लॉट नं० १३७६, १३७७, १३७४ एवं १३७२।
पश्चिम—आवाद प्लॉट नं० १४०५, १४०४, १४०३ एवं १४०१।

राधा सिंह उप-सचिव।

52(a) Sp. Gazette, (dated the 27-2-1974)

उपायुक्त-राह- जिला दण्डाधिकारी, का कार्यालय, रामगढ़।

(राजस्व शाखा)

पत्रांक ५१५/रा०

प्रेषक,

उपायुक्त,
रामगढ़।

सेवा में,

जिला अवर निबंधक,
रामगढ़।

रामगढ़, दिनांक 23/02/2020

विषय : रामगढ़ औद्योगिक क्षेत्र (मरार) में प्राधिकार को हस्तांतरित भूमि के जमाबंदी कायम करने एवं आवंटित इकाईयों के पट्टाकरण के क्रियान्वयन के संबंध में।

प्रसंग : क्षेत्रीय निदेशक, जियाडा (राँची प्रक्षेत्र) का पत्रांक-129, दिनांक-13.02.2020।

महाशय,

उपरोक्त विषयक प्रासंगिक पत्र के संदर्भ में कहना है कि रामगढ़ अंचल अन्तर्गत मौजा-मरार, थाना सं०-144, प्लॉट सं०-1364 एवं 1405, रकबा-38.40 एकड़ गैरमजरूआ भूमि जियाडा को औद्योगिक विकास के निमित्त उद्योग एवं प्रावैधिक शिक्षा विभाग (उद्योग) बिहार सरकार की अधिसूचना सं०-2738, दिनांक-27.02.1974 (छायाप्रति संलग्न) के द्वारा औद्योगिक क्षेत्र विकास प्राधिकार के पक्ष में हस्तांतरित है। क्षेत्रीय निदेशक, जियाडा (राँची प्रक्षेत्र) के पत्रांक-129, दिनांक-13.02.2020 के द्वारा प्राप्त अनुरोध पत्र के आलोक में मौजा-मरार, थाना सं०-144, प्लॉट सं०-1364 एवं 1405, रकबा-38.40 एकड़, उक्त वर्णित अधिसूचना के माध्यम से हस्तांतरित गैरमजरूआ भूमि को प्रतिबंधित सूची से मुक्त किया जाता है।

अनुलग्नक : यथोक्त।

विश्वासभाजन

उपायुक्त,
रामगढ़।

23/02/2020
2 PM



झारखण्ड औद्योगिक क्षेत्र विकास प्राधिकार, राँची प्रदेश

जिगाडा भवन, नागपुर औद्योगिक क्षेत्र, लोवाडीह, राँची - 834010 (झारखण्ड)
Phone: 0631-2460408, 2460125, Fax: 2460125, Web: riada.co.in, email: riada.mn@gmail.com

पत्रांक - 127

दिनांक - 13-2-2020

प्रेषक,

अजय कुमार सिंह, झा0प्र0से0
क्षेत्रीय निदेशक।

सेवा में,

उपस्थित,
रामगढ़।

विषय:- रामगढ़ औद्योगिक क्षेत्र (मरार) में प्राधिकार को हस्तांतरित भूमि के जमाबंदी कायम करने एवं आवंटित इकाईयों के पट्टाकरण के क्रियान्वयन के संबंध में।

महाशय,

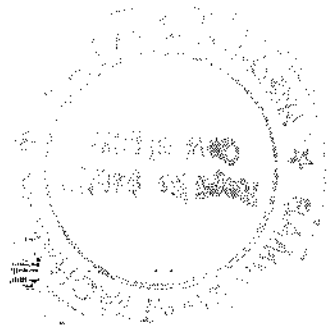
उपस्थित विषय के संबंध में सूचित करना है कि रामगढ़ औद्योगिक क्षेत्र (मरार) के स्थापना हेतु अविभाजित बिहार सरकार के द्वारा कुल 44.760 एकड़ भूमि सर्वे प्लॉट नं०-1364 एवं 1405 का हस्तांतरण सरकार/जिला प्रशासन द्वारा प्राधिकार को किया गया था (अधिसूचना की छायाप्रति संलग्न)। उक्त भूमि में से 6.36 एकड़ भूमि की जमाबंदी वर्ष 1996 में जिला प्रशासन के द्वारा प्राधिकार के पक्ष में किया जा चुका है। ज्ञातव्य हो कि औद्योगिक क्षेत्रों के लिए सामान्यतः सरकारी भूमि का सीधे अथवा निजी भूमि को अधिग्रहित कर हस्तांतरण जिला प्रशासन द्वारा किया जाता है। कालान्तर में उक्त हस्तांतरित भूमि का आवंटन प्राधिकार के द्वारा विभिन्न औद्योगिक इकाईयों को उद्योगों की स्थापना हेतु किया जा चुका है एवं इन आवंटियों के पक्ष में पट्टाकरण का क्रियान्वयन समय-समय पर अवर निबंधक, रामगढ़ के द्वारा पूर्व में किया भी गया है।

वर्णित स्थिति में अनुरोध है कि उक्त भूमि को प्रतिबंधित क्षेत्र से मुक्त कर प्राधिकार के पक्ष में जमाबंदी कायम करते हुए आवंटित इकाईयों के पक्ष में लीजडीड का क्रियान्वयन करने हेतु जिला अवर निबंधक, रामगढ़ को समुचित निदेश देने की कृपा की जाय।

विश्वासभाजन

13.2.2020
क्षेत्रीय निदेशक।





Pre Registration Docket

Date :- 21-01-2020 03:04 pm

Office Name :- SRO - Ramgarh

Token No:- 20200000006351

Appoinment :- 22-Jan-2020 Time:- 11:5

Article	Lease
Pre Registration Date	21-Jan-2020
No. Of Pages	36
Stamp Duty	785292
Paid Stamp Duty	0
Total Fees	₹ 5,92,049.

Property Id: 283620

Valuation No. : 373681 / 2020	: 2019-2020	User Id : 3565	Date : 21-January-2020 15:02:PM
State : Jharkhand	District : Ramgarh	Tahsil : Ramgarh	
Land Type : Urban	Corporation :	Village/City : Marar	
Marar Word No - Other Road			
Khata Number - 1			
Plot Number - 1405P			
Valuation Rule : Commercial land			
Usage : Non Agri => Commercial Land => Commercial land			
Property Details			
1	Land area	367 Decimal	
Calculation Details			
Sr.No.	Description	Calculation	Total
1	Open Land Valuation	1. 367 x 205040=75249680	₹7,52,49,680/-
Note : Final Valuation is Rounded to Next 100/-			
Total Valuation (A)			
Total Land Revenue (B)			
Total Land Revenue (C)			

Land measurement, Sub Part and House No.	Property Boundaries East: PLOT 1405P & INDL. PLOT NO C/7 & INDL. ROAD, West: PLOT 1405P & INDL. PLOT NO 45, South: PLOT 1405P & INDL. PLOT NO C/7 & INDL. ROAD, North: PLOT NO 1405P & INDL. ROAD
Area	Land area : 367.00 Decimal
Other Description of the Property	Pin Code - 829117

Government/Market Value	75249680
Transaction Amount	-

LESSEE	-Mr. BIHAR FOUNDRY AND CASTING LTD THROUGH BISHNU PRASAD UPADHAYA, Address - BIHAR FOUNDRY AND CASTING LTD MAIN ROAD RANCHI RANCHI-1- ,Father/Husband Name LATE G D UPADHAYA , PAN No.- ,Permission Case No.- , Aadhaar No. *****9243
LESSOR	-Mr. JIADA THROUGH INDRA BHUSHAN PRASAD SINHA, Address - JIADA BHAWAN NAMKUM LOWADIH RANCHI- ,Father/Husband Name LATE TEJNARAYAN SINGH , PAN No.- ,Permission Case No.- , Aadhaar No. *****2175

Witness Information	Mr. MANOJ KUMAR SAUR , Address - JIADA BHWAN NAMKUM LOWADIH RANCHI-, Father/Husband Name-KISHUN SAUR

Identifier Details	Mr. MANOJ KUMAR , Address - RETIRE COLONY MADHUVAN SINIDIH TUNDOD DHANBAD-, Father/Husband Name-PALTU RAWANI

Fee Rule:Government Original Lease Deed		
1	Stamp Duty	7,85,292

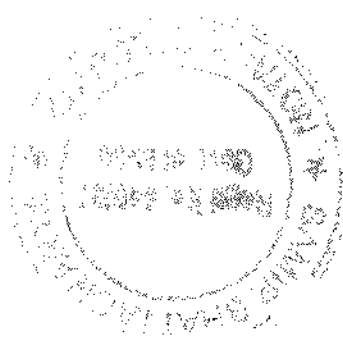
1	SP	1,080
Total		1,080

Fee Rule:Government Original Lease Deed		
1	E	2,000
2	A1	5,88,969
Total		5,90,969

All the entries made, have been verified by me and are found same as the entries of the document presented.

Disclaimer : I hereby declare that all the contents of uploaded document and the original document are exactly same, and all the information provided by me are true to itself. The detail of property's holding number has been verified by me at the time of entry through alert generated by the system. I am satisfied with the verification and hence proceeding further for registration after seeing the alert.

<u>W.E. Hague</u> Deed Writer / Advocate	<u>[Signature]</u> Vendee / Claimant	<u>[Signature]</u> Vendor / Executant





Date :-02-Mar-2020

Document Registration Summary 1

- Government/Market Value: ₹75249700/-
- Transaction Amount: ₹0/-
- Paid Stamp Duty: ₹785500/-

Receipt :

Receipt Date : 02-03-2020

Presenter Name: -

On Date 02-03-2020 Presented at SRO - Ramgarh
Signature of Presenter

SRO - Ramgarh

E ₹2000
SP ₹1080
A1 ₹588970
Stamp Duty ₹785500

Total ₹1377550

Payment Head	Amount To Be paid	Paid Amount	Balance Amount	Payment Mode	Payer Name	Reference No.	Payment Amount
Stamp Duty	785292	785500	-208	E-STAMP	BIHAR FOUNDRY AND CASTINGS LIMITED : B P UPADHAYA	• Certificate Number : IN-IH23873502661903R	785500
E	2000	2000	0	GRAS	BIHARFOUNDRYANDCASTI	• GRN Number : 2000653909 • DEPT Transaction Id : 7ea1f7bfb7b36f6451ec • Transaction Type :	2000
SP	1080	1080	0	GRAS	BIHARFOUNDRYANDCASTI	• GRN Number : 2000653909 • DEPT Transaction Id : 7ea1f7bfb7b36f6451ec • Transaction Type :	1080
A1	588969	588970	-1	GRAS	BIHARFOUNDRYANDCASTI	• GRN Number : 2000653909 • DEPT Transaction Id : 7ea1f7bfb7b36f6451ec • Transaction Type :	588970
Sub Total	1377341	1377550	-209				

Article : Lease Number of Pages : 72

Signature of Operator

Signature of Head Clerk

Signature of Registering Officer

3/22/2020

NGDRS : National Generic Document Registration System



OFFICE OF THE SUB REGISTRAR

Office Name :- SRO - Ramgarh

District Name :- Ramgarh

State Name :- Jharkhand

Deed Endorsement

Token No :- 20200000006351

Deed Type	Lease
Number of Pages	72
Fee Details	Stamp Duty :- Rs. 785292, E :- Rs. 2000, SP :- Rs. 1080, A1 :- Rs. 588969,
Property No.	1
Valuation Details	Value :- Rs.75249680/- Transaction Amount :- Rs.0/-
Property Details	District :- Ramgarh , Tehsil :- Ramgarh , Village Name :- Marar Location :- Other Road, Marar Word No
	Property Boundaries :- East: PLOT 1405P & INDL. PLOT NO C/7 & INDL. ROAD, West: PLOT 1405P & INDL. PLOT NO 45, South: PLOT 1405P & INDL. PLOT NO C/7 & INDL. ROAD, North: PLOT NO 1405P & INDL. ROAD
	Khata Number - 1Plot Number - 1405P
	Area Of Land :- 367.00 Decimal

Sh./Smt. JIADA THROUGH INDRA BHUSHAN PRASAD SINHA
s/o/d/o/w/o LATE TEJNARAYAN SINGH has presented the document
for registration in this office

today dated :- 02-Mar-2020 Day :- Monday Time :- 15:30:24 PM



JIADA THROUGH INDRA
BHUSHAN PRASAD
SINHA (Individual)

Party Name	Document Type	Document Number
JIADA THROUGH INDRA BHUSHAN PRASAD SINHA	PAN/UID	976898162175

Party Name	and	Is e-KYC	e-KYC	Power	Of	Party	Finger	
Sr.NO	Address	Verified?	Details	Attorney	Type	Party_Photo	Print	Signature

27/02/2020

NGDRS National Generic Document Registration System

1 **JIADA** Yes Indra LESSOR
 THROUGH Bhushan Age:58
 INDRA Prasad
 BHUSHAN Sinha
 PRASAD Address:-
 SINHA Ews 132,
 Address1 - Infront Of
 JIADA Hi-34,
 BHAWAN Harmu
 NAMKUM Housing
 LOWADIH Colony,
 RANCHI, Harmu,
 Address2 - Doranda, .
 Jharkhand Ranchi,
 PAN No.: 834002, .
 Permission Jharkhand,
 Case No.- India

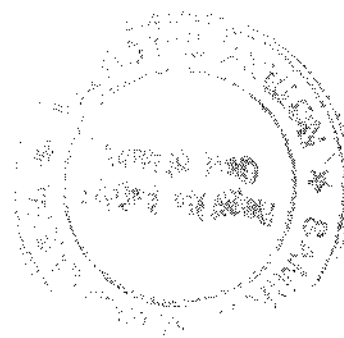


Imma

2 **BIHAR** Yes Bishnu LESSEE
 FOUNDRY Prasad Age:49
 AND Upadhaya
 CASTING Address:-
 LTD FLAT NO
 THROUGH AA3 N G
 BISHNU ENCLAVE,
 PRASAD Beside
 UPADHAYA Medika
 Address1 - Hospital,
 BIHAR HANUMAN
 FOUNDRY NAGAR.
 AND BARIATU,
 CASTING Bariatu, .
 LTD MAIN Ranchi.
 ROAD 834009, .
 RANCHI Jharkhand.
 RANCHI-1, India
 Address2 -
 Jharkhand
 PAN No.:
 Permission
 Case No.-



Prasad



Identification:

Sr.NO

Party Name and Address

Photo FingerPrint Signature

02/03/2020

NGDRS - National Generic Document Registration System

1

MANOJ KUMAR

S/o-D/o PALTU RAWANI

Address1 - RETIRE COLONY MADHUVAN SINIDIH TUNDOO
DHANBAD, Address2 -

... Jharkhand

PAN No.:



Witness:

I/We Individually/Collectively recognize the Seller(S) and Buyer(s)

Sr.NO	Party Name and Address	Photo	Thumb	Signature
1	MANOJ KUMAR SAUR Address1 - JIADA BHWAN NAMKUM LOWADIH RANCHI, Address2 - ... Jharkhand			

Signature of Operator



02.03.2020

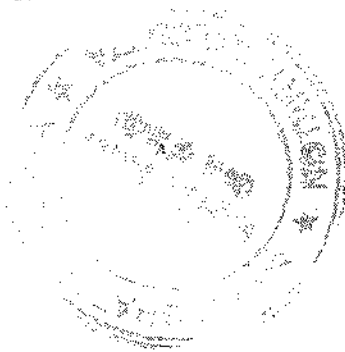
Above signature & thumb Impression are affixed in my presence.

