DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

A) EIA/ EMP

B) EXECUTIVE SUMMARY ENGLISH

C) EXECUTIVE SUMMARY HINDI

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

FOR

ADDITION OF INDUCTION FURNACE IN EXISTING STEEL MANUFACTURING UNIT

CAPACITY

Existing – Steel Billets/Ingots-NIL

Flats, Steel Bar, Tor Steel, Steel Angle, Channels, Rounds, Wire rod, Square, Girders & TMT Bars- 85,876 TPA

Additional- Steel Billets/Ingots-1,19,000TPA

Flats, Steel Bar, Tor Steel, Steel Angle, Channels, Rounds, Wire rod, Square, Girders & TMT Bars- 27,174 TPA

Total after expansion

Steel Billets/Ingots-1,19,000 TPA

Flats, Steel Bar, Tor Steel, Steel Angle, Channels, Rounds, Wire rod, Square, Girders & TMT Bars- 1,13,050 TPA

Project Area- 2.365 Hectare or 23650 sqm

[TOR letter no: IA-J-11011/345/2023-IA-II(IND-I)], Dated 30 November 2023

Study Period: October, 2023 to December, 2023

Base line study done by M/s CPTL, Mohali (NABL accredited), MoEF&CC recognized, NABL Certificate TC- 6728, Validity: valid upto 08.11.2024

[Project or Activity of Schedule; - 3(a) Metallurgical industries (ferrous & non-ferrous), Cat-B]

M/S. KASHMIR ISPAT

SIDCO INDUSTRIAL COMPEX, BARI BRAHMANA, SAMBA NORTH, JAMMU

Prepared by

Chandigarh Pollution Testing Laboratory- EIA Division

(QCI/ NABET Certificate No: NABET/EIA/2225/RA 0250)

Address: E- 126, Phase- VII, Industrial Area, Mohali, Punjab- 160055.

Contacts: 0172-4669295, 5090312

E-mail: eia@cptl.co.in / cptleia@gmail.com

LIST OF TABLES

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LIST OF ANNEXURES

PROJECT AT A GLANCE

Name of Project	M/s Kashmir Ispat		
Type of Project	Steel Manufacturing Unit (expansion)		
Location	SIDCO Industrial Complex, Bari Brahmana, Samba North, Jammu		
	Existing (TPA)	**Additional (TPA)**	**Proposed (TPA)**
Product & Bye Product			
Steel Ingots/ Billets	Nil	1,19,000	1,19,000
Flats, Steel Bar, Tor Steel, Steel Angle, Channels, Rounds, Wire rod, Square, Girders & TMT Bars	85,876	27,174	1,13,1050
Cost of the Project	₹ 364.61 Lacs.	₹ 2831.78 Lacs.	₹3196.39 Lacs
Total Land	1.54 Hectare or 15400m^2	0.825 Hectare or 8250 m^2	2.365 Hectare or 23650m^2
Power Requirement (KW)	2997	12948	15945
Source of power- J&K State Power Corporation Limited			
Consumption of Water (KLD) (Summer)			
Domestic	4.0	6.0	10.0
Cooling (make up water)	16.0	40.0	56.0
Total	**20.0**	**46.0**	**66.0**
Consumption of Water (KLD) (Winter and Rainy)			
Domestic	4.0	6.0	10.0
Cooling (make up water)	16.0	20.0	36.0
Total	**20.0**	**26.0**	**46.0**
Source of Water Supply-SIDCO Water Supply			
Effluent Quantity	Domestic = 8 KLD Cooling = Recirculation		

Effluent treatment	Domestic- through septic treatment and used for plantation
Air Pollution Control	Bag Filter with efficiency more than 99.0% with offline cleaning technology will be installed.
Solid Waste	Slag from furnace –An estimated 17.28 TPD Slag will be sent to cement manufacturing plant for final disposal.
Hazardous	Hazardous Waste generated (0.03 kl/annum) from DG sets in the form of used oil is being re-used as lubricant for machines. About 0.7 ton/day APCD dust which is also covered under hazardous waste will be sent to TSDF/ or approved reprocessors of hazardous waste for final disposal.

TOR Letter

सत्यमेव जयते

File No.: IA-J-11011/345/2023-IA-II(IND-I)
Government of India
Ministry of Environment, Forest and Climate Change
IA Division
****

Dated **08/11/2023**

To,

Mr Rahul Bansal
KASHMIR ISPAT
SIDCO Industrial Estate, Bari Brahmana, Samba, Jammu, SAMBA, JAMMU AND KASHMIR, 181133
kashmirispat27@gmail.com

Subject: Grant of Standard Terms of Reference (ToR) to the proposed Project under the EIA Notification 2006- and as amended thereof-regarding.

Sir/Madam,

This is in reference to your application submitted to MoEF&CC vide proposal number IA/JK/IND1/446507/2023 dated 30/10/2023 for grant of Terms of Reference (ToR) to the project under the provision of the EIA Notification 2006-and as amended thereof.

2. The particulars of the proposal are as below :

(i) ToR Identification No.	TO23B1010JK5709095N
(ii) File No.	IA-J-11011/345/2023-IA-II(IND-I)
(iii) Clearance Type	Fresh ToR
(iv) Category	B1
(v) Project/Activity Included Schedule No.	3(a) Metallurgical Industries (ferrous and non ferrous)
(vi) Sector	Industrial Projects - 1
(vii) Name of Project	M/s KASHMIR ISPAT located at SIDCO Industrial Complex, Bari Brahmana, Samba Jammu.
(viii) Name of Company/Organization	KASHMIR ISPAT
(ix) Location of Project (District, State)	SAMBA, JAMMU AND KASHMIR
(x) Issuing Authority	MoEF&CC
(xii) Applicability of General Conditions	NO

3. The **MoEF&CC** has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after detailed examination hereby decided to grant Standard Terms of Reference to the instant proposal of **M/s. KASHMIR ISPAT** under the provisions of the aforementioned Notification.

4. The brief about products and by products as submitted by the Project proponent in Form-1 (Part A, B) and Standard Terms of Reference are annexed to this letter as Annexure (1).
5. The Ministry reserves the right to stipulate additional TORs, if found necessary.
6. The Standard Terms of Reference (ToR) to the aforementioned project is under provisions of EIA Notification, 2006 and as amended thereof. It does not tantamount to approvals/consent/permissions etc required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.
7. The granted letter, all the documents submitted as a part of application viz. Form-1 Part A and Part B are available on PARIVESH portal which can be accessed by scanning the QR Code above.

Copy To

1. The Secretary, Department of Environment, Government of Jammu and Kashmir, Secretariat.
2. The Secretary, Department of Forests, Government of Jammu and Kashmir, Secretariat.
3. The Director General of Forest, Ministry of Environment, Forest and Climate Change, New Delhi.
4. The Principal Chief Conservator of Forests, Government of West Bengal, Block LA, 10A Sector-III, Salt Lake City, Kolkata-700098.
5. The Member Secretary, Central Pollution Control Board, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Member Secretary, Jammu and Kashmir State Pollution Control Board,
7. The Member Secretary, Central Ground Water Authority, Jamnagar House, 18/11, Man Singh Road Area, New Delhi 110001.
8. Monitoring Cell, Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi.
9. District Collector, Sambha District, West Bengal.
10. Guard File/Monitoring File/Website/Record File/ Parivesh Portal.

Annexure 1

Standard Terms of Reference

1. Preliminary requirements

S. No..	Terms of Reference
1.1	EIA/EMP report cover page shall consists of project title with location, applicable schedule of the EIA Notification, 2006, ToR letter No. with date, study period along with EIA consultant & laboratory details with QCI/NABET/NABL accreditation certificate detail.
1.2	Besides, following points shall be compiled as per QCI/NABET norms: a. Disclaimer by the EIA consultant. b. Declaration by the Functional Area Experts contributed to the EIA study and declaration by the head of the accredited consultant organization/authorized person. c. Undertaking by the project proponent owning the contents (information and data) of the EIA/EMP report. d. Undertaking by the EIA consultant regarding compliance of ToR issued by MoEF&CC. e. Consultant shall submit the Plagiarism

S. No..	Terms of Reference
	Certificate for the EIA/EMP Report.

2. Executive Summary

S. No..	Terms of Reference
2.1	Table of Contents of the EIA report including list of tables/figures/annexures/abbreviations/symbols/notations.
2.2	Point wise compliance to the ToR issued by MoEF&CC.

3. Executive Summary

3.1. Introduction

S. No..	Terms of Reference
3.1.1	Name of the project along with applicable schedule and category as per EIA, 2006.
3.1.2	Location and accessibility

4. Executive Summary

4.1. Project description

S. No..	Terms of Reference
4.1.1	Resource requirements (Land; water; fuel; manpower)
4.1.2	Operational activity
4.1.3	Key pollution concerns

5. Executive Summary

5.1. Baseline Environment Studies

S. No..	Terms of Reference
5.1.1	Ambient air quality
5.1.2	Ambient Noise quality
5.1.3	Traffic study
5.1.4	Surface water quality
5.1.5	Ground water quality

S. No..	Terms of Reference
5.1.6	Soil quality
5.1.7	Biological Environment
5.1.8	Land use
5.1.9	Socio-economic environment

6. Executive Summary

6.1. Anticipated impacts

S. No..	Terms of Reference
6.1.1	Impact on ambient air quality
6.1.2	Impact on ambient noise quality
6.1.3	Impact on road and traffic
6.1.4	Impact on surface water resource and quality
6.1.5	Impact on ground water resource and quality
6.1.6	Impact on terrestrial and aquatic habitat
6.1.7	Impact on socio-economic environment

7. Executive Summary

7.1. Alternative analysis

S. No..	Terms of Reference
7.1.1	undefined

8. Executive Summary

8.1. Environmental Monitoring program

S. No..	Terms of Reference
8.1.1	Ambient air, noise, water and soil quality
8.1.2	Noise quality management plan
8.1.3	Emission and discharge from the plant
8.1.4	Green Belt

S. No..	Terms of Reference
8.1.5	Social Parameters

9. Executive Summary

9.1. Additional Studies

S. No..	Terms of Reference
9.1.1	Risk assessment
9.1.2	Public consultation
9.1.3	Action plan to address the issues raised during public consultation as per MoEF&CC O.M. dated 30/09/2020

10. Executive Summary

10.1. Project Benefits

S. No..	Terms of Reference
10.1.1	undefined

11. Executive Summary

11.1. Environment management plan

S. No..	Terms of Reference
11.1.1	Air quality management plan
11.1.2	Noise quality management plan
11.1.3	Solid and hazardous waste management plan
11.1.4	Effluent management plan
11.1.5	Storm water management plan
11.1.6	Occupational health and safety management plan
11.1.7	Green belt development plan
11.1.8	Socio-economic management plan
11.1.9	Project cost and EMP implementation budget.

12. Introduction

S. No..	Terms of Reference
12.1	Background about the project
12.2	Need of the project
12.3	Purpose of the EIA study
12.4	Scope of the EIA study

13. Project description

13.1. Site Details

S. No..	Terms of Reference
13.1.1	Location of the project site covering village, Taluka/Tehsil, District and State.
13.1.2	Site accessibility
13.1.3	A digital toposheet in pdf or shape file compatible to google earth of the study area of radius of 10km and site location preferably on 1:50,000 scale. (including all eco-sensitive areas and environmentally sensitive places).
13.1.4	Latest High-resolution satellite image data having 1 m - 5 m spatial resolution like quickbird, Ikonos, IRS P-6 pan sharpened etc., along with delineation of plant boundary co-ordinates. Area must include at least 100 m all around the project location.
13.1.5	Environment settings of the site and its surrounding along with map.
13.1.6	A list of major industries with name, products and distance from plant site within study area (10km radius) and the location of the industries shall be depicted in the study area map.
13.1.7	In case if the project site is in vicinity of the water body, 50 meters from the edge of the water body towards the site shall be treated as no development/construction zone. If it's near the wetland, Guidelines for implementing Wetlands (Conservation and Management) Rules, 2017 may be followed.
13.1.8	In case if the project site is in vicinity of the river, the industry shall not be located within the river flood plain corresponding to one in 25 years flood, as certified by concerned District Magistrate/Executive Engineer from State Water Resources Department (or) any other officer authorized by the State Government for this purpose as per the provisions contained in the MoEF&CC Office Memorandum dated 14/02/2022.
13.1.9	In case of canal/ nala/ seasonal drain and any other water body passing through project site, the PP shall submit the suitable steps /conservation plan/mitigation measures along with contouring, Run -off calculations, disposal etc. A robust and full proof Drainage Conservation scheme to protect the natural drainage/water bodies and its flow parameters; along with Soil conservation scheme and multiple Erosion control measures shall be provided in the report.
13.1.10	Type of land, land use of the project site needs to be submitted.
13.1.11	Status of acquisition of land. If acquisition is not complete, stage of the acquisition process as per the

S. No..	Terms of Reference
	MoEF&CC O.M. dated 7/10/2014 shall be furnished.
13.1.12	Project proponent shall prepare Engineering layout plan showing all internal roads minimum 6 m width and 9 m turning radius for smooth traffic flow inside including fire tender as per NBC. Road network shall connect all service areas in layout. This drawing shall include area statement showing plot area, area under roads, parking, green belt with calculations and % with respect to plot area of project site and proper indexing. If located within an Industrial area/Estate/Complex, layout of Industrial Area indicating location of unit within the Industrial area/Estate.
13.1.13	Project proponent shall submit contour map of project site along with drainage disposal system with calculations and drawings supported with proper indexing including Rain Water Harvesting details with calculations mentioning about GW recharge along with relevant drawing.
13.1.14	A detailed report covering all aspects of Fire Safety Management and Fire Emergency Plan shall be submitted.
13.1.15	Details of drone survey for the site, needs to be included in report and presented before the EAC during appraisal of the project.

14. Project description

14.1. Forest and wildlife related issues (if applicable)

S. No..	Terms of Reference
14.1.1	Status of Forest Clearance for the use of forest land shall be submitted.
14.1.2	Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972, to the Standing Committee of the National Board for Wildlife if the project site located within notified Eco-Sensitive Zone, 10 km radius of national park/sanctuary wherein final ESZ notification is not in place as per MoEF&CC Office Memorandum dated 8/8/2019.
14.1.3	The projects to be located within 10 km of the National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals, Eco-sensitive Zone and Eco-sensitive areas, the project proponent shall submit the map duly authenticated by Divisional Forest Officer showing the distance between the project site and the said areas.
14.1.4	Wildlife Conservation Plan duly authenticated by the Competent Authority of the State Government for conservation of Schedule I fauna along with budget and action plan, if any exists in the study area.

15. Project description

15.1. Salient features of the project

S. No..	Terms of Reference
15.1.1	Products with capacities in Tons per Annum for the proposed project.
15.1.2	If expansion project, status of implementation of existing project, details of existing/proposed products with production capacities in Tons per Annum.

S. No..	Terms of Reference
15.1.3	Site preparatory activities.
15.1.4	List of raw materials required and their source along with mode of transportation.
15.1.5	Other than raw materials, other chemicals and materials required with quantities and storage capacities.
15.1.6	Manufacturing process details along with process flow diagram of proposed units.
15.1.7	Consolidated materials and energy balance for the project.
15.1.8	Total requirement of surface/ ground water and power with their respective sources, status of approval.
15.1.9	Water balance diagram
15.1.10	Details of Emission, effluents, hazardous waste generation and mode of disposal during construction as well as operation phase.
15.1.11	Man-power requirement.
15.1.12	Cost of project and scheduled time of completion.
15.1.13	In case of expansion projects, project proponent shall submit structural stability certificate showing whether existing structure withstand for proposed expansion activity.
15.1.14	Brief on present status of compliance (Expansion/modernization proposals) a. Cumulative Environment Impact Assessment for the existing as well as the proposed expansion/modernization shall be carried out. b. Cumulative Impact Assessment need to be carried out by greenfield projects considering the nearby industries. c. In case of ground water drawl for the existing unit, action plan for phasing out of ground water abstraction in next two years except for domestic purposes and shall switch over to 100 % use of surface water from nearby source. d. Copy of all the Environment Clearance(s) including Amendments/validity of extension/transfer of EC, there to obtained for the project from MoEF&CC/SEIAA shall be attached as Annexures. A Certified Compliance Report (CCR) of the Integrated Regional Office of the Ministry of Environment, Forest and Climate Change/ or concerned authority as per OM No. IA3-22/10/2022-IA.III [E 1772581], dated 8th June, 2022 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. e. In case the existing project has not obtained Environment Clearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and/or EIA Notification 2006 shall be provided. A proper justification needs to be submitted along with documentary proof. Copies of Consent to Establish/No Objection Certificate and Consent to Operate (in case of units operating prior to EIA Notification 1994 or 2006, CTE and CTO of FY 2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of CTO from the Regional Office of the SPCB shall be submitted, as per OM No. IA3-22/10/2022-IA.III [E 1772581], dated 8th June, 2022. CCR on CTO conditions issued by the concerned SPCBs/PCCs shall be valid for a period of one year from the date of inspection of the project.

16. Description of the Environment

<table>
<tr><th>S. No..</th><th>Terms of Reference</th></tr>
<tr><td>16.1</td><td>Study period</td></tr>
<tr><td>16.2</td><td>Approach and methodology for data collection as furnished below
<table>
<tr><th rowspan="2">Attributes</th><th colspan="2">Sampling</th><th>Remarks</th></tr>
<tr><th>Network</th><th>Frequency</th><th></th></tr>
<tr><td colspan="4">Air Environment</td></tr>
<tr><td>Micro-Meteorological
• Wind speed (Hourly)
• Wind direction
• Dry bulb temperature
• Wet bulb temperature
• Relative humidity
• Rainfall
• Solar radiation
• Cloud cover
• Environmental
• Lapse Rate</td><td>Minimum 1 site in the project impact area</td><td>hourly continuous</td><td>IS 5182 Part 1-20
• Site specific primary data is essential
• Secondary data from IMD, New Delhi
• CPCB guidelines to be considered.</td></tr>
<tr><td>Pollutants
• PM10
• SO2
• NOx
• CO
• HC
• Other parameters relevant to the project and topography of the area</td><td>At least 8-12 locations</td><td>As per National Ambient Air Quality Standards,CPCB Notification.</td><td>• Sampling as per CPCB guidelines
• Collection of AAQ data (except in monsoon season)
• Locations of various stations for different parameters should be related to the characteristic properties of the parameters.
• The monitoring stations shall be based on the NAAQM standards as per GSR 826(E) dated 16/11/2009 and take into account the predominant wind direction, population zone and sensitive receptors including reserved forests,
• Raw data of all AAQ measurement for 12 weeks of all stations as per frequency given in the NAAQM Notification of 16/11/2009 along with min., max.,</td></tr>
</table></td></tr>
</table>

S. No..	Terms of Reference			
				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.
	Noise			
	Hourly equivalent noise levels	At least 8-12 locations	s per CPCB norms	
	Water			
	Parameters for water quality • pH, temp, turbidity, magnesium hardness, total alkalinity, chloride, sulphate, nitrate, fluoride, sodium, potassium, salinity • Total nitrogen, total phosphorus, DO, BOD, COD, Phenol • Heavy metals • Total coliforms, faecal coliforms • Phyto plankton • Zoo plankton	Samples for water quality should be collected and analyzed as per: • IS: 2488 (Part 1-5) methods for sampling and testing of Industrial effluents • Standard methods for examination of water and wastewater analysis published by American Public Health Association		
	For River Bodies • Total Carbon • pH • Dissolved Oxygen • Biological Oxygen Demand • Free NH4 • Boron • Sodium Absorption Ratio • ElectricalConductivity	Surface water quality of the nearest River (60m upstream and downstream) and other surface water bodies	• Yield of water sources to be measured during critical season • Standard methodology for collection of surface water (BIS standards)	
	For Ground Water	Ground water monitoring data should be collected at minimum of 8 locations (from existing wells /tube wells/existing current records) from the study area and shall be included.		
	Traffic Study			
	Type of vehicles	Land Environment		

S. No..	Terms of Reference	
	• Frequency of vehicles for transportation of materials • Additional traffic due to proposed project	
	Soil • Particle size distribution • Texture • pH • Electrical conductivity • Cation exchange capacity • Alkali metals • Sodium Absorption Ratio (SAR • Permeability Water holding capacity • Porosity	Soil samples be collected as per BIS specifications
	Land use/Landscape • Location code • Total project area • Topography • Drainage (natural) Cultivated, forest,plantations, water bodies, roads and settlements	
	Biological Environment	
	1. Aquatic • Primary productivity • Aquatic weeds • Enumeration of phyto plankton, zoo plankton and benthos • Fisheries Diversity indices • Trophic levels	• 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. Indicator species which indicate ecological and environment degradation should be identified and included to clearly state whether the proposed project would result in to any adverse effect on any species. • Samples to collect from upstream and downstream of discharge point, nearby tributaries at downstream, and also from dug wells close to activity site. • For forest studies, direction of wind should be considered while

S. No..	Terms of Reference

• Rare and endangered species • Marine Parks/ Sanctuaries/ closed areas /coastal regulation zone (CRZ) 2. Terrestrial • Vegetation-species list, economic importance, forest produce,medicinal value • Importance value index (IVI) of trees • Fauna • Avi fauna • Rare and endangered species • Sanctuaries / National park / Biosphere reserve • Migratory routes	selecting forests. • Secondary data to collect from Government offices, NGOs, published literature.
socio-economic	
Demographic structure • Infrastructure resource base • Economic resource base • Health status:Morbidity pattern • Cultural and aesthetic attributes. • Education	Socio-economic survey is based on proportionate, stratified and random sampling method. • Primary data collection through questionnaire • Secondary data from census records, statistical hard books, topo sheets, health records and relevant official records available with Govt. agencies

Approach and methodology for data collection as furnished below

Attributes	Sampling		Remarks
	Network	Frequency	
Air Environment			
Micro-Meteorological • Wind speed (Hourly) • Wind direction • Dry bulb temperature	Minimum 1 site in the project impact area	hourly continuous	IS 5182 Part 1-20 • Site specific primary data is essential • Secondary data from IMD,

S. No..	Terms of Reference			
	• Wet bulb temperature • Relative humidity • Rainfall • Solar radiation • Cloud cover • Environmental • Lapse Rate			New Delhi • CPCB guidelines to be considered.
	Pollutants • PM10 • SO2 • NOx • CO • HC • Other parameters relevant to the project and topography of the area	At least 8-12 locations	As per National Ambient Air Quality Standards,CPCB Notification.	• Sampling as per CPCB guidelines • Collection of AAQ data (except in monsoon season) • Locations of various stations for different parameters should be related to the characteristic properties of the parameters. • The monitoring stations shall be based on the NAAQM standards as per GSR 826(E) dated 16/11/2009 and take into account the predominant wind direction, population zone and sensitive receptors including reserved forests, • Raw data of all AAQ measurement for 12 weeks of all stations as per frequency given in the NAAQM Notification of 16/11/2009 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.
	Noise			
	Hourly equivalent noise levels	At least 8-12 locations	s per CPCB norms	
	Water			
	Parameters for water quality	Samples for water quality should be collected and analyzed as per:		

<table>
<tr><th>S. No..</th><th>Terms of Reference</th></tr>
<tr><td></td><td>
<table>
<tr><td>• pH, temp, turbidity, magnesium hardness, total alkalinity, chloride, sulphate, nitrate, fluoride, sodium, potassium, salinity
• Total nitrogen, total phosphorus, DO, BOD, COD, Phenol
• Heavy metals
• Total coliforms, faecal coliforms
• Phyto plankton
• Zoo plankton</td><td colspan="2">• IS: 2488 (Part 1-5) methods for sampling and testing of Industrial effluents
• Standard methods for examination of water and wastewater analysis published by American Public Health Association</td></tr>
<tr><td>For River Bodies
• Total Carbon
• pH
• Dissolved Oxygen
• Biological Oxygen Demand
• Free NH4
• Boron
• Sodium Absorption Ratio
• ElectricalConductivity</td><td>Surface water quality of the nearest River (60m upstream and downstream) and other surface water bodies</td><td>• Yield of water sources to be measured during critical season
• Standard methodology for collection of surface water (BIS standards)</td></tr>
<tr><td>For Ground Water</td><td colspan="2">Ground water monitoring data should be collected at minimum of 8 locations (from existing wells /tube wells/existing current records) from the study area and shall be included.</td></tr>
<tr><td colspan="3">Traffic Study</td></tr>
<tr><td>Type of vehicles
• Frequency of vehicles for transportation of materials
• Additional traffic due to proposed project</td><td colspan="2">Land Environment</td></tr>
<tr><td>Soil
• Particle size distribution
• Texture
• pH</td><td colspan="2">Soil samples be collected as per BIS specifications</td></tr>
</table>
</td></tr>
</table>

S. No..	Terms of Reference	
	• Electrical conductivity • Cation exchange capacity • Alkali metals • Sodium Absorption Ratio (SAR • Permeability Water holding capacity • Porosity	
	Land use/Landscape • Location code • Total project area • Topography • Drainage (natural) Cultivated, forest,plantations, water bodies, roads and settlements	
	Biological Environment	
	1. Aquatic • Primary productivity • Aquatic weeds • Enumeration of phyto plankton, zoo plankton and benthos • Fisheries Diversity indices • Trophic levels • Rare and endangered species • Marine Parks/ Sanctuaries/ closed areas /coastal regulation zone (CRZ) 2. Terrestrial • Vegetation-species list, economic importance, forest produce,medicinal	• 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. Indicator species which indicate ecological and environment degradation should be identified and included to clearly state whether the proposed project would result in to any adverse effect on any species. • Samples to collect from upstream and downstream of discharge point, nearby tributaries at downstream, and also from dug wells close to activity site. • For forest studies, direction of wind should be considered while selecting forests. • Secondary data to collect from Government offices, NGOs, published literature.

S. No..	Terms of Reference
	value • Importance value index (IVI) of trees • Fauna • Avi fauna • Rare and endangered species • Sanctuaries / National park / Biosphere reserve • Migratory routes
	socio-economic
	Demographic structure • Infrastructure resource base • Economic resource base • Health status:Morbidity pattern • Cultural and aesthetic attributes. • Education Socio-economic survey is based on proportionate, stratified and random sampling method. • Primary data collection through questionnaire • Secondary data from census records, statistical hard books, topo sheets, health records and relevant official records available with Govt. agencies
16.3	Interpretation of each environment attribute shall be enumerated and summarized as given below: • Ambient air quality • Ambient Noise quality • Surface water quality • Ground water quality • Soil quality • Biological Environment • Land use • Socio-economic environment
16.4	The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples.