Above mentioned. (JIADA THROUGH INDRA BHUSHAN PRASAD SINHA), has/have admitted the execution before me. He/ She/ They has / have been identified by (MANOJ KUMAR) Son/Daughter/Wife of (PALTU RAWANI) resident of (RETIRE COLONY MADHUVAN SINIDIH TUNDOO DHANBAD) and by occupation (Service).

02.03.2020
Signature of Registering Officer

Date:- 02-Mar-2020

Seal and Signature of Registering Officer



Token No.: 20200000006351

CERTIFICATE

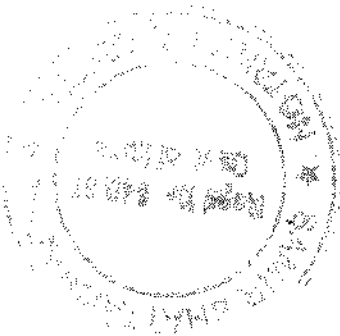
Office of the SRO - Ramgarh

This Lease was presented before the registering officer on date 02-Mar-2020 by JIADA THROUGH INDRA BHUSHAN PRASAD SINHA, S/O, D/O, W/O LATE TEJNARAYAN SINGH resident of JIADA BHAWAN NAMKUM LOWADIH RANCHI.

This deed was registered as Document No.: 2020/RAM/382/BK1/377 in Book No :- BK1, Volume No :- 47 from Page No :- 457 to 528 at, office of SRO - Ramgarh

Date:- 02-Mar-2020

Registering Officer

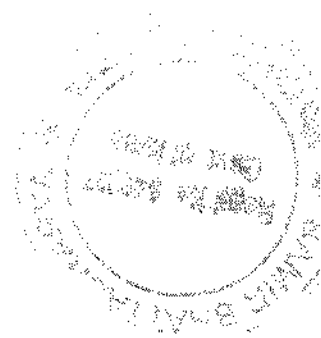


ANNEXURE - 9

One Month Data (1st May 2022 to 31st May 2022) for Revalidation

Monitoring Station: 2. Marar					Units: $\mu\text{g}/\text{m}^3$	
DATE	PM _{2.5}	PM ₁₀	SO ₂	NOx	CO	
02-May-22	40.1	72.5	10.4	20.5	524	
03-May-22	40.8	71.5	11.2	21.2	555	
11-May-22	41.5	73.6	12.0	19.2	588	
12-May-22	42.8	74.9	11.2	23.5	595	
21-May-22	43.2	75.9	11.8	22.7	625	
22-May-22	44.0	76.1	10.8	23.5	665	
25-May-22	43.5	75.8	10.6	24.2	650	
27-May-22	44.0	74.8	11.0	24.0	633	
Max	44.1	76.2	12.0	24.2	665	
Min	40.1	71.5	10.4	19.2	524	
98 percentile	44	76.1	12	24.2	664	

Monitoring Station: 1. Existing Plant					Units: $\mu\text{g}/\text{m}^3$	
DATE	PM _{2.5}	PM ₁₀	SO ₂	NOx	CO	
02-May-22	38.1	71.5	11.4	19.0	412	
03-May-22	38.5	73.8	11.9	18.5	425	
11-May-22	42.2	72.5	12.5	19.9	456	
12-May-22	41.9	71.2	13.3	20.5	489	
21-May-22	41.2	71.8	13.0	21.5	495	
22-May-22	40.8	72.6	12.7	22.4	510	
25-May-22	42.2	73.0	11.7	23.6	525	
27-May-22	41.8	73.8	12.3	23.0	516	
Max	42.3	73.8	13.3	22.4	525	
Min	38.1	71.2	11.4	18.5	412	
98 percentile	42.2	73.8	13.3	22.4	520	



ANNEXURE - 9

One Month Data (1st May 2022 to 31st May 2022) for Revalidation

Monitoring Station: 3. Naisarai					Units: $\mu\text{g}/\text{m}^3$		
DATE	PM _{2.5}	PM ₁₀	SO ₂	NOx	CO		
02-May-22	37.5	71.5	9.2	16.9	406		
03-May-22	38.6	70.8	9.5	16.7	425		
11-May-22	39.8	72.5	10.2	17.0	458		
12-May-22	41.8	73.6	10.8	17.8	486		
21-May-22	40.2	73.0	9.9	18.5	495		
22-May-22	40.8	72.8	10.9	19.9	507		
25-May-22	41.7	71.8	9.7	20.7	512		
27-May-22	41.2	70.9	10.3	21.8	514		
Max	41.8	73.6	10.9	21.8	514		
Min	37.5	70.8	9.2	16.7	406		
98 percentile	41.7	73.6	10.9	21.7	514		

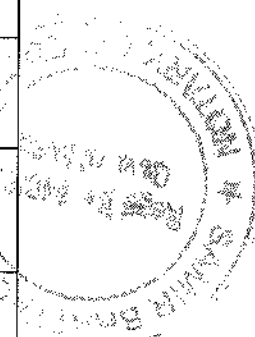
Monitoring Station: 4. Ramgarh					Units: $\mu\text{g}/\text{m}^3$		
DATE	PM _{2.5}	PM ₁₀	SO ₂	NOx	CO		
02-May-22	42.5	73.5	10.1	23.6	606		
03-May-22	41.1	74.2	10.5	22.6	628		
11-May-22	43.5	72.4	10.9	24.4	659		
12-May-22	44.8	75.8	11.2	25.1	689		
21-May-22	45.7	76.9	11.5	26.5	715		
22-May-22	46.2	79.2	12.0	27.0	725		
25-May-22	45.1	78.6	11.8	26.9	744		
27-May-22	44.6	79.2	12.2	25.3	736		
Max	46.2	79.4	12.2	27.1	744		
Min	41.1	72.4	10.1	22.6	606		
98 percentile	46.2	79.2	12.2	27	742		

ANNEXURE - 9

One Month Data (1st May 2022 to 31st May 2022) for Revalidation

Monitoring Station: 6. Ghutua					Units: $\mu\text{g}/\text{m}^3$	
DATE	PM _{2.5}	PM ₁₀	SO ₂	NOx	CO	
02-May-22	38.2	67.2	7.9	16.2	402	
03-May-22	38.5	69.9	8.3	16.6	422	
11-May-22	39.2	69.6	8.5	16.0	456	
12-May-22	41.0	70.2	8.1	17.0	478	
21-May-22	40.2	71.3	8.4	17.5	488	
22-May-22	41.7	71.9	8.8	17.9	495	
25-May-22	41.5	72.2	8.6	18.0	480	
27-May-22	39.1	72.4	8.0	18.1	490	
Maximum	41.7	72.4	8.8	18.1	495	
Minimum	38.2	69.6	7.9	16.0	402	
98th percentile	41.6	72.3	8.8	18	495	

Monitoring Station: 5. Kaitha					Units: $\mu\text{g}/\text{m}^3$	
DATE	PM _{2.5}	PM ₁₀	SO ₂	NOx	CO	
02-May-22	40.6	70.2	8.5	16.5	396	
03-May-22	41.7	71.5	8.0	17.9	425	
11-May-22	41.2	72.2	9.0	16.9	459	
12-May-22	40.9	73.6	9.5	16.3	489	
21-May-22	41.5	74.4	9.9	17.6	502	
22-May-22	43.1	73.1	10.3	18.2	510	
25-May-22	42.8	72.9	10.0	18.0	512	
27-May-22	42.5	74.4	10.2	18.5	499	
Maximum	43.2	74.5	10.3	18.5	512	
Minimum	40.6	70.2	8.0	16.3	396	
98th percentile	43.1	74.4	10.3	18.5	512	



ANNEXURE - 9

One Month Data (1st May 2022 to 31st May 2022) for Revalidation

Monitoring Station: 8. Partaboli					Units: $\mu\text{g}/\text{m}^3$	
DATE	PM _{2.5}	PM ₁₀	SO ₂	NOx	CO	
02-May-22	34.9	69.8	7.8	15.9	384	
03-May-22	35.1	69.1	8.0	15.7	415	
11-May-22	36.3	70.2	8.2	15.5	456	
12-May-22	39.2	70.5	7.9	16.5	462	
21-May-22	40.2	70.9	8.4	16.2	478	
22-May-22	38.2	71.0	8.1	17.0	482	
25-May-22	37.6	71.9	8.3	17.8	422	
27-May-22	40.0	71.4	7.9	17.3	439	
Maximum	40.2	71.9	8.4	17.8	482	
Minimum	34.9	69.1	7.8	15.5	384	
98th percentile	40.1	71.7	8.4	17.7	480	

Monitoring Station: 7. Hesla					Units: $\mu\text{g}/\text{m}^3$	
DATE	PM _{2.5}	PM ₁₀	SO ₂	NOx	CO	
02-May-22	36.0	70.0	8.0	16.5	392	
03-May-22	35.4	705.0	8.2	16.9	402	
11-May-22	35.9	69.9	8.5	16.1	435	
12-May-22	36.2	69.6	8.1	17.5	456	
21-May-22	40.0	71.6	8.8	17.9	460	
22-May-22	40.5	71.9	9.0	18.1	452	
25-May-22	41.4	72.2	8.6	18.3	462	
27-May-22	41.0	72.0	8.3	18.0	466	
Maximum	41.4	72.2	9.0	18.3	466	
Minimum	35.4	69.6	8.0	16.1	392	
98th percentile	41.4	72.2	9	18.3	466	

SL. NO	UHID NO	NAME	AGE	DATE
1	APP568	CHHOTE LAL PRASAD	45	24-12-2022
2	APP569	VIKASH NAYAK	22	24-12-2022
3	APP570	ANIL GHASI	32	24-12-2022
4	APP571	KAMLESH BEDIYA	36	24-12-2022
5	APP572	SANTOSH MAHTO	40	25-12-2022
6	APP573	RAMESH MAHTO	48	24-12-2022
7	APP574	RAKESH KUMAR	46	25-12-2022
8	APP575	VINOD TIWARI	50	25-12-2022
9	APP576	SURENDRA SINGH	37	24-12-2022
10	APP577	RAJENDRA PRASAD	60	25-12-2022
11	APP578	DHANESH BEDIA	40	25-12-2022
12	APP579	DIGAMBAR BEDIA	49	25-12-2022
13	APP580	KAMDEO MAHTO	42	24-12-2022
14	APP581	GANESH BEDIA-3	45	24-12-2022
15	APP582	KARTIK KARMALI	40	24-12-2022
16	APP583	ARJUN BEDIA	45	24-12-2022
17	APP584	RATHU MAHTO	55	24-12-2022
18	APP585	JAGLAL MAHTO	38	25-12-2022
19	APP586	TULESHWAR BEDIA	45	24-12-2022
20	APP587	DEV NARAYAN MAHLI	39	25-12-2022
21	APP588	MADESHWAR MAHTO	45	24-12-2022
22	APP589	RAJU BEDIA - 1	35	24-12-2022
23	APP590	LAL MOHAN MAHTO	57	25-12-2022
24	APP591	PAPPU PRASAD	36	25-12-2022
25	APP592	ARVIND MAHTO	45	25-12-2022
26	APP593	MOHAN PRASAD	28	25-12-2022
27	APP594	CHOTE LAL BEDIA	28	25-12-2022
28	APP595	RAM PRAVESH MAHTO	44	25-12-2022
29	APP596	VIKASH BEDIA	20	25-12-2022
30	APP597	BISHESHWAR KARMALI	49	25-12-2022
31	APP598	BUDHESWAR MAHTO	47	24-12-2022
32	APP599	KOLESHWAR RAJWAR	44	24-12-2022
33	APP600	AJAY KUMAR	24	25-12-2022
34	APP601	KEDAR NATH MAHTO	47	25-12-2022
35	APP602	VIJAY SHANKAR SHARMA	27	25-12-2022
36	APP603	MD. JAVED	25	25-12-2022
37	APP604	PRADEEP KUMAR HEMBROM	25	25-12-2022
38	APP605	UMESH BEDIA	38	24-12-2022
39	APP606	MANJAY SINGH	45	25-12-2022
40	APP607	MOHAN MAHTO	50	25-12-2022
41	APP608	DILIP KUMAR	30	25-12-2022
42	APP609	AGHNU BEDIYA	55	25-12-2022
43	APP610	RAJU BEDIA	28	24-12-2022
44	APP611	KISHUN PRASAD	29	25-12-2022
45	APP612	SUKLAL MUNDA	50	24-12-2022
46	APP613	NIMAI SINGH	50	24-12-2022
47	APP614	MAHESH RAM	55	24-12-2022
48	APP615	DILIP TOPO	30	24-12-2022

SL. NO	UHID NO	NAME	AGE	DATE
49	APP616	TOOFAN RAJWAR	23	25-12-2022
50	APP617	SEEMA MAHTO	57	25-12-2022
51	APP618	RAM KISHOR BEDIA	51	24-12-2022
52	APP619	JAI PRAKASH THAKUR	46	24-12-2022
53	APP620	UTTAM CHAND MAHTO	48	25-12-2022
54	APP621	DINESH BEDIYA	32	25-12-2022
55	APP622	NANKU BEDIA	40	24-12-2022
56	APP623	SUJEET GAJANAN KAWARE	29	25-12-2022
57	APP624	KESHAV MAHTO	48	25-12-2022
58	APP625	BALESHWAR BEDIA - 2	42	24-12-2022
59	APP626	BALESHWAR BEDIA - 1	42	24-12-2022
60	APP627	MUKESH MUNDA	34	25-12-2022
61	APP628	VIIJAY YADAV	46	25-12-2022
62	APP629	KISTO RAM BEDIYA	45	25-12-2022
63	APP630	ADITYA KUMAR	28	25-12-2022
64	APP631	SURAJ KUMAR	20	25-12-2022
65	APP632	HEERA LAL YADAV	47	24-12-2022
66	APP633	KISTO SINGH	45	24-12-2022
67	APP634	PUNCHDEV MAHTO	47	25-12-2022
68	APP635	UMESH BEDIYA	28	25-12-2022
69	APP636	NAGESHWAR GOPE	34	25-12-2022
70	APP637	NAGESHWAR BEDIA - 3	45	24-12-2022
71	APP638	RUPESH GOPE	28	25-12-2022
72	APP639	BHIMLAL KARMALI	35	25-12-2022
73	APP640	AGHNU RAJWAR	34	25-12-2022
74	APP641	SOBHANAND KARMALI	34	25-12-2022
75	APP642	SHIVNARAYAN BEDIA	45	25-12-2022
76	APP643	RAMESH KUMAR BEDIYA	23	25-12-2022
77	APP644	RAMESHWAR MAHTO	49	24-12-2022
78	APP645	RATHO BEDIA	45	24-12-2022
79	APP646	DURMIL MAHTO	55	25-12-2022
80	APP647	HARIDWAR KARMALI	50	25-12-2022
81	APP648	DASRATH BEDIA	43	25-12-2022
82	APP649	SANTOSH KUMAR	31	25-12-2022
83	APP650	SANJAY BEDIA	35	24-12-2022
84	APP651	SHYAM DEO BEDIA	33	24-12-2022
85	APP652	SAMSHED ANSARI	38	25-12-2022
86	APP653	VIIJAY SAW	44	25-12-2022
87	APP654	ATIULLAH ANSARI	48	25-12-2022
88	APP655	DEEPAK THAKUR	38	25-12-2022
89	APP656	VISHAL BEDIA	23	25-12-2022
90	APP657	MUNESHWAR BEDIA	45	25-12-2022
91	APP658	AMAR RAVI DAS	23	25-12-2022
92	APP659	CHAMAN KARMALI	47	25-12-2022
93	APP660	MD. ANWAR ALAM	51	24-12-2022
94	APP661	SUNDAR LAL MAHTO	47	24-12-2022
95	APP662	ROHIT KUMAR	28	24-12-2022
96	APP663	MD. SAGIR	41	24-12-2022

SL. NO	UHID NO	NAME	AGE	DATE
97	APP664	SUNIL KUAMR PRASAD	32	24-12-2022
98	APP665	AYAN DUTTA	24	24-12-2022
99	APP666	SAMBHU KUMAR SINGH	45	24-12-2022
100	APP667	MANOJ KUMAR SINGH	46	24-12-2022
101	APP668	CHUDAMANI MALLAH	35	24-12-2022
102	APP669	KULDEEP PRASAD	51	24-12-2022
103	APP670	SHASHI KUMAR	28	24-12-2022
104	APP671	JITENDRA KUMAR	23	24-12-2022
105	APP672	SHABAZ ANSARI	34	24-12-2022
106	APP673	DEV KISUN BEDIYA	30	24-12-2022
107	APP674	BINDESHWAR MAHTO	40	24-12-2022
108	APP675	PANCHAM MAHTO	45	24-12-2022
109	APP676	RADHE PASWAN	53	24-12-2022
110	APP677	JAIPAL BEDIA	28	24-12-2022
111	APP678	LAXMAN BEDIA	35	24-12-2022
112	APP679	RUPLAL MAHTO	41	24-12-2022
113	APP680	RANJEET KUMAR SAH	41	25-12-2022
114	APP681	BRAJESH KUMAR JAISWAL	40	25-12-2022
115	APP682	HARIDWAR TIWARI	47	25-12-2022
116	APP683	SUHAIL ARIF	27	25-12-2022
117	APP684	RAM LAL RAJWAR	35	25-12-2022
118	APP685	BIKRAM KUMAR	32	25-12-2022
119	APP686	DEEPAK BEDIA	25	25-12-2022
120	APP687	NIRMAL BEDIYA	25	25-12-2022
121	APP688	KHIRODHAR RAJWAR	41	25-12-2022
122	APP689	SUJEET KUMAR	45	25-12-2022
123	APP690	MOTIRAM MAHTO	47	24-12-2022
124	APP691	CHARAN MAHTO	44	25-12-2022
125	APP692	SHIV KUMAR MISHRA	48	25-12-2022
126	APP693	SANJAY KUMAR	56	25-12-2022
127	APP694	PARWEJ ALAM	34	25-12-2022
128	APP695	RAMASHANKAR SINGH	52	25-12-2022
129	APP696	MANNU BEDIA	30	25-12-2022
130	APP697	SONU BEDIA	22	25-12-2022
131	APP698	BASUDEV KUMAR BEDIA	29	25-12-2022
132	APP699	MUKESH KUMAR	45	25-12-2022
133	APP700	PAWAN DEY	22	25-12-2022
134	APP701	MITHUN BEDIA	23	25-12-2022
135	APP702	MRITUNJAY KUMAR	27	24-12-2022
136	APP703	AMJAD HUSSAIN	37	25-12-2022
137	APP704	ANIL KUMAR GIRI	35	25-12-2022
138	APP705	SAMS TABREJ	30	25-12-2022
139	APP706	MAHADEV MAHTO	50	25-12-2022
140	APP707	ANAND KUMAR BEDIA	32	25-12-2022
141	APP708	MAHESH MAHTO	38	25-12-2022
142	APP709	NIRANJAN MAHTO	52	25-12-2022
143	APP710	MANOJ BEDIA	32	25-12-2022
144	APP711	KANCHAN MAHTO	47	25-12-2022

SL. NO	UHID NO	NAME	AGE	DATE
145	APP712	UTTAM SHIT	44	25-12-2022
146	APP713	RAMLAL RAI	37	25-12-2022
147	APP714	RAJESH MAHTO	44	25-12-2022
148	APP715	BIRJU BEDIA	39	24-12-2022
149	APP716	CHANDU KUMAR SHARMA	26	24-12-2022
150	APP717	JAMDEV GHASI	44	25-12-2022
151	APP718	GOPI MAHTO	49	25-12-2022
152	APP719	SONU KUMAR BEDIYA	29	24-12-2022
153	APP720	ARJUN BEDIYA	24	24-12-2022
154	APP721	PRABHU BEDIA	34	25-12-2022
155	APP722	SANTOSH KUMAR BEDIA	30	24-12-2022
156	APP723	KAMDEV BEDIA	22	25-12-2022
157	APP724	JAGESHWAR KUMAR MAHTO	22	25-12-2022
158	APP725	KULDEEP KUMAR	35	25-12-2022
159	APP726	REWALAL MAHTO	48	25-12-2022
160	APP727	ANAND KUMAR	28	25-12-2022
161	APP728	NANKU BEDIA	28	25-12-2022
162	APP729	SHANKAR BEDIA	30	25-12-2022
163	APP730	MD. ASFAK	47	25-12-2022
164	APP731	CHANDRADEEP PRASAD	35	25-12-2022
165	APP732	SANJAY KUMAR	25	25-12-2022
166	APP735	AKHTAR ANSARI	45	24-12-2022
167	APP737	BALKRISHNA MAHTO	29	24-12-2022
168	APP740	CHOTE LAL BEDIA	33	24-12-2022
169	APP741	DALESHWAR SAW	32	24-12-2022
170	APP742	SHUDHANSHU SHEKHAR PATHAK	35	25-12-2022
171	APP743	SANICHAR MURMU	28	25-12-2022
172	APP744	MAHBUB ANSARI	35	24-12-2022
173	APP745	DEENANATH DIWEDI	32	25-12-2022
174	APP746	ARIUN PRAJAPATI	41	25-12-2022
175	APP747	KANCHAN CHANDRA GUPTA	46	25-12-2022
176	APP748	RAM BRIKSH BEDIYA	36	25-12-2022
177	APP749	GAJADHAR KARMALI	54	25-12-2022
178	APP750	PRADEEP MUNDA	20	24-12-2022
179	APP751	PRAKASH KUMAR	37	24-12-2022
180	APP752	PRAN BEDIA	27	24-12-2022
181	APP753	RANJAN KARMALI	37	24-12-2022
182	APP754	SHRAVAN KUMAR	40	25-12-2022
183	APP755	RAJENDRA PRASAD	56	25-12-2022
184	APP756	RAJESH BEDIA	28	25-12-2022
185	APP757	CHITENDRA BEDIA	30	25-12-2022
186	APP758	NAMESHWAR PRASAD	34	25-12-2022
187	APP759	RITU LAL BEDIA	42	24-12-2022
188	APP760	SANAULLAH ANSARI	40	24-12-2022
189	APP761	RAMTAHAL BEDIYA	54	25-12-2022
190	APP762	KAMLESHWAR BEDIYA	52	25-12-2022
191	APP763	RANJEET ORAON	32	25-12-2022
192	APP764	SONU KUMAR PATHAK	32	25-12-2022

SL. NO	UHID NO	NAME	AGE	DATE
193	APP765	SHASHI KUMAR BEDIYA	40	25-12-2022
194	APP766	RAJ KUMAR BEDIA	30	25-12-2022
195	APP767	BINOD BEDIYA	33	25-12-2022
196	APP768	JITENDRA KUMAR LOHRA	37	25-12-2022
197	APP769	VIKASH BEDIA	28	24-12-2022
198	APP770	BRIJLAL BEDIA	26	25-12-2022
199	APP771	PINTU PRASAD	33	25-12-2022
200	APP772	BAUNATH MUNDA	37	25-12-2022
201	APP773	CHHOTE LAL BEDIA	25	24-12-2022
202	APP774	SHIV BALAK SINGH	46	25-12-2022
203	APP775	AJAY KUMAR BEDIA	31	25-12-2022
204	APP776	RAJESH MUNDA	48	25-12-2022
205	APP777	MAINEJAR BEDIA	35	24-12-2022
206	APP778	MANOJ BEDIA	26	24-12-2022
207	APP779	MD. ISLAM ANSARI	26	24-12-2022
208	APP780	ABID HUSSAIN	28	25-12-2022
209	APP781	MD. JAVED ANSARI	26	24-12-2022
210	APP782	SHASHI RANJAN KUMAR	20	25-12-2022
211	APP783	MITHU KUMAR BEDIYA	21	25-12-2022
212	APP784	SHAYAM DEO BEDIYA	33	25-12-2022
213	APP785	NARESH MAHTO	46	24-12-2022
214	APP786	BINOD BEDIYA	30	24-12-2022
215	APP787	SAHIL BEDIA	25	24-12-2022
216	APP788	SANTU BEDIYA	28	24-12-2022
217	APP789	ASLOK BEDIYA	22	24-12-2022
218	APP790	SURENDRA KUMAR BEDIA	27	24-12-2022
219	APP791	SURAJ PRASAD	27	24-12-2022
220	APP792	ANUJ KUMAR	34	24-12-2022
221	APP793	VISHAL KUMAR BEDIA	26	24-12-2022



215

Form No. 24

(Prescribed under Section 41-C & Rule 62 NH)

Special Certificate of Fitness

(In respect of persons employed in operations involving use of lead compounds)

Serial No. APL 787
 Date 24/11/22

I hereby certify that I have personally examined SAHIL BEDIA
 son of STTARAM BEDIA residing at PHULSARIA
 who is desirous of being employed as TAPING and that his/her
 age as nearly as can be ascertained from my examination is 25 years, and that
 he/she is in my opinion, fit for employment at work involving the use of lead compounds.
 His/her descriptive marks are:

A MOLE IN UPPER HEAD

L.T.I of person examined.

Rajesh Kumar
 Certifying surgeon
Dr. RAJESH KUMAR
 MBBS, MD (Comm. Medicine)
 Reg. JMC-3128/10

I certify that I examined the person mentioned above on.....	I extend this certificate until.....	Signature of certifying Surgeon	Note of symptom of lead poisoning if any
<u>30/11/22</u>		<i>Rajesh Kumar</i>	<u>None</u>

**BRINDAVAN POLYDOC HOSPITAL, MARAR, RAMGARH,
JHARKHAND**

Patient's Name: SANIL BEDIYA

UHID: APP _____

S/o: ST. TARAN BEDIYA

Age/Sex: 25 / M

Address: FUL SARLA

Height: 5 feet 0 inches

Weight: 54 Kg

VITALS: PR: 96 / bpm

BP: 144 / 100 mmHg

SPO₂: 100 % @ Room Air

VISION TEST:

VISUAL ACUITY (TESTED BY SNELLEN/ TUMBLING E/ JAEGER CHARTS)

WITHOUT CORRECTION/ GLASSES				WITH CORRECTION/ GLASSES			
NEAR		DISTANT		NEAR		DISTANT	
R	<u>10-10</u>	R	<u>9</u>	R		R	
L	<u>8-8</u>	L	<u>12</u>	L		L	

COLOUR VISION (TESTED BY ISHIIHARA CHART): Normal/ Abnormal. ☒ Normal

INDIVIDUAL COLOUR IDENTIFICATION: Normal/ Abnormal. ☒ Normal

SQUIT/ NYSTAGMUS: Yes/ No. ☒ No

AUDIOMETRY TEST:

	RIGHT EAR	LEFT EAR	INTERPRETATION
RINNE TEST	A/C > B/C B/C > A/C	A/C > B/C B/C > A/C	Severe bilateral hearing loss in higher freq.
WEBER TEST	A - Patient hears it in midline. AD - Patient hears it in right ear. AS - Patient hears it in left ear.		Comparative Audiometry Impedance not done.