17. Anticipated Environment Impacts and mitigation measures (In case of expansion, cumulative impact assessment shall be carried out)

S. No..	Terms of Reference
17.1	Identification of potential impacts in the form of a matrix for the construction and operation phase for all the environment components

Activity	Environment	Ecological	Socio-economic
Construction phase			
Operation phase			

17.2	Impact on ambient air quality (Sources; Embedded control measures; Assessment; Mitigation measures;

S. No..	Terms of Reference
	Residual impact) a. Construction phase b. Operation phase • Details of stack emissions from the existing as well as proposed activity. • Assessment of ground level concentration of pollutants from the stack emission based on AQIP Modelling The air quality contours shall be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any along with wind rose map for respective period • Impact on ground level concentration, under normal, abnormal and emergency conditions. Measures to handle emergency situations in the event of uncontrolled release of emissions.
17.3	Impact on ambient noise quality (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase
17.4	Impact on traffic (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase
17.5	Impact on soil quality (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase
17.6	Impact on land use (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase
17.7	Impact on surface water resource and quality (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase
17.8	Impact on ground water resource and quality (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase
17.9	Impact on terrestrial and aquatic habitat (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase
17.10	Impact on socio-economic environment (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase
17.11	Impact on occupational health and safety (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase

18. Analysis of Alternatives (Technology & Site)

S. No..	Terms of Reference
18.1	No project scenario
18.2	Site alternative
18.3	Technical and social concerns
18.4	Conclusion

19. Environmental Monitoring Program

S. No..	Terms of Reference
19.1	Details of the Environment Management Cell
19.2	Performance monitoring schedule for all pollution control devices shall be furnished.
19.3	Corporate Environment Policy a. 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. b. Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environment or forest norms / conditions? If so, it may be detailed in the EIA. c. What is the hierarchical system or Administrative order of the company to deal with the environment issues and for ensuring compliance with the environment clearance conditions? Details of this system may be given.Page 9 of 10 d. Does the company have system of reporting of non compliances / violations of environment 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
19.4	Action plan for post-project environment monitoring matrix: Activity | Aspect | Monitoring Parameter | Location | Frequency | Responsibility Construction phase Operation phase

20. Additional Studies

S. No..	Terms of Reference
20.1	Project proponent shall submit a study report on Decarbonisation program, which would essentially consist of company's carbon emissions, carbon budgeting/ balancing, carbon sequestration activities and carbon capture, use and storage after offsetting strategies. Further, the report shall also contain time bound action plan to reduce its carbon intensity of its operations and supply chains, energy transition pathway from fossil fuels to Renewable energy etc. All these activities/ assessments should be measurable and monitorable with defined time frames.
20.2	Details of adoption/ implementation status/plan to achieve the goal of Glasgow COP26 Climate Submit with regard to enhance the non-fossil energy, use of renewable energy, minimization of net carbon emission and carbon intensity with long-term target of "net Zero" emission.
20.3	Implementation status/measures adopted for avoiding the generation of single used plastic waste.
20.4	In cases the project is located in Critically and Severely Polluted Areas, additional mitigation measures adopted and detailed action plan to be submitted in the EIA/EMP Report as per MoEF&CC O.M. No. 22-23/2028-IA.III dated 31/10/2019 and MoEF&CC O.M. No. 22-23/2028-IA.III dated 5/07/2022 has to be submitted.
20.5	Public consultation details (Entire proceedings as separate annexure along with authenticated English

<table>
<tr><th>S. No..</th><th>Terms of Reference</th></tr>
<tr><td></td><td>Translation of Public Consultation proceedings).</td></tr>
<tr><td>20.6</td><td>As part of Corporate Environment Responsibility (CER) activity, company shall adopt nearby villages based on the socio-economic survey and undertake community developmental activities in consultation with the village Panchayat and the District Administration. In this regard, time bound action plan as per the MoEF&CC Office Memorandum dated 30/09/2020 shall be submitted.</td></tr>
<tr><td>20.7</td><td>Summary of issues raised during public consultation along with action plan to address the same as per MoEF&CC O.M. dated 30/09/2020
<table>
<tr><th rowspan="2">S.No</th><th colspan="2">Physical activity and action plan</th><th colspan="3">Year of implementation (Budget in INR)</th><th rowspan="2">Total Expenditure (Rs. in Crores)</th></tr>
<tr><th>Name of the Activity</th><th>Physical Targets</th><th>1st</th><th>2nd</th><th>3rd</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table></td></tr>
<tr><td>20.8</td><td>Risk assessment
Methodology
Hazard identification
Frequency analysis
Consequence analysis
Risk assessment outcome</td></tr>
<tr><td>20.9</td><td>Emergency response and preparedness plan</td></tr>
</table>

21. Project Benefits

S. No..	Terms of Reference
21.1	Environment benefits
21.2	Social infrastructure
21.3	Employment and business opportunity
21.4	Other tangible benefits

22. Environment Cost Benefit Analysis

S. No..	Terms of Reference
22.1	Net present value

S. No..	Terms of Reference
22.2	Internal rate of return
22.3	Benefit cost ratio
22.4	Cost effectiveness analysis

23. Environment Management Plan (Construction and Operation phase)

S. No..	Terms of Reference
23.1	Air quality management plan
23.2	Noise quality management plan
23.3	Action plan for hazardous waste management
23.4	Action plan for solid waste management
23.5	Action plan for e-waste management.
23.6	Action plan for plastic waste management, considering the Plastic Waste Management Rules 2016.
23.7	Action plan for construction and demolition waste management.
23.8	Effluent management plan
23.9	Storm water management plan
23.10	Rain water harvesting plan
23.11	Plan for maximum usage of waste water/treated water in the Unit
23.12	Occupational health and safety management plan
23.13	Green belt development plan: An action plan for Green Belt development consisting of 3 tiers of plantations of native species all along the periphery of the project of adequate width shall be raised in 33% of total area with a tree density shall not less than 2500 per ha within a time frame of one year shall be submitted. Survival rate of green belt shall be monitored on periodic basis to ensure that survival rate not be less than 80 %.
23.14	Socio-economic management plan
23.15	Wildlife conservation plan (In case of presence of schedule I species)
23.16	Total capital cost and recurring cost/annum for environment pollution control measures shall be included.
23.17	Explore possibilities for recycling and reusing of treated water in the unit to reduce the freshwater demand and waste disposal.

S. No..	Terms of Reference
23.18	An Action Plan for improving the house-keeping activities in the raw material handling area need to be submitted
23.19	Action plan for the stock piles with impervious floor, provision of garland drains and catch pits to trap run off material shall be submitted.
23.20	Action plan to limit the dust emission from all the stacks below 30 mg/Nm3 shall be furnished.
23.21	Action plan for fugitive emission control in the plant premises shall be provided.

24. Conclusion of the EIA study

S. No..	Terms of Reference
24.1	undefined

25. In addition to the above, 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.

S. No..	Terms of Reference
25.1	undefined

26. Air cooled condensors shall be used in the power plant.

S. No..	Terms of Reference
26.1	undefined

27. Details of Dry Ash handling system along with supplementary coal handling system shall be submitted.

S. No..	Terms of Reference
27.1	undefined

28. Plan for transportation of coal shall be submitted.

S. No..	Terms of Reference
28.1	undefined

29. Plan along with technical details of SCR shall be submitted.

S. No..	Terms of Reference
29.1	undefined

30. In case of expansion project, Status of Ash Utilization of previous years (up to 5 years), action plan for 100% ash utilization along with timeline need to be submitted

S. No..	Terms of Reference
30.1	undefined

Standard Terms of Reference for conducting Environment Impact Assessment Study for Metallurgical Industries (ferrous and non ferrous) and information to be included in EIA/EMP report

1.

Sr. No.	Terms of Reference
1.1	A 3-D view i.e. DEM (Digital Elevation Model) for the area in 10 km radius from the proposal site. MRL details of project site and RL of nearby sources of water shall be indicated.
1.2	Plan for the implementation of the recommendations made for the proposed Unit in the Corporate Responsibility for Environmental Protection (CREP) guidelines.
1.3	Plan for solid wastes utilization.
1.4	Plan for utilization of energy in off gases (coke oven, blast furnace)
1.5	System of coke quenching adopted with full justification.
1.6	Details on environmentally sound technologies for recycling of hazardous materials, as per CPCB Guidelines, may be mentioned in case of handling scrap and other recycled materials.
1.7	Details on toxic metal content in the waste material and its composition and end use (particularly of slag).
1.8	Details on toxic content using Toxicity Characteristic Leaching Procedure (TCLP), composition and end use of slag.
1.9	100 % dolo char generated in the plant shall be used to generate power.
1.10	Fourth Hole fume extraction system shall be provided for SAF.WHR system shall be installed to recover sensible heat from flue gases of EAF. Provision for installation of jigging and briquetting plant to utilise the fines generated in the process.
1.11	No tailing pond is permitted for Iron ore slimes. Dewatering and filtration system shall be provided.
1.12	Action plan for the stock piles with impervious floor, provision of garland drains and catch

Sr. No.	Terms of Reference
	pits to trap run off material shall be submitted.
1.13	Action plan for developing connecting and internal road in terms of MSA as per IRC guidelines shall be submitted.
1.14	Action plan to limit the particulate matter emission from all the stacks below 30 mg/Nm3 shall be furnished.
1.15	Action plan for 100 % solid waste utilization shall be submitted.
1.16	PM (PM10 and P2.5) present in the ambient air must be analysed for source analysis – natural dust/RSPM generated from plant operations (trace elements) of PM10 to be carried over.
1.17	Iron ore/coal linkage documents along with the status of environment clearance of iron ore and coal mines, if applicable.
1.18	Quantum of production of coal and iron ore from coal & iron ore mines and the projects they cater to. Mode of transportation to the plant and its impact, if applicable.
1.19	Details on environmentally sound technologies for recycling of hazardous materials, as per CPCB Guidelines, may be mentioned in case of handling scrap and other recycled materials, if applicable.

Additional Terms of Reference

1. This TOR is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, if any, as may be applicable to this project.
2. This TOR granted to the project/ activity is strictly under the provisions of the EIA Notification, 2006 and its amendments issued from time to time. It does not tantamount/ construe to approvals/ consent/ permissions etc., required to be obtained or standards/conditions to be followed under any other Acts/Rules/Subordinate legislations, etc., as may be applicable to the project.

Annexure 2

Details of Products & By-products

Name of the product /By-product	Product / By-product	Quantity	Unit	Mode of Transport / Transmission	Remarks (eg. CAS number)
Steel Ingots / Billets	Product	119000	Tons per Annum (TPA)	Road	NA
Flats, Steel Bar, Tor Steel, Steel Angle, Channels, Rounds, Wire rod, Square, Girders & TMT Bars	Product	113050	Tons per Annum (TPA)	Road	NA

Tor Compliance

S.NO.	TOR POINTS	STATUS Of COMPLIANCE	REFERENCE
1.	**Preliminary requirements**		
1.1	EIA/EMP report cover page shall consist of project title with location, applicable schedule of the EIA Notification, 2006, ToR letter No. with date, study period along with EIA consultant & laboratory details with QCI/NABET/NABL accreditation certificate detail.	Noted and complied.	
1.2	Besides, following points shall be compiled as per QCI/NABET norms: a. Disclaimer by the EIA consultant. b. Declaration by the Functional Area Experts contributed to the EIA study and declaration by the head of the accredited consultant organization/authorized person. c. Undertaking by the project proponent owning the contents (information and data) of the EIA/EMP report. d. Undertaking by the EIA consultant regarding compliance of ToR issued by MoEF&CC. e. Consultant shall submit the Plagiarism Certificate for the EIA/EMP Report.	Noted and complied.	
2.	**Executive Summary**		
2.1	Table of Contents of the EIA report including list of tables/figures/annexures/abbreviations/symbols/notations.	Noted and complied.	
2.2	Point wise compliance to the ToR issued by MoEF&CC.	Noted and complied.	
3.	**Executive Summary**		
3.1	Introduction		
3.1.1	Name of the project along with applicable schedule and category as per EIA, 2006.	The project named; M/s Kashmir Ispat. is a secondary metallurgical project. It is originally Category 'B' project. As the tenure of SEIAA/SEAC J&K has been completed and no new SEIAA/SEAC constituted till date, the proposal will be appraised at central level in MOEF&CC New Delhi.	Chapter-1 at page no. 11 of DEIA.
3.1.2	Location and accessibility	The plant is located at SIDCO Industrial Complex, Bari Brahmana, Samba North, Jammu, Jammu & Kashmir.	Chapter-1 at page no. 11 of DEIA.
4.	**Executive Summary**		
4.1	Project description		
4.1.1	Resource requirements (Land; water; fuel; manpower)	Land-23650sqm.Water-66.0KLD, Fuel-electricity.15945KW, Manpower-90 persons.	Chapter-1, table 1.1 at page no.

			13 of DEIA.
4.1.2	Operational activity	Mfg. of M.S ingots and structural steel via induction furnace, Concast and Rolling mill.	Chapter-2, para 2.4.7 at page no. 34 of DEIA.
4.1.3	Key pollution concerns	Air, water, land and noise pollution.	
5.	**Executive Summary**		
5.1	Baseline Environment Studies	The baseline environmental study has been conducted from October, 2023 to December, 2023.	Chapter-3, para 3.1.2 at page no. 43 of DEIA.
5.1.1	Ambient air quality	The guidelines for selections of ambient air monitoring stations and analysis of air pollutants as given in IS – 5182 part 14, 2000 (Guidelines for planning the sampling of atmosphere) and 'Guidelines for Ambient Air Quality Monitoring' by CPCB respectively were followed.	
5.1.2	Ambient Noise quality	At each station noise level was monitored for day and night once in a season as per IS 9989:1981. As sensitive receptors are the prime consideration for sound levels, the monitoring locations are the same as those decided for ambient air quality monitoring.	
5.1.3	Traffic study	Traffic study has been done and mentioned in the Draft EIA in chapter 3.11	
5.1.4	Surface water quality	Grab sampling was done for surface water. Water samples were analyzed as per IS;3025 for parameters prescribed my MoEFCC. Necessary precautions were taken during sampling and preservation was done for specific parameters.	
5.1.5	Ground water quality	Grab sampling was done for ground water. Water samples were taken as per the Standard Methods, analyzed for parameters as per (IS 10500: 2012, and as per test methods in IS; 3025. Necessary precautions were taken during sampling and preservation of samples.	
5.1.6	Soil quality	For soil, augur method was used and samples were collected at 15-25 cm depth after removing the upper crust.	
5.1.7	Biological Environment	Primary and secondary data collection has been carried out by the Ecology and Biodiversity expert/ team for the study of flora and fauna in the core and buffer zone.	
5.1.8	Land use	The land use/ land cover map has been generated on 1:50,000 scale using Satellite imagery and ground truth information.	

5.1.9	Socio-economic environment	Socioeconomic status has been studied through secondary sources and by site visit and the social requirements were identified by questionnaire and focused group discussion. `	
6.	**Executive Summary**		
6.1	**Anticipated impacts**		
6.1.1	Impact on ambient air quality	Air quality is likely to impacted in terms of particulates at gases.	
6.1.2	Impact on ambient noise quality	There may be increase in the ambient noise level due to object activities.	
6.1.3	Impact on road and traffic	No impact is likely on road and traffic due to meager increase in traffic due to transportation related activities.	
6.1.4	Impact on surface water resource and quality	As the project is ZLD there will be no impact on surface water quality.	
6.1.5	Impact on ground water resource and quality	Insignificant impact on ground water resource due to abstraction as water restoration measures in the form of RWH will be taken. As no waste will be discharge to the ground there will be no impact on ground water quality.	
6.1.6	Impact on terrestrial and aquatic habitat	No impact, as the proposed expansion will be carried out within the existing facility involving no tree cutting and vegetation removal. Since there is no water body within the project site and no waste water will be discharged to the environment which may contaminate any river there will be no impact on aquatic habitat.	
6.1.7	Impact on socio-economic environment	There will be substantial improvement in the socio-economic environment of surrounding area due to employment generation, indirect employment and the likelihood of coming up of ancillary units.	
7.	**Executive Summary**		
7.1	Alternative analysis	Alternative site analysis and process has not been considered as the proposed expansion is being carried out within the existing unit located in industrial area. The induction furnace technology being adopted is proven in terms of least polluting potential and energy consumption.	
8.	**Executive Summary**		
8.1	Environmental Monitoring program		
8.1.1	Ambient air, noise, water and soil quality	Details given in DEIA report, refer chapter-3	
8.1.2	Noise quality management plan	Details given in DEIA report, refer chapter-3	
8.1.3	Emission and discharge from the plant	Details given in DEIA report, refer chapter-3	
8.1.4	Green Belt	Details given in DEIA report, refer chapter-3	

8.1.5	Social Parameters	Details given in DEIA report, refer chapter-3	
9.	**Executive Summary**		
9.1.1	Risk assessment	Refer chapter-7	
9.1.2	Public consultation	Will be conducted by J&KSPCB after the submission of DEIA.	
9.1.3	Action plan to address the issues raised during public consultation as per MoEF&CC O.M. dated30/09/2020	It will be addressed after Public consultation.	
10.	**Executive Summary**		
10.1	Project Benefits	Far project benefits chapter-9.	
11.	**Executive Summary**		
11.1	Environment management plan	Noted & complied	
11.1.1	Air quality management plan	Complied, - Ensure that vehicle have a PUC certification which will be checked by security staff at the gate. - Material will be transported in covered trucks. - Induction furnace will be provided with adequate and appropriate APCS. - D.G. set provided adequate stack height. - Regular air quality monitoring.	
11.1.2	Noise quality management plan	Noted & complied, - Noise level monitoring at start up and shut down activities for plant and equipments. - D.G. sets with acoustic enclosure.	
11.1.3	Solid and hazardous waste management plan	Noted & complies, - Hazardous waste will be segregated at source and stored in hazardous waste storage area. - Hazardous waste will be stored in isolated covered area with impervious flouring. - Spill contribution mechanism will be implemented. - PPE shall be mandatory.	
11.1.4	Effluent management plan	Noted & complied, - No process related effluent will be generated. - Domestic waste water and cooling tower blowdown will be treated in septic tank and treated water used in plantation and dust suppression.	
11.1.5	Storm water management plan	Noted &complied, - Proper collection ditches. - Natural drainage not to be disturbed. - Proper channelization and rerouting of storm water generated by rainfall runoff.	

11.1.6	Occupational health and safety management plan	Noted & complied, - Work area will be monitored to maintain safe working environment. - Provision of safety shower with eye wash. - Requisite PPE to be provided and their use made mandatory. - Provision of accident reporting and investigation. - Hand gloves of natural rubber, neoprene. - Medical checkup at regular interval. - Provision and maintenance of adequate fire protection system. - Prohibition of eating, smoking and drinking at work place - Provision of firefighting equipments.	
11.1.7	Green belt development plan	Noted & complied, - The project area encompasses 3641.7 sqm as greenbelt in which over estimated 910 trees requires to be planted inside the premises. - The project area encompasses 4296.7 sqm as greenbelt in which over estimated 1074 trees requires to be planted outside the premises. - **Plantation Care-** Management of green belt will be done by regular watering, soil enrichment manuring and weeding. The maintenance includes: - Replacement of weak and dead plants. - Care against material and cattle damage. - Caring for five years till the saplings attains maturity. **Budgetary Allocation –** A total of Rs 20.0 lac including maintenance cost has been provided.	
11.1.8	Socio-economic management plan	Noted & complied, - The goal of socio-economic management plan is to improvise the quality of life of surrounding population by providing safe healthy and pollution free environment. The planning includes; - Awareness in respect of health, hygiene and sanitization issues. - Awareness of project benefits in terms of improved livelihood by implementation during implement of technical and social remedial plans. **Implementation:** The social management plan will be implemented as part of EMP by project personnel and NGO.	
11.1.9	Project cost and EMP implementation budget.	Noted & complied, - The total cost of project is Rs 3196.39 lacs and the budgetary province for EMP is Rs 160.0 lac	

		as capital cost.	
12.	**Introduction**		
12.1	Background about the project	It is an existing project of which the expansion is proposed. The existing unit which is outside the preview of DEIA notification is operated under the consent to operate.	
12.2	Need of the project	The economy of India is the seventh-largest economy in the world measured by nominal GDP and the third-largest by purchasing power parity (PPP). The country is classified as a newly industrialized country, one of the G-20 major economies, a member of BRICS and a developing economy with an average growth rate of approximately 7% over the last two decades. This growth rate has a great impact on domestic consumption of steel as well as export potential to other countries. As a result of this, the demand for iron & steel remains extremely good, this would continue for next 10 years if not less, since the per capita consumption of steel in India is still very low compared to other developed countries. For rapid development of economy and infrastructure of the country it is necessary to increase the production of steel within the country. National Steel Policy – 2005 has the long-term goal of having a modern and efficient steel industry of world standards in India. The focus is to achieve global competitiveness not only in terms of cost, quality and product-mix but also in terms of global benchmarks of efficiency and productivity. The Policy aims to achieve over 100 million Metric Tons of Steel per year by 2020-21 from the 2004-05 level of 38 mt. This implies an annual growth of around 7.3% per year since 2004-05. The above strategic goal is justified on the ground that steel consumption in the world, around 1000 million Metric tonnes in 2004, is expected to grow at 3.0 percent per annum to reach 1,395 million Metric Tonnes in 2020, compared to 2 percent per annum in the past fifteen years. China will continue to have a dominant share of the world steel demand. At home, the Indian growth rate of steel production over the past fifteen years was 7.0 percent per annum. The projected growth rate of 7.3 percent per annum in India compares well with the projected national income growth rate of 7-8 percent per annum, given an income elasticity of steel consumption of around 1.	Chapter-2, para 2.2 at page no. 21 of DEIA.
12.3	Purpose of the EIA study	The purpose of EIA study is: - - To identify, predict and evaluate the economic, environmental and social impacts of development activities.	

<table>
<tr><td></td><td></td><td>- _To provide information on the environmental consequences for decision making.
- - To promote environmentally sound and sustainable development through the identification of appropriate alternatives and mitigation measures.</td><td></td></tr>
<tr><td>12.4</td><td>Scope of the EIA study</td><td>The scope of EIA study is in conformity with MOEF&CC technical guidance manual are IF, EAF and CUPOLA furnaces and circular issued by MOEF&CC and the TOR issued by MOEF&CC.</td><td></td></tr>
<tr><td>13.</td><td colspan="2">Project description</td><td></td></tr>
<tr><td>13.1</td><td>Site Details</td><td>Refer chapter-2</td><td></td></tr>
<tr><td>13.1.1</td><td>Location of the project site covering village, Taluka/Tehsil, District and State.</td><td>The project is located at SIDCO Industrial Complex, Bari Brahmana, Samba North, Jammu, Jammu & Kashmir.</td><td></td></tr>
<tr><td>13.1.2</td><td>Site accessibility</td><td>The project location in notified industrial area is approachable from the NH-44 via industrial road which is sub-arterial 2-lane (Two way) carriage way of width 7.5 m having good quality earthern shoulders. The project site falls at a distance of 2.0 km from NH-44 There are scattered industries in the industrial area & well connected with road network. There is not heavy traffic on the road adjacent to the project site.</td><td>Chapter-3, para 3.14 at page no. 98 of DEIA.</td></tr>
<tr><td>13.1.3</td><td>A digital toposheet in pdf or shape file compatible to Google earth of the study area of radius of 10km and site location preferably on 1:50,000 scale. (Including all eco-sensitive areas and environmentally sensitive places).</td><td>Due to location of the project site near boarder line therefore Toposheet could not be prepared.</td><td></td></tr>
<tr><td>13.1.4</td><td>Latest High-resolution satellite image data having 1 m - 5 m spatial resolution like quickbird, Ikonos, IRS P-6 pan sharpened etc., along with delineation of plant boundary co-ordinates. Area must include at least 100 m all around the project location.</td><td>Complied, refer chapter-3</td><td></td></tr>
<tr><td>13.1.5</td><td>Environment settings of the site and it’s surrounding along with map.</td><td>Refer chapter-1</td><td></td></tr>
<tr><td>13.1.6</td><td>A list of major industries with name, products and distance from plant site within study area (10km radius)and the location of the industries shall be depicted in the study area map.</td><td><u>List of the industries within the study area is given below</u>
<table>
<tr><th>S.No.</th><th>Name of Industries</th><th>Type of Industries</th><th>Distance and direction</th></tr>
<tr><td>1.</td><td>Jai Beverages Pvt. Ltd</td><td>Pepsi Plant</td><td>1.0 km towards South West</td></tr>
<tr><td>2.</td><td>Nav Bharat</td><td>Manufacturer of Maize Flour, Basmati Rice & Poha</td><td>0.9 km towards</td></tr>
</table></td><td>Chapter-3, para 3.13 at page no. 81 of DEIA.</td></tr>
</table>

			Flour Mill		North East
		3.	Saraswati Plastotech India Pvt. Ltd	Manufacturing polycarbonate sheets	0.9 km towards North
		4.	Prevest Denpro Limited	Research & development department which is responsible for the development of high-quality innovative dental materials.	0.3 km towards South East
		5.	KK Roller Flour Mills	Modern and fastest growing Roller Flour Mills	0.6 km towards South East
		6.	Ravenbhel Biotech	Epoxy flooring in RM stores, dispensing and sampling areas, manufacturing floor, quarantines, wash/cleaning area	0.5 km towards East
		7.	Dabur India Ltd, Unit-5	Manufacturer, Wholesale Supplier / Wholesaler - Dabur Honey, Gulabari Rose Water, Dabur Almond Hair Oil, Dabur Vatika Coconut Hair Oil, Dabur Almond Shampoo	0.3 km towards North
		8.	JTH Industries	Modular Kitchen and Kitchen Accessories / Kitchen Chimneys / Jth Industries, Deep freezers/water coolers mfrs.	0.2 km towards North West
		11.	GCMMFL (Amul) Jammu	Milk producers	1.8 km towards North West
		12.	Rivigo services Pvt Ltd	Fastest and Safest Cargo Service with Largest Serviceability in India	1.6 km towards North West
		13.	Alteus Remedies Pvt Ltd	Manufacturer of Pharmaceutical Tablets, Fragrance Perfume & Industrial Products	0.6 km towards South
		14.	VJ Jindal Cocoa Pvt Ltd	Manufacturer, Supplier, Trading Company of Cocoa Powder, Chocolate Compound, Raw Material	0.5 km towards South
		15.	Naturis Cosmetics Pvt Ltd	Cosmetic manufacturers	0.8 km towards South
		16.	Uflex Limited Unit-II	Packaging company	1.8 km towards

				North	
		17.	Kc food Products Pvt Ltd	Manufacturer of Gold Cashew Cookies, Marie Teatime Biscuits, Shaktiman Glucose Biscuits, Butter Cookies and Chocolates	1.3 km towards South West
13.1.7	In case if the project site is in vicinity of the water body, 50 meters from the edge of the water body towards the site shall be treated as no development/construction zone. If it's near the wetland, Guidelines for implementing Wetlands (Conservation and Management) Rules, 2017 may be followed.	Does not apply-The project as located in the notified industrial area is neither within 50m from the edge of water body nor it is situated near the wet land.			
13.1.8	In case if the project site is in vicinity of the river, the industry shall not be located within the river flood plain corresponding to one in 25 years flood, as certified by concerned District Magistrate/Executive Engineer from State Water Resources Department (or) any other officer authorized by the State Government for this purpose as per the provisions contained in the MoEF&CC Office Memorandum dated14/02/2022.	NA in view of 13.1.7 above			
13.1.9	In case of canal/ nala/ seasonal drain and any other water body passing through project site, the PP shall submit the suitable steps /conservation plan/mitigation measures along with contouring, Run -off calculations, disposal etc. A robust and full proof Drainage Conservation scheme to protect the natural drainage/water bodies and its flow parameters; along with Soil conservation scheme and multiple Erosion control measures shall be provided in the report.	NA as no canal/nala/ seasonal drain and any other water body passing through project site.			
13.1.10	Type of land, land use of the project site needs to be submitted.	The land use at project site is industrial as per documentary evidence enclosed.			
13.1.11	Status of acquisition of land. If acquisition is not complete, stage of the acquisition process as per the MoEF&CC O.M. dated 7/10/2014 shall be furnished.	The project is already in position of 23650 sqm of land.			
13.1.12	Project proponent shall prepare Engineering layout plan showing all internal roads minimum 6 m widthand 9 m turning radius for smooth traffic flow inside including fire tender as per NBC. Road network shallconnect all service areas in layout. This drawing shall include area statement showing plot area, area underroads, parking, green belt with calculations and % with respect to plot area of project site and proper indexing. If located within an Industrial area/Estate/Complex, layout of Industrial Area indicating location of unit within	Noted and complied, layout plan enclosed. Refer chapter-2			

	the Industrial area/Estate.		
13.1.13	Project proponent shall submit contour map of project site along with drainage disposal system with calculations and drawings supported with proper indexing including Rain Water Harvesting details with calculations mentioning about GW recharge along with relevant drawing.	As it is located on a plain terrain, therefore, no contour map is required. Complied, refer chapter-3.	
13.1.14	A detailed report covering all aspects of Fire Safety Management and Fire Emergency Plan shall be submitted.	Complied, refer chapter-7.	
13.1.15	Details of drone survey for the site, needs to be included in report and presented before the EAC during appraisal of the project.	As the Drone survey is primarily used for mining and construction sites and since the present proposal pertains to expansion in the existing facility located in industrial area, drone survey has not been undertaken.	
14.	**Project description**		
14.1	Forest and wildlife related issues (if applicable)	Not applicable as no forest land is involved.	
14.1.1	Status of Forest Clearance for the use of forest land shall be submitted.	Not applicable	
14.1.2	Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972, to the Standing Committee of the National Board for Wildlife if the project site located within notified Eco-SensitiveZone, 10 km radius of national park/sanctuary wherein final ESZ notification is not in place as per MoEF&CC Office Memorandum dated 8/8/2019.	Not applicable	
14.1.3	The projects to be located within 10 km of the National Parks, Sanctuaries, Biosphere Reserves, MigratoryCorridors of Wild Animals, Eco-sensitive Zone and Eco-sensitive areas, the project proponent shall submit the map duly authenticated by Divisional Forest Officer showing the distance between the project site and the said areas.	Not applicable	
14.1.4	Wildlife Conservation Plan duly authenticated by the Competent Authority of the State Government forconservation of Schedule I fauna along with budget and action plan, if any exists in the study area.	Not applicable	
15.	**Project description**		
15.1	Salient features of the project	**S. No.** / **Particulars** / **Details** **A. Location details**	