SIGNS/ SYMPTOMS OF LEAD POISONING:

- Headache and Abdominal pain Yes/ No. ☒ No
- Burtonian Line Yes/ No. ☒ No
- Tremors Yes/ No. ☒ No



Regesth

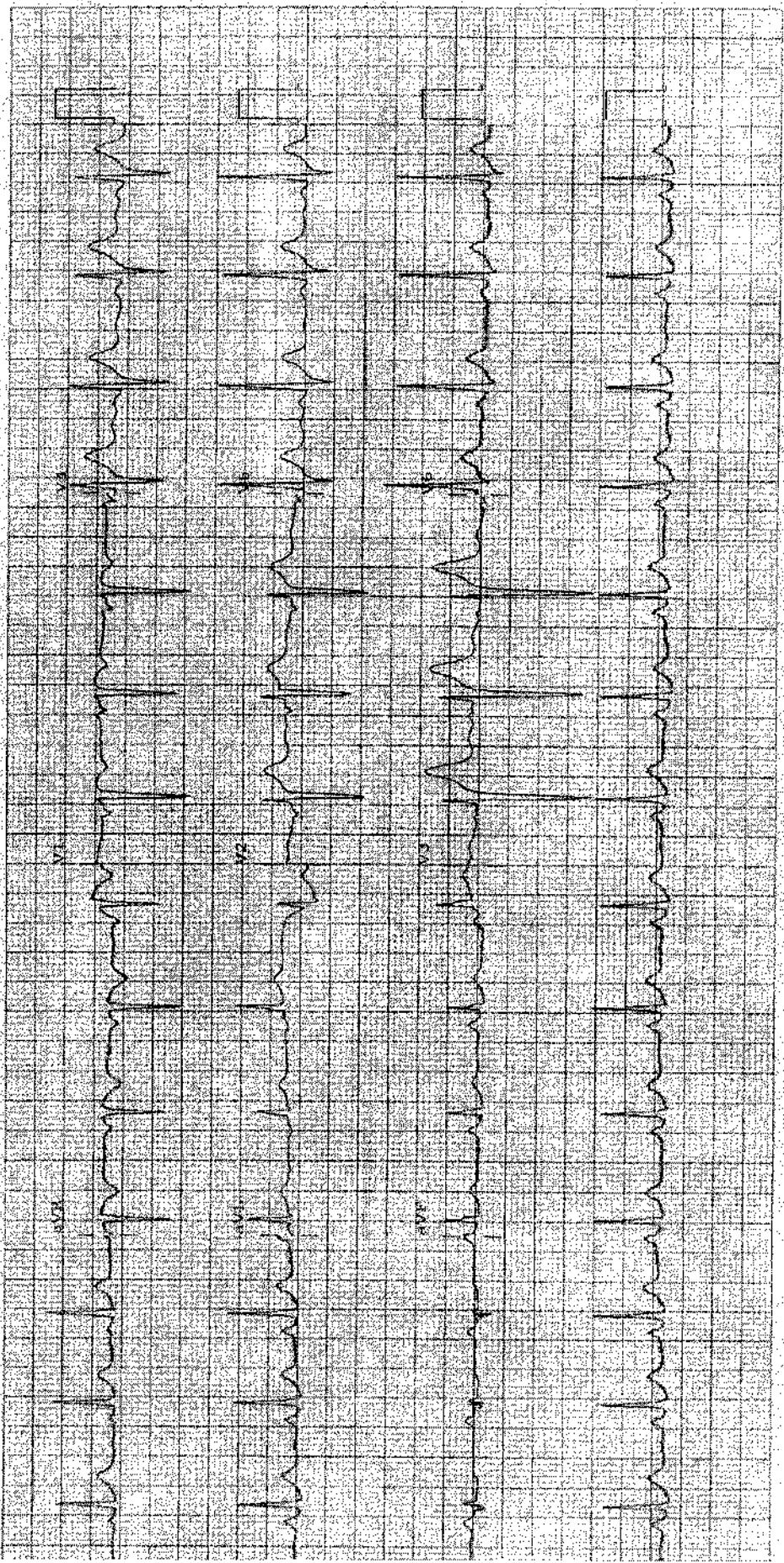
Doctor's Signature

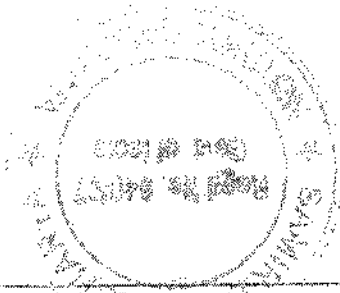
787 SANJIL BEDIA 24-Dec-22 12:45:52 PM
Male

37 Sinus rhythm, normal P axis, V-rate 50-59
Probable left atrial enlargement, P > 50ms, < -0.10mV V1
ST elev, Probable normal early repol pattern, ST elevation, age 55

IS-- 70 *Hand*
28 - BORDERLINE ECG - *Spender*
25 *Unconfirmed Diagnosis*

Lead Standard Placement





POLYDOC
...THE HEALING FAMILY

P.T NAME: SAHIL BEDIA

AGE: 25 GENDRE: M

UHID: APP787

Ref By: Dr: KAUSHAL KUMAR

IPD/OPD: OPD

DATE: 27-12-2022

DEPARTMENT OF PATHOLOGY

(HAEMATOLOGY)

TEST	RESULT	UNIT	REF. VALUE
COMPLETE BLOOD COUNT (CBC)			
HAEMOGLOBIN	16.2	g/dl	13.0 - 17.0
Total Leukocyte Count (TLC)	7,230	Cells/cumm	3500 - 9500
Platelet Count	3.50	Lakh/cumm	1.5 - 5.50
RBC Count (Red Blood Cell)	5.46	Mill/ul	3.8 - 5.8
PCV (Haematocrit)	45.3	%	35 - 55
Mean Corpuscular Volume (MCV)	82.9	fl	82-100
Mean Corpuscular Hemoglobin (MCH)	29.7	pg	27-34
MCHC	35.8	Gm/dl	31.6-35.4
RDW-CV	12.5	%	11-16
RDW-SD	40.4	fl	35-56
Differential Leukocyte Count			
Neutrophils	55	%	40-75
Lymphocytes	31	%	20-50
Monocytes	13	%	3-10
Eosinophils	01	%	4-8
Basophiles	00	%	0-1
ESR (Erythrocyte sed. Rate)			
	05	Mm/hr	0-20
CREATININE			
	0.8	Mg/dl	0.7-1.4
RBS (Random Blood Sugar)			
	116	Mg/dl	60-140
HIV 1/2			
	Non Reactive		Non Reactive
HBSAg			
	Non Reactive		Non Reactive
BLOOD GROUP			
ABO	"A"		
RH	Positive		

Prepared By
[Signature]

Verified By
[Signature]

[Signature]

Dr. S. KISHOR

M.D Pathology
Consultant Pathology

POLYDOC

...THE HEALING FAMILY

P.T NAME: SAHIL BEDIA

AGE: 25 GENDRE: M

UHID: APP787

Ref By: Dr: KAUSHAL KUMAR

IPD/OPD: OPD

DATE: 27-12-2022

DEPARTMENT OF PATHOLOGY

(CLINICAL PATHOLOGY)

TEST	RESULT	REF. VALUE	UNIT
(URINE R/E)			
PHYSICAL EXAMINATION			
VOLUME	20	20-40	ML
COLOUR	Straw	COLOUR	
TURBIDITY	Clear	CLEAR/HAZY	
Sp GRAVITY	1.015	1.003-1.035	
CHEMICAL EXAMINATION			
REACTION (PH)	5.0	4.6-7.0	
ALBUMIN	Nil	NIL	
SUGAR	Nil	NIL	
NITRITE	Nil	NIL	
ACETONE BODIES	Nil	NIL	
KETONE BODIES	Nil	NIL	
BILE SALT	Absent	ABSENT	
BILE PIGMENTS	Absent	ABSENT	
EXCESS UROBILINOGEN	Absent	ABSENT	
MICROSCOPIC EXAMINATION			
R.B.C	Nil	0-1	/HPF
P.CELL	0-1	1-4	/HPF
E.CELL	A few	2-4	/HPF
CASTS	Nil	NIL	
CRYSTALS	-	NIL	
OTHER'S	Nil		



Prepared By

Verified By

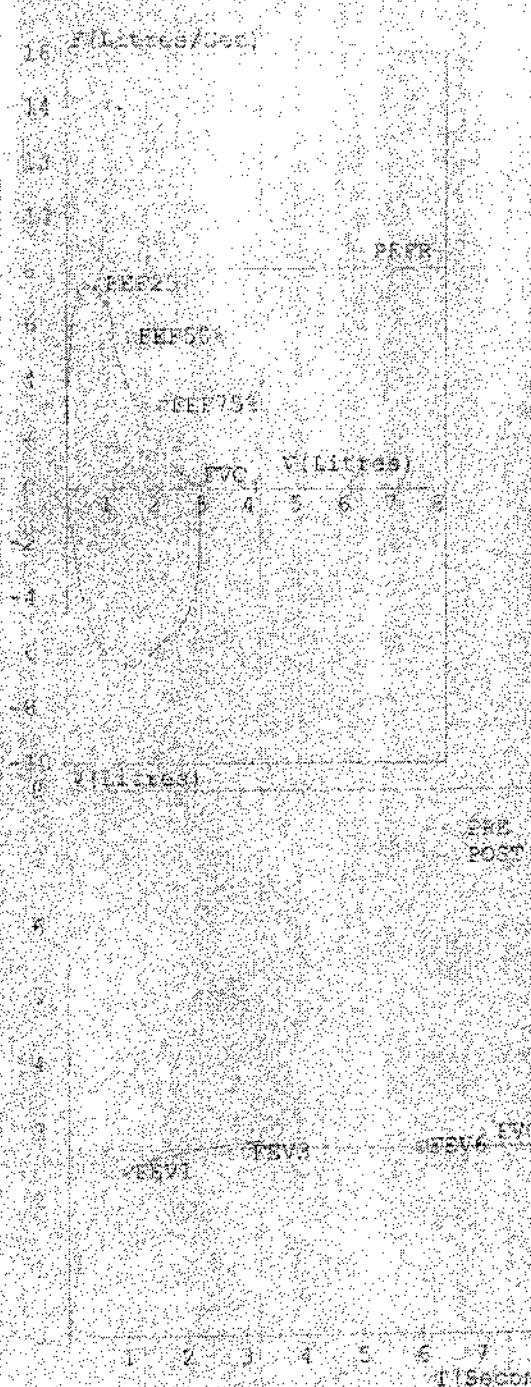
Dr. S. KISHOR
M.D Pathology
Consultant Pathology

BRINDAVAN POLYDOC HOSPITAL

RANCHI ROAD, RAMGARH-829117

Patient: SAHIL BEDIA
 Refd By:
 Pred Egm: RECORDERS
 Date: 24-Dec-2022 12:50 PM

Age: 25 Years Gender: Male
 Height: 152 Cms Smoker: No
 Weight: 54 Kgs Eth. Corr: 100
 ID: 787 Temp:



FEV1 %Pred	COVD SEVERITY
150	
125	CR3
100	
75	MODERATE
50	SEVERE
25	VERY SEVERE
0	

FVC %Pred	Interpretation
150	
125	OBS
100	
75	
50	
25	MIXED
0	RES

Spirometry (FVC Results)						
Parameter	Pred	M.Pre	%Pred	M.Post	%Pred	%Imp
FVC (L)	02.76	02.87	104	-----	---	---
FEV1 (L)	02.42	02.43	100	-----	---	---
FEV1/FVC (%)	87.68	84.67	097	-----	---	---
FEF25-75 (L/s)	04.27	02.67	063	-----	---	---
PEFR (L/s)	08.10	07.43	092	-----	---	---
FIVC (L)	-----	02.89	---	-----	---	---
FEV.5 (L)	-----	01.99	---	-----	---	---
FEV3 (L)	02.68	02.85	106	-----	---	---
PIFR (L/s)	-----	06.48	---	-----	---	---
FEF75-85 (L/s)	-----	00.73	---	-----	---	---
FEF.2-1.2 (L/s)	06.99	06.32	090	-----	---	---
FEF 25% (L/s)	07.55	07.12	094	-----	---	---
FEF 50% (L/s)	05.60	03.28	059	-----	---	---
FEF 75% (L/s)	03.08	01.05	034	-----	---	---
FEV.5/FVC (%)	-----	69.34	---	-----	---	---
FEV3/FVC (%)	97.10	99.30	102	-----	---	---
FET (Sec)	-----	03.45	---	-----	---	---
ExptTime (Sec)	-----	00.05	---	-----	---	---
Lung Age (Yrs)	025	025	100	-----	---	---
FEV6 (L)	02.76	-----	---	-----	---	---
FEF25% (L/s)	-----	05.41	---	-----	---	---
PIF50% (L/s)	-----	06.46	---	-----	---	---
PIF75% (L/s)	-----	05.69	---	-----	---	---

Pre Test COPD Severity

Test within normal limits

Pre Medication Report Indicates
 Early Small Airway Obstruction as FEF 25-75 %Pred or PEF %Pred < 70
 Spirometry within normal limits as (FEV1/FVC) %Pred > 95 and FVC %Pred > 80.

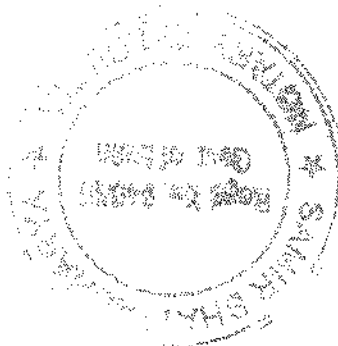
DR. KANUNAT

Patient's Name :	SAHIL BEDLA	Date: 24.12.2022
UHID :	APP 787	Age/Sex: 25 Y/M
Investigation :	CXR P.A. View	

OBSERVATION

- Bilateral lung fields are clear.
- Cardiac outline is within normal limits.
- Bilateral C.P. angles are clear.

IMPRESSION: Normal Study



Consultant Radiologist

(39)

Form No. 24

(Prescribed under Section 41-C & Rule 62 NH)

Special Certificate of Fitness

(In respect of persons employed in operations involving use of lead compounds)

Serial No.

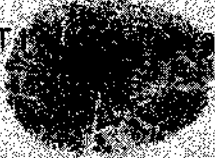
APP606

Date

25/11/22

I hereby certify that I have personally examined MANJAY SINGH
 son of RAHHUNANDAN SINGH residing at RANCHI ROAD
 who is desirous of being employed as METAL HANDLING and that his/her
 age as nearly as can be ascertained from my examination is 45 years, and that
 he/she is in my opinion, fit for employment at work involving the use of lead compounds.
 His/her descriptive marks are:

A CUT MARK ON A LEFT LEG

L.T.  examined.