<table>
<tr><td>1.</td><td colspan="2">Location</td></tr>
<tr><td>a</td><td>Village/ Town/Plot No.</td><td>Lane no. 4, Phase II, SIDCO industrial Complex, Bari Brahmana, Sambha North Jammu, Jammu & Kashmir.</td></tr>
<tr><td>b</td><td>Tehsil</td><td>Bari Brahmana</td></tr>
<tr><td>c</td><td>District</td><td>Samba</td></tr>
<tr><td>d</td><td>State</td><td>Jammu</td></tr>
<tr><td>e</td><td>Latitude</td><td><table><tr><th>POINT</th><th>LATITUDE</th></tr><tr><td>A</td><td>32°38'42.58"N</td></tr><tr><td>B</td><td>32°38'43.17"N</td></tr><tr><td>C</td><td>32°38'40.40"N</td></tr><tr><td>D</td><td>32°38'35.82"N</td></tr><tr><td>E</td><td>32°38'38.17"N</td></tr></table></td></tr>
<tr><td>f</td><td>Longitude</td><td><table><tr><th>POINT</th><th>LONGITUDE</th></tr><tr><td>A</td><td>74°56'21.40"E</td></tr><tr><td>B</td><td>74°56'25.29"E</td></tr><tr><td>C</td><td>74°56'26.25"E</td></tr><tr><td>D</td><td>74°56'20.90"E</td></tr><tr><td>E</td><td>74°56'17.98"E</td></tr></table></td></tr>
<tr><td>2.</td><td>Topo sheet No.</td><td>Due to location of the project site near boarder line therefore Toposheet could not be prepared.</td></tr>
<tr><td>3.</td><td>Project Area</td><td>Existing Land = 15400 Sqm
Additional Land = 8250 Sqm
Total Land-=23650 Sqm</td></tr>
<tr><td>C.</td><td>Production Capacity</td><td>Existing:
1) MS Ingots/Billets- Nill
2) Flats, Steel Bar, Tor Steel, Steel Angle, Channels, Rounds, Wire rod, Square, Girders & TMT Bars- 85,876

After Expansion:
1) MS Ingots/Billets- 1,19,000 TPA</td></tr>
</table>

			2) Flats, Steel Bar, Tor Steel, Steel Angle, Channels, Rounds, Wire rod, Square, Girders & TMT Bars – 1,13,050
	D.	**Environmental settings**	
	1.	Nearest Village	Bari Brahmana – 3.0 Km, North direction
	2.	Nearest City	Jammu, approx. 12 km in N direction from the project site
	3.	National Highway/State Highway/ Express Highway	NH-44 Jallandhar-Jammu is approx. 2.4 km in south west direction from the project site.
	4.	Nearest Railway Station	Jammu, approx. 12 km in NW direction from the project site
	5.	Nearest Airport	Jammu – 11km NW
	6.	National Parks/ Wild Life Sanctuaries/ Biosphere Reserves within 10 km radius	Nil
	7.	Reserved / Protected Forest within 10 km radius (Boundary to boundary distance)	Raika Forest (Protective Forest) Approx 9.0 Km (N).
	8.	Nearest water bodies	Balole Nala is about 0.5 km in North direction from project site.
	9.	Source of Water	SIDCO Supply
	10.	Seismic Zone	Seismic **Zone – IV**
	D.	**COST DETAILS**	
	1.	Capital Cost of the project	Existing cost -Rs 364.61 Lacs Additional cost -Rs 2831.78 Lacs

				Total - Rs 3196.39	
		2.	Total cost for Environmental Management Plan (EMP)	Rs 160.0 Lacs	

15.1.1	Products with capacities in Tons per Annum for the proposed project.	**Description**	**Existing**	**Additional**	**After Expansion**	
		Production (TPA)				
		Steel Ingot/Billets (TPA)	NIL	1,19,000	1,19,000	
		Flats, Steel Bar, Tor Steel, Steel Angle, Channels, Rounds, Wire rod, Square, Grinders& TMT Bars	85,876	27,174	1,13,050	
15.1.2	If expansion project, status of implementation of existing project, details of existing/proposed productswith production capacities in Tons per Annum.	**Description**	**Existing**	**Additional**	**After Expansion**	
		Production (TPA)				
		Steel Ingot/Billets (TPA)	NIL	1,19,000	1,19,000	
		Flats, Steel Bar, Tor Steel, Steel Angle, Channels, Rounds, Wire rod, Square, Grinders& TMT Bars	85,876	27,174	1,13,050	
15.1.3	Site preparatory activities.	The project is located in industrial area which is already developed. The expansion will be carried out within the existing unit which is plain, free of vegetation thereby requiring minimal site preparation.				
15.1.4	List of raw materials required and their source along with mode of transportation.	**Particulars**	**Existing**	**Additional**	**Total**	
		MS Scrap, Ferro-alloys, Ingots/Billets (TPA)	94,124	36,436	1,30,560	
15.1.5	Other than raw materials, other chemicals and materials required with quantities and storage capacities.	No other chemical and materials except the raw materials listed above will be used in the process.				
15.1.6	Manufacturing process details along with process flow diagram of proposed units.	Firstly, Raw Material i.e., M.S. Scrap/Spong Iron is tested in laboratory and if reports are satisfactory then it is issued for the further processing. Testing Raw Material is put in to the Furnace where 1200-18000C approximately. Temperature is provided to make the raw material melting. Hot raw material is poured into Concast to make steel billet. Hot Steel Billet is taken to seventeen strands (according to size) where it is passed through various sized rolls depending upon size to be produced. After the product is				

<table>
<tr><td></td><td></td><td>passed through the finishing stand further go in to the coiler to make the coil of steel Round. Steel Round is taken and checked by the quality controller with the help of vernier. Whereas, in the existing setup the rolling mill was based on reheating furnace using coal as fuel, after expansion reheating furnace will be dispensed with and hot rolling will be practiced thereby eliminating air pollution due to reheating furnace. (Note- under the proposed dispenser hot billets from the caster will be duly charged into the rolling mill, thereby eliminating the requirement of reheating furnace thus there will be no emission from the rolling mill). This inspection is carried out by the quality controller after every hour. Different Bundles are prepared of different sized products and are well placed. Material balance chart & Layout of manufacturing process is given in Figure. 2.6</td><td></td></tr>
<tr><td>15.1.7</td><td>Consolidated materials and energy balance for the project.</td><td>Refer Figure 2.6 chapter-2.</td><td></td></tr>
<tr><td>15.1.8</td><td>Total requirement of surface/ ground water and power with their respective sources, status of approval.</td><td>
<table>
<tr><td colspan="5">Water requirement for summer season</td></tr>
<tr><td>S. No</td><td>Particulars</td><td>Existing</td><td>Addition</td><td>Total</td></tr>
<tr><td>1</td><td>Domestic</td><td>4.0</td><td>6.0</td><td>10.0</td></tr>
<tr><td>2</td><td>Cooling (makeup water)</td><td>16.0</td><td>40.0</td><td>56.0</td></tr>
<tr><td>3</td><td>Total</td><td>20.0</td><td>46.0</td><td>66.0</td></tr>
<tr><td colspan="5">Water requirement for winter & rainy season</td></tr>
<tr><td>1</td><td>Domestic</td><td>4.0</td><td>6.0</td><td>10.0</td></tr>
<tr><td>2</td><td>Cooling (makeup water)</td><td>16.0</td><td>20.0</td><td>36.0</td></tr>
<tr><td>3</td><td>Total</td><td>20.0</td><td>26.0</td><td>46.0</td></tr>
<tr><td>4</td><td>Power Requirement</td><td>3200 KW</td><td>6800 KW</td><td>10000 KW</td></tr>
<tr><td colspan="5">Source- J& K State Power Corporation Limited for power supply and SIDCO Supply for water requirements.</td></tr>
</table>
</td><td></td></tr>
<tr><td>15.1.9</td><td>Water balance diagram</td><td>Refer Figure 2.4 in chapter 2.</td><td></td></tr>
<tr><td>15.1.10</td><td>Details of Emission, effluents, hazardous waste generation and mode of disposal during construction aswell as operation phase.</td><td>The following are the required details for the existing & proposed facility:
<table>
<tr><td colspan="5">Existing</td></tr>
<tr><td>S. No.</td><td>Source</td><td>No.</td><td>Fuel</td><td>APCD</td></tr>
<tr><td>1.</td><td>Induction Furnace</td><td>NIL</td><td>--</td><td>--</td></tr>
<tr><td>2.</td><td>Rolling Mill</td><td>01 No. (15 TPH)</td><td>Coal</td><td>Cyclone, Wet Scrubber</td></tr>
<tr><td>3.</td><td>D.G. Set</td><td>125 KVA each</td><td>HSD</td><td>Stack of adequate height provided</td></tr>
</table>
</td><td></td></tr>
</table>

<table>
<tr><td></td><td></td><td>
<table>
<tr><td colspan="5">After Expansion</td></tr>
<tr><td>1.</td><td>Induction Furnace</td><td>25 TPH</td><td>Electricity</td><td>Bag Filters</td></tr>
<tr><td>2.</td><td>Rolling Mill</td><td>01 No. (15 TPH)</td><td>Coal</td><td>Cyclone, Wet Scrubber</td></tr>
<tr><td>3.</td><td>CCM</td><td>01 No.</td><td>--</td><td>--</td></tr>
<tr><td>4.</td><td>D.G. Set</td><td>125 x 325 KVA</td><td>HSD</td><td>Stack of adequate height provided</td></tr>
<tr><td colspan="5">Hazardous Waste</td></tr>
<tr><td>S.No.</td><td>Waste Category</td><td>Existing</td><td colspan="2">Disposal</td></tr>
<tr><td>1.</td><td>35.1 Flue gas cleaning residue</td><td>0.7 TPD</td><td colspan="2">Send to TSDF site/ final disposal</td></tr>
<tr><td>2.</td><td>5.1 Used oil/Spent oil</td><td>0.03kl/annum</td><td colspan="2">Sold to Authorized Recyclers</td></tr>
<tr><td colspan="5">Solid Waste</td></tr>
<tr><td>S.No.</td><td>Waste Category</td><td>Existing</td><td colspan="2">Disposal</td></tr>
<tr><td>1.</td><td>Slag</td><td>17.28 TPD</td><td colspan="2">Sent to tile/cement manufacturing plant for reuse and to local market.</td></tr>
</table>
</td><td></td></tr>
<tr><td>15.1.11</td><td>Man-power requirement.</td><td>
<table>
<tr><td>Description</td><td>Existing</td><td>Additional</td><td>After Expansion</td></tr>
<tr><td>Manpower requirement</td><td>66</td><td>24</td><td>90</td></tr>
<tr><td colspan="4">Mostly the manpower will be hired from local areas.</td></tr>
</table>
</td><td></td></tr>
<tr><td>15.1.12</td><td>Cost of project and scheduled time of completion.</td><td>Existing - Rs. 364.61 Lacs.
Proposed - Rs. 2831.78 Lacs.
Total- Rs. 3196.39 Lacs.
The proposed expansion will be completed within one year after grant of Environmental Clearance.</td><td></td></tr>
<tr><td>15.1.13</td><td>In case of expansion projects, project proponent shall submit structural stability certificate showingwhether existing structure withstand for proposed expansion activity.</td><td>Not Applicable, as it is not a Building& construction project. However, structural safeguards will be taken during the erecting of plant and installation of machinery.</td><td></td></tr>
</table>

15.1.14	Brief on present status of compliance (Expansion/modernization proposals) a. Cumulative Environment Impact Assessment for the existing as well as the proposed expansion/modernization shall be carried out. b. Cumulative Impact Assessment need to be carried out by greenfield projects considering the nearby industries. c. In case of ground water drawl for the existing unit, action plan for phasing out of ground water abstraction in next two years except for domestic purposes and shall switch over to 100 % use of surface water from nearby source. d. Copy of all the Environment Clearance(s) including Amendments/validity of extension/transfer of EC, there to obtained for the project from MoEF&CC/SEIAA shall be attached as Annexures. A Certified Compliance Report (CCR) of the Integrated Regional Office of the Ministry of Environment, Forest and Climate Change/ or concerned authority as per OM No. IA3-22/10/2022-IA.III [E 1772581], dated 8th June, 2022 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. e. In case the existing project has not obtained EnvironmentClearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and/or EIA Notification 2006 shall be provided. A proper justification needs to be submitted along with documentary proof. Copies of Consent to Establish/No Objection Certificate and Consent to Operate (in case of units operating prior to EIA Notification 1994 or 2006, CTE and CTO of FY 2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of CTO from the Regional Office ofthe SPCB shall be submitted, as per OM No. IA3-22/10/2022-IA.III [E 1772581], dated 8th June, 2022. CCR on CTO conditions issued by the concerned SPCBs/PCCs shall be valid for a period of one year fromthe date of inspection of the project.	NA as the existing unit was not covered under the EIA notification/2006, thereby not requiring environmental clearance and its subsequent compliance. However, the unit has all along been complying with the consent conditions. Copies of CTO, NOC, authorization and CTO compliance are enclosed herewith.	
16.	**Description of the Environment**		
16.1	Study Period	October, 2023 to December, 2023	
16.2	<table><tr><td>Attributes</td><td colspan="2">Sampling</td><td>Remarks</td></tr><tr><td></td><td>Network</td><td>Frequency</td><td></td></tr></table>	Noted and complied.	

	i. Air Environment Micro-Meteorological • Wind Speed (hourly) • Wind direction • Dry bulb temperature • Wet bulb temperature • Relative humidity • Rainfall • Solar radiation • Cloud cover • Environmental • Lapse Rate	Minimum 1 site in the project impact hourly continuous area	• The monitoring frequency was 24 hours, twice a week at each station spread over the entire monitoring period with gas sampling being done six times (at 4 hrs intervals)	IS 5182 Part 1-20 • Site specific primary date is essential. • Secondary data from IMD, New Delhi. • CPCB guidelines to be considered.		
	ii. Pollutants • PM10 • SO2 • NOx • CO • HC • Other parameters relevant to the project and topography of the area	At least 8-12 Locations	As per National Ambient Air Quality Standards, CPCB Notification	• Sampling as per CPCB guidelines • Collection of AAQ data (except in monsoon season) • Locations of various stations for different parameters		

				should be related to the characteristic properties of the Parameters. • The monitoring stations shall be based on the NAAQM standards as per GSR 826(E) dated 16/11/2009 and take into account the predominant wind direction, population zone and sensitive receptors including reserved forests, • Raw data of all AAQ measurement for 12 weeks			

				of all stations as per frequency given in the NAAQM Notification of 16/11/2009 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.			
	iii. Noise • Hourly equivalent noise levels	At least 8-12 Locations	As per CPCB norms				
	iv. Water Parameters for water quality • pH, temp, turbidity, magnesium hardness, total alkalinity, chloride,	Samples for water quality should be collected and analyzed as per: • IS: 2488					

	sulphate, nitrate, fluoride, sodium, potassium, salinity. • Total nitrogen, total phosphorus, DO, BOD, COD, Phenol. • Heavy metals • Total coliforms, faecal coliforms. • Phyto plankton • Zoo plankton For River Bodies • Total Carbon • pH • Dissolved Oxygen • Biological Oxygen Demand • Free NH4 • Boron • Sodium Absorption Ratio • Electrical Conductivity	(Part 1-5) methods for sampling and testing of Industrial Effluents. • Standard methods for examination of water and wastewater analysis published by American Public Health Association Surface water quality of the nearest River (60m upstream and downstream) and other surface water bodies	•Yield of water sources to be measured during critical season •Standard methodology for collection of surface water (BIS standards)				
	For Ground Water	Ground water					

			monitoring data should be collected at minimum of 8 locations (from existing wells /tube wells/existing current records) from the study area and shall be included.				
		v. Traffic Study Type of vehicles • Frequency of vehicles for transportation of materials. • Additional traffic due to proposed project	Land Environment				
		vi. Soil • Particle size distribution • Texture • pH • Electrical conductivity • Cation exchange capacity • Alkali metals	Soil samples be collected as				

	• Sodium Absorption Ratio (SAR) • Permeability water holding capacity • Porosity	per BIS specifications.				
	vii. Land use/Landscape • Location code • Total project area • Topography • Drainage (natural) • Cultivated, forest, plantations, water bodies, roads and settlements.					
	viii. Biological Environment 1.Aquatic • Primary productivity • Aquatic weeds • Enumeration of phytoplankton, zoo plankton and benthos. • Fisheries Diversity indices • Trophic levels • Rare and endangered species • Marine Parks/Santuries/	• 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. Indicator species which				

	Closed areas/ Costal regulation zone (CRZ) 2. Terrestrial •Vegetation- species list, economic importance, Forest produce, medicinal value. •Importance value index (IVI) of trees. •Fauna. •Avi fauna. •Rare and endangered. •Santuries/ National Park/ Biosphere reserve. •Migratory routes. Socio-economics Demographic structure • Infrasturure resources base • Economic resource base • Health status: Morbidity pattern	indicate ecological and environment degradation should be identified and included to clearly state whether the proposed project would result in to any adverse effect on any species. •Samples to collect from upstream and downstream of discharge point, nearby tributaries at downstream, and also from dug wells close to activity site. • For forest studies,					

		direction of wind should be considered while selecting forest. •Secondary data to collect from Government offices, NGOs, published literature. •Socio-economic survey is based on proportionate, stratified and random sampling method. • Primary data collection through questionnaire •Secondary data from census records, statistical					

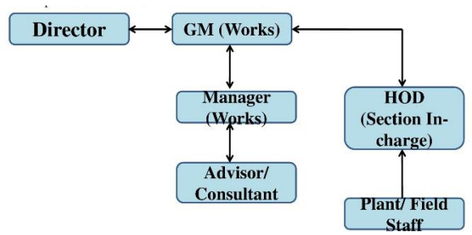
<table>
<tr><td></td><td></td><td>hard books, topo sheets, health records and relevant official records available with Govt. agencies.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>16.3</td><td>Interpretation of each environment attribute shall be enumerated and summarized as given below: •Ambient air quality • Ambient Noise quality • Surface water quality • Ground water quality • Soil quality • Biological Environment • Land use • Socio-economic environment.</td><td colspan="4">Complied. Refer chapter- 3

Complied. Refer chapter-3</td><td></td></tr>
<tr><td>16.4</td><td>The PP should submit the photograph of monitoring stations & sampling locations. The photograph shouldbear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples.</td><td colspan="4">Complied. Refer chapter-3</td><td></td></tr>
<tr><td>17.</td><td>Anticipated Environment Impacts and mitigation measures (In case of expansion, cumulative impact assessment shall be carried out)</td><td colspan="4">Anticipated Environment Impacts and mitigation measures are given in chapter-4 of EIA.</td><td></td></tr>
<tr><td>17.1</td><td>Identification of potential impacts in the form of a matrix for the construction and operation phase for allthe environment components
<table>
<tr><th>Activity</th><th>Environment</th><th>Ecological</th><th>Socio-economic</th></tr>
<tr><td>Construction Phase</td><td></td><td></td><td></td></tr>
<tr><td>Operation Phase</td><td></td><td></td><td></td></tr>
</table></td><td colspan="4">Complied, identification of potential impacts has been done by categorization as Primary, Secondary, Tertiary: Primary impacts are those which are linked directly to the project, Secondary and Tertiary impacts which are indirectly induced, typically include the effect on social and economic aspects of the surrounding for both the phase construction and operation.</td><td></td></tr>
</table>

17.2	Impact on ambient air quality (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase • Details of stack emissions from the existing as well as proposed activity. • Assessment of ground level concentration of pollutants from the stack emission based on AQIP Modelling The air quality contours shall be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any along with wind rose map for respective period • Impact on ground level concentration, under normal, abnormal and emergency conditions. Measures to handle emergency situations in the event of uncontrolled release of emissions.	Noted & complied, the following embedded control measures are in place - Green belt development and maintenance. - Regular monitoring of air pollutant concentration. - Particulate removal by bag filters. - Shredding of scrap before charging. - Use of PUC certified vehicles. - D.G sets with adequate height. - Dust suppression on internal roads.	
17.3	Impact on ambient noise quality (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase	Noted & complied, the following embedded control measures are in place - Provisions of heavy-duty mufflers on noisy equipments. - Damping and absorption by pads. - PPE for ears e.g., Ear plugs/muffs. - Procurement of equipments with noise specification.	
17.4	Impact on traffic (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase	Noted & complied, - Proper parking space for transportation. - Separate entry and exit points. - Mechanically monitored vehicles. - Transportation will be undertaken in day time only and 02 trucks will be requestioned from the truck union.	
17.5	Impact on soil quality (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase	Noted & complied, - Construction in phased manner and in non-monsoon season. - Minimum scarification of surface. - Proper runoff management by ponds/ditches. - Construction of drainage. - Windscreens around site.	
17.6	Impact on land use (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase	Noted & complied, - No change in land use, hence no mitigation measures, as the expansion will be undertaken within existing premises which is plain and industrial use.	
17.7	Impact on surface water resource and quality (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction	Noted & complied, No surface water body within 50m from the edge of project site.	

	phase b. Operation phase		
17.8	Impact on ground water resource and quality (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase	Noted & complied, - Storage of oil waste separately. - Monitoring of ground water. - Sanitary, sewage treatment and reuse. - Metering of ground water abstraction.	
17.9	Impact on terrestrial and aquatic habitat (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase	Noted & complied, - No impact on aquatic habitat as no water body exists near the plant site and no waste water discharged outside. - Existing biodiversity will remain intact as no tree will be cut and the expansion will takes place within the existing industry which is devoid of vegetation. - The development of greenbelt will enhance biodiversity, in addition to pollution control.	
17.10	Impact on socio-economic environment (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase	Noted & complied, - Health and safety measures for workers. - Upgradation of roads and intersections. - Exploring alternate routes for industry and locals. - Employment to locals. - Development of surrounding area by way of supplementing the governments' initiatives for healthcare, sanitation and pollution control.	
17.11	Impact on occupational health and safety (Sources; Embedded control measures; Assessment; Mitigation measures; Residual impact) a. Construction phase b. Operation phase	Noted & complied, - Arrangement for periodic health checkup. - Disposal of waste in environmentally sound manner. - Preventive measure for hazardous waste. - Proper sanitization facilities.	
18.	**Analysis of Alternatives (Technology & Site)**		
18.1	No project scenario	As the expansion will be undertaken in the existing project area therefore analysis in terms of no project scenario has been undertaken.	
18.2	Site alternative	No alternative site has been explored as the proposed expansion within the existing unit located in industrial area.	
18.3	Technical and social concerns	Provel technology has been proposed by the manufacturing process. This society will not be negatively impacted. Rather there will be a boost in the socio-economic conditions of the area in terms of employment generation, ancillary development and the execution of social and environmental activities	

<table>
<tr><td></td><td></td><td>by project authorities.</td><td></td></tr>
<tr><td>18.4</td><td>Conclusion</td><td>Based on the analysis of alternatives site and technology, the undertaking of expansion at the existing site is justified.</td><td></td></tr>
<tr><td>19.</td><td>Environmental Monitoring Program</td><td></td><td></td></tr>
<tr><td>19.1</td><td>Details of the Environment Management Cell</td><td>The industry duly constituted EMC. The main objections of EMC are:
➢ Waste minimization, recycling, energy conservation and use of alternative material which are practicable and cost effective.
➢ Training, education and information to employees.
Compliance of provisions of applicable environmental laws.</td><td></td></tr>
<tr><td>19.2</td><td>Performance monitoring schedule for all pollution control devices shall be furnished.</td><td>Noted the following schedule/procedure will be in place for bag filters:
<table>
<tr><td>Sr. No.</td><td>Frequency</td><td>Procedure</td></tr>
<tr><td>1</td><td>Daily</td><td>- Observe stack visually.
- Check pressure drop across the bag filters.
- Observe control panel indicator.
- Check that dust is removed from system.</td></tr>
<tr><td>2</td><td>Weekly</td><td>- Inspection of screw, conveyer bearings for lubrication.
- Checking the compressed air.
- Checking pressure drop for plugging line.</td></tr>
<tr><td>3</td><td>Monthly</td><td>- Checking drive belt for wear and tensions.
- Spot check for bag leakage.
- Inspection of fan corrosion and material deposition.
- Checking bags for tensions.</td></tr>
<tr><td>4</td><td>Annually</td><td>- Checking the welded parts.
- Inspection of Huppert’s wear.</td></tr>
<tr><td colspan="3">The record of temperature, pressure drop, flow rate dust and compressed air will be monitored</td></tr>
</table></td><td></td></tr>
<tr><td>19.3</td><td>Corporate Environment Policy
a. Does the company have a well laid down Environment Policy approved by its Board of Directors? Ifso, it may be detailed in the EIA report.
b. Does the Environment Policy prescribe for standard operating process /</td><td>A. The industry has well defined Environmental policy and the same is executed by EMC. The main objections of policy are:
➢ Waste minimization, recycling, energy conservation and use of alternative material which are practicable and cost effective.
➢ Training, education and information to employees.
➢ Compliance of provisions of applicable environmental laws.</td><td></td></tr>
</table>

<table>
<tr>
<td></td>
<td>procedures to bring into focus any infringement / deviation / violation of the environment or forest norms / conditions? If so, it maybe detailed in the EIA.
c. What is the hierarchical system or administrative order of the company to deal with the environment issues and for ensuring compliance with the environment clearance conditions? Details of this system may be given. Page 9 of 10
d. Does the company have system of reporting of non-compliances / violations of environment 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</td>
<td>B. The EMC is entrusted with the task of looking after all the environmental issues.
C. The hierarchical system of EMC is as:
 

D. Yes, the non-compliances are reported by EMC to the Directors of Industry.</td>
<td></td>
</tr>
<tr>
<td>19.4</td>
<td>Action plan for post-project environment monitoring matrix:
<table>
<tr><th>Activity</th><th>Aspect</th><th>Monitoring Parameter</th><th>Locations</th><th>Frequency</th><th>Responsibility</th></tr>
<tr><td>Construction Phase</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Operational Phase</td><td></td><td></td><td></td><td></td><td></td></tr>
</table></td>
<td>Complied.
<table>
<tr><td>Construction Phase</td><td colspan="5">In the advent of EIA-notification dated 14.09.2006, the unit has already been established, so monitoring plan is envisaged.</td></tr>
<tr><td colspan="6">Operation phase</td></tr>
<tr><td>Activity</td><td>Aspect</td><td>Monitoring Parameter</td><td>Location</td><td>Frequency</td><td>Responsibility</td></tr>
<tr><td>Emission from reverberatory attached with rolling mill</td><td>Stack Monitoring</td><td>PM, SO2, NOx and CO</td><td>Stack attached to the APCD</td><td>Twice a year or as per conditions of EC/Consent condition</td><td>EMC</td></tr>
<tr><td>Ambient Air Quality</td><td>Air environment</td><td>PM10, PM2.5, SO2, NOx & CO</td><td>At 2 locations (one inside the project site & one at boundary of the project site along predominant wind direction)</td><td>Twice a year or as per conditions of EC or as per requirement of SPCB</td><td>EMC</td></tr>
<tr><td>Ambient Noise</td><td>Noise monitoring</td><td>-----</td><td>At 2 locations (one inside the project site & one at boundary</td><td>Day & Night Equivalent Noise Level</td><td>EMC</td></tr>
</table></td>
<td></td>
</tr>
</table>

					of the project site)		
		Occupational Health	--	General Health aspects	Twice a year or as per conditions of EC or as per requirement of SPCB	Yearly	EMC/HSE officers
20.	**Additional Studies**						
20.1	Project proponent shall submit a study report on Decarburization program, which would essentially consist of company's carbon emissions, carbon budgeting/ balancing, carbon sequestration activities and carbon capture, use and storage after offsetting strategies. Further, the report shall also contain time bound action plan to reduce its carbon intensity of its operations and supply chains, energy transition pathway from fossil fuels to Renewable energy etc. All these activities/ assessments should be measurable and monitor-able with defined time frames.	Complied, as the industry is not using any fossil fuel leading to CO_2 generation, the capture and storage of which is required for decarburization. The CO_2 thus generated can be used for the carburization of slag. This proposition is quite money intensive leading to an estimated 30% increase in cost of production. As no CO_2 is generated from the process operation, decarburization has not been explored.					
20.2	Details of adoption/ implementation status/plan to achieve the goal of Glasgow COP26 Climate Submit with regard to enhance the non-fossil energy, use of renewable energy, minimization of net carbonemission and carbon intensity with long-term target of "net Zero" emission.	Complied. The industry will be using electricity generated from the Hydro power project in the state of Jammu & Kashmir and there will be no use of fossil fuel. All external lightening will be standalone solar lights and LED for internal lightning.					
20.3	Implementation status/measures adopted for avoiding the generation of single used plastic waste.	Although, there is no use of single use plastics in the manufacturing and dispatch of material their use by the employees will be banned.					
20.4	In cases the project is located in Critically and Severely Polluted Areas, additional mitigation measures adopted and detailed action plan to be submitted in the EIA/EMP Report as per MoEF&CC O.M. No. 22- 23/2028-IA.III dated 31/10/2019 and MoEF&CC O.M. No. 22-23/2028-IA.III dated 5/07/2022 has to be submitted.	Not Applicable as the project is not located in CPA/SPA.					
20.5	Public consultation details (Entire proceedings as separate annexure along with authenticated EnglishTranslation of Public Consultation proceedings).	Will be complied after the conduct of public hearing and detailed in FEIA report.					