Kaushal Kumar
 Dr. KAUSHAL KUMAR
 MD (AIIMS NEW DELHI)
 DNB ED&IC (ZURIC)
 CRITICAL CARE
 Reg. JMC 3119/10

I certify that I examined the person mentioned above on....	I extend this certificate until.....	Signature of certifying Surgeon	Note of symptom of lead poisoning if any
30/12/22		<u>Kaushal Kumar</u>	<u>None</u>

BRINDAVAN POLYDOC HOSPITAL, MARAR, RAMGARH,
JHARKHAND

Patient's Name: MANJAY SINGH

UHID: APP 686

S/o: RAGHONANDAN SINGH

Age/Sex: 45 / M

Address: RANCHI ROAD

Height: 5 feet 3 inches Weight: 48 Kg

VITALS: PR: 78 / bpm BP: 128 / 84 mmHg SPO₂: 98 % @ Room Air

VISION TEST:

VISUAL ACUITY (TESTED BY SNELLEN/ TUMBLING E/ JAEGER CHARTS)

WITHOUT CORRECTION/ GLASSES				WITH CORRECTION/ GLASSES			
NEAR		DISTANT		NEAR		DISTANT	
R	<u>12</u>	R	<u>9</u>	R		R	
L	<u>12</u>	L	<u>9</u>	L		L	

COLOUR VISION (TESTED BY ISHIHARA CHART): Normal/ Abnormal.

INDIVIDUAL COLOUR IDENTIFICATION: Normal/ Abnormal.

SQUIT/ NYSTAGMUS: Yes/ No.

AUDIOMETRY TEST:

	RIGHT EAR	LEFT EAR	INTERPRETATION
RINNE TEST	A/C > B/C B/C > A/C	A/C > B/C B/C > A/C	Normal
WEBER TEST	N - Patient hears it in midline. AD - Patient hears it in right ear. AS - Patient hears it in left ear.		

SIGNS/ SYMPTOMS OF LEAD POISONING:

- Headache and Abdominal pain Yes/ No. ✓
- Burtonian Line Yes/ No. ✓
- Tremors Yes/ No. ✓



Kamlesh Kumar
Doctor's Signature

25-Dec-22 3:37:58 PM

MANJAY SINGH
Male

106

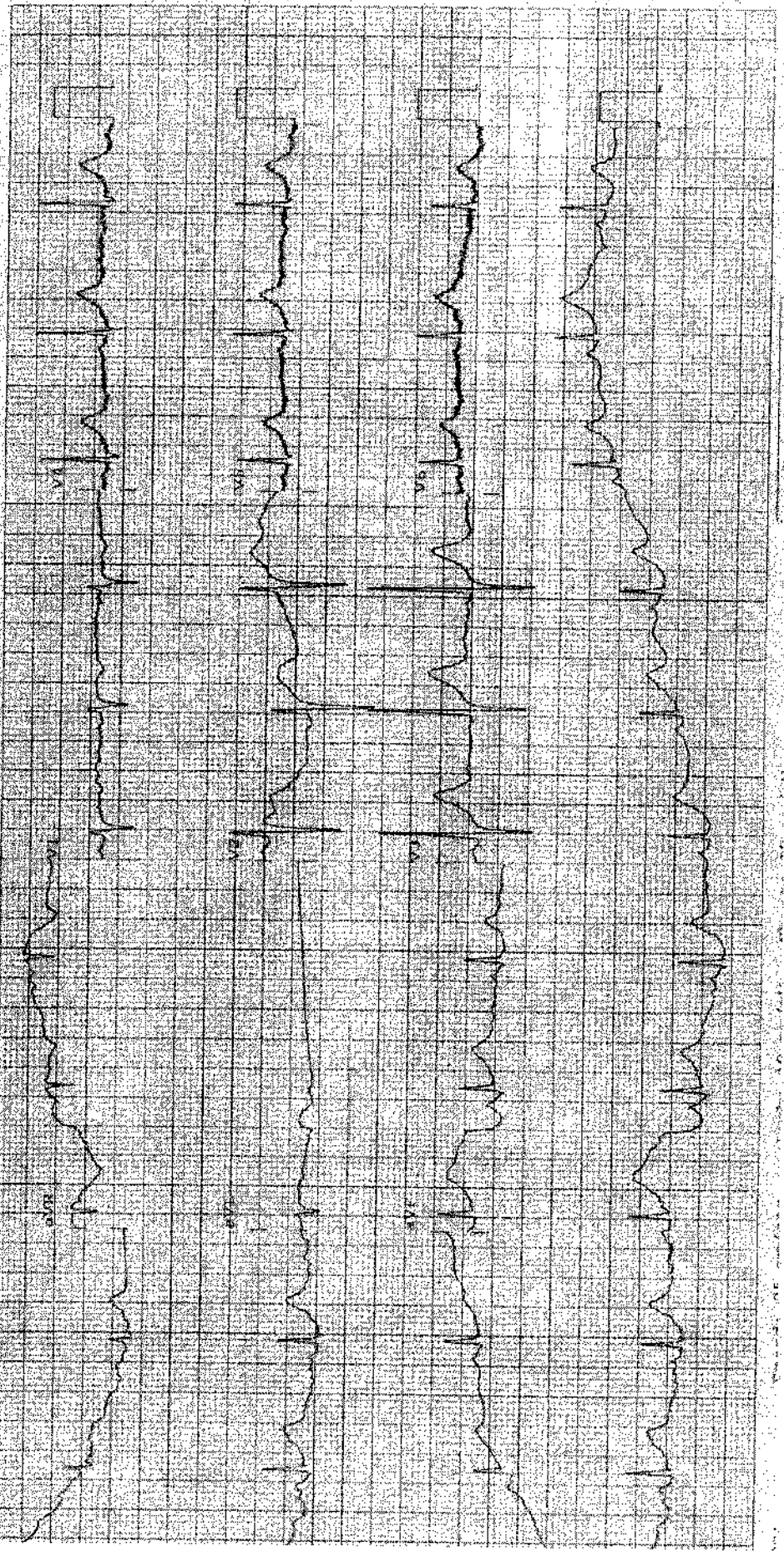
85 - Sinus Rhythm..... normal F axis, V-rate 50-99
127 - Ventricular premature complex..... V complex w/ short R-R interval
83 - ST elev, probable normal early repol pattern..... ST elevation, age<55
395 - Baseline wander in leads I, II, III, aVR, aVL, aVF, V1, V2, V3, V4, V5, V6

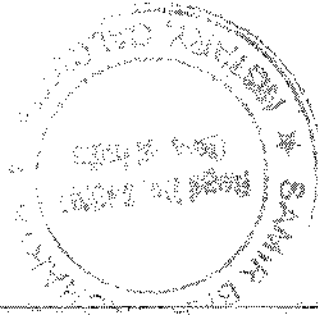
Residual time

OTHERWISE NORMAL ECG

Unconfirmed Diagnosis

Lead Standard Placement





POLYDOC
...THE HEALING FAMILY

P.T NAME: MANJAY SINGH

AGE: 45 GENDRE: M

UHID: APP606

Ref By: Dr: KAUSHAL KUMAR

IPD/OPD: OPD

DATE: 29-12-2022

DEPARTMENT OF PATHOLOGY**(HAEMATOLOGY)**

TEST	RESULT	UNIT	REF.VALUE
COMPLETE BLOOD COUNT(CBC)			
HAEMOGLOBIN	12	g/dl	13.0 - 17.0
Total Leukocyte Count (TLC)	6,100	Cells/cumm	3500 - 9500
Platelet Count	2,30	Lakh/cumm	1.5 - 5.50
RBC Count (Red Blood Cell)	3.98	Mill/ul	3.8 - 5.8
PCV (Haematocrit)	35.5	%	35 - 55
Mean Corpuscular Volume (MCV)	89.3	fl	82-100
Mean Corpuscular Hemoglobin (MCH)	30.3	pg	27-34
MCHC	33.9	Gm/dl	31.6-35.4
RDW-CV	15.4	%	11-16
RDW-SD	50.0	fl	35-56
Differential Leukocyte Count			
Neutrophils	59	%	40-75
Lymphocytes	34	%	20-50
Monocytes	02	%	3-10
Eosinophils	05	%	4-8
Basophiles	00	%	0-1
ESR (Erythrocyte sed. Rate)	15	mm/hr	0-20
CREATININE	0.9	Mg/dl	0.7-1.4
RBS (Random Blood Sugar)	94	Mg/dl	60-140
HIV 1/2	Non Reactive		Non Reactive
HbSAg	Non Reactive		Non Reactive
BLOOD GROUP			
ABO	"O"		
RH	Positive		

Dr. S. KISHOR

M.D. Pathology
Consultant Pathology

Prepared By

Verified By

POLYDOC

...THE HEALING FAMILY

P.T NAME: MANJAY SINGH

AGE: 45 GENDRE: M

UHID: APP606

Ref By: Dr: KAUSHAL KUMAR

IPD/OPD: OPD

DATE: 29-12-2022

DEPARTMENT OF PATHOLOGY

(CLINICAL PATHOLOGY)

TEST	RESULT	REF. VALUE	UNIT
(URINE R/E)			
PHYSICAL EXAMINATION			
VOLUME	20	20-40	ML
COLOUR	Straw	COLOUR	
TURBIDITY	Clear	CLEAR/HAZY	
Sp GRAVITY	1.015	1.003-1.035	
CHEMICAL EXAMINATION			
REACTION (PH)	6.0	4.6-7.0	
ALBUMIN	Nil	NIL	
SUGAR	Nil	NIL	
NITRITE	Nil	NIL	
ACETONE BODIES	Nil	NIL	
KETONE BODIES	Nil	NIL	
BILE SALT	Absent	ABSENT	
BILE PIGMENTS	Absent	ABSENT	
EXCESS UROBILINOGEN	Absent	ABSENT	
MICROSCOPIC EXAMINATION			
R.B.C	Nil	0-1	/HPF
P.CELL	0-1	1-4	/HPF
E.CELL	A few	2-4	/HPF
CASTS	Nil	NIL	
CRYSTALS	*	NIL	
OTHER'S	Nil		



Prepared By

Verified By

Dr. S. KISHOR
M.D Pathology
Consultant Pathology

BRINDAVAN POLYDOC HOSPITAL

RANCHI ROAD, RAMGARH-829117

Patient: MANJAY SINGH
 Refd. By:
 Recd. Eqs: RECORDERS
 Date: 25-Dec-2022 03:39 PM

Age: 45 Years Gender: Male
 Height: 160 Cms Smoker: No
 Weight: 48 Kgs Eth. Corr: 100
 ID: 606 Temp:

Lillires/Sec

FEV1 %Pred COPD SEVERITY

FVC&Pred Interpretation

150	OBS	NORM
125		
100		
75	MODERATE	
50	SEVERE	
25	VERY SEVERE	RES
0		

150	OBS	NORM
125		
100		
75		
50		
25	MIXED	RES
0		

(FEV1/FVC)%Pred

(FEV1/FVC)%Pred

Spirometry (FVC Results)

Parameter	Pred	M. Pre %Pred	M. Post %Pred	%Imp
FVC (L)	02.88	02.85	099	
FEV1 (L)	02.32	02.39	103	
FEV1/FVC (%)	80.56	83.86	104	
FEF25-75 (L/s)	03.52	02.45	070	
PEFR (L/s)	07.96	04.62	058	
FIVC (L)	-----	01.96	---	
FEV.5 (L)	-----	01.79	---	
FEV3 (L)	02.79	02.85	102	
PIFR (L/s)	-----	02.82	---	
FEF75-85 (L/s)	-----	00.88	---	
FEF 2-1.2 (L/s)	06.04	04.12	068	
FEF 25% (L/s)	07.43	04.52	061	
FEF 50% (L/s)	05.21	02.76	053	
FEF 75% (L/s)	02.38	01.14	048	
FEV.5/FVC (%)	-----	62.81	---	
FEV3/FVC (%)	96.88	100.00	103	
PET (Sec)	-----	02.27	---	
ExptTime (Sec)	-----	00.14	---	
Lung Age (Yrs)	045	044	098	
FEV6 (L)	02.88	-----	---	
PIF25% (L/s)	-----	00.72	---	
PIF50% (L/s)	-----	01.34	---	
PIF75% (L/s)	-----	02.23	---	

Lillires)

PRE
POST

Pre Test COPD Severity

Test within normal limits

1 2 3 4 5 6 7 8
T(Secours)

Pre Medication Report Indicates

Early Small Airway Obstruction as FEF 25-75 %Pred or PEF25 %Pred < 70

Spirometry within normal limits as (FEV1/FVC)%Pred >95 and FVC&Pred >80.

Kanku Sharma

DR. RAJCHAU

Patient's Name	: MANJAY SINGH	Date: 25.12.2022
UHID	: APP 606	Age/Sex: 45 Y/M
Investigation	: CXR P.A. View	

OBSERVATION

- Bilateral lung fields are clear.
- Cardiac outline is within normal limits.
- Bilateral C.P. angles are clear.

IMPRESSION: Normal Study



Consultant Radiologist:

492

1390



Government of Jharkhand

Receipt of Online Payment of Stamp Duty

NON JUDICIAL

Receipt Number : 503bc3df74e8ed9e3864

Receipt Date : 28-Dec-2022 02:25:09 pm

Receipt Amount : 20/-

Amount In Words : Twenty Rupees Only

Document Type : Affidavit

District Name : Ranchi

Stamp Duty Paid By : ENGLISH TRANSLATION OF PUBLIC HEARING PROCEEDING

Purpose of stamp duty paid : AFFIDAVIT

First Party Name : ENGLISH TRANSLATION OF PUBLIC HEARING PROCEEDING

Second Party Name : NA

GRN Number : 2215003599

This stamp paper can be verified in the jharnibandhan site through receipt number.

Authorized Under Notaries Act-1956
Notaries Rules 1956 by Govt of
Jharkhand, Ranchi (India)

28 DEC 2022
Ref. No. _____ Date _____



This Receipt is to be used as proof of payment of stamp duty only for one document. The use of the same receipt as proof of payment of stamp duty in another document through reprint, photo copy or other means is penal offence under section-62 of Indian Stamp Act, 1899.