<table>
<tr><td>20.6</td><td>As part of Corporate Environment Responsibility (CER) activity, company shall adopt nearby villages based on the socio-economic survey and undertake community developmental activities in consultation with the village Panchayat and the District Administration. In this regard, time bound action plan as per the MoEF&CC Office Memorandum dated 30/09/2020 shall be submitted.</td><td>Agreed for compliance detail will be in EIA report.</td><td></td></tr>
<tr><td>20.7</td><td>Summary of issues raised during public consultation along with action plan to address the same as perMoEF&CC O.M. dated 30/09/2020<table><tr><th>S.No.</th><th>Physical activity and action plan</th><th>Year of implementation (Budget in INR)</th><th>Total Expenditure (Rs. In Corers)</th></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr></table></td><td>Noted & the same will be detailed in EIA report.</td><td></td></tr>
<tr><td>20.8</td><td>Risk assessment
Methodology
Hazard identification
Frequency analysis
Consequence analysis
Risk assessment outcome</td><td>Detailed risk assessment is given in chapter- 7 of EIA.</td><td>Refer Chapter 7.0 of DEIA.</td></tr>
<tr><td>20.9</td><td>Emergency response and preparedness plan</td><td>Emergency response and preparedness plan is given in Chapter-7 of EIA report.</td><td>Refer Chapter 7.0 of DEIA.</td></tr>
<tr><td>21.</td><td>Project Benefits</td><td></td><td></td></tr>
<tr><td>21.1</td><td>Environment benefits</td><td>Air quality and water quality in the study area are satisfactory and satisfied standards prescribed by CPCB. As appropriate and adequate pollution control measures have been envisaged for proposed project. Air and water quality will be enhanced. Other environmental aspects like Land and Biodiversity will not be impacted at all.</td><td>Refer Chapter 8.0 of DEIA.</td></tr>
<tr><td>21.2</td><td>Social infrastructure</td><td>Social setup which is already cohesive in the project area will be further strengthen by undertaking social well fare measures in the project impact area.</td><td></td></tr>
</table>

<table>
<tr><td>21.3</td><td>Employment and business opportunity</td><td>The proposed project shall generate direct employment for additional 24 persons. Total Employment after Expansion will be 90 persons.
<table>
<tr><th>DESCRIPTION</th><th>EXISTING</th><th>PROPOSED</th><th>TOTAL</th></tr>
<tr><td>Manpower (Nos.)</td><td>66</td><td>24</td><td>90</td></tr>
</table></td><td></td></tr>
<tr><td>21.4</td><td>Other tangible benefits</td><td>Steel plants by nature serve as the nuclei for development of small- scale industries in the areas around them. These small- scale units usually have input- output linkage with the steel plants. The demand for spares, assemblies and sub- assemblies by steel plants are generally met through the supply (of these items) from small- scale units located nearby. The present project is likely to accelerate such industrialization through “Bubble Effects” in the study area. It is important to note that the small- scale units are usually labor- intensive and high- priority industries from social point of view.</td><td></td></tr>
<tr><td>22.</td><td>Environment Cost Benefit Analysis</td><td></td><td></td></tr>
<tr><td>22.1</td><td>Net present value</td><td>The company has initial cost of Rs 3196.39 Lacs as paid-up front.</td><td></td></tr>
<tr><td>22.2</td><td>Internal rate of return</td><td>Internal rate of return is calculated using the formulae $\frac{Future\ Value}{Present\ value}$
$\frac{4505}{2505}$ =1.798
With ration of value (IRR)= $(1.798)^{0.2}$ = 0.36
= (0.36-1.0) X100
= (-0.6403 X 100) =-6.4%.</td><td></td></tr>
<tr><td>22.3</td><td>Benefit cost ratio</td><td>4505/3196.39=1.40, which indicates that projects benefits outway its cost. Hence the company may aspect Rs 1.40 in benefits for each Rs 1.0 of cost.</td><td></td></tr>
<tr><td>22.4</td><td>Cost effectiveness analysis</td><td>CEA is alternative to CER where the relative cause to outcomes of two or more courses of action. Since alterative option have not been explored therefore CER has not been done.</td><td></td></tr>
<tr><td>23.</td><td>Environment Management Plan (Construction and Operation phase)</td><td></td><td></td></tr>
<tr><td>23.1</td><td>Air quality management plan</td><td>Refer Chapter 10</td><td></td></tr>
<tr><td>23.2</td><td>Noise quality management plan</td><td>Refer Chapter 10</td><td></td></tr>
<tr><td>23.3</td><td>Action plan for hazardous waste management</td><td>Refer Chapter 10</td><td></td></tr>
<tr><td>23.4</td><td>Action plan for solid waste management</td><td>Refer Chapter 10</td><td></td></tr>
<tr><td>23.5</td><td>Action plan for e-waste management.</td><td>Refer Chapter 10</td><td></td></tr>
<tr><td>23.6</td><td>Action plan for plastic waste management, considering the Plastic Waste Management Rules 2016.</td><td>Refer Chapter 10</td><td></td></tr>
<tr><td>23.7</td><td>Action plan for construction and demolition waste management.</td><td>Refer Chapter 10</td><td></td></tr>
<tr><td>23.8</td><td>Effluent management plan</td><td>Refer Chapter 10</td><td></td></tr>
</table>

<table>
<tr><td>23.9</td><td>Storm water management plan</td><td>Refer Chapter 10</td><td></td></tr>
<tr><td>23.10</td><td>Rain water harvesting plan</td><td>Refer Chapter 10</td><td></td></tr>
<tr><td>23.11</td><td>Plan for maximum usage of waste water/treated water in the Unit</td><td>Refer Chapter 10</td><td></td></tr>
<tr><td>23.12</td><td>Occupational health and safety management plan</td><td>Refer chapter 10</td><td></td></tr>
<tr><td>23.13</td><td>Green belt development plan: An action plan for Green Belt development consisting of 3 tiers of plantations of native species all along the periphery of the project of adequate width shall be raised in 33%of total area with a tree density shall not less than 2500 per ha within a time frame of one year shall be submitted. Survival rate of green belt shall be monitored on periodic basis to ensure that survival rate not be less than 80 %.</td><td>Agreed and complied.</td><td></td></tr>
<tr><td>23.</td><td>Socio-economic management plan</td><td>Refer chapter10</td><td></td></tr>
<tr><td>23.15</td><td>Wildlife conservation plan (In case of presence of schedule I species)</td><td>Not Applicable</td><td></td></tr>
<tr><td>23.16</td><td>Total capital cost and recurring cost/annum for environment pollution control measures shall be included.</td><td>The total capital cost & recurring cost of Environmental Monitoring plan Budget measure shall be Rs. 160.0 lakh & Rs. 43.0 lakh respectively.
<table>
<tr><th>S. No</th><th>Title</th><th>Capital Cost Rs. Lakh</th><th>Recurring Cost Rs. Lakh</th></tr>
<tr><td>1</td><td>Pollution Control during construction stage</td><td>5.0</td><td>2.0</td></tr>
<tr><td>2</td><td>Air Pollution Control (Installation of APCs)</td><td>90.0</td><td>5.0</td></tr>
<tr><td>3</td><td>Water Pollution Control/ STP (15 KLD)</td><td>15</td><td>5.0</td></tr>
<tr><td>4</td><td>Noise Pollution Control</td><td>5.0</td><td>1.0</td></tr>
<tr><td>5</td><td>Landscaping/ Green Belt Development</td><td>20.0</td><td>20.0 (for Three years)</td></tr>
<tr><td>6</td><td>Solid Waste Management</td><td>5.0</td><td>5.0</td></tr>
<tr><td>7</td><td>Environment Monitoring and Management</td><td>5.0</td><td>3.0</td></tr>
<tr><td>8</td><td>Occupational Health, Safety and Risk Management</td><td>10.0</td><td>2.0</td></tr>
<tr><td>10</td><td>Miscellaneous</td><td>5.0</td><td>--</td></tr>
<tr><td></td><td>TOTAL</td><td>160.0</td><td>43.0</td></tr>
</table></td><td></td></tr>
</table>

		DESCRIPTION	**Estimated Cost (in Rs. Lacs)**	**Time Line/Action Plan**
		1	Plantation in community areas in consultation with concerned village panchayat.	Rs 15 Lacs	Starting after six months of grant of EC, plantation will be completed within three successive monsoon seasons
		2	Water Recharge/Harvesting by deepening of existing ponds of three villages.	Rs 10.0Lacs	One each per year after grant of EC.
		3	Distribution of biodegradable carry bags to surrounding population and employees to discourage the use of SUP.	Rs 7.0 Lacs	Twice a year
23.17	Explore possibilities for recycling and reusing of treated water in the unit to reduce the freshwater demandand waste disposal.	Complied. The treated waste water (domestic) is being / will be reused in plantation and dust suppression thereby demand for fresh water will be reduced. In addition to this no other industrial waste water will be generated.	
23.18	An Action Plan for improving the house-keeping activities in the raw material handling area need to besubmitted.	Complied.	
23.19	Action plan for the stock piles with impervious floor, provision of garland drains and catch pits to trap runoff material shall be submitted.	Complied. The stock piles which primarily consist of raw material and products are being/will be stored in covered sheds with pucca flouring. There is least possibility of runoff and the material being non-hazardous in nature garland drains around the storage are therefore not required.	
23.20	Action plan to limit the dust emission from all the stacks below 30 mg/Nm3 shall be furnished.	Complied.	
23.21	Action plan for fugitive emission control in the plant premises shall be provided.	Complies. These pollutants are fugitive in the sense they escape from the source without being accounted for. The action plan includes: - - Dust suppression by water sprinkling. - Dry fog system. - Vacuum cleaning - Spillage cleaning. - Use of high capacity equipments. - Systematic, covered and impervious storage.	
24.	Conclusion of the EIA study	It is concluded that with the adoption of appropriate mitigation and enhancement measures, there will be	

		improvement in the development of commercial activities, generation of direct and indirect employment opportunities and the overall quality of life in the surrounding area.	
25.	In addition to the above, 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.	Not Applicable.	
26.	Air cooled condensers shall be used in the power plant.	NA.	
27.	Details of Dry Ash handling system along with supplementary coal handling system shall be submitted.	NA.	
28.	Plan for transportation of coal shall be submitted.	NA.	
29.	Plan along with technical details of SCR shall be submitted.	NA	
30.	In case of expansion project, Status of Ash Utilization of previous years (up to 5 years), action plan for 100% ash utilization along with timeline need to be submitted.	Not Applicable as there will be no boiler and no ash generating fuel will be used in any process operation.	
Standard Terms of Reference for conducting Environment Impact Assessment Study for Metallurgical Industries (ferrous and nonferrous) and information to be included in EIA/EMP report			
1.1	A 3-D view i.e. DEM (Digital Elevation Model) for the area in 10 km radius from the proposal site. MRL details of project site and RL of nearby sources of water shall be indicated.	As the proposed project site is flat in terrain, so DEM for the area in 10 km radius from the proposal site is not required.	
1.2	Plan for the implementation of the recommendations made for the proposed Unit in the Corporate Responsibility for Environmental Protection (CREP) guidelines.	Complied.	
1.3	Plan for solid wastes utilization.	It is planned to utilize slag as a raw material in the manufacture of tiles, pavers and blocks and flue gas cleaning residue for metal recovery by disposing the same to approved reprocessors.	
1.4	Plan for utilization of energy in off gases (coke oven, blast furnace)	Does not apply	
1.5	System of coke quenching adopted with full justification.	Does not apply	
1.6	Details on environmentally sound technologies for recycling of hazardous materials, as per CPCB Guidelines, may be mentioned in case of handling scrap and other recycled materials.	Does not apply	
1.7	Details on toxic metal content in the waste material and its composition and end use (particularly of slag).	The only high-volume solid waste generated is furnace SLAG which is not hazardous/toxic as per CPCB.	

1.8	Details on toxic content using Toxicity Characteristic Leaching Procedure (TCLP), composition and end use of slag.	Columns Leachate study of slag has also been done as per CPCB methods for metals that Leachate out from materials and the same has been found <0.1mg/kg (The limits prescribed by USEPA) and therefore passes the TCLP test. The slag after recovery of iron will be sold to manufacturer of cement, concrete, pavers, blocks and tiles.	
1.9	100 % dolo char generated in the plant shall be used to generate power.	Not Applicable, as the industry is not engaged in the production of sponge iron.	
1.10	Fourth Hole fume extraction system shall be provided for SAF.WHR system shall be installed to recover sensible heat from flue gases of EAF. Provision for installation of jigging and briquetting plant to utilise the fines generated in the process.	Not Applicable, as there is no use of submerged arc furnace and waste heat recovery system.	
1.11	No tailing pond is permitted for Iron ore slimes. Dewatering and filtration system shall be provided.	Not applicable, as no bitumen is used in the processed and therefore no leftover.	
1.12	Action plan for the stock piles with impervious floor, provision of garland drains and catch pits to trap run off material shall be submitted.	The raw materials and products are stored in pucca covered sheds with impervious flooring and sides of the shed adequately covered. There are Therefore negligible chances of material being carried over by rainfall and winds. Hence there is no requirement of catch pits and garland drains.	
1.13	Action plan for developing connecting and internal road in terms of MSA as per IRC guidelines shall be submitted.	Noted & complied.	
1.14	Action plan to limit the particulate matter emission from all the stacks below 30 mg/Nm^3 shall be furnished.	Noted & complied.	
1.15	Action plan for 100 % solid waste utilization shall be submitted.	Noted & complied, slag will be disposed off to cement manufacturers.	
1.16	PM (PM10 and P2.5) present in the ambient air must be analysed for source analysis – natural dust/RSPM generated from plant operations (trace elements) of PM10 to be carried over.	Noted for compliance.	
1.17	Iron ore/coal linkage documents along with the status of environment clearance of iron ore and coal mines, if applicable.	Not applicable, as the proposal is for expansion of secondary metallurgical processing industry using Iron scrap as the basic raw material.	
1.18	Quantum of production of coal and iron ore from coal & iron ore mines and the projects they cater to. Mode of transportation to the plant and its impact, if applicable.	Not applicable, in view of 1.17 above.	
1.19	Details on environmentally sound technologies for recycling of hazardous materials, as per CPCB Guidelines, may be mentioned in case of handling scrap and other recycled materials, if applicable.	Not applicable, as the industry is not engaged in recycling of hazardous materials.	

EXECUTIVE SUMMARY

1.0 Project Name and location

The Proposed project namely **M/s Kashmir Ispat** is located at SIDCO Industrial complex, Bari Brahmana, Sambha North Jammu, Jammu & Kashmir.

2.0 Products and capacities

At present, the industry manufactures Flats, Steel Bar, Tor Steel, Steel Angle, Channels, Rounds, Wire rod, Square, Girders & TMT Bars with one rolling mill of 15 TPH. There is proposal to increase the capacity of structural steel to 1,13,050 TPA and steel ingots /billets @1,19,000 TPA by installing one Induction Furnace of capacity 25 TPH and one Continuous Casting Machine.

After expansion the production details will be as under:

Product Name	**Existing (TPA)**	**Proposed (TPA)**	**Total (TPA)**
Steel Ingots/Billets	Nil	1,19,000	1,19,000
Flats, Steel Bar, Tor Steel, Steel Angle, Channels, Rounds, Wire rod, Square, Girders & TMT Bars	85,876	27,174	1,13,050

3.0 Requirement of land, raw material, water, power, fuel, with source of supply

Detail of land, raw material, water, power fuel and source of supply is given below: -

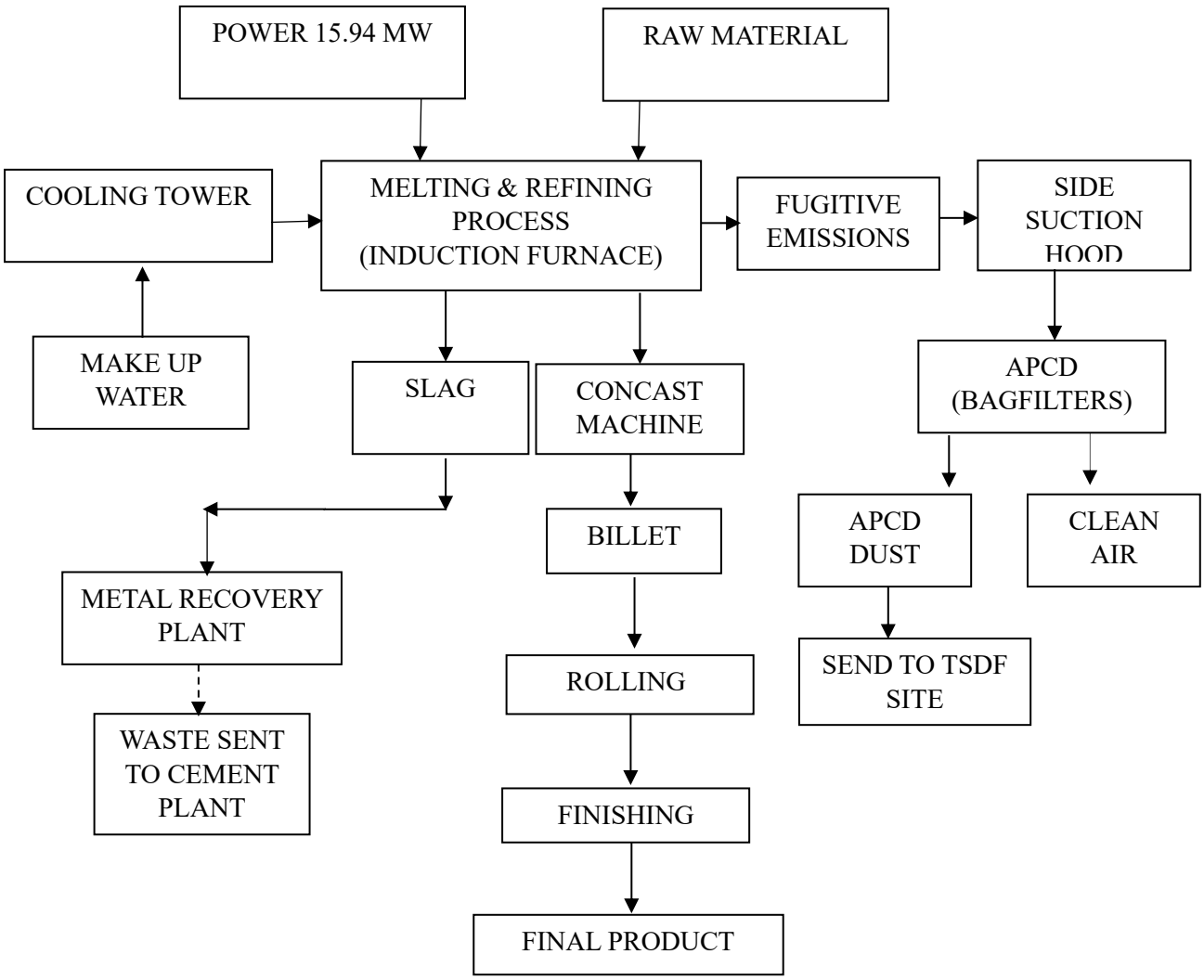
Particulars		**Existing**	**Addition**	**Total**
i) Land		15400 sqm or 1.54 Hectare	8250 m^2 or 0.825 Hectare	23650 m^2 or 2.365 Hectare
ii) Raw material (TPA)	MS Scrap, Ferro-alloys Ingots/Billets (TPA)	94,124	36,436	1,30,560
	Source & Transportation	Local & international markets and transport through covered trucks		
iii) Water requirement for summer season	Domestic (KLD)	4.0	6.0	10.0
	Cooling (makeup water) (KLD)	16.0	40.0	56.0
	Total (KLD)	**20.0**	**46.0**	**66.0**

iv) Water requirement for winter & rainy season	Domestic (KLD)	4.0	6.0	10.0
	Cooling (makeup water) (KLD)	16.0	20.0	36.0
	Total (KLD)	**20.0**	**26.0**	**46.0**
v) Power requirement (KW)		2997 KW	12948 KW	15945 KW
	Source of supply	**J&K State Power Corporation Limited**		

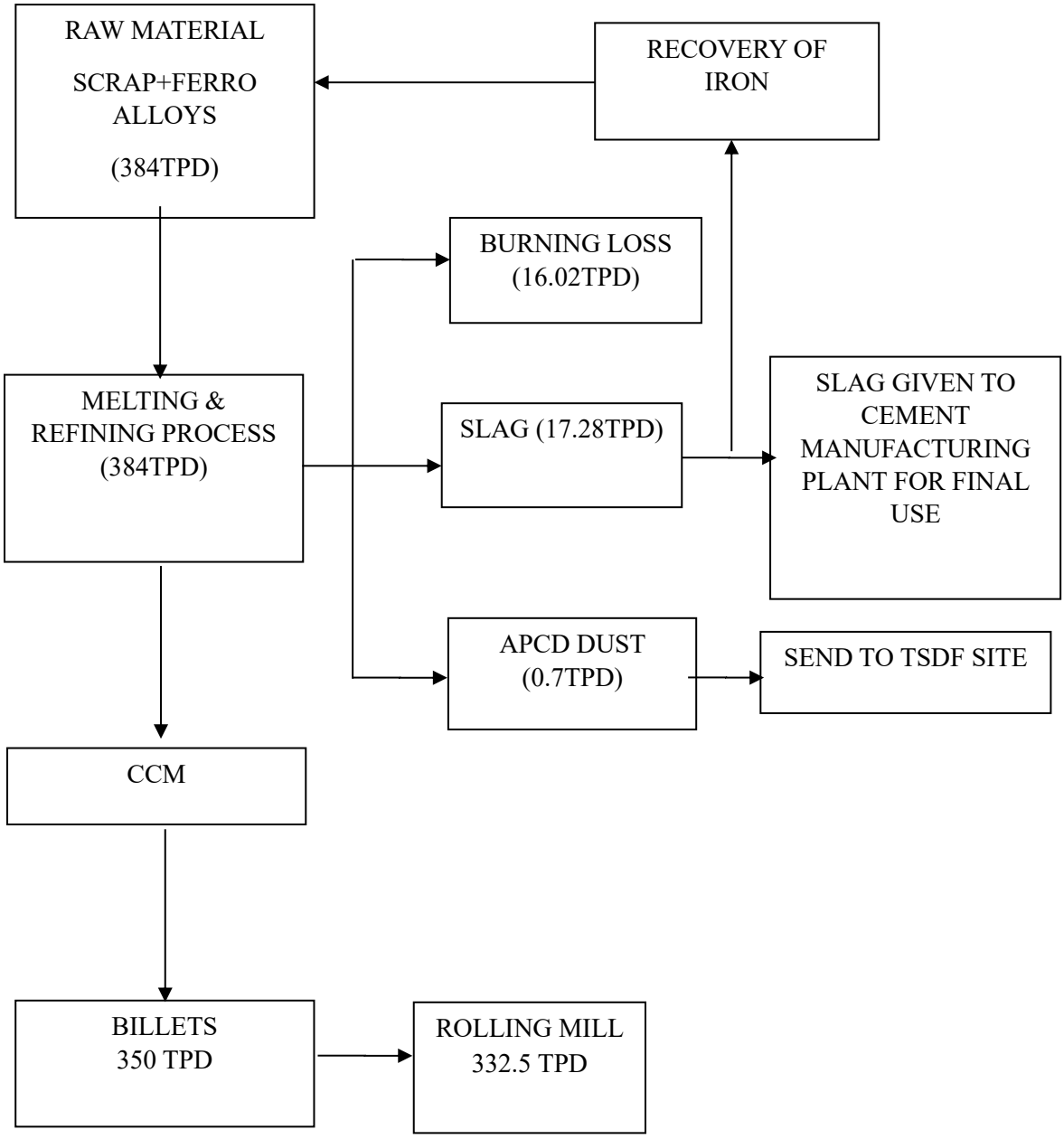
4.0 Process Description:

Firstly, Raw Material i.e., M.S. Scrap/Heavy Melting Scrap is tested in laboratory and if reports are satisfactory then it is issued for the further processing. Testing Raw Material is put in to the Furnace where 1200-1800^{0}C approximately. Temperature is provided to make the raw material melting. Hot raw material is poured into Concast to make steel billet. Hot Steel Billet is taken to seventeen strands (according to size) where it is passed through various sized rolls depending upon size to be produced. After the product is passed through the finishing strand further go in to the coiler to make the coil of steel Round. Steel Round is taken and checked by the quality controller with the help of venire. This inspection is carried out by the quality controller after every hour. Different Bundles are prepared of different sized products and are well placed. Material balance chart & Layout of manufacturing process is given below:

Manufacturing Process



Material Balance



5.0 Measures on mitigating the impact on the environment and mode of discharge or disposal

The purpose of mitigation measures is to avoid, reduce or minimize adverse impacts on the environment. To minimize & control the emission from I.F, the exhaust after suction through side suction hood is passed through spark arrestor, air cooling system and finally through bag filters before its discharge to atmosphere. DG set is fitted with a canopy and adequate stack to take care of noise, particulate and gaseous emission.

- About 17.28 TPD of slag which is not a H.W will be generated and the same after recovering of iron will be supplied to manufacturers of cement under proper agreement. Treated waste water from septic tank will be used for plantation within the industrial premises.
- About 0.7 ton/day APCD dust which is also covered under hazardous waste will be sent to TSDF site for final disposal.

6.0 Capital Cost of the project and Estimated time of Completion

The total cost of the project after expansion will be ₹ 3196.39 Lacs including ₹ 2831.78 Lacs as cost of expansion.

The proposed expansion will be done within one year after granting of Environment Clearance.

7.0 Site Details

The proposed project is located at SIDCO industrial complex, Bari Brahmana, Samba, Jammu. It is having its global coordinates as Latitude 32°38'42.58"N, 32°38'43.17"N, 32°38'40.40"N, 32°38'35.82"N, 32°38'38.17"N & Longitude 74°56'21.40"E, 74°56'25.29"E, 74°56'26.25"E, 74°56'20.90"E, 74°56'17.98"E. Jammu is the nearest city (about 12 Km) approx. and Bari Brahmana is the nearest village (about 3.0 km, N). Nearest airport is Jammu which is at 12km. There is one reserved forest found in the study area along with their respective distance and direction from the project site i.e., Raika Forest RF – 9.0 km in North direction. Nearest water body is Balole Nala which is 0.5 km north.

8.0 Baseline Environmental Data and environmental impacts

Various Environmental factors as existing in the study area which are liable to be affected by the activities have been assessed both quantitatively and qualitatively. Baseline environmental

data generation of study area was carried out for the period October, 2023 to December, 2023.

(i) Ambient Air Quality

The $PM_{2.5}$, PM_{10}, SO_2, NO_2, CO levels were monitored at eight locations in the study area for three months. The P98 levels of criteria pollutants are as follows: $PM_{2.5}$ is 40.2 µg/m^3, PM_{10} is 82.2 µg/m^3, SO_2 is 8.5 µg/m^3, NO_2 is 23.2 µg/m^3 and CO is 0.73 mg/ m^3. The baseline air quality level is within the National Ambient Air Quality Standards prescribed for industrial, residential, rural & other area. **(Standards are 60, 100, 80, 80µg/m^3 and 4.0mg/m^3 for $PM_{2.5}$, PM_{10}, SO_2, NO_x and CO respectively).** Due to better pollution abatement facilities in the proposed expansion, there will rather be improvement in the existing air.

(ii) Water Quality

Eight groundwater samples and one surface water sample were collected from the study area for chemical and bacteriological analysis. The groundwater quality of the study is satisfactory. No physical or bacterial contamination was found in the water quality. But bacterial contamination is found in surface water. Since, no waste water will be discharged to the environment, water quality is not likely to be impacted.

(iii) Noise Environment

Ambient noise levels were monitored at 8 locations in the study area. Noise levels at the Project site was found to be 71.2 dB (A) during day time and 54.6 dB (A) at night. The baseline noise levels are borewell within the Noise Standards prescribed by the CPCB. Proposed expansion will not have insignificant impact as there will be no noise generating machinery and process.

(iv) Soil Quality

Eight soil samples were collected from the study area and analyzed. The texture of soil is silt loam. The organic matter, nitrogen, potassium and phosphorus content of the soil are moderate. The pH of all the soil samples is within the acceptable range. No impact on soil will be there for proposed plant as no waste will be discharged on land.

(v) Biological Environment: Primary and secondary data collection has been done by the Ecology and Biodiversity team for the study of flora and fauna in the core and Buffer Zone.

(v) Socioeconomic Condition:

Socioeconomic status has been studied through secondary sources and by site visits. The study was conducted in respect of social and economic requirements such as health, education, communication, drinking water, employment and infrastructure. The area is well developed in terms of communication and road infrastructure but lacking in adequate drinking water, education and medical facilities for which the proponent will contribute in terms of CSR/ECR activities.

8.0 Possible Hazards & Risks from Secondary Metallurgical Industries

The various process operations, which are having potentially high risk to human exposure and which require highest attention are tabulated below.

Possible Risk

S.No.	Plant Area	Possible Deviation from normal operation	Likely Causes	Consequences
1	Furnace	Re-circulating and cooling water coming in contact with the molten iron or slag.	Leakage of water from the walls Spurting of metal/ slag.	Explosion under extreme cases.
		Presence of Oil & Grease and other Impurities in raw materials.	Fire	Sudden catches fire & flames
2	High Power Transformer	Oil temperature being very high.	Varying room Temperatures.	Sudden flashing of fire or
3	High Tension Electrical Installation	Heavy sparking at the pot heads and the joints.	Loose joints, cable cut, burning of fuses, short circuits etc.	Sparks in the beginning, devastating fire if neglected.

Likely impact of the project on air, water, land, flora-fauna and nearby population

Based on the study it is concluded that there is little likelihood of adverse impacts on the environment due to project operations

9.0 Emergency Plan

Emergency planning is primary for the protection of plant personnel and people in nearby areas and the environment that could be affected by unplanned hazardous events. Furnaces are associated with fire and electrical hazard due to sudden development of pressure or temperature that leads to damage, injury and death. Temperature and pressure are closely related, and when flammable or combustible mixture is present in process equipment that leads to worst consequences which requires engineering evaluation for worst case scenario.

10.0 CER Activities (Corporate Environmental Responsibility)

As part of CER, the company shall adopt nearby villages based on the socio-economic study and the issues raised during the Public Hearing for executing social and environmental activities which will be detailed in the final EIA report.

11.0 Occupational Health measures

An amount of Rs. 32 lakhs have been provided in the EMP budget.

12.0 Environment Management Cell (EMC)

A duly constituted EMC comprises the following is already in place:

1. Project Promoter/ Director
2. Process Incharge/ GM
3. Environment Consultant

DRAFT ENVIRONMENT IMPACT ASSESSMENT REPORT

CHAPTER 1.0
INTRODUCTION

1.1 PURPOSE OF THE REPORT

M/s Kashmir Ispat is a renowned steel manufacturing company, located at SIDCO industrial complex, Bari brahmana, Samba, Jammu. The project falls under Category- B, but will be categorized A and will be appraised at the Central Level because As per G.O.I Notification dated 14/09/2006 any change in product/expansion required Environmental Clearance. Accordingly, it is mandatory to submit Form No- I along with Pre-Feasibility Report and other relevant documents for getting Environmental Clearance. Further, the tenure of SEIAA/SEAC has expired and no new SEIAA/SEAC constituted till date, therefore the proposal is to be appraised at central level in MOEC & CC.

The purpose of the EIA report is:

- To identify, predict and evaluate the economic, environmental and social impacts of development activities.
- To provide information on the environmental consequences for decision making.
- To promote environmentally sound and sustainable development through the identification of appropriate alternative and mitigation measures.

1.2 IDENTIFICATION OF THE PROJECT & PROJECT PROPONENT

1.2.1 Identification of the Project

The project is brown field and identified by name and style as M/s Kashmir Ispat. It is a secondary metallurgical process unit based at SIDCO industrial complex, Bari Brahmana, Samba, Jammu. The present proposal pertains to the production of 1, 19,000TPA ingots/billets and 1,13,050 TPA of structural steel by induction furnace, CCM and Rolling Mill.

1.2.2 Project Proponent

The unit is operated and maintained by Partners. The Partners of the company are:

1. Sh. Rahul Bansal.
2. Sh. Sahil Bansal.

All Partners have vast experience in various industries and trades including Steel industry.

1.3 BRIEF DESCRIPTION

1.3.1 Nature of the project

It is an existing unit. At present, the industry manufactures 85,876 TPA of Flats, Steel Bar, Tor Steel, Steel Angle, Channels, Rounds, Wire rod, Square, Girders & TMT Bars with rolling of capacity 15 TPH.

As per G.O.I Notification dated 14/09/2006 and subsequent amendments the project as listed in the Sch. of EIA notification serial no 3(a) Metallurgical industries (ferrous and nonferrous) qualify for EC.

1.3.2 Size of the Project

The existing project area is 1.54 Hectare or 15400 m^2. Total of 33% area is allotted for green belt. The current proposal of the project is of expansion for enhancement of capacity. To carry out expansion an additional land measuring 0.825 Hectare or 8250 m^2 is acquired by project proponent. Thus, after expansion total project area will be 2.365 Hectare or 23650 m^2. The total production will increase from 85,876 TPA to 1,13,050 TPA of Round, Angle, Channel, TMT Bars and Flats and addition of steel ingots/billets 1,19,000 TPA.

1.3.3 Location of the project

The proposed project is located at SIDCO industrial complex, Bari Brahmana, Samba, Jammu. The site location map is given below:

Coordinates of the Project Site

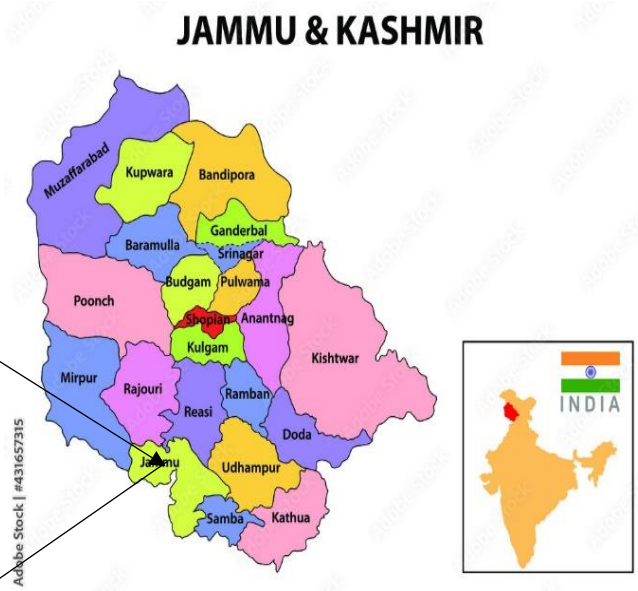
POINT	LATITUDE	LONGITUDE
A	32°38'42.58"N	74°56'21.40"E
B	32°38'43.17"N	74°56'25.29"E
C	32°38'40.40"N	74°56'26.25"E
D	32°38'35.82"N	74°56'20.90"E
E	32°38'38.17"N	74°56'17.98"E
	ELEVATION	390m

Table 1.1
Project Details

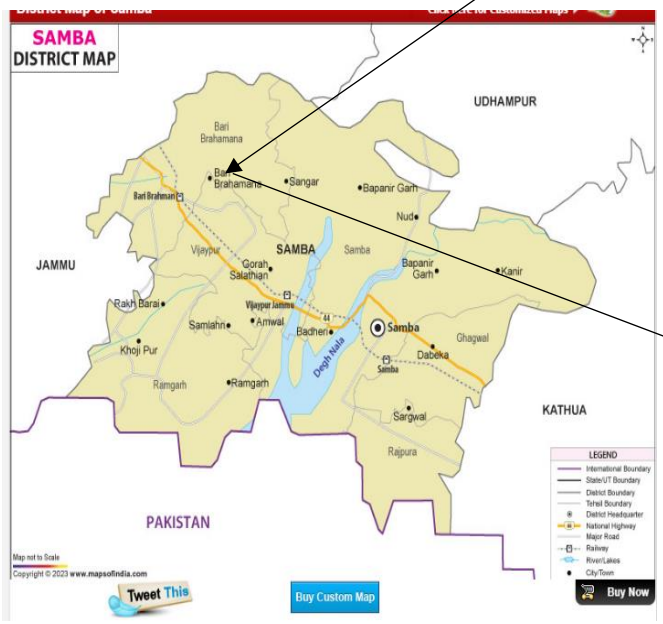
Description	Existing	Additional	After Expansion
Production (TPA)			
MS Ingots/Billets	Nil	1,19,00	1,19,000
Round, Angle, Channel, TMT bars and Flats	85,876	27,174	1,13,050
Raw Material (TPA)			
MS Scrap, Ferro-alloys, Ingots/Billets (TPA)	94,124	36,436	1,30,560
Machinery			
Induction Furnace	NIL	1X25 TPH	1X 25TPH
CCM	NIL	01 No.	01 No.
Rolling Mill	01 No. (15 TPH)	NIL	01 No. (15 TPH)
Generals			
Project Cost (Lacs)	Rs 364.61	Rs 2831.78	Rs 3196.39
Land	1.54 Hectare or 15400m^2	0.825 Hectare or 8250m^2	2.365 Hectare or 23650m^2
Power (KW)	2997	12948	15945
DG Set	125 KVA	325 KVA	125&325 KVA
Manpower (No's)	66	24	90
Working days	24 hrs 340 working days in year		

Fig.1.1. Location Map (From India Map to Local Map)

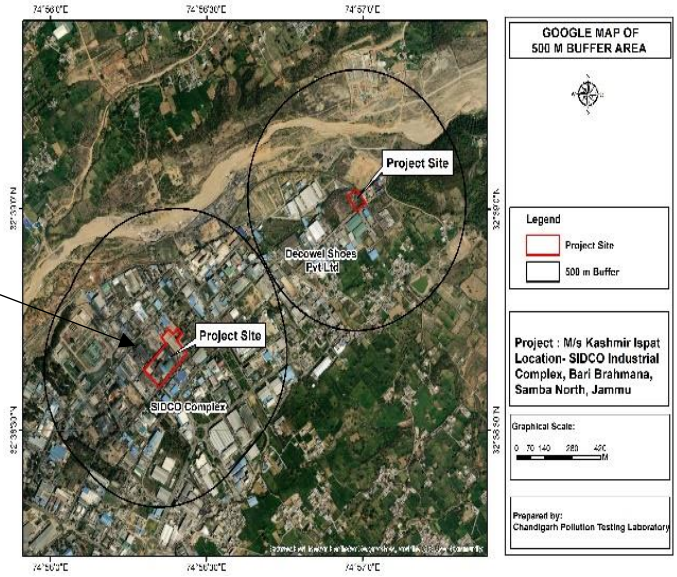
Location of J&K State at Political Map of India



Location of District on Map



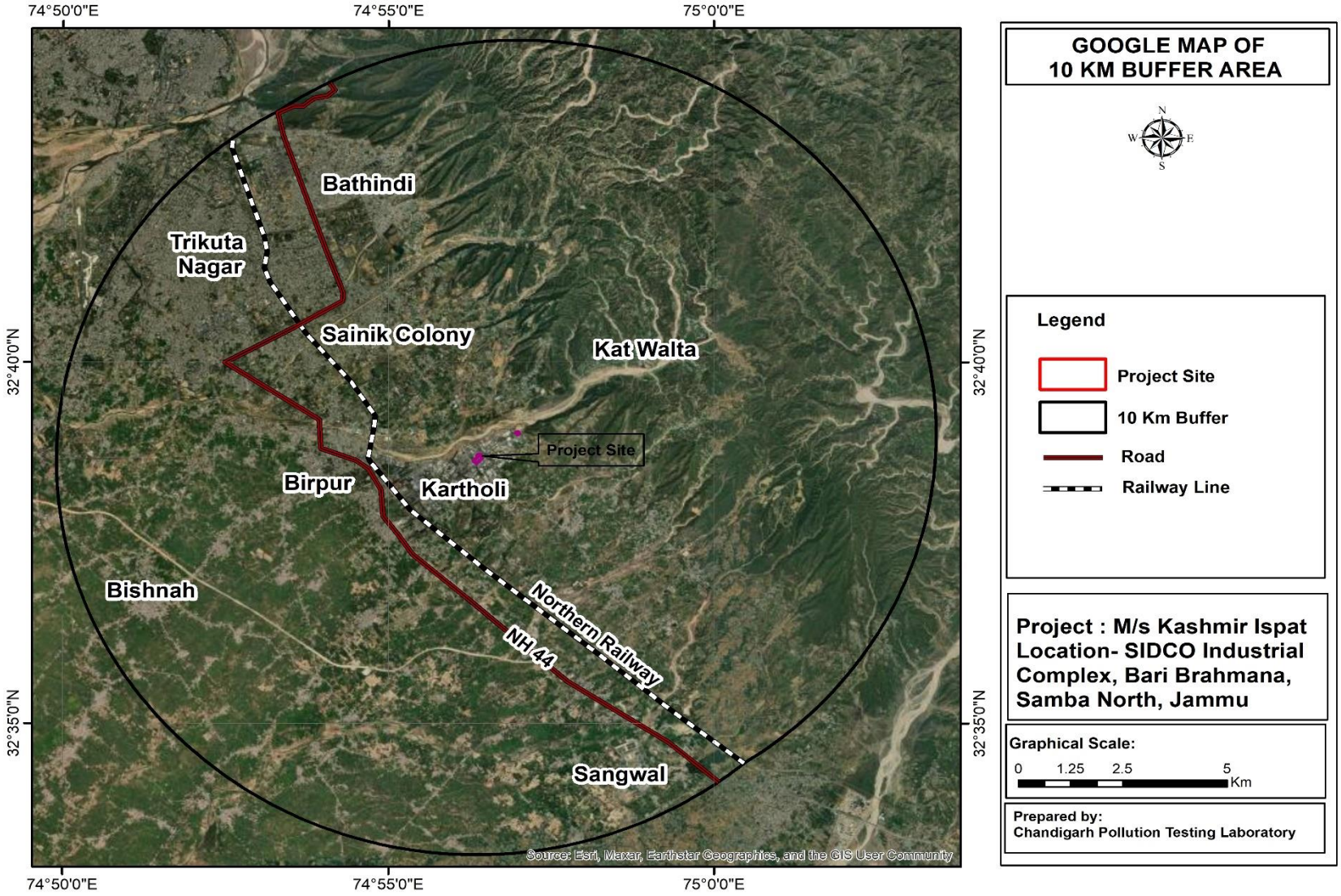
Location of Project Site on District Map



Location of Project Site on Google Earth Map

Fig 1.2

Toposheet map of 10 Km Buffer Area



1.3.4 Importance of the Project to the Country, Region

The growth in the Indian steel sector has been driven by domestic availability of raw materials such as iron ore and cost-effective labor. Consequently, the steel sector has been a major contributor to India's manufacturing output. India's crude steel output grew 10.7 per cent year-on-year to 25.76 million tons (MT) during January-March 2017. India's crude steel output during April 2017 grew by 5.4 per cent year-on-year to 8.107 MT. India's finished steel exports rose 102.1 per cent to 8.24 MT, while imports fell by 36.6 per cent to 7.42 MT in 2016-17. India's steel exports rose 142 per cent in April 2017 to 747,000 tons over April 2016, while imports fell by 23 per cent to 504,000 tons in April 2017 over April 2016. Total consumption of finished steel grew by 3.4 per cent year-on-year at 6.015 MT during April 2017 *(Source: Indian Brand Equity Foundation)*.

For a developing country like India, Iron & Steel Industry has a pivotal role to play as a pre-requisite for industrial, construction and infrastructural development. As per report of World Steel Association (WSI), India has surpassed US and became third largest producer of Steel. The region will be benefited by:

- Economic upliftment of suppressed class
- Bridging demand –supply gap
- Infrastructural development of the area
- Employment to locals
- Revenue to state exchequer

1.4 Scope of the study

This study contains information on the environmental factors viz-a-viz contribution of pollution by the proposed unit. These factors include air, water, noise, health, socio economic factors, land-use and agricultural pattern. It discusses the predicted impact of the proposed plant activities on these factors. Broadly under the scope it is envisaged:

- To assess the present status of air, water, land, noise, biological & socio-economic components of environment.
- To identify, quantify and evaluate positive as well as negative impacts of various operations on different environmental components.

- To evaluate proposed pollution control measures and to suggest additional control strategies, if any, to mitigate the adverse impacts.
- To identify risk factors and suggest their mitigation including occupational health of the workers.
- To prepare Environmental Management Plan for utilization and adoption of safety measures.
- To delineate future environmental quality monitoring programme.
- To identify the needs of the study area and suggest supportive measures under Corporate Social Responsibility.

This EIA Report has been prepared in accordance with the EIA Notification, 2006 which contains 12 chapters.

Chapter 1 – Introduction

Chapter 2 – Project Description

Chapter 3 – Description of the Environment

Chapter 4 – Anticipated Environmental Impacts and Mitigation Measures

Chapter 5 – Analysis of Alternatives (Technology and Site)

Chapter 6 – Environmental Monitoring Program

Chapter 7 – Additional Studies

Chapter 8 – Project Benefits

Chapter 9 – Environmental Cost Benefit Analysis

Chapter 10 – Environmental Management Plan

Chapter 11 – Summary & Conclusion

Chapter 12 – Disclosure of Consultant

The study contains information on the Environmental factors viz-a-viz contribution of pollution by the proposed unit. These factors include air, water, noise, health, socio-economic, land use and agricultural pattern. It discusses the predicted impact of the proposed activities on these factors. Broadly, under the scope it is envisaged:

❖ To assess the present status of air, water, Land, Noise, biological and socio-economic components of environment.

❖ To identify, quantify and evaluate positive or negative impacts of various operations on different environmental components.

❖ To evaluate proposed pollution control measures and to suggest additional control strategies, if any, to mitigate the adverse impacts.

❖ To identify risk factors & suggest their mitigation including occupational health of the workers.

❖ To prepare Environmental Management Plan for utilization and adoption of safety measures.

❖ To delineate the needs of the study area and suggest supportive measures under Corporate Social Responsibility.

Regulatory framework

All the rules & regulation under the Environment Protection Act-1986, Air Act-1981 & Water Act-1974 are applicable. The main regulatory provisions governing the proposed project are tabulated below:

Table 1.2

Regulatory rules and regulation for proposed Project

Sr. No.	Legal Instrument (Type, Ref.,Year)	Responsible Ministry or Bodies	Objective of Legislation
1	Air (Prevention and Control of Pollution) Act, 1981	CPCB and SPCB	The prevention,Control and abatement of air pollution
2	Water (Prevention and Control of Pollution) Act, 1974	CPCB and SPCB	The prevention and control of water pollution and also maintaining or restoring the wholesomeness of water.
3.	The Environment (Protection) Act, 1986 & Environmental(Protection) Rules, 1986	Ministry of Environment and Forests, & Climate Change (MoEF&CC), CPCB and SPCB.	Protection and Improvement of the Environment.

5	Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016	MoEF&CC, CPCB, SPCB, DGFT, Port Authority and Customs Authority	Management & Handling of hazardous waste in line with the Basel convention.
6	Manufacture Storage and Import of Hazardous Chemicals Rules, 1989	MoEF&CC, Chief Controller of Imports and Exports, CPCB, SPCB, Chief Inspector of Factories, Chief Inspector of Dock Safety, Chief Inspector of Mines, AERB, Chief Controller of Explosives, District Collector or District Emergency Authority, CEES under DRDO	Regulate the manufacture, storage and import of Hazardous Chemicals.
9.	Public Liability Insurance Act, 1991 amended 1992 & Public Liability Insurance Rules, 1991 and its subsequent amendments	MoEF&CC, District Collector	To provide immediate relief to persons affected by accident involving hazardous substances.
10.	The Factories Act, 1948	Ministry of Labour, DGFASLI and Directorate of Industrial Safety and Health/Factories Inspectorate	Control of workplace environment, and providing for good health and safety of workers.
11.	The Explosive Act ,1884	Ministry of Commerce and Industry(Department of Explosives)	To regulate the manufacture, possession, use, sale, transport, export and import of explosive with a view to prevent accidents.
12.	Noise Pollution (Regulation andControl) Rules, 2000)	CPCB and SPCB	Prevention and control of noise pollution

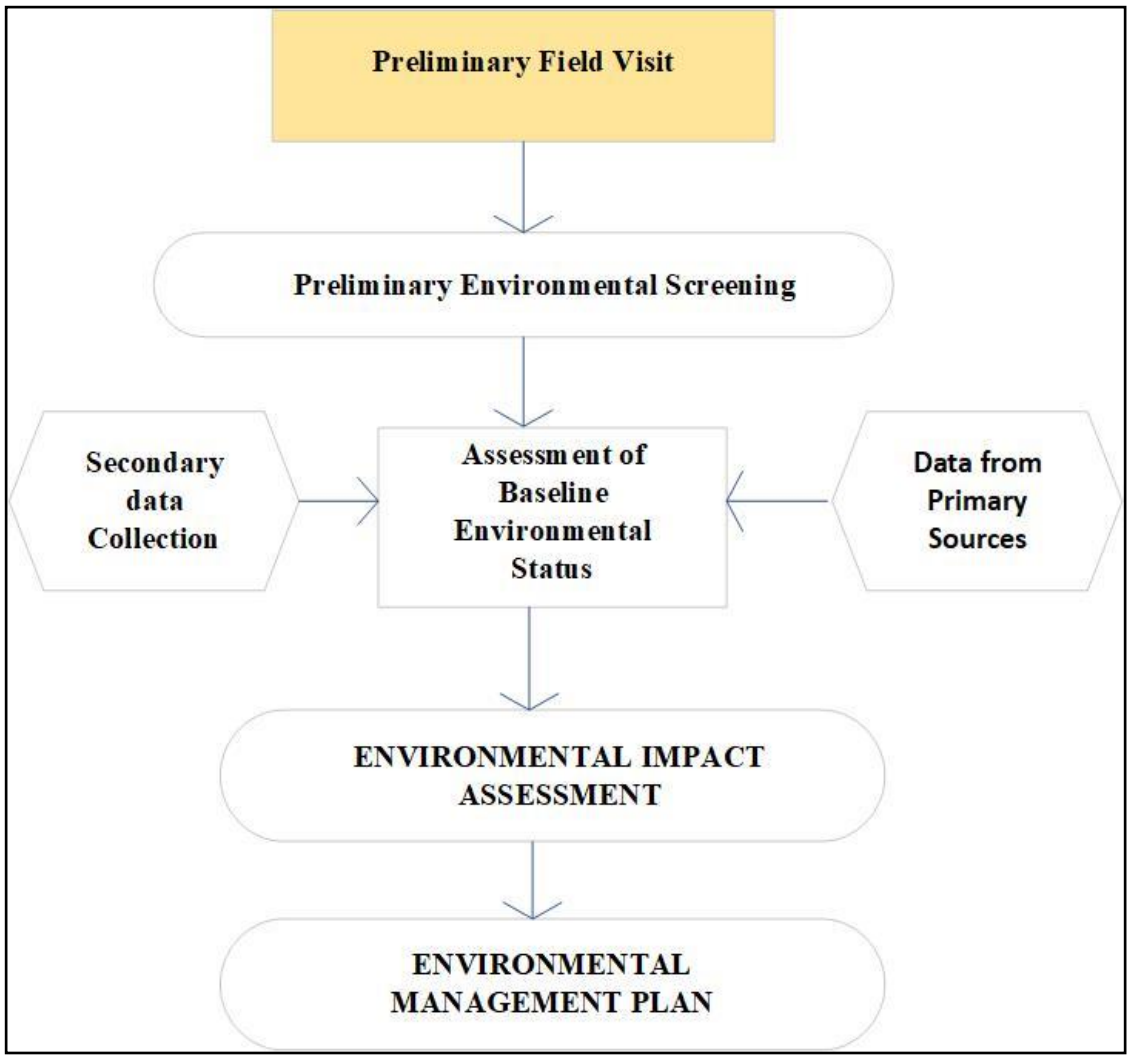
1.4.1 Methodology

Various steps involved in Environmental Impact Assessment study of the proposed project are divided into following phases:

- Identification of significant environmental parameters and to study the existing status within the impact zone with respect to air, water, noise, soil and socio-economic components of the environment.
- Study of various activities of the proposed project for manufacture of final product and to identify the area leading to impact/change in environmental quality.
- Identification/prediction of impacts for the identified activities and to study levels of impacts on various environmental components.
- Evaluation of final levels of various parameters after superimposing the predicted impacts over the baseline quality.
- Formulation of Environmental Management Plan for implementation in the proposed project.

Figure 1.3

EIA Methodology



CHAPTER 2.0
PROJECT DESCRIPTION

2.1 TYPE OF PROJECT

The proposed project is a Brownfield project involving steel manufacturing by secondary metallurgy. Secondary metallurgical processes are the production processes that start with the output of the ore reduction process. Scrap, salvage and ingots as input to the industry and its products are semi-finished products and finished products. It includes the melting, giving the aimed shape to the final output, through forming, pouring liquid metal and alloys to the mould cavity and further rolling.