इस सिम्पल रसीद केवल एक ही दस्तावेज पर मुद्रांक शुल्क का भुगतान के प्रमाण हेतु ही किया जा सकता है। पुनः प्रिन्ट या फोटो कॉपी आदि द्वारा इसी रसीद का दूसरे दस्तावेज पर मुद्रांक शुल्क का भुगतान के प्रमाण हेतु उपयोग भारतीय अधिनियम 1899 की धारा 62 अन्तर्गत दण्डनीय अपराध है।



**Jharkhand State Pollution Control Board,
Regional office cum Laboratory, PTC Chowk, Matwari Road, Hazaribagh**

M/s Bihar Foundry & Castings Ltd., Industrial Area, Marar has proposal of expansion of Silico manganese/ Ferro manganese from present 96 TPD (34080 TPA) to Silico manganese 165 TPD (58575 TPA) or HC/MC/ LC Ferro Manganese - 265 TPD (94075 TPA). For obtaining Env. Clearance for this proposed expansion public hearing was conducted on dated 15.03.2021 at Jimkhana club, Ranchi Road, Ramgarh. The proceeding of public hearing is as under:-

1. The public hearing has been conducted under the provision of EIA Notification No.- SO-1533 dated 14.09.2006 and its amendments No- SO 3066(F) dated 01.12.2009.
2. The public hearing was conducted under the Chairmanship of Sri Jyngnu Mini, Additional collector, Ramgarh, Sri Ashok Kumar Yadav, Regional Officer, Regional Office, Jharkhand State Pollution Control Board, Hazaribagh and Sri Mithlesh Jha, ASO, Head office, Jharkhand State Pollution Control Board, Ranchi were present in this public hearing.
3. Sri Ashok Kumar Yadav informed the public present about the purpose and guidelines of public hearing.
4. Project proponent described about the projects before the public about the expansion project, environmental pollution control and about the future benefit from the project after expansion.
5. In the existing plant the submerged arc furnace of capacity 96 TPD is installed the proposed expansion enhance the capacity of existing Furnace of capacity (2x5 MVA + 1x7.5 MVA + 1x9 MVA to 2x6 MVA + 3x9 MVA SAF's + 1x12 MT) per batch CLU (Creusot-Loire-Uddeholm) converter for refining liquid HC FeMn to MC/LC FeMn, Maching associate facilities for operation.). In this expansion no additional land will be procured. After expansion more 50 KLD water and 18 KVA electricity will be required.
6. The unit has been granted TOR for this expansion project bt MoEFCC, Govt. of India vide No.- F0-111011/3334/ 2009-1A-11(i) dated 24.11.2020.
7. With the permission of the Chairman public hearing stated and public present there put their views peacefully one by one.
8. In the last project proponent assured the villagers present in the public hearing that their queries have been recorded and will be implemented on basis of priority and requirement.

At the public hearing was ended by the Chairman

Annexures:-

1. Attendance sheets of Special Guest.
2. Attendance sheet of Villagers present in the public hearing.
3. Questions raised by the villagers and reply of project proponent.
4. Videography CD of entire public hearing.
5. Paper cutting of News paper.

Sd/-

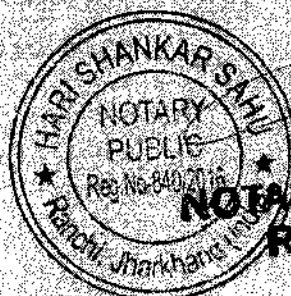
Mithlesh Jha
ASO, H.O., JSPCB

Sd/-

Ashok Kumar Yadav
R.O. JSPCB, Hazaribagh

Sd/-

Jyngnu Mini
ADM, Ramgarh



**NOTARY PUBLIC
RANCHI**

Signature/ETI/RTI attested
on identification of lawyer

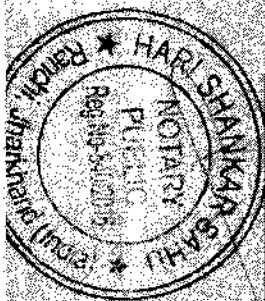
Action plan for the issues raised during public hearing

The people present in the public hearing asked questions from the environment point of view. The company has allocated Rs 90 lakhs to be spent on the basis of issues raised during public hearing and after identifying the needs of local people. The action plan is as given below. The response of PP should be in accordance to MoM of PH. Will discuss this point in meeting

S. No.	Name of the Person	Public comments / Objections / Suggestions in brief	Response of project proponent
1.	Mr. Shankar Mishra, Ward Parashad, Morar, Ramgarh	He stated that the production capacity of the existing factory would enhance by installation of large furnaces from its upcoming expansion project. He also demanded employment for local villagers in the new expansion project.	The management of M/s Gautam Ferro Alloys unit of BHEL is very much concerned about environmental pollution control and committed for the compliance emission & discharge norms. The proposed expansion enhance the capacity of existing Furnace of capacity (2x5 MVA + 1x7.5 MVA + 1x9 MVA to 2x6 MVA + 3x9 MVA SAFs + 1x12 MT) per batch CLU (Creusot-Loire-Uddeholm) converter for refining liquid HC FeMn to MC/IC FeMn, Maching associate facilities for operation. For the existing operational units adequate number of Air Pollution Control devices such as Bag Filters, LD Fens, Fume Extraction system of adequate capacity are installed and all the major stacks, as per CPCB norms, are installed with Online Continuous Emission Monitoring System (OCEMS) and data is being transmitted 24 x 7 to CPCB / SPCB. All pollution control systems are connected to energy meters and the records are maintained for run hours, failure time and efficiency. Also to ensure emission within permissible limit, stack fugitive, ambient, noise, water monitoring/ sampling is being carried by JSPCB & MABU/MoEF accredited lab in a time bound manner and

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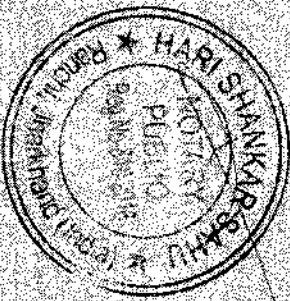
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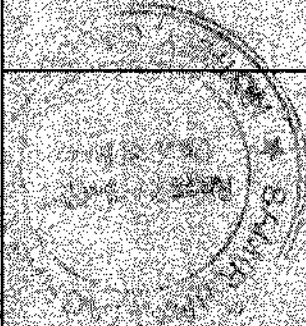
Sl. No.	Name of the Person	Public Company / Object of Suggestions in brief	Response of project proponent
2.	Mr. Umesh Kumar Bedia Mayor Ramgarh	He welcomed the proposed expansion project. He requested the project proponent to create job opportunity for villagers like him (being Diploma in Mechanical Engineering) as per their qualification required for employment. He informed that the management of this factory had provided health care facility like eye testing.	report is being submitted to concerned regulatory bodies and also available on companies' website. Now for the proposed expansion project some pollution control practice will be adopted and BAT of adequate capacity will be followed to control the emission level. For the existing operational unit, priority to the local people for employment has been given based on their skill, ability and academic qualification. Local people from various job fairs Conducted by local administration, District Magistrate) and the students from nearby different technical institutions are recruited after getting proper training. For the proposed expansion project priority will be given to the local people based on their academic qualification and as per the extent of Government norms (State or Gov norms). For the existing operational/ industrial units of the Group, priority to the local people for employment generation has been given based on their academic qualification. Local people from various job fairs Conducted by local administration, District Magistrate) and the students from nearby different technical institutions are recruited after getting proper training.

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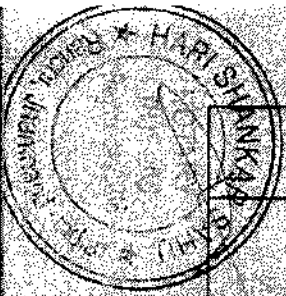


S. No.	Name of the Person	Public Comments / Suggestions in brief	Response of project proponent
3.	Mr. Rohul Kumar Singh Indira Nagar Ward-1 Ramnagar	plantation programme, built temples and helped villagers and clubs as their CSR activity in recent past. He stated that local people need job from this project and wanted that the road would be developed in the nearby villages by the project proponent.	For the proposed expansion project priority will be given to the local people based on their academic qualification and as per the extent of Government norms (State or Govt norms). For the existing operational/ industrial units of the Group, priority to the local people for employment generation has been given based on their academic qualification. Local people from various job fairs Conducted by local administration, District Magistrate) and the students from nearby different technical institutions are recruited after getting proper training. For the proposed expansion project priority will be given to the local people based on their academic qualification and as per the extent of Government norms (State or Govt norms). Under CER & CSR scheme in past road nearby existing plant and villages is being repaired periodically in consultation with Road Construction Department, Govt. of West Bengal and in future more focus will be given to develop the local roads under CER Activities. RML has already made application with supporting document and processing fees to NHAI, PIL Kharagpur for making service road to plant vide letter dated 24.02.2020.



28 DEC 2022

S No	Name of the Person	Public Comments / Objections / Suggestions in brief	Response/Project Proposer
4	Mr. Sudhanshu Shekhar Pandey Indira Nagar Kamgarh	He stated that local people need job from this project and wanted that the road would be developed in the nearby villages by the project proponent.	For the existing operational/industrial units of the Group, priority to the local people for employment generation has been given based on their academic qualification. Local people from various job fairs Conducted by local administration, District Magistrate) and the students from nearby different technical institutions are recruited after getting proper training. For the proposed expansion project priority will be given to the local people based on their academic qualification and as per the extent of Government norms (State or GoI norms).
5	Mr. Khemlal Bedia Hesla	He stated that local people need job from this project and wanted that the road would be developed in the nearby villages by the project proponent.	For the existing operational/industrial units of the Group, priority to the local people for employment generation has been given based on their academic qualification. Local people from various job fairs Conducted by local administration, District Magistrate) and the students from nearby different technical institutions are recruited after getting proper training. For the proposed expansion project priority will be given to the local people based on their academic qualification and as per the extent of Government norms (State or GoI norms).
6	Mr. Baleshwar Karmali Morar	He stated that local people need job from this project and wanted that the road would be developed in the nearby villages by the project proponent.	For the existing operational/industrial units of the Group, priority to the local people for employment generation has been given based on their academic qualification. Local people from various job fairs Conducted by local administration, District Magistrate) and the students from nearby different technical institutions are recruited after getting proper training. For the proposed expansion project priority will be given to the local people based on their academic qualification and as per the extent of Government norms (State or GoI norms).



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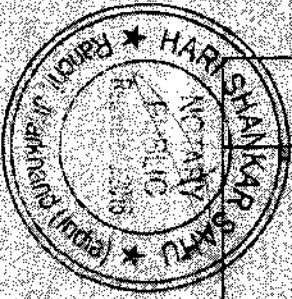
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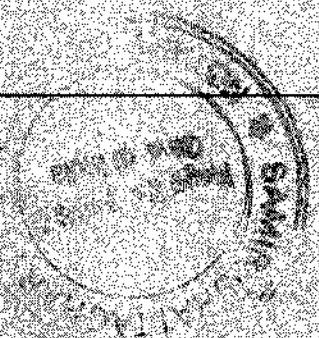


Sl. No.	Name of the Person	Public Comments/objections/ suggestions in brief.	Response of project proponent.
7	Mr. Sonu Kumar Singh Mayor	He stated that local people need job from this project and wanted that the road would be developed in the nearby villages by the project proponent.	For the existing operational/ industrial units of the Group, priority to the local people for employment generation has been given based on their academic qualification. Local people from various job fairs Conducted by local administration, District (Magistrate) and the students from nearby different technical institutions are recruited after getting proper training. For the proposed expansion project priority will be given to the local people based on their academic qualification and as per the extent of Government norms (State or Govt norms).
8	Mr. Sanjay Jaisawal Mayor	He stated that the production capacity of the existing factory would enhance by installation of large furnaces from its upcoming expansion project. He also demanded employment for local villagers in the new expansion project.	The management of M/S Gautam Ferro Alloys unit of BFCL is very much concerned about environmental pollution control and committed for the compliance emission & discharge norms. The proposed expansion enhance the capacity of existing furnace of capacity (2x5 MVA + 1x7.5 MVA + 1x9 MVA to 2x6 MVA + 3x9 MVA SAF's + 1x12 MT) per batch CLB (Creusot-Loire-Uddeholm) converter for refining liquid HC FeMn to MC/IC FeMn, Maching associate facilities for operation.) For the existing operational units adequate number of Air Pollution Control devices such as Bag Filters, LD Foms, Fume Extraction system of adequate

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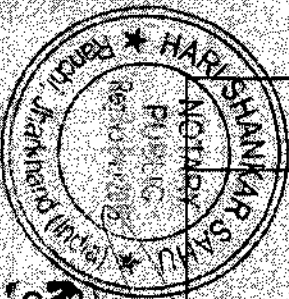


S. No.	Name of the Person	Public Comments/objections / Suggestions in brief	Response of project proponent
			capacity are installed and all the major stacks, as per CPCB norms, are installed with Online Continuous Emission Monitoring System (OCEMS) and data is being transmitted 24 x 7 to CPCB / SPCB. All pollution control systems are connected to energymeters and the records are maintained for run hours, failure time and efficiency. Also to ensure emission within permissible limit, stack, fugitive, ambient, noise, water monitoring/ sampling is being carried by JSPCB & NABL/ MOEF accredited lab in a time bound manner and report is being submitted to concerned regulatory bodies and also available on companies' website. Now for the proposed expansion project same pollution control practice will be adopted and BAT of adequate capacity will be followed to control the emission level. For the existing operational unit, priority to the local people for employment has been given based on their skill, ability and academic qualification. Local people from various job fairs Conducted by local administration, District Magistrate) and the students from nearby different technical institutions are recruited after getting proper training.