As per G.O.I Notification dated 14/09/2006 any change in product/expansion required Environmental Clearance. Accordingly, it is mandatory to submit Form No- I along with Pre-Feasibility Report and other relevant documents for getting Environmental Clearance. Further, the tenure of SEIAA/SEAC has expired and no new SEIAA/SEAC constituted till date, therefore the proposal is to be appraised at central level in MOEC & CC.

2.2 NEED FOR THE PROJECT

Metals constitute a key input to other manufacturing sectors like engineering, electrical and electronics, automobile and automobile components, packaging and infrastructure. The performance of the metal sectors is therefore a reflection of the overall economy. The outlook for the metal sector in India is bright. Sustained growth is expected across all key segments, aided by several factors, such as growing domestic demand, investment in capacity addition, increasing supply deficit in other countries and favorable government regulations. In order to cater to growing need of steel/ sponge iron in this competitive scenario of M/s Kashmir Ispat has identified this opportunity and has decided to become a competitive leader in boosting field of metallurgical sector.

2.3 LOCATION

The proposed project site is located at SIDCO industrial complex, Bari Brahmana, Samba, Jammu. No, ecologically sensitive area such as National Park, Biosphere Reserve, Bird Sanctuary, Wet land, Migratory Corridor of Wild Elephant are found with-in 10 km radius of the project site. There is one water body near project site i.e., Balole Nala – 0.5 km, N. It is well connected by road.

Table 2.1

Salient Features of the Project

<table>
<tr><th>S. No.</th><th>Particulars</th><th>Details</th></tr>
<tr><td colspan="3">A. Location details</td></tr>
<tr><td>1.</td><td colspan="2">Location</td></tr>
<tr><td>a</td><td>Village/ Town/Plot No.</td><td>Bari Brahmana</td></tr>
<tr><td>b</td><td>Tehsil</td><td>Samba</td></tr>
<tr><td>c</td><td>District</td><td>Samba</td></tr>
<tr><td>d</td><td>State</td><td>Jammu Kashmir</td></tr>
<tr><td>e</td><td>Latitude & Longitude</td><td>
<table>
<tr><th>POINT</th><th>LATITUDE</th><th>LONGITUDE</th></tr>
<tr><td>A</td><td>32°38'42.58"N</td><td>74°56'21.40"E</td></tr>
<tr><td>B</td><td>32°38'43.17"N</td><td>74°56'25.29"E</td></tr>
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<tr><td>D</td><td>32°38'35.82"N</td><td>74°56'20.90"E</td></tr>
<tr><td>E</td><td>32°38'38.17"N</td><td>74°56'17.98"E</td></tr>
<tr><td colspan="2">ELEVATION</td><td>390m</td></tr>
</table>
</td></tr>
<tr><td>2.</td><td>Topo sheet No.</td><td>Not available as the project is located near the international border.</td></tr>
<tr><td>3.</td><td>Project Area</td><td>Existing Land = 1.54 Hectare
Additional land= 0.825 Hectare
Total Land = 2.365 Hectare</td></tr>
<tr><td>C.</td><td>Production Capacity</td><td>Existing:
Flats, Steel Bar, Tor Steel, Steel Angle, Channels, Rounds, Wire rod, Square, Girders & TMT Bars: -85,876TPA
After Addition:
Ingots/Billets/Flats, Steel Bar, Tor Steel, Steel Angle, Channels, Rounds, Wire rod, Square, Girders & TMT Bars: -1,19,000TPA</td></tr>
</table>

D.	**Environmental settings**	
1.	Nearest Village	Bari Brahmana- 3.0KM N
2.	Nearest City	Jammu, approx. 12 km in N direction from the project site
3.	National Highway/State Highway/ Express Highway	NH-44 Jallandhar-Jammu is approx. 2.4 km in south west direction from the project site.
4.	Nearest Railway Station	Jammu, approx. 12 km in NW direction from the project site
5.	Nearest Airport	Jammu – 11km NW
6.	National Parks/ Wild Life Sanctuaries/ Biosphere Reserves within 10 km radius	Nil
7.	Reserved / Protected Forest within 10 km radius (Boundary to boundary distance)	Raika Forest (Protective Forest) Approx. 9.0 km (N)
8.	Nearest water bodies	Balole Nala about 0.5 km North side
9.	Source of Water	SIDCO Supply
10.	Seismic Zone	Seismic **Zone – IV**
D.	**COST DETAILS**	
1.	Capital Cost of the project	Existing - Rs 364.61 Lacs Proposed -Rs 2831.78 Lacs **Total -Rs 3196.39 Lacs**
2.	Total cost for Environmental Management Plan (EMP)	Rs 160.0 Lacs

Fig 2.1 Location at Google Image

Fig 2.2 500m radius Google Earth Map

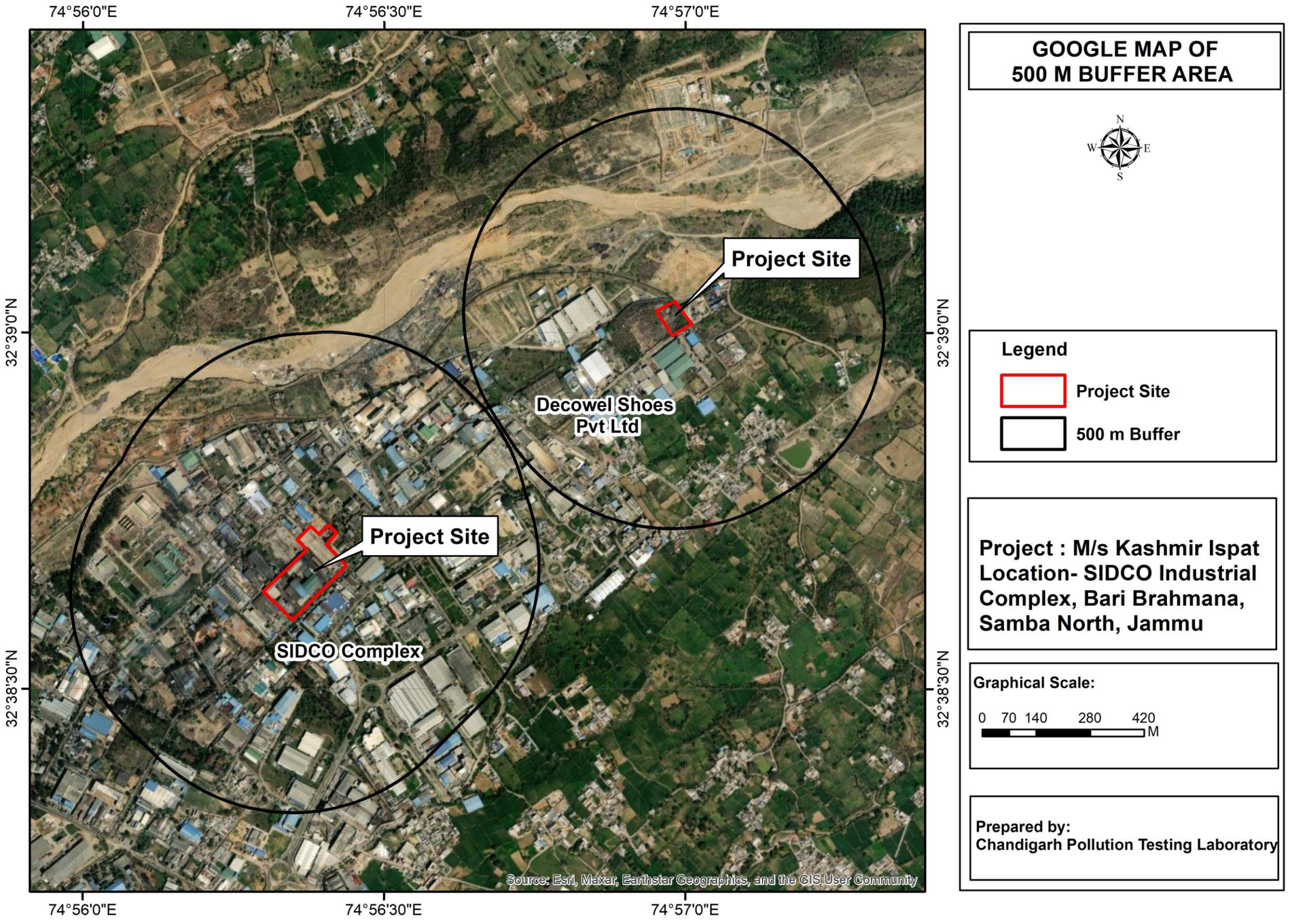


Figure 2.3 (a)
Pillar Co-ordinates

PILLAR COORDINATE MAP OF THE PROJECT SITE

N
W E
S

Legend

Project Site

Project : M/s Kashmir Ispat Location- SIDCO Industrial Complex, Bari Brahmana, Samba North, Jammu

Graphical Scale:

0 0.02 0.04 0.08 Km

Prepared by:
Chandigarh Pollution Testing Laboratory

Figure 2.3 (b)

Pillar Co-ordinates

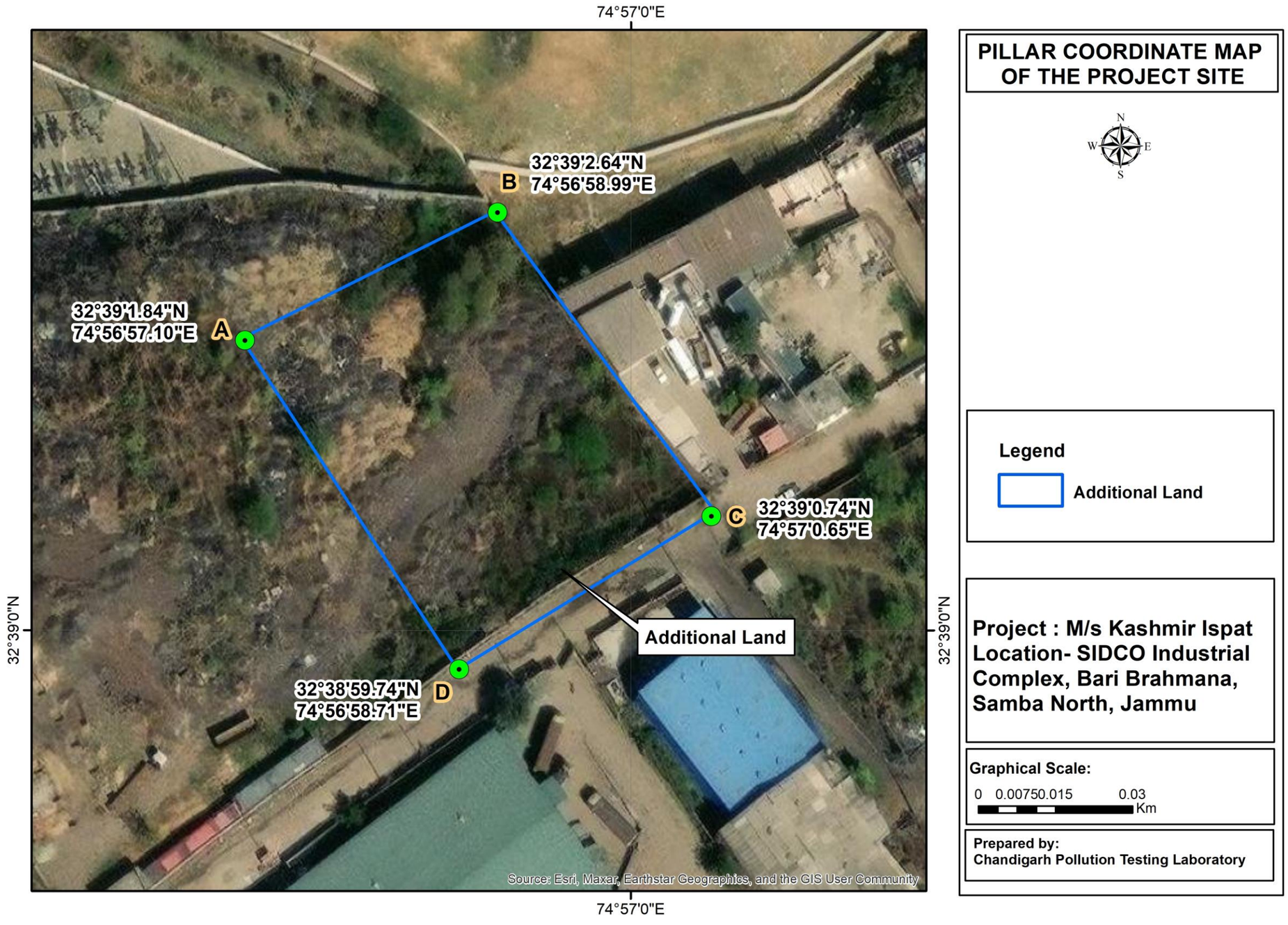


Figure-2.4(a)

Layout Plan

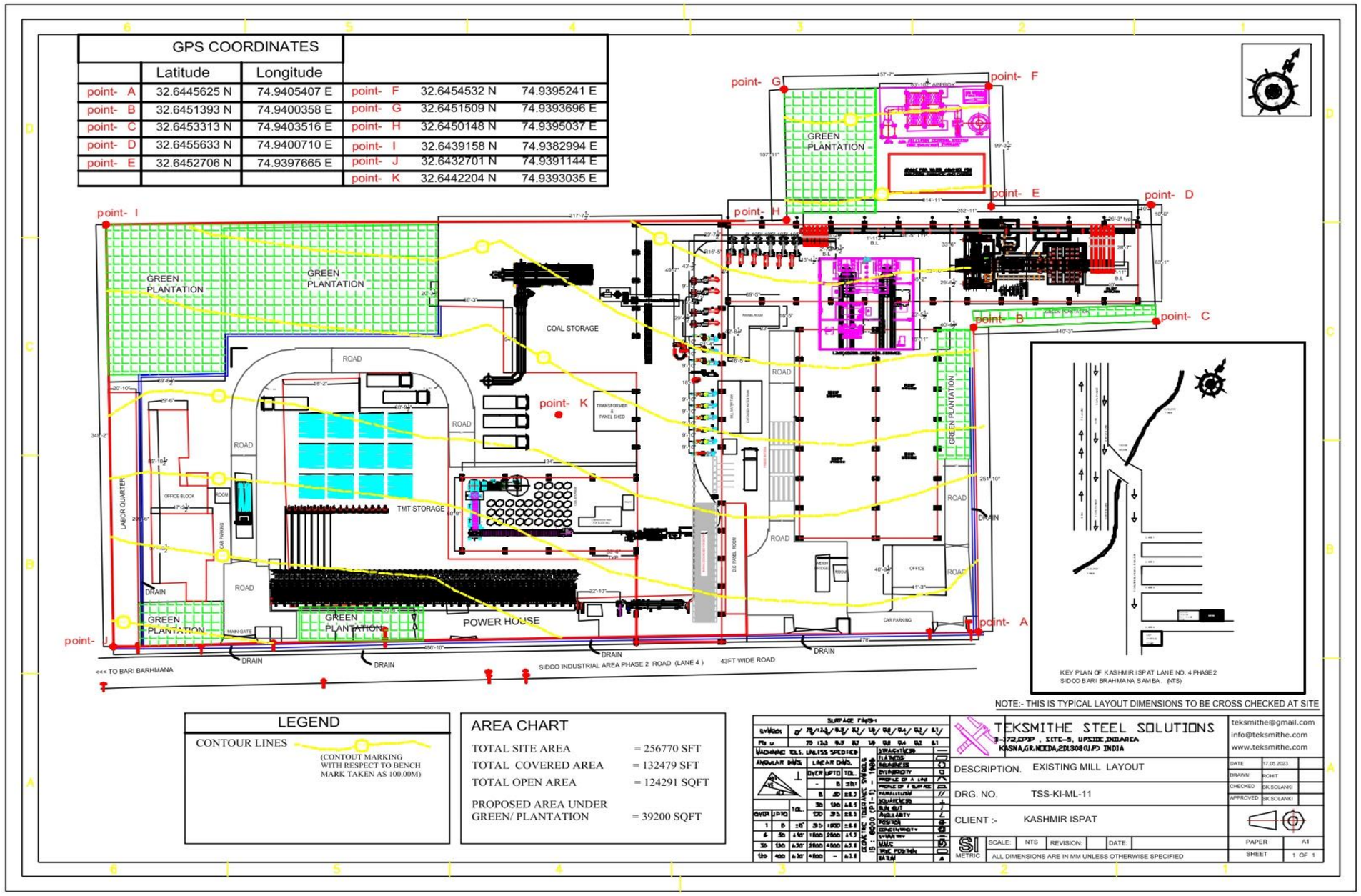
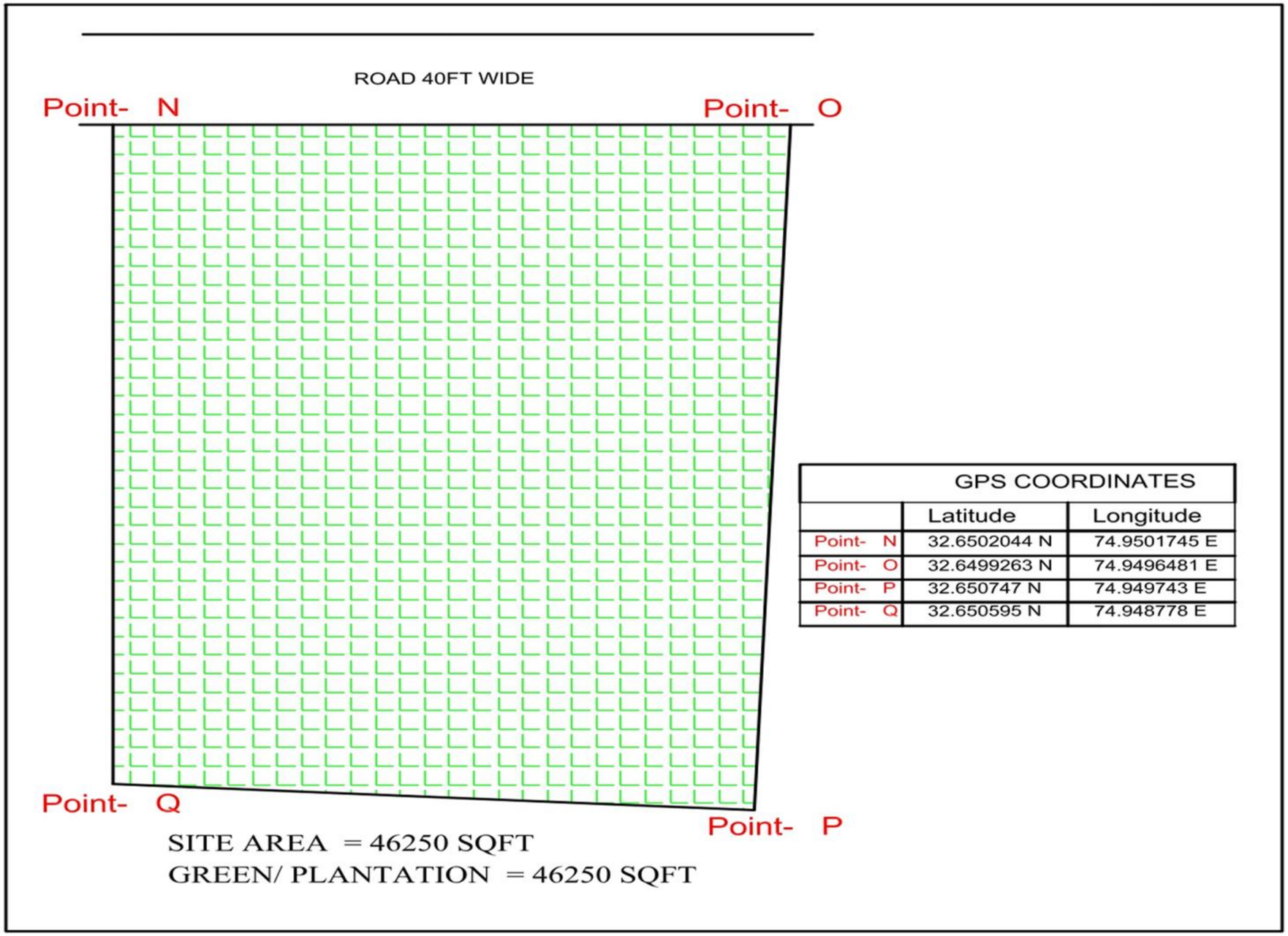


Figure-2.4(b)

Layout Plan Additional Land



GPS COORDINATES		
	Latitude	Longitude
Point- N	32.6502044 N	74.9501745 E
Point- O	32.6499263 N	74.9496481 E
Point- P	32.650747 N	74.949743 E
Point- Q	32.650595 N	74.948778 E

2.4 SIZE AND MAGNITUDE OF OPERATION

The total project area is 23650 sqm and 33% of the plot area amounting to 7805 sqm is allotted for green belt for which 3643 sqm will be developed as green area within the premises and the balance 4162 sqm outside the project premises. The site layout along with land distribution of existing unit and proposed expansion has already been given.

2.4.1 Proposed Product Details

There is proposal to increase the capacity of structural steel to 1,13,050 TPA and steel ingots /billets @1,19,000 TPA by installing one Induction Furnace of capacity 25 TPH and one Continuous Casting Machine. The project area after expansion will be 23,650 sqm.

After expansion the production details will be as under:

Description	Existing	Additional	After Expansion
Production (TPA)			
Steel Ingot/Billets (TPA)	Nil	1,19,000	1,19,000
Rounds, TMT Bars, wire rode, Flats and structural steel (TPA)	85,876	27,174	1,13,050

2.4.2 Raw Materials

The principle raw materials such as Iron Scrap, Ferro Alloys ingots/billets are indigenously and internationally available. The details of raw material requirement and their mode of transportation is given in the table below:

Raw Materials	Existing	Proposed	After Expansion
MS Scrap, Ferro-Alloys Ingots/Billets (TPA)	94,124	36,436	1,30,560
Source &Transport	Local & International Markets & transport through covered Trucks.		

LINKAGE

The site is approachable from NH-44. (Jallandhar-Jammu). The site is fully developed. The product and raw material transportation which can be easily managed will be done by covered trucks.

MITIGATION MEASURES

a. Specific control on vehicular movement such as speed limit, day time transportation and movement in staggered manner.
b. Provide paved road on transportation route within the industry.
c. Regular maintenance of vehicles.
d. PUC and mandatory registrations.
e. Water sprinkling on transportation route.
f. Development of Green Belt.

2.4.3 Land Description

The project has acquired land of 1.54 hectare (15400 Sqm.). Further, proposed expansion will be carried out in the 0.825 hectare or 8250 m^2 of land. Thus, total land will be 2.365 Hectare or 23650 m^2. Land breakup detail is given in **Table 2.2** below:

Table 2.2
Land Area Breakup

Existing Land Measuring – 23854.71 Sqm	
Description	**Area (in sqm)**
Total Covered Area	12307.7
Total open area	11547.0
Proposed area under green/plantation	3641.7
Proposed Additional Land Measuring – 4296.7Sqm	
Site Area	4296.7
Green/Plantation Area	4296.7

2.4.4 Water Requirement

Water requirement for the unit which primarily will be makeup water for cooling and for domestic purpose will be met from the SIDCO supply. The detail of water requirement is given below: -

For Summer Season

DESCRIPTION	EXISTING REQUIREMENT	PROPOSED REQUIREMENT	TOTAL REQUIREMENT
Domestic (KLD)	4.0	6.0	10.0
Cooling (makeup water) (KLD)	16.0	40.0	56.0
Total (KLD)	**20.0**	**46.0**	**66.0**

For Winter and Rainy Season

DESCRIPTION	EXISTING REQUIREMENT	PROPOSED REQUIREMENT	TOTAL REQUIREMENT
Domestic (KLD)	4.0	6.0	10.0
Cooling (makeup water) (KLD)	16.0	20.0	36.0
Total (KLD)	**20.0**	**26.0**	**46.0**

Source- SIDCO water supply

Water balance of summer season and Winter & Rainy season is attached as Fig 2.7 (a) and (b) respectively.

Fig 2.4 (c) Water Balance Diagram (Summer)

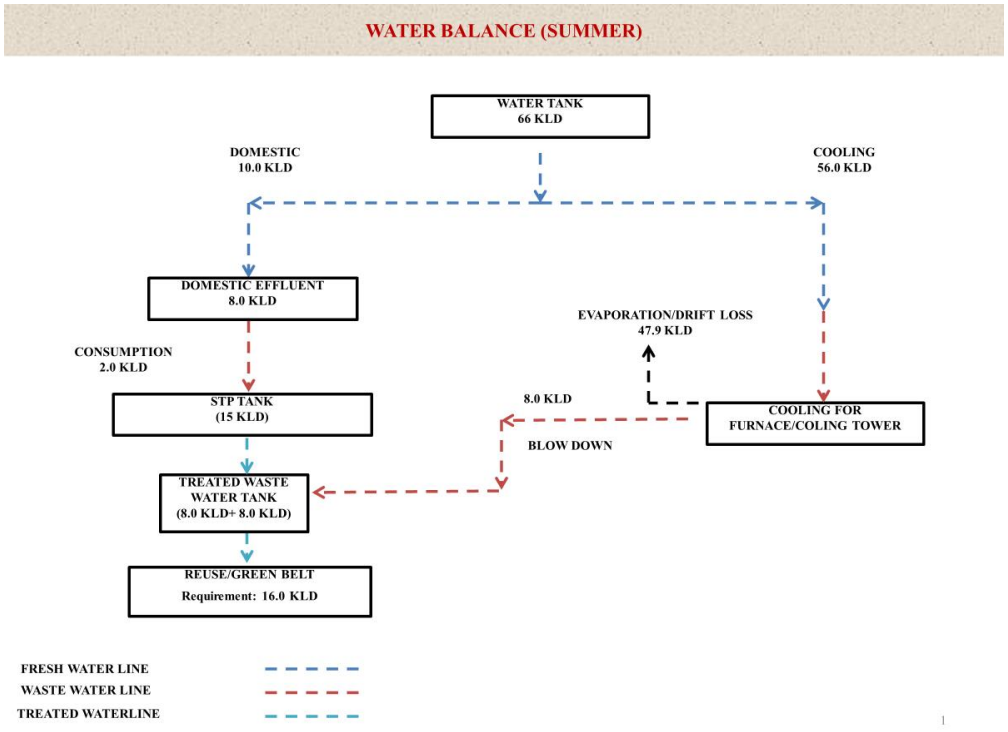
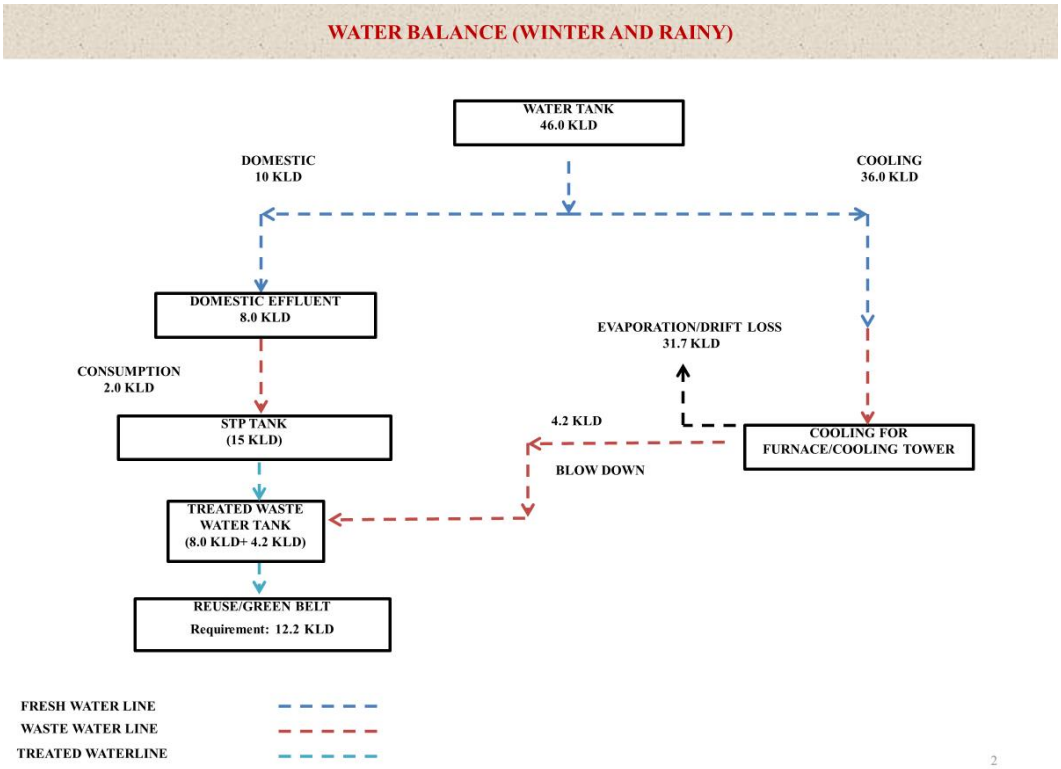


Fig 2.4 (d) Water Balance Diagram (Winter & Rainy)



2.4.5 Power Requirement

The Power Requirement will be met by sourcing the power from J&K State Power Corporation Limited as per the requirement given below:

DESCRIPTION	EXISTING REQUIREMENT	ADDITIONAL REQUIRMENT	AFTER EXPANSION
Power Requirement	2997 KW	12948 KW	15945 KW
Source- J&K State Power Corporation Limited			

2.4.6 Manpower Requirement

The proposed project shall generate direct employment for additional 24 persons and the total men power after expansion will be 90 as per the details below:

S.No.	Description	Nos.
i)	Rolling Mill In charge	1
ii)	Quality In charge	2
iii)	Marketing In charge	2
iv)	Shift Engineers	3
v)	Supervisors	4
vi)	Foreman	4
vii)	Workers	66
viii)	Clerks	6
ix)	Accountants	2
	Total	**90**

The direct employment figure presented above is for the regular plant operations at full capacity.

2.4.7 Major Equipments & Machineries

There is proposal to install one new Induction Furnace of capacity 25 TPH and one Continuous Casting Machine. The following are the major equipments & machineries to be used in proposed manufacturing unit:

A	DETAILS OF EQUIPMENTS AND MACHINERIES			
1	Induction Furnace	NIL	1x25 TPH	1x25 TPH
2.	Rolling Mill	01 no. (15 TPH)	NIL	01 No. (15 TPH)
3.	CCM	NIL	01 No.	01 No.
4.	DG sets	125KVA	325 KVA	125&325KVA

2.5 PROPOSED SCHEDULE FOR APPROVAL AND IMPLEMENTATION

The proposed expansion will be completed within one year after granting of Environment Clearance.

2.6 TECHNOLOGY AND PROCESS DESCRIPTION

Firstly, Raw Material i.e., M.S. Scrap/Heavy Melting Scrap is tested in laboratory and if reports are satisfactory then it is issued for the further processing. Testing Raw Material is put in to the Furnace where 1200-1800^{0}C approximately. Temperature is provided to make the raw material melting. Hot raw material is poured into Concast to make steel billet. Hot Steel Billet is taken to seventeen strands (according to size) where it is passed through various sized rolls depending upon size to be produced. After the product is passed through the finishing stand further go in to the coiler to make the coil of steel Round. Steel Round is taken and checked by the quality controller with the help of venire. This inspection is carried out by the quality controller after every hour. Different Bundles are prepared of different sized products and are well placed. Material balance chart & Layout of manufacturing process is given **2.5 & 2.6**

Fig 2.5: Flow Chart of Manufacturing Process

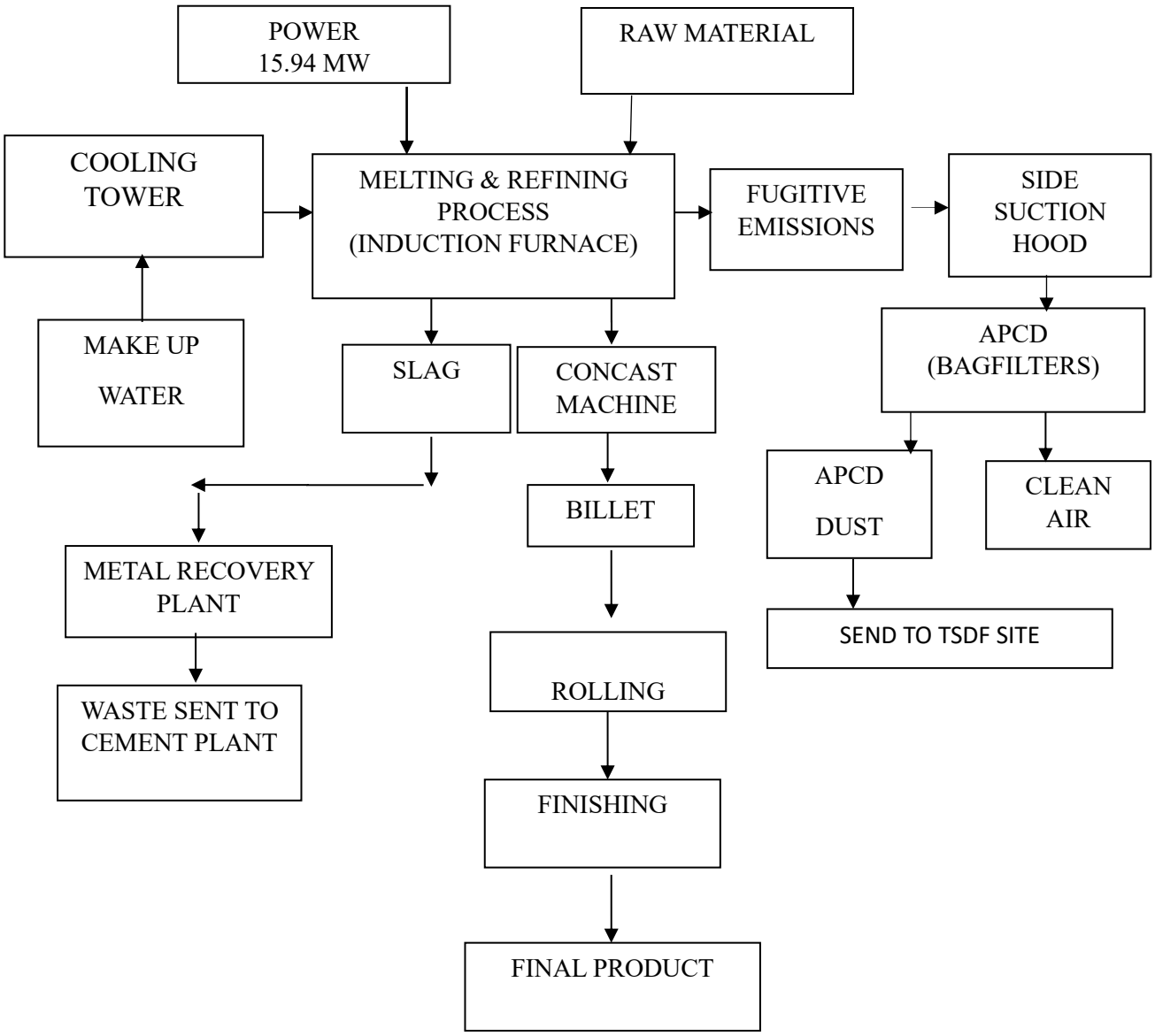
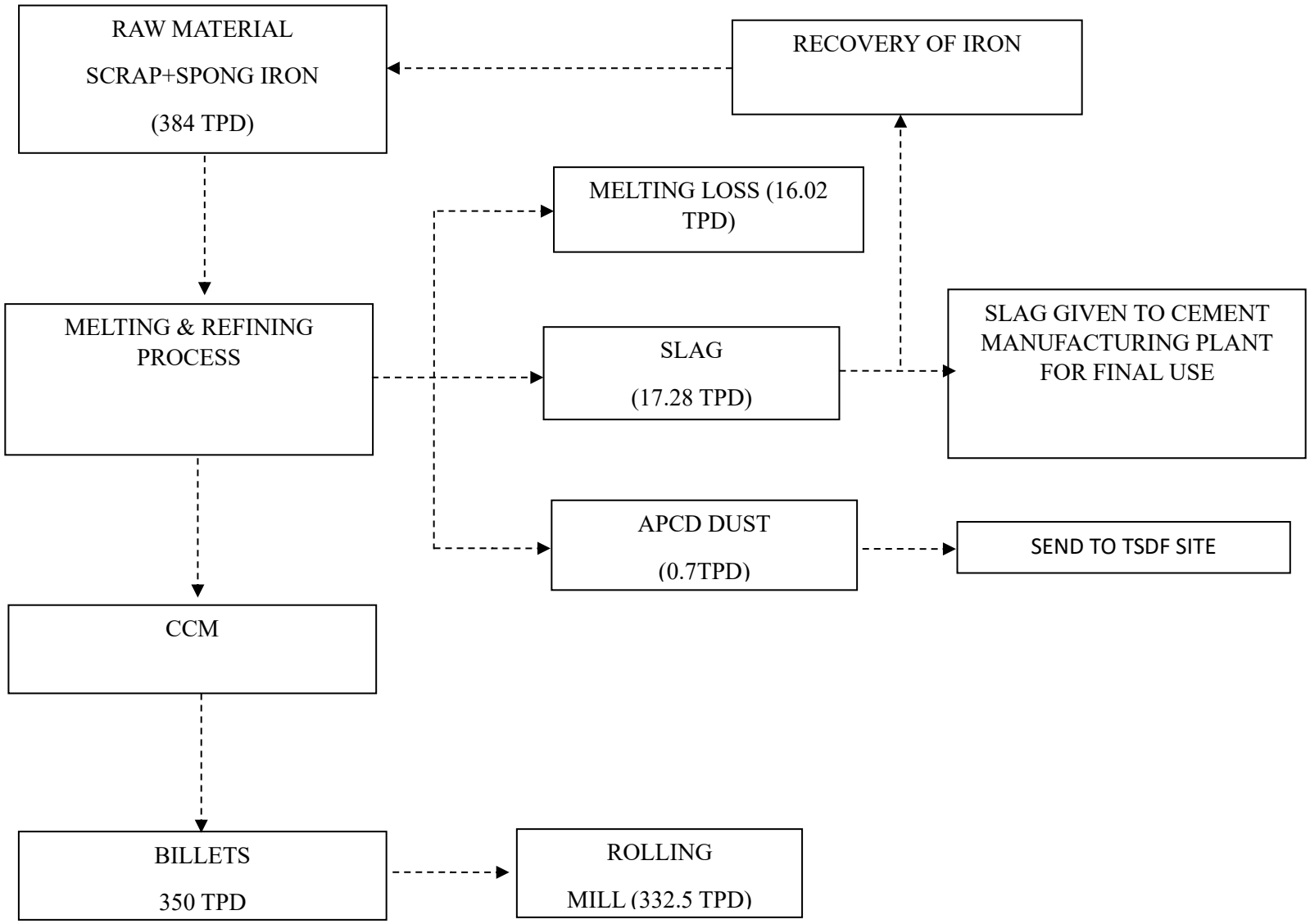


Figure 2.6 Material Balance



Standard Operating Procedure (SOP) as devised by CPCB for operation and maintenance of APCD shall be followed.

During Charging & melting

- Scrap will be segregated for explosives and closed containers.
- The segregated scrap will be freed from oil, paint and grease before charging the same to I.F, maintained at 3000C and passing the volatile emission through bag filter via suction hood with adequate suction.
- The scrap will be cut to size less than the size of crucible.
- No overcharging of furnace will be practiced and dense charge as for as practicable will be charged.

Air Pollution Control

- Bag filters with pulse jet filtration will be used.
- Rotatory air lock will be operated for collection of dust from hopper.

Maintenance of bag filter

- The pressure drop across the bags will be maintained with U- tube manometer and maintained 3-6'' (76-152mm).
- Maintenance schedule shall be strictly followed and remained maintained.

Temperature

- The temperature of flue gas will be maintained between 100-1200c by proper air cooling.

Compressor

- For pulse jet of air, a compressor capable of delivering compressed air of pressure 6-7 kg/cm2 shall be provided. The air will be free of oil and moisture. Recommendation of manufacturer should be followed.

Fan Maintenance

Shall be carried out as per the maintenance schedule

2.7 DESCRIPTION OF MITIGATION MEASURES

The purpose of mitigation measures is to avoid, reduce or minimize unwanted impacts on the environment. The detailed impact prediction and its mitigation measures are given at Chapter 4. However, the generic detail with regard to mitigation measures to be taken is delineated as under:

2.7.1 Air pollution control

- To minimize & control the emission from Induction Furnace the process emission will be collected and sucked by installing well designed side hood. The emissions so collected will be passed through spark arrestor, air cooling and finally bag filters before its discharge to atmosphere. The APCD will be installed based on latest technology to contain the concentration of particulate matter in the process of within the standards laid down by the MoEFCC/PPCB.
- DG set is attached with a stack of adequate height for dispersion of pollutants of exhaust gases into the atmosphere at the required height.

2.7.2 Solid and hazardous waste control

- About 17.28 TPD of slag will be generated and the same after recovering of iron contents will be supplied to manufacturers of cement under proper agreement.
- APCD dust of about 0.7 TPD will be sent to TSDF Site for final disposal.

2.7.3 Water pollution control

No wastewater will be generated from process, only domestic wastewater will be generated which will be treated in septic tank. The treated wastewater will be used for irrigation of plantation area developed within the industrial premises.

2.7.4 Noise pollution control

- Loading and unloading of raw material and product will be carried out especially during day time by taking necessary mitigation measures at the sources to rule of the possibility of increase in the ambient noise levels due to these activities.
- DG set is fitted with a canopy to contain the sound pressure level within the prescribed limits. Further the machinery, which is lively to cause increase in the ambient noise level, will be kept in good condition at all the times to rule out the possibility of contribution of noise level in the atmosphere.
- Green belt will be provided in the open areas to attenuate the noise levels to be generated from various activities/sources as mentioned above. In addition, this green belt will help to attenuate the fugitive emissions to be generated from the premises of the unit.
- Ear muff/plug will be provided to all workers working at noisy area.

A tabular presentation of mitigation measures is given below:

Existing				
S. No.	**Source**	**No.**	**Fuel**	**APCD**
1.	Induction Furnace	NIL	--	--
2.	Rolling Mill	01 No. (15 TPH)	Coal	Cyclone, Wet Scrubber
3.	D.G. Set	125 KVA each	HSD	Stack of adequate height provided
After Expansion				
1.	Induction Furnace	25 TPH	Electricity	Bag Filters
2.	Rolling Mill	01 No. (15 TPH)	Coal	Cyclone, Wet Scrubber
3.	CCM	01 No.	--	--
4.	D.G. Set	125 x 325 KVA	HSD	Stack of adequate height provided
Hazardous Waste				
S.No.	**Waste Category**	**Existing**	**Disposal**	
1.	35.1 Flue gas cleaning residue	0.7 TPD	Send to TSDF site/ final disposal	
2.	5.1 Used oil/Spent oil	0.03kl/annum	Sold to Authorized Recyclers	
Solid Waste				
S.No.	**Waste Category**	**Existing**	**Disposal**	
1.	Slag	17.28 TPD	Sent to tile/cement manufacturing plant for reuse and to local market.	

CHAPTER-3

DESCRIPTION ON ENVIRONMENT

3.1 INTRODUCTION;

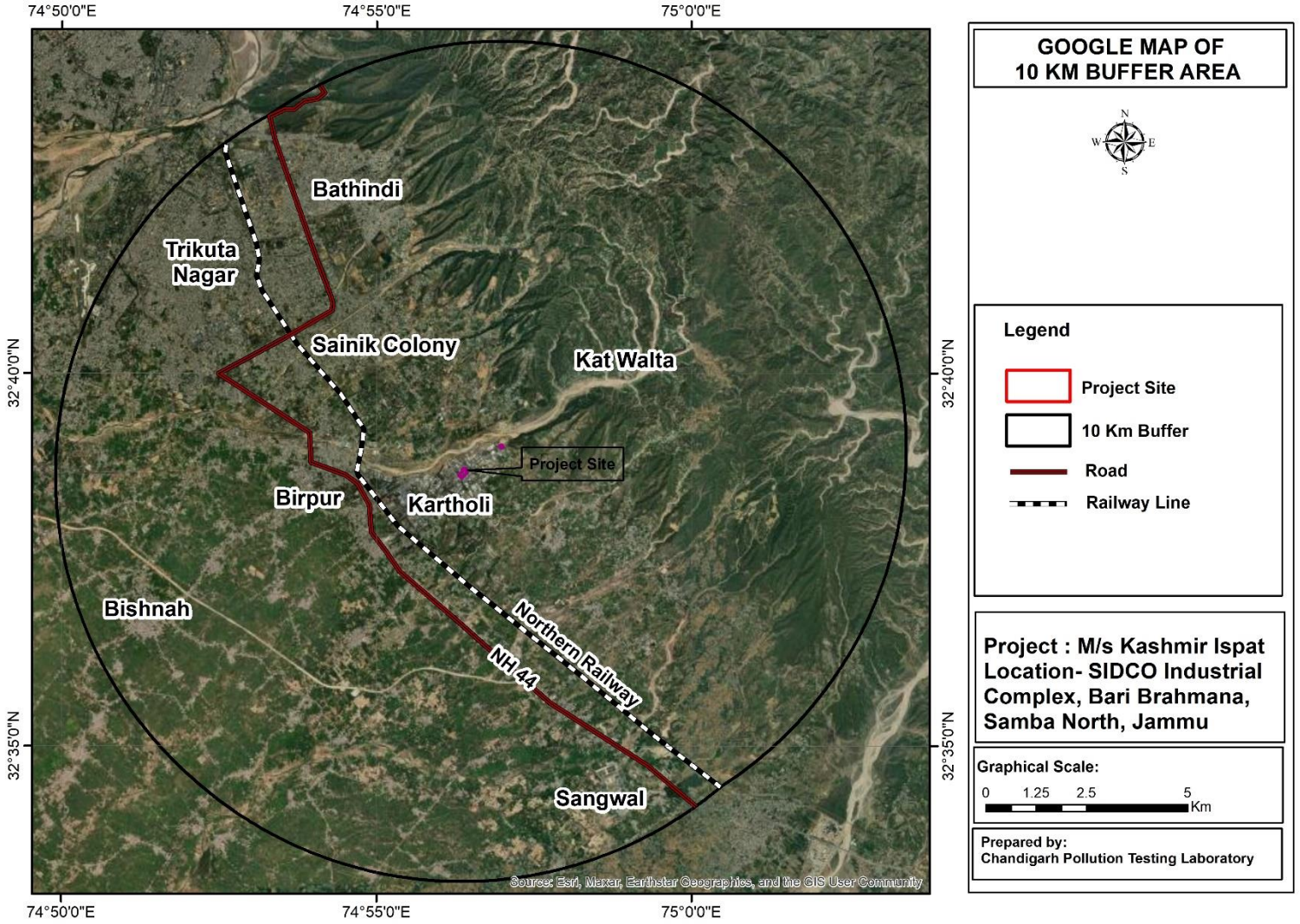
The main objectives of describing the environment, which may be potentially affected, are (i) to assess present environmental quality and the environmental impacts and (ii) to identify environmentally significant factors. The chapter contains information on existing environmental scenario of the proposed project study area.

3.1.1 STUDY AREA:

As a precursor for the prediction of various types of environmental impacts likely to arise due to implementation of the project, it is essential to establish the baseline environmental setting of the physical, natural and socio-cultural environmental parameters along the project and within the project influence area. Details of the baseline environmental parameters are required for decision making for the project design, implementation and operation from the environmental point of views. The data is to be generated through primary data collection (direct monitoring) and secondary sources (published data).

This chapter incorporates the description of existing environmental status in this study area encompassing 10 km radius around the project site. The 10 km radius map is attached below.

Figure 3.1: Map Showing Eco-Sensitivity of the Study Area



3.1.2 STUDY PERIOD:

The baseline environmental monitoring for the new project has been collected from **October, 2023 to December, 2023**. Initially, a reconnaissance survey of the study area was carried out for monitoring station selection and then field monitoring for measuring primary data was carried out following CPTLE/QSPM-06/01 – CPTLE/QSPM/06/09 as per the QMS of the organization. In addition, certain aspects like land area, socio- economic status, past meteorological conditions, etc., have been analyzed based on secondary information available from sources like district census reports, district gazetteers, Indian meteorological department, etc. The baseline status of various environmental components is described in the succeeding sections.

3.1.3 COMPONENTS OF STUDY:

The baseline study in respect of environment setting was conducted for the following environments and their corresponding components as per TOR issued by the authority:

S.no.	Environments	Components
1.	Meteorology	Physio-Chemical components
2.	Air Environment	
3.	Noise Environment	
4.	Water Environment	
5.	Soil Environment	
6.	Land Environment	
7.	Geology and Hydrogeology	
8.	Ecological Environment	Covering terrestrial aquatic Flora and Fauna
9.	Socio-economic Environment	Comprising demographic, Socio-economic status & environment in and around the study area.

For the present study, all the sampling locations are marked with the help of Google maps and site visits. The land use/ land cover map has been generated on 1:50,000 scale using Satellite imagery and ground truth information. The baseline environmental quality has been assessed during from October, 2023 to December, 2023. Samples of Air, Water, Noise and Soil from the site and nearby areas have been collected and analyzed for the study of existing condition. The baseline data is generated through field study within the impact zone for various components of the environment viz. Air, Noise, Water, Land, Ecology and Socio-economic. While generating the baseline status of physical and biological environment of the study area, the concept of impact zone has been considered. The methodologies for various environmental facts are as follows: -

METEOROLOGICAL DATA:

Meteorological data of project site has been used for the study and for reference a secondary data was obtained from Indian Meteorological Department (IMD). The important parameters considered are temperature, humidity, wind speed, wind direction and rainfall.

1. Ambient Air Quality

The guidelines for selections of ambient air monitoring stations and analysis of air pollutants as given in IS – 5182 part 14, 2000 (Guidelines for planning the sampling of atmosphere) and 'Guidelines for Ambient Air Quality Monitoring' by CPCB respectively were followed.

2. Water Quality

Grab sampling was done for ground and surface water. Water samples were taken as per the Standard Methods (IS 10500: 2012 & APHA, 23rd Edition). Necessary precautions were taken during sampling and preservation of samples.

3. Noise Quality

At each station noise level was monitored for day and night once in a season as per IS 9989:1981. As sensitive receptors are the prime consideration for sound levels, the monitoring locations are the same as those decided for ambient air quality monitoring.

4. Soil Quality

For soil, augur method was used and samples were collected at 15-25 cm depth after removing the upper crust.

5. Geology and Hydrogeology

Field survey has been conducted to verify secondary data.

6. Land Use

The land use/ land cover map has been generated on 1:50,000 scale using Satellite imagery and ground truth information.

7. Biological Environment

Primary and secondary data collection has been carried out by the Ecology and Biodiversity expert/ team for the study of flora and fauna in the core and buffer zone.

8. Socio Economic Environment

For demography and socioeconomics, secondary data block wise data has been collected and used for the assessment of impacts. Field survey has been conducted to verify secondary data

3.2 ENVIRONMENTAL BASELINE DATA COLLECTION:

Baseline data for the proposed plant has been collected in winter season**.** Primary data has been collected by monitoring & surveying of various environmental components/ parameters, as per detail given in **Table - 3.1.**

TABLE-3.1
PRIMARY DATA

S.no.	PARAMETERS	DESCRIPTION
1.	**Meteorology**	Meteorological parameters on hourly basis at project site. Parameters: Temperature, Relative humidity, Wind Speed & Wind Direction.
2.	**Air**	Ambient air quality monitoring (24 hourly), twice a week. Parameters are PM_{10}, $PM_{2.5}$, SO_2, NO_2 & CO. No. of Locations: 8 locations in core and buffer zone.
3.	**Noise**	Noise level monitoring (Day & Night time), once in a season. No. of Locations: 8 locations in core and buffer zone.
4.	**Water**	Ground water sampling, once in a season. No. of Locations: 8 locations in core and buffer zone. Tested for physical and chemical parameters.
5.	**Soil**	Soil sampling, once in a season. No. of Locations: 8 locations in core and buffer zone.
6.	**Geology & Hydrogeology**	Field survey, once in a season. Location: Core and buffer zone.
7.	**Biological Factors**	Biodiversity survey, once in a season. Location: Core and buffer zone.
8.	**Socio-economic Environment**	Socio-economic survey, once in a season. Location: Core and buffer zone.

3.3 METEOROLOGY:

3.3.1. CLIMATIC CONDITIONS:

The climate of the district is characterized by dryness except a brief spell of monsoon season in a very hot summer and a bracing winter. The cold season extends from mid-November to the early part of March. The succeeding period up-to the end of June is the hot season. July, August and half of September constitute the southwest monsoon. The period from mid-September to mid-November is considered as post monsoon. June is generally the hottest month. Hot and scorching dust laden winds blow during summer season. The project zone lies in the sub-tropical region with four distinct seasons.

1. **Winter – December to mid-February**
2. **Summer – March to June**
3. **Monsoon – July to Mid-September**
4. **Post Monsoon – Mid September to mid-November.**

In order to study the meteorology of the project area, site specific summer season meteorological data was collected. Annual Weather Averages & Windrose diagram is provided at **Fig 3.1** and **Fig 3.2** respectively.

3.3.2 TEMPERATURE:

May and June are the hottest months with daily average temperature going up to 45°C and minimum average daily temperature as 26°C. Hot scorching dust laden winds blow during the summer season and on individual day the temperature sometimes goes up-to 45°C to 47°C. With the on-set of monsoons in July there is appreciable drop in temperature but due to increased moisture in the air the weather becomes uncomfortable. After monsoon in September the night temperature drops appreciably. December and January are the coldest months when the maximum average daily temperature is around 19°C and minimum about 8°C. In association with cold waves, the minimum temperature may sometimes drop to below 1 °C on individual days. The yearly variation is from 40°C min to 45°C max. Monthly average temperatures and rainfall of the area are given in **Table 3.2.**

3.3.3 RAINFALL:

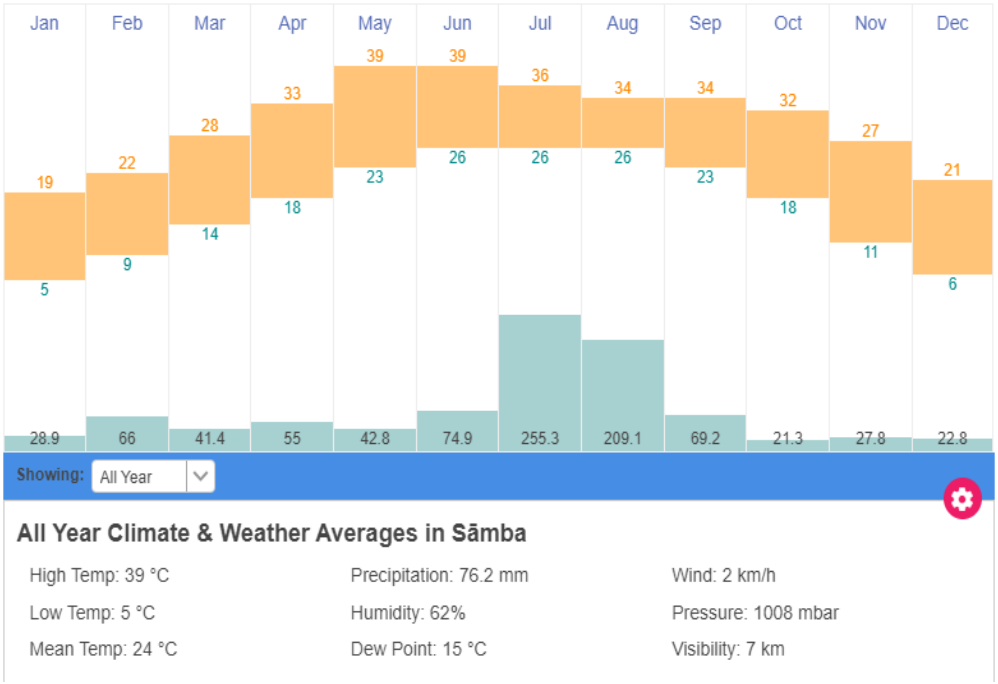
The normal annual rainfall of the district is 1116.2 mm which is unevenly distributed over the area in 34 days. The southwest monsoon sets in from last week of June and withdraws in end of September, contributory about 75% of annual rainfall. August is the rainiest month with an average rainfall of 345.3 mm. In July and August, the district receives good amount of rainfall about 59% of the annual

rainfall. The rainfall in pre-monsoon months (March to May) is about 9% of the annual. The winter months (December to February) also contribute the rainfall about 14% of the annual normal rainfall.