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28 DEC 2022

S. No.	Name of the Person	Public Comments / Objections / Suggestions in brief	Response of project proponent
			For the proposed expansion project priority will be given to the local people based on their academic qualification and as per the extent of Government norms (State or Govt norms).
9	Mr. Ranjeet Kumar Saw Ranchi Road Maror	He stated that local people need job from this project and wanted that the road would be developed in the nearby villages by the project proponent.	For the existing operational/ industrial units of the Group, priority to the local people for employment generation has been given based on their academic qualification. Local people from various job fairs Conducted by local administration, District Magistrate) and the students from nearby different technical institutions are recruited after getting proper training. For the proposed expansion project priority will be given to the local people based on their academic qualification and as per the extent of Government norms (State or Govt norms).
10	Mr. Ramon Munda Maror	He stated that local people need job from this project and wanted that the road would be developed in the nearby villages by the project proponent.	For the existing operational/ industrial units of the Group, priority to the local people for employment generation has been given based on their academic qualification. Local people from various job fairs Conducted by local administration, District Magistrate) and the students from nearby different technical institutions are recruited after getting proper training. For the proposed expansion project priority will be given to the local people based on their academic qualification and as per the extent of Government norms (State or Govt norms).



NOTARY PUBLIC
Ranchi, Jharkhand (India)



क्षेत्रीय कार्यालय सह प्रयोगशाला,
झारखण्ड राज्य प्रदूषण नियंत्रण पर्वद,
हजारीबाग।

पत्रांक: 427

दिनांक: 19/3/21

प्रेषक

अशोक कुमार यादव,
क्षेत्रीय पदाधिकारी।

सेवा में

सदस्य सचिव,
झा० रा० प्र० नि० पर्वद, धुर्वा, जिला - राँची।

विषय: मेसर्स बिहार फाउण्ड्री एण्ड कास्टिंग लि० (यूनिट भौतम फेरो एलॉयज), रामगढ़ इण्डस्ट्रीयल एरिया, मरार, जिला - रामगढ़ हेतु दिनांक 15.03.2021 को झारखण्ड राज्य प्रदूषण नियंत्रण पर्वद द्वारा सम्पादित लोक सुनवाई की कार्यवाही भेजने के सम्बंध में।

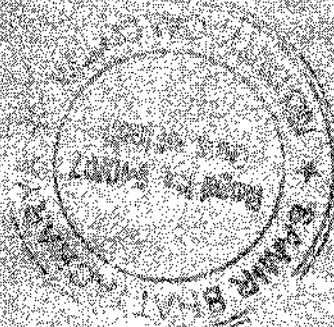
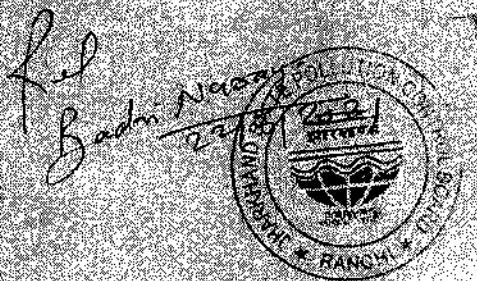
सहाय्य

उपर्युक्त विषय के क्रम में सूचित करना है कि सर्वश्री मेसर्स बिहार फाउण्ड्री एण्ड कास्टिंग लि० (यूनिट भौतम फेरो एलॉयज), रामगढ़ इण्डस्ट्रीयल एरिया, मरार, जिला - रामगढ़ हेतु दिनांक 15.03.2021 को झारखण्ड राज्य प्रदूषण नियंत्रण पर्वद द्वारा सम्पादित लोक सुनवाई की कार्यवाही प्रतिवेदन, विशिष्ट अतिथियों की उपस्थिति पंजी, ग्रामीणों की उपस्थिति पंजी, ग्रामीणों द्वारा उठाये गये प्रश्नों एवं उनकी उत्तर सामग्री, लोक सुनवाई की कार्यवाही की विडियोग्राफी सी०डी०, समाचार पत्रों के कतरन दो प्रति के साथ संलग्न वर आवश्यक कार्यवाई हेतु भेजी जा रही है।

अनु० - यथो०

विश्वासभाजन

19/03/2021
(अशोक कुमार यादव)
क्षेत्रीय पदाधिकारी



झारखण्ड राज्य प्रदूषण नियंत्रण पर्वद,

क्षेत्रीय कार्यालय - सह-प्रयोगशाला पी०एच०सी० बॉक, मटवारी रोड, हजारीबाग।

पत्रांक

दिनांक

सर्वश्री बिहार फाउण्ड्री एण्ड कास्टिंग लि० (यूनिट गौतम फेरो एलॉयज), रामगढ़ इण्डस्ट्रियल एरिया, मरार, जिला - रामगढ़ के विस्तारीकरण के तहत सिलिको मैंगनीज / फेरो मैंगनीज वर्तमान क्षमता 96 टन प्रति दिन (34,080 टी०पी०ए०) से बढ़ाकर प्रस्तावित क्षमता सिलिको मैंगनीज - 165 टन प्रति दिन (58,575 टी०पी०ए०) या एच०सी०/एम०सी०/एल०सी० फेरो मैंगनीज - 265 टन प्रति दिन (94,075 टी०पी०ए०) किया जाएगा। प्रस्तावित विस्तार हेतु पर्यावरणीय स्वीकृति प्राप्त करने हेतु दिनांक 15.03.2021 को जिमखाना क्लब, रौंची रोड, मरार, रामगढ़ में आयोजित लोक सुनवाई की कार्यवाही प्रतिवेदन :-

1. लोक सुनवाई पर्यावरण, वन एवं जलवायु परिवर्तन विभाग, भारत सरकार की ई०आई०ए० अधिसूचना सं० SO 1533 दिनांक 14.09.2006 एवं इसके संशोधित सं० SO 3067 (F) दिनांक 01.12.2009 के तहत आयोजित किया गया।
2. लोक सुनवाई श्री जूगनू मिश्र, अपर समाहर्ता, रामगढ़ की अध्यक्षता में आयोजित किया गया। झारखण्ड राज्य प्रदूषण नियंत्रण की ओर से श्री अशोक कुमार यादव, क्षेत्रीय पदाधिकारी, हजारीबाग, श्री मिथिलेश झा, सहायक वैज्ञानिक पदाधिकारी, पर्वद मुख्यालय, रौंची उपस्थित थे।
3. श्री अशोक कुमार यादव, क्षेत्रीय पदाधिकारी, हजारीबाग द्वारा लोक सुनवाई के उद्देश्य एवं प्रक्रिया के बारे में विस्तृत रूप से जानकारी दी गई।
4. इकाई प्रबंधन द्वारा प्रस्तावित परियोजना के संबंध में विस्तृत रूप से जानकारी दी गई, जिसमें प्रस्तावित उत्पादन विस्तार, प्रदूषण नियंत्रण के उपाय एवं प्राप्ति की भविष्य में उनकी सहभागिता की जानकारी दी गई।
5. इकाई की वर्तमान उत्पादन क्षमता फेरो एलॉयज - 96 टन प्रति दिन का सबमजर्ड आर्क फर्नेस पर्याप्त स्थापित है। विस्तारीकरण के बाद सिलिको मैंगनीज - 165 टन प्रति दिन (58,575 टी०पी०ए०) या एच०सी०/एम०सी०/एल०सी० फेरो मैंगनीज - 265 टन प्रति दिन (94,075 टी०पी०ए०) क्षमता का सबमजर्ड आर्क फर्नेस स्थापित किया जाएगा। विस्तारीकरण योजना में अतिरिक्त जमीन की आवश्यकता नहीं होगी। विस्तारीकरण के बाद और 50 कि०मी० प्रतिदिन जल आपूर्ति बढ़ेगा एवं 18 एम०मी० और बिजली की खपत बढ़ेगी।
6. इकाई में क्षमता विस्तार हेतु पर्यावरणीय स्वीकृति प्राप्त करने हेतु इकाई को पर्यावरण, वन एवं जलवायु परिवर्तन विभाग, भारत सरकार के पत्रांक F.No. - J - 11011 / 3384 / 2009 (A - 11 (1)) दिनांक 24.11.2020 द्वारा TOR प्राप्त है।

- 7 अध्यक्ष की अनुमति से लोक सुनवाई में उपस्थित नागरिकों द्वारा बारी-बारी से प्रस्तावित परियोजना पर शान्तिपूर्वक अपने-अपने पक्ष रखे गये।
- 8 अंत में परियोजना प्रबंधक द्वारा लोक सुनवाई में उपस्थित ग्रामीणों को आश्वस्त किया गया कि उनके द्वारा उठाए गए बिन्दुओं एवं सुझावों को प्राथमिकता के आधार पर क्रियान्वयन किया जाएगा।

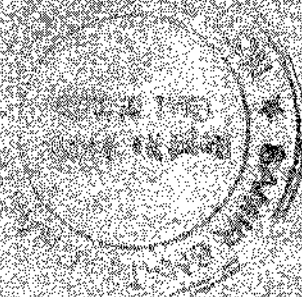
अन्त में अध्यक्ष के द्वारा लोक सुनवाई की समाप्ति की घोषणा की गई।

- अनु० 1) विशिष्ट अतिथियों की उपस्थिति पत्ती।
- 2) ग्रामीणों की उपस्थिति पत्ती।
- 3) ग्रामीणों द्वारा उठाये गये प्रश्नों एवं उनकी उत्तर सामग्री।
- 4) लोक सुनवाई की कार्यवाही की चिडियाग्राफी सी०डी०।
- 5) समाचार पत्रों के कतरन।


(श्री अ. क. सिंह)
सहा० योजना० पदा०
झारखण्ड राज्य प्रदूषण
नियंत्रण पथद० रैली।


(श्री अ. क. सिंह)
क्षेत्रीय पदाधिकारी
झारखण्ड राज्य प्रदूषण
नियंत्रण पथद० हजारीबाग।


(श्री अ. क. सिंह)
अपर समाहर्ता
रामगढ़।





उपस्थिति पंजी (विशेष आमंत्रित सदस्यों के लिए)

इकाई का नाम एवं पता

लोक सुनवाई स्थल

लोक सुनवाई दिनांक

मौखिक विवाद पत्राचार/एक कक्षाई न सिर्फ, भूमि
जमीन के दो राजस्वकाज, रामगढ़ उपखंड (न) गाम रा
मगढ़, जिला - रामगढ़
रामगढ़ जिला बाना कालक, रोजी रोड
पों - मगढ़, रामगढ़ - 822017

15/03/2021

क्र० स०	नाम	पदनाम	विभाग का नाम	हस्ताक्षर
1	पुमानु मिंज	अपर समाधि रामगढ़	राजस्व, वित्तधन एवं धर्म धुपार विभाग रामगढ़	 15/3/21
2	अशोक कुमार शर्मा	क्षेत्रीय प्रदायितकारी	आरक्षण प्रदूषण नियंत्रण पर्यटन क्षेत्रीय कार्यालय इजारीलाग	 15/03/2021
3	मिथिलेश शर्मा	आरक्षण पर्यटन	आरक्षण प्रदूषण नियंत्रण पर्यटन रॉन्जी	 15/3/2021
4	आशुतोष	परामर्शी कार्याधी	आरक्षण प्रदूषण नियंत्रण पर्यटन (मु०) रॉन्जी	 15/3/2021

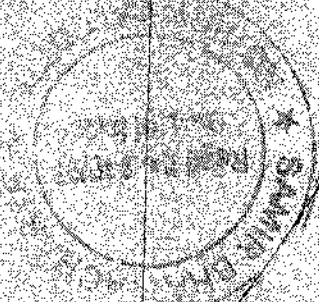


सुनवाई का नाम एवं पता: सुनील मिश्रा का 303ी एच3 कागोईज सिंगरेड
 ग्रामिण गाँव में रायबाजन, रामगढ़, डण्डर) मल
 रमरेबा, मरान, रामगढ़।
 लोक सुनवाई स्थल: रामगढ़ जिल्ला के लो, रमरेबा, मरान, रामगढ़।
 लोक सुनवाई दिनांक: 15/03/2021

क्र.सं.	नाम / पदनाम	ग्राम का नाम	जिला	हस्ताक्षर
1	सुनील मिश्रा	11212	रामगढ़	15/03/21
2	Akhil	इंदर बाग	"	15/03/21
3	Saibal Khatun	रानी रोड	रामगढ़	15/03/21
4	Jitendra Kumar	विहारी मिश्रा	रामगढ़	15/03/21
5	दुर्गा चरण मरान	रानी रोड	रामगढ़	15/03/21
6	Ganesh Singh	रानी रोड	रामगढ़	15/03/21
7	कल्याण शेर	रानी रोड	रामगढ़	15/03/21
8	Indranil Kumar	मरान	Ramgarh	15/03/21
9	Raman Kumar	Sentra	Ramgarh	15/03/21
10	Pradeep Singh	Tongri	Haridwar	15/03/21
11	Abhishek Singh	Moran	Ramgarh	15/03/21
12	Rohit Kumar	Maharaja	Ramgarh	15/03/21
13	Pradeep Kumar	Singh	Ramgarh	15/03/21
14	Suraj Dev Prasad	Hesalong	Ramgarh	15/03/21
15	Singh Prasad	Moran	Ramgarh	15/03/21
16	Animesh Kumar	Moran	Ramgarh	15/03/21
17	Jyoti Singh Kapur	Moran	Ramgarh	15/03/21
18	Ujjwal Rajawat	Moran	Ramgarh	15/03/21

अनुलग्नक - 2
उपस्थिति पंजी (लोक सुनवाई में उपस्थित नागरिकों के लिए)

क्र. सं.	नाम / पदनाम	ग्राम का नाम	जिला	हस्ताक्षर
42	Bahadur Brijwar	Marwar	Ramghar	[Signature]
43	Ganesh Mundla	Marwar	Ramghar	Ganesh Mundla
44	Hemal Rajwar	Marwar	Ramghar	Hemal Rajwar
45	Ganesh Rajwar	Marwar	Ramghar	Ganesh Rajwar
46	Vinod Kumar Bedia	Marwar	Ramghar	[Signature]
47	Rajesh Kumar Singh	Indra Nagar	Ramghar	Rajesh Singh
48	Bahadur Singh	Marwar	Ramghar	[Signature]
49	Ganesh Kumar Singh	Marwar	Ramghar	[Signature]
50	Vikram Singh	Marwar	Ramghar	[Signature]
51	Dhanraj Singh	Sikha	Ramghar	[Signature]
52	Hemal Kumar Mahesh	Ramghar	Ramghar	Hemal Kumar Mahesh
53	Manish Kataria	Marwar	Ramghar	Manish Kataria
54	Suresh Kumar	Gomti	Bohara	Suresh Kumar



[Signature]

मेसर्स बिहार फाउण्ड्री एण्ड कास्टिंग लि० (यूनिट गौतम फेरो एलॉयज) रामगढ़ इण्डस्ट्रीयल एरिया, मरार, जिला - रामगढ़
 दिनांक - 15.03.2021 को आयोजित लोक सुनवाई की प्रश्नोत्तरी।
 लोक सुनवाई स्थल - रामगढ़ जिनसखाना क्लब, सीधी रोड, मरार, रामगढ़।

क्रमांक	उपस्थित व्यक्तियों का नाम एवं पता	पूरे गए प्रश्न/सुझाव/संकेत आदि	व्यक्ति प्रतिनिधि द्वारा दिये गये जवाब
1	श्री अशोक कुमार मिश्रा	खाना के विस्तारिकरण होना अच्छी बात है। अलग-अलग के लोगों को खाना मिलना चाहिए। मरार के लोगों को राजमार्ग में भागीदारी मिलनी चाहिए।	प्रश्नकर्ता द्वारा खाना मिलने के स्थानीय लोगों को राजमार्ग में भागीदारी मिलना चाहिए।
2	श्री रामेश कुमार मिश्रा	मरार में बहुत बेरोजगारी है। वहाँ के 75 प्रतिशत लोगों को खाना मिलनी चाहिए।	प्रश्नकर्ता द्वारा खाना मिलने के स्थानीय लोगों को राजमार्ग में भागीदारी मिलना चाहिए।
3	श्री राहुल कुमार सिंह	मरार में बहुत बेरोजगारी है। वहाँ के 75 प्रतिशत लोगों को खाना मिलनी चाहिए।	प्रश्नकर्ता द्वारा खाना मिलने के स्थानीय लोगों को राजमार्ग में भागीदारी मिलना चाहिए।
4	श्री सुधीर कुमार मिश्रा	मरार में बहुत बेरोजगारी है। वहाँ के 75 प्रतिशत लोगों को खाना मिलनी चाहिए।	प्रश्नकर्ता द्वारा खाना मिलने के स्थानीय लोगों को राजमार्ग में भागीदारी मिलना चाहिए।
5	श्री सुमनोद देवी	मरार में बहुत बेरोजगारी है। वहाँ के 75 प्रतिशत लोगों को खाना मिलनी चाहिए।	प्रश्नकर्ता द्वारा खाना मिलने के स्थानीय लोगों को राजमार्ग में भागीदारी मिलना चाहिए।
6	श्री बालदेव रामनोदी	मरार में बहुत बेरोजगारी है। वहाँ के 75 प्रतिशत लोगों को खाना मिलनी चाहिए।	प्रश्नकर्ता द्वारा खाना मिलने के स्थानीय लोगों को राजमार्ग में भागीदारी मिलना चाहिए।
7	श्री सोनू कुमार मिश्रा	मरार में बहुत बेरोजगारी है। वहाँ के 75 प्रतिशत लोगों को खाना मिलनी चाहिए।	प्रश्नकर्ता द्वारा खाना मिलने के स्थानीय लोगों को राजमार्ग में भागीदारी मिलना चाहिए।
8	श्री राजेश कुमार मिश्रा	मरार में बहुत बेरोजगारी है। वहाँ के 75 प्रतिशत लोगों को खाना मिलनी चाहिए।	प्रश्नकर्ता द्वारा खाना मिलने के स्थानीय लोगों को राजमार्ग में भागीदारी मिलना चाहिए।
9	श्री राजीव कुमार राय	मरार में बहुत बेरोजगारी है। वहाँ के 75 प्रतिशत लोगों को खाना मिलनी चाहिए।	प्रश्नकर्ता द्वारा खाना मिलने के स्थानीय लोगों को राजमार्ग में भागीदारी मिलना चाहिए।
10	श्री रामन मण्डल	मरार में बहुत बेरोजगारी है। वहाँ के 75 प्रतिशत लोगों को खाना मिलनी चाहिए।	प्रश्नकर्ता द्वारा खाना मिलने के स्थानीय लोगों को राजमार्ग में भागीदारी मिलना चाहिए।

अशोक कुमार मिश्रा
 क्षेत्रीय प्रतीक्षार्थी
 आरक्षण प्रथम दर्जा प्रदूषण
 नियंत्रण प्रथम दर्जा प्रतीक्षार्थी

अशोक कुमार मिश्रा
 क्षेत्रीय प्रतीक्षार्थी
 आरक्षण प्रथम दर्जा प्रदूषण
 नियंत्रण प्रथम दर्जा प्रतीक्षार्थी

झारखण्ड राज्य प्रदूषण नियंत्रण बोर्ड
Jharkhand State Pollution Control Board
नगर पंचायत भवन, एच.डी.सी.डी. भुवानी, राँची
दूरभाष : 2400851, 2400852, 2400979 फ़ैक्स : 0051 - 2400850/138
Web: www.jspcb.nic.in; e-mail: ranchi@jspcb@gmail.com

लोक सुनवाई की सूचना

Proposed modification-cum-expansion in existing Ferro Alloys Plant by M/s Bihari Foundry & Casting Limited located at Ramgarh Industrial Area, Survey Plot No. 1405 (P), Village - Marar, Ramgarh, Jharkhand की राज्यस्तरीय पर्यावरण हेतु लोक सुनवाई की तिथि दिनांक 16-03-2021 (शिव-सोमवार) को सुबह 11:00 बजे "राजमण्डल विधानसभा कक्ष, सीपी रोड, पोस्ट - भुवानी, राँची-834002" में निर्धारित की गई है।

उक्त योजना के सम्पादन प्रभाव से प्रभावित होने वाले लोगों/संगठनों को एतद्वारा सूचित किया जाता है कि उक्त सुनवाई में उक्त विधि-अनुयोजन एवं स्वच्छता पर आवश्यक रूप से ध्यान देकर Covid-19 के संक्रमण को ध्यान में रखते हुए कठिन कार्य को सार्वजनिक (Social Distancing) और स्वास्थ्य तथा आपदा प्रबंधन विभाग (Disaster Management) एवं MoEF & CC द्वारा निर्धारित O.M. दिनांक 14.09.2020 के अनुपालन के तहत 100 प्रतिभागी की संख्या का अनुपालन करते तथा अपने विचारों को अवगत कराएँ। इससे अतिरिक्त कोई अन्य सूझाव विचार, मध्यम अथवा भारी, यदि हो तो लिखित रूप से उक्त लोक सुनवाई तक झारखण्ड राज्य प्रदूषण नियंत्रण बोर्ड, टी.डी.सी. भवन, पोस्ट भुवानी, सीपी रोड, राँची के सम्पादन प्रभावित, सामग्री/परिदृश्य के क्षेत्रीय कार्यालय, टी.डी.सी. भवन, पोस्ट भुवानी, सीपी रोड, राँची में उपलब्ध कराएँ।

निर्धारित तिथि के पश्चात् प्राप्त होने वाले किसी भी प्रकार की आपत्ति/सुझाव प्रत्येक प्रकार का विचार नहीं किया जाएगा। लोक सुनवाई की प्रक्रिया पर्यावरण एवं वन विभाग, भारत सरकार की अधिसूचना संख्या एच.डी.सी.डी. 1833 दिनांक 14.09.2020 एवं संशोधित अधिसूचना संख्या एच.डी.सी.डी. 1833 दिनांक 01.12.2020 के अनुपालन में। यह भी सूचित किया जाता है कि उक्त प्रदर्शित का कोई भी पर्यावरणीय प्रभाव मूल्यांकन प्रतिवेदन तथा इसके सारांश की एक-एक हार्ड कॉपी एवं सॉफ्ट कॉपी निम्न कार्यालयों में अवलोकनायक रखी रहेगी। साथ ही काव्यकारी सारांश भी इन कार्यालयों में ही प्राप्त किया जा सकेगा है।

1. उपायुक्त कार्यालय राँची
2. नगरपालिका कार्यालय राँची
3. जिला पंचायत/नगर निगम राँची
4. राज्यस्तरीय झारखण्ड राज्य प्रदूषण नियंत्रण बोर्ड, टी.डी.सी. भवन, पोस्ट भुवानी, सीपी रोड
5. क्षेत्रीय कार्यालय झारखण्ड राज्य प्रदूषण नियंत्रण बोर्ड, टी.डी.सी. भवन, पोस्ट भुवानी, सीपी रोड, राँची
6. पर्यावरण एवं वन विभाग, भारत सरकार, क्षेत्रीय कार्यालय (राँची) बंगला नं. 1-2, अग्रमंडल जल नदी, राँची - 834002
7. संबंधित पत्राचार
8. संबंधित पर्यावरण विभाग/अवलोकनायक कार्यालय

PR-241170 (Jharkhand State Pollution Control Board) 20-21-20

(राष्ट्रीय सोशल न्यायी)
सहस्र न्यायी

Government of Jharkhand
Dr. Ram Dayal Munda Tribal Welfare Research Institute, Ranchi-834002

Gupta said he would not share any information unless it was a matter as a dead commodity.



झारखण्ड राज्य प्रदूषण नियंत्रण बोर्ड Jharkhand State Pollution Control Board

नगर प्रशासन भवन, रामगढ़ रोड, रांची, जे.पी.
फोन : 2400851, 2400852, 2400870 फैक्स : 0654 - 2400850/138
Web: www.jspcb.nic.in; e-mail: ranchijspcb@gmail.com

लोक सुनवाई की सूचना

Proposed modification-cum-expansion in existing Ferro Alloys Plant by M/s Bihar Foundry & Casting Limited located at Ramgarh Industrial Area, Survey Plot No. 1405 (P), Village Marar, Ramgarh, Jharkhand की पर्यावरणीय स्थिति हेतु लोक सुनवाई की तिथि - दिनांक 15.03.2021 (दिन-सोमवार) को सुबह 11.00 बजे। "रामगढ़ जामखाना इलेक्ट्रो, रोडी रोड पोस्ट- नरार, रामगढ़-820117" में निर्धारित की गई है।

उक्त योजना के सम्बन्धित प्रभाव से प्रभावित होने वाले लोगों/आवासियों को सूचना दी जा रही है कि लोक सुनवाई में उक्त तिथि, समय एवं स्थान पर आवश्यक रूप से भाग ले एवं Covid-19 के संक्रमण को ध्यान में रखते हुए फेस मास्क, सोशल डिस्टेंसिंग (Social Distancing) आदि सावधानी तथा आपदा प्रबंधन विभाग (Disaster management) एवं MoEF & CC द्वारा निर्गत OM दिनांक 14.09.2020 के अनुपालन के तहत 100 प्रतिभागी की क्षमताओं को अनुपालन करेंगे तथा अपने विचार से अवगत कराते। इसके अतिरिक्त वे अपना सुझाव विचार, भयंकर अथवा आपत्ति यदि हो तो निश्चित रूप से उक्त लोक सुनवाई तथा झारखण्ड राज्य प्रदूषण नियंत्रण बोर्ड, टी०१० भवन, पोस्ट भुर्वा, रांची/जिले के उपनिष्पक्ष कार्यालय रामगढ़/पर्वत के क्षेत्रीय कार्यालय, पी०टी०सी० पी० भटवारी रोड, हजारीबाग में सुपलब्ध करा दें।

निर्धारित तिथि के परभाव प्राप्त होने वाले किसी भी प्रकार की आपत्ति/सुझाव पर किसी प्रकार का विचार नहीं किया जाएगा। लोक सुनवाई की प्रक्रिया समाप्त होने पर इन मंत्रालय, भारत सरकार की वेबसाइट पर अद्यतन किया गया दिनांक 14.09.2020 एवं संशोधित अधिसूचना संख्या एस०जी०३००७ (ई०) दिनांक 01.12.09 के अनुपालन होगा।

यह भी सूचित किया जाता है कि उक्त प्रोजेक्ट का औद्योगिक पर्यावरणीय प्रभाव पर्यावरण प्रतिक्रिया तथा इसकी प्रारंभ की एक-एक हार्ड कॉपी एवं सोफ्ट कॉपी निम्न कार्यालयों में अवलोकनार्थ रखी रहेंगी। साथ ही कार्यवाही सारांश भी इन कार्यालयों से ही प्राप्त किया जा सकता है।

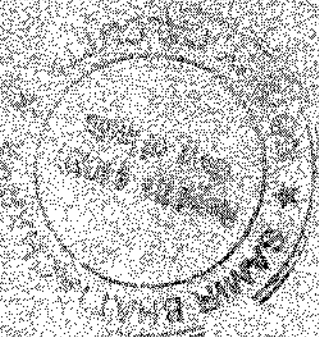
1. समायोजक कार्यालय, रामगढ़।
2. रामगढ़ औद्योगिक क्षेत्र विकास प्राधिकार, रामगढ़।
3. पिला पर्वत/नगर निगम, रामगढ़।
4. मुख्यालय, झारखण्ड राज्य प्रदूषण नियंत्रण बोर्ड, टी०१० भवन, पोस्ट भुर्वा, रांची।
5. क्षेत्रीय कार्यालय, झारखण्ड राज्य प्रदूषण नियंत्रण बोर्ड, पी०टी०सी० पी० भटवारी रोड, हजारीबाग।
6. पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार, क्षेत्रीय कार्यालय (सीपी) सेक्टर 70 ए-2, रियासती कॉलोनी, रांची - 834002
7. संबंधित प्रभावित।
8. संबंधित प्रदूषक विकास पदा/अंशदायिकी कार्यालय।

(राष्ट्रीय लोगो बकरी)
सदस्य रांची

PR 241170 (Jharkhand State Pollution Control Board) 20-21-20

कार्यपालक अभियन्ता का कार्यालय

11/2/21



BEFORE THE NATIONAL GREEN TRIBUNAL
EASTERN ZONE BENCH, KOLKATA

Original Application No. 44 of 2023/EZ

BETWEEN

Rakesh Shrivastava

...Petitioner

AND

Bihar Foundry and Castings Limited & Ors.

... Respondents

REJOINDER ON BEHALF OF THE APPLICANT TO THE REPLY AFFIDAVIT
DATED JANUARY 10, 2024 FILED BY RESPONDENT NO. 3 (MINISTRY OF
ENVIRONMENT, FOREST & CLIMATE CHANGE)

Filed by:

ANUBHAV KHASTAGIR

Advocate

C/O Mr. Sarathi Dasgupta, Advocate

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Enrolment No. F/200/367/2023