Average rainfall data for this zone is given in Figure 3.1. wind rose for the study period is provided in Figure 3.2.

Fig 3.2 (a)

Average Rainfall data (mm)



(Source: https://www.timeanddate.com/weather/@1262083/climate)

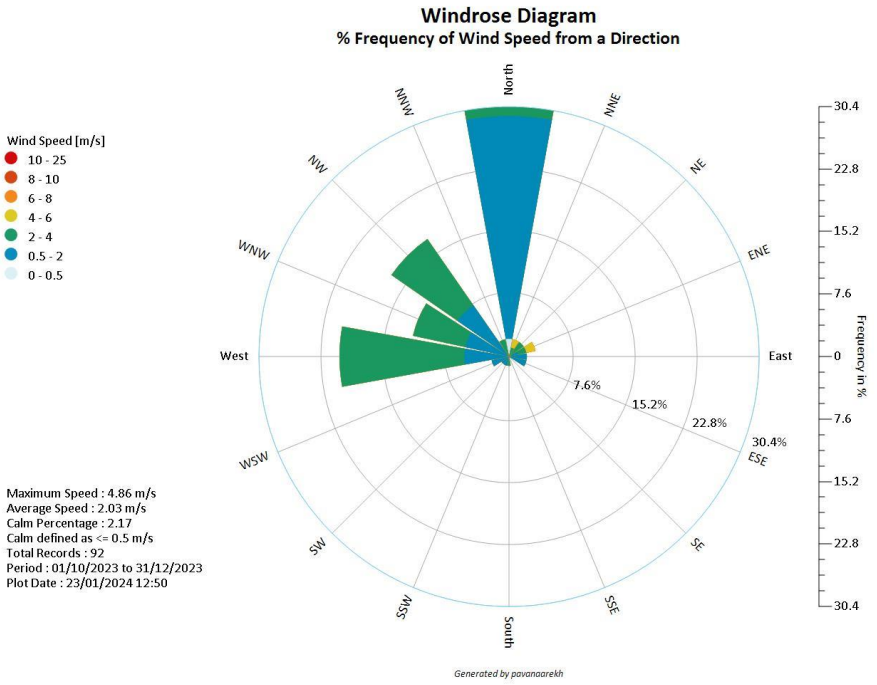
3.3.4 MICRO-METEOROLOGY AT SITE:

Meteorological station was set-up at site to record surface meteorological parameter during the study period. Wind Rose diagram for the study is given in **Figure 3.2.** Summary of the micro-meteorology at site is given below.

Month	Temperature(^{o}C)		Humidity (%)		Pressure
	Max.	Min.	Max.	Min.	
October, 2023	35 ^{o}C	14 ^{o}C	100 %	31 %	1022 mbar
November, 2023	29 ^{o}C	10 ^{o}C	100 %	37 %	1027 mbar
December, 2023	24 ^{o}C	05 ^{o}C	94%	43 %	1022 mbar

(Source: https://www.timeanddate.com/weather/@1262083/historic?month=5&year=2022)

Fig 3.2 (b) Wind Rose diagram for Study Period



Study Period- October, 2023 to December, 2023.

Software Used – Pavaanrekh.

Type of data used – xlsx.

3.4 AMBIENT AIR QUALITY:

The ambient air quality monitoring was done to assess the current status of air quality in the study area. Monitoring was carried out at eight stations from October, 2023 to December, 2023. The guidelines for selections of ambient air monitoring stations given in IS – 5182 part 14, 2000 and 'CPCB guidelines for air quality monitoring' were followed. These guidelines state that, "when the objective of air sampling is to identify the contribution from specific sources of pollution, the sampling locations should be located in upwind and the downwind direction of such sources".

The ambient air quality monitoring locations were selected considering the following criterion:

1. Location of sensitive receptors such as reserved forests, national parks, hospitals, archaeological sites, etc. in the vicinity of the study area.
2. The site should be representative of the area selected.
3. Topography of the study area.
4. The stations should be selected in a way to yield data that can be compared with another.
5. Certain physical requirements (electricity and other logistics) should be satisfied at the site.

3.4.1 METHODOLOGY:

The prime objective of the baseline study with respect to ambient air quality is to establish the present air quality and its conformity to National Ambient Air Quality Standards. This data has been further used during impact assessment to predict the final air quality. This section describes the sampling locations, frequency of sampling and methodology adopted for monitoring ambient air quality.

To quantify the impact of the project on the ambient air quality, it is necessary first to evaluate the existing ambient air quality of the area. The existing ambient air quality, in terms of Particulate Matter (Size <10µm) or PM_{10}, Particulate Matter (Size <2.5 µm) or $PM_{2.5}$, Sulphur-di-oxide (SO_2), Oxides of Nitrogen (as NO_2), and Carbon Monoxide (CO), has been measured through a planned field monitoring.

3.4.2 SAMPLING STATIONS:

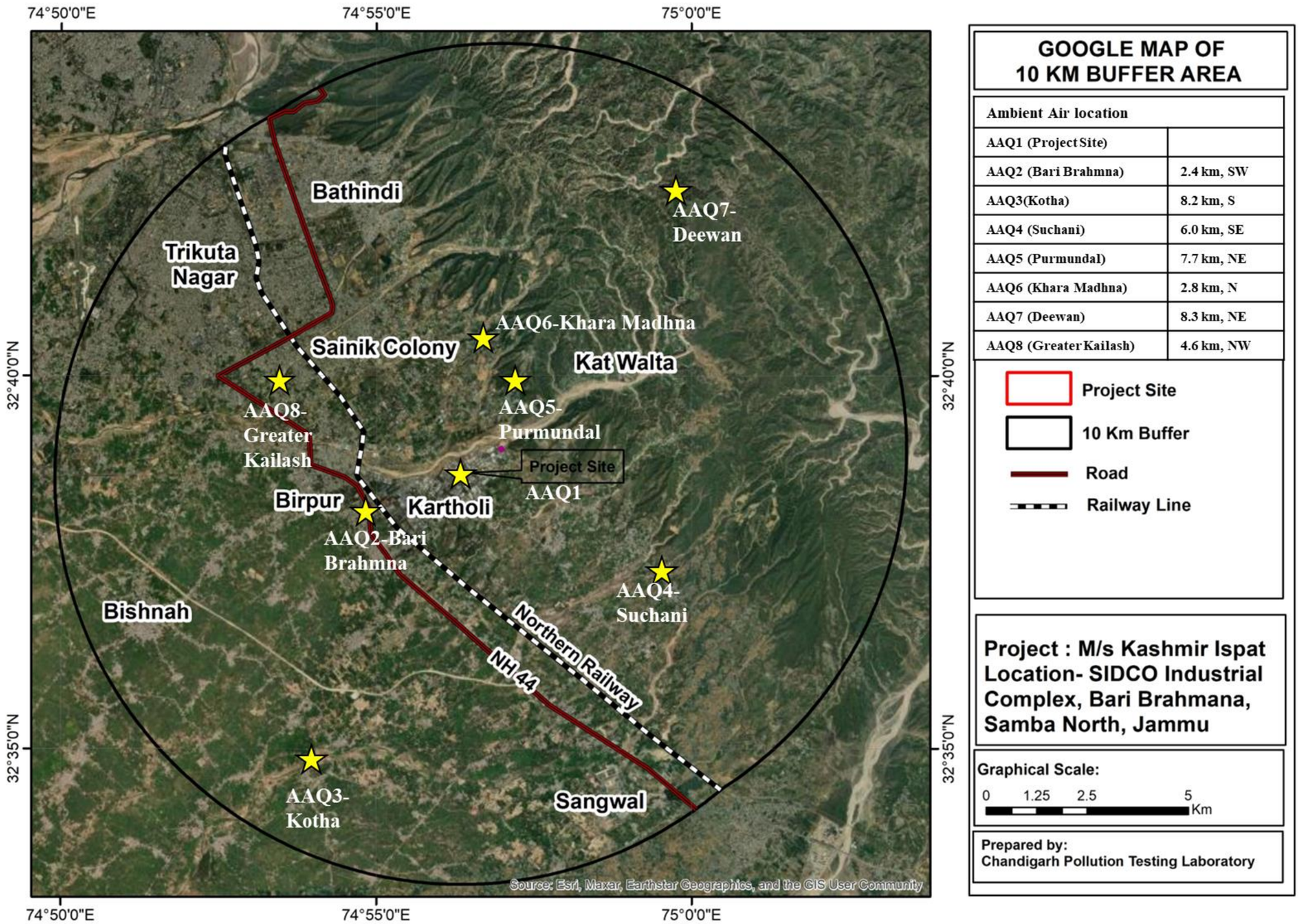
To select the air sampling locations, meteorological data with respect to temperature, relative humidity, wind speed and direction plays a vital role. Predominant wind direction plays an important role in determining location of monitoring stations. List of Air & Noise sampling stations are given in **Table 3.2**. location of ambient air monitoring location is provided as figure 3.3.

Table 3.2

Ambient Air Monitoring Station

Stations	Name of Village/ Location	Distance from the Plant (Km)	Direction w.r.t. Plant	Justification for the Selection	Type of Land
AAQ-1	**Project Site**	0 km		• Represent the project site	• Industrial Area
AAQ -2	**Bari Brahmna**	2.4 km	SW	• Crosswind direction of the project site	• Residential area
AAQ -3	**Kotha**	8.2 km	S	• Downwind direction of the project site	• Residential area
AAQ -4	**Suchani**	6.0 km	SE	• Crosswind direction of the project site	• Residential area
AAQ -5	**Purmandal**	7.7 km	NE	• Crosswind direction of the project site	• Residential area
AAQ -6	**Khara Madhna**	2.8 km	N	• Upwind direction of the project site project site	• Residential area
AAQ -7	**Deewan**	8.3 km	NE	• Crosswind direction of the project site	• Residential area
AAQ -8	**Greater Kailash**	4.6 km	NW	• Crosswind direction of the project site	• Residential area

FIGURE 3.3.
AMBIENT AIR SAMPLING LOCATIONS



GOOGLE MAP OF 10 KM BUFFER AREA

Ambient Air location	
AAQ1 (Project Site)	
AAQ2 (Bari Brahmna)	2.4 km, SW
AAQ3(Kotha)	8.2 km, S
AAQ4 (Suchani)	6.0 km, SE
AAQ5 (Purmundal)	7.7 km, NE
AAQ6 (Khara Madhna)	2.8 km, N
AAQ7 (Deewan)	8.3 km, NE
AAQ8 (Greater Kailash)	4.6 km, NW

Project Site
10 Km Buffer
Road
Railway Line

Project : M/s Kashmir Ispat Location- SIDCO Industrial Complex, Bari Brahmana, Samba North, Jammu

Graphical Scale:
0 1.25 2.5 5 Km

Prepared by:
Chandigarh Pollution Testing Laboratory

Table 3.3

Ambient Air Quality Abstract (October, 2023 to December, 2023)

Locations	PM_{10} (µg/m^3)			$PM_{2.5}$ (µg/m^3)			SO_2 (µg/m^3)			NO_x (µg/m^3)			CO (mg/m^3)		
	Max	Min	Avg.	Max	Min	Avg.	Max	Min	Avg.	Max	Min	Avg.	Max	Min	Avg.
Project Site	81.6	78.2	79.9	40.6	39.8	40.2	8.8	7.6	8.2	24.0	23.2	23.6	0.78	0.56	0.67
Bari Brahmna	83.2	81.6	82.4	40.8	39.6	40.2	8.6	7.8	8.2	22.9	21.1	22.0	0.71	0.61	0.66
Kotha	82.5	80.3	81.4	39.8	38.2	39.0	8.2	7.4	7.8	23.0	22.2	22.6	0.55	0.48	0.52
Suchani	78.6	76.4	77.5	37.4	36.2	36.8	7.9	6.7	7.3	20.8	18.8	19.8	0.63	0.56	0.60
Purmandal	75.8	74.2	75.0	38.2	37.8	38.0	7.4	6.6	7.0	21.0	19.6	20.3	0.35	0.28	0.32
Khara Madhna	75.0	73.8	74.4	37.0	36.2	36.6	7.2	7.0	7.1	18.8	16.6	17.7	0.49	0.41	0.45
Deewan	76.2	75.4	75.8	37.2	35.8	36.5	8.0	7.4	7.7	19.2	18.0	18.6	0.54	0.44	0.49
Greater Kailash	74.8	73.2	74	36.8	35.2	36.0	6.9	6.1	6.5	20.4	18.2	19.3	0.59	0.47	0.53
P98	**82.2**			**40.2**			**8.5**			**23.2**			**0.73**		
CPCB Stds.	**100**			**60**			**80**			**80**			**4.0**		

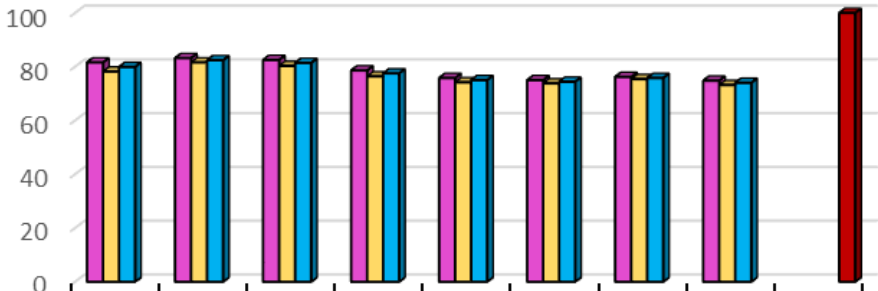
3.3.2 INTERPRETATION:

The observations based on a perusal of the results for the study period are summarized below:

Respirable Particulate Matter (PM10)-October, 2023 to December, 2023:

A maximum value of 83.2 µg/m^3 was observed at Bari Brahmna (AAQ2) and minimum value of 73.2µg/m^3 was observed at location namely Greater Kailash (AAQ8). The average values were observed to be in the range of 74.0 to 82.4 µg/m^3.

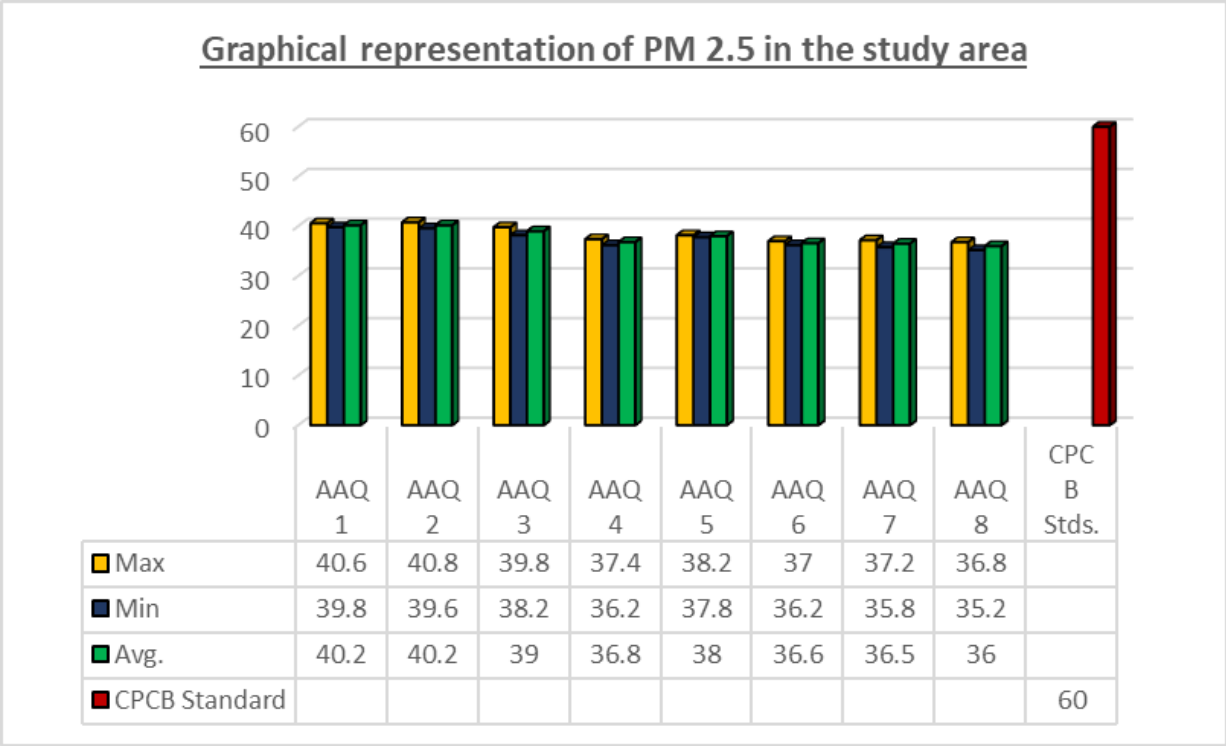
Graphical representation of PM10 in the study area



	AAQ 1	AAQ 2	AAQ 3	AAQ 4	AAQ 5	AAQ 6	AAQ 7	AAQ 8	CPCB Stds.
Max	81.6	83.2	82.5	78.6	75.8	75	76.2	74.8	
Min	78.2	81.6	80.3	76.4	74.2	73.8	75.4	73.2	
Avg.	79.9	82.4	81.4	77.5	75	74.4	75.8	74	
CPCB Standard									100

Particulate Matter (PM2.5)- October, 2023 to December, 2023:

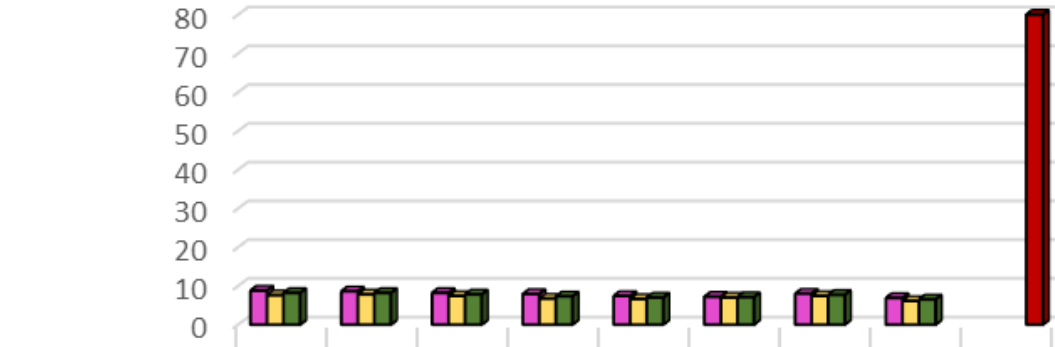
A maximum value of 40.8 µg/m^3 was observed at Bari Brahmna (AAQ2) and minimum value of 35.2 µg/m^3 was observed at Greater Kailash (AAQ8). The average values were observed to be in the range of 36.0 to 40.2 µg/m^3.



	AAQ 1	AAQ 2	AAQ 3	AAQ 4	AAQ 5	AAQ 6	AAQ 7	AAQ 8	CPCB Stds.
Max	40.6	40.8	39.8	37.4	38.2	37	37.2	36.8	
Min	39.8	39.6	38.2	36.2	37.8	36.2	35.8	35.2	
Avg.	40.2	40.2	39	36.8	38	36.6	36.5	36	
CPCB Standard									60

Sulphur Dioxide (SO2)- October, 2023 to December, 2023

Maximum concentration of SO_2 is observed to be 8.8 µg/m^3 at site Project Site (AAQ1) & minimum value of 6.1 µg/m^3 observed at Greater Kailash (AAQ8). The average values were observed to be in the range of 6.5 to 8.2 µg/m^3.

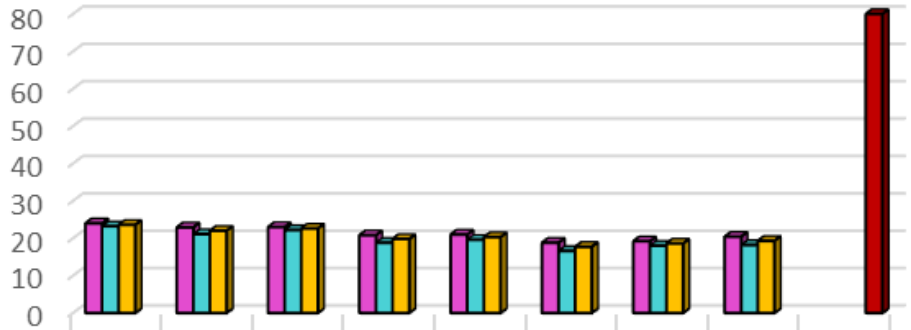


	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8	CPCB Stds.
Max	8.8	8.6	8.2	7.9	7.4	7.2	8	6.9	
Min	7.6	7.8	7.4	6.7	6.6	7	7.4	6.1	
Avg.	8.2	8.2	7.8	7.3	7	7.1	7.7	6.5	
CPCB Standard									80

Oxides of Nitrogen (NOx)- October, 2023 to December, 2023:

Maximum concentration of NOx is observed to be 24.0 µg/m^3 at Project Site (AAQ1) and minimum value of 16.6 µg/m^3 observed at Khara Madhna (AAQ6). The average values were observed to be in the range of 17.7 to 23.6 µg/m^3.

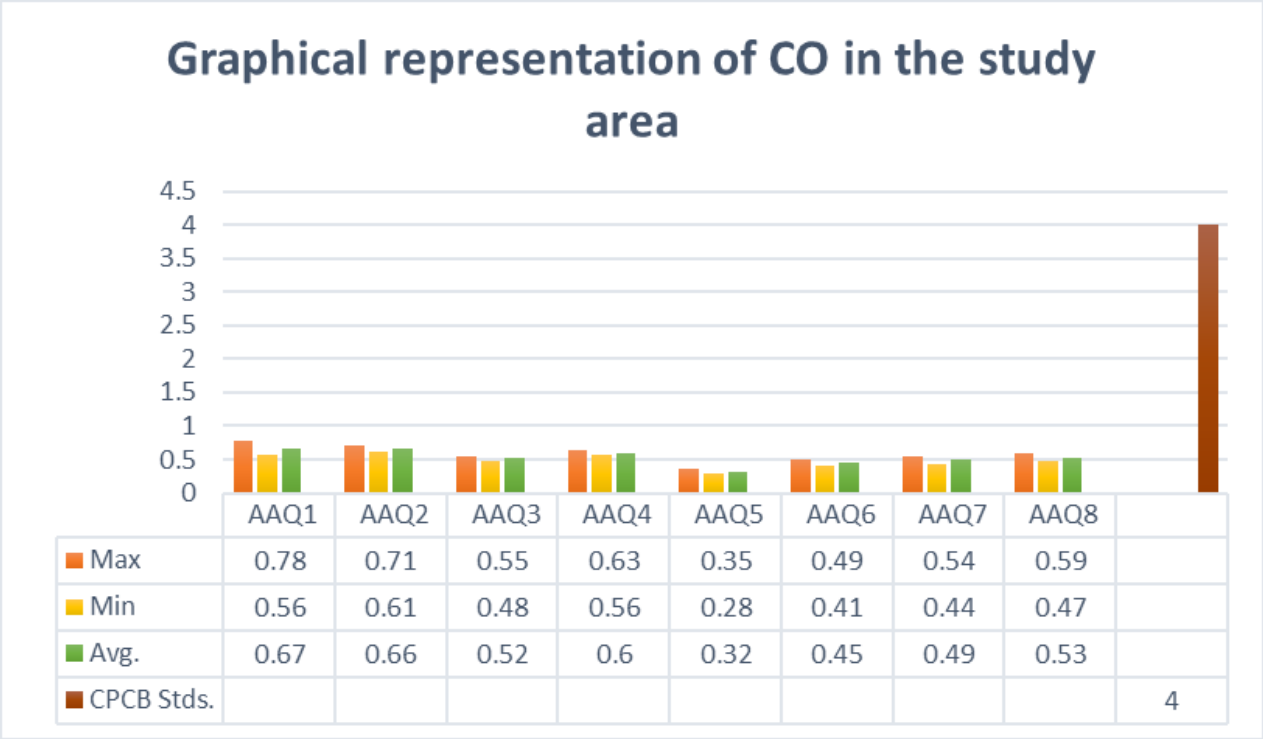
Graphical representation of NOx in the study area



	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8	CPCB Stds.
Max	24	22.9	23	20.8	21	18.8	19.2	20.4	
Min	23.2	21.1	22.2	18.8	19.6	16.6	18	18.2	
Avg.	23.6	22	22.6	19.8	20.3	17.7	18.6	19.3	
CPCB standards									80

- **Carbon Monoxide (CO)- October, 2023 to December, 2023:**

  Maximum concentration of CO is observed to be 0.78 mg/m^3 at Project Site (AAQ1) and minimum value of 0.28 mg/m^3 observed at Purmandal (AAQ5). The average values were observed to be in the range of 0.31 to 0.67 mg/m^3.



	AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8	
Max	0.78	0.71	0.55	0.63	0.35	0.49	0.54	0.59	
Min	0.56	0.61	0.48	0.56	0.28	0.41	0.44	0.47	
Avg.	0.67	0.66	0.52	0.6	0.32	0.45	0.49	0.53	
CPCB Stds.									4

CONCLUSION:

The project site is located at semi hilly terrain of Samba district, topographically project area is flat and surrounded by green areas, there are only few industries which falls in the study area and they all are located at significant distances from the project site; therefore, it can infer that due to having remote locations there will be minimal level of pollution can occur. Present baseline data is provided above.

3.5 WATER ENVIRONMENT& WATER QUALITY:

Water quality assessment is one of the essential components of EIA study. Such assessment helps in evaluating the existing health of water body and suggesting appropriate mitigation measures to minimize the potential impact from development projects. Water quality of ground water has been studied in order to assess water-use in construction, drinking, cooling and horticulture purpose. The water quality at the site and other locations within the 10 km impact zone was monitored during October, 2023 to December, 2023.

SAMPLING FREQUENCY AND TECHNIQUE:

Parameters for analysis of water quality were selected based on the utility of the particular source of water as per MoEF&CC guidance. Hence quality of ground water was compared with IS: 10500: 2012 for drinking purposes. As per the standard practice, one sample from each station was taken in the study period. Sampling was done by standard sampling technique as per the Standard Methods. Necessary precautions were taken for preservation of samples.

Sampling location of surface water & ground water are given in **Figure 3.4** and list of surface water sample is given in **Table 3.5.** Surface water sources in the study area.

The surface water resources in the study area as studied from the satellite imagery depicts that Basantar River is flowing from North East direction to North west direction. The sampling locations for the surface water were finalized after reconnaissance survey and consultation with the functional area experts from the respective areas.

Criteria for selection of surface water quality sampling locations

While selecting a sample it is always important to take care that the sample should be representative of the selected water body. In order to remove the bias in sample selection, grab samples were collected on random basis considering the following key aspects:

1. The sampling locations were selected based on upstream and downstream uses of the water body.
2. Drainage Pattern of study area in general.
3. Domestic discharge points from the near-by villages.

Table 3.4
Surface Water Sampling Stations

Station	Sampling Location	Aerial Distance (Km) and Direction from Project Site
SW-1	Balole Nalla (Seasonal)	0.5 km, N

1.5.1GROUND WATER:

Groundwater has been found as an important source for the local needs of water consumption for various purposes, mainly domestic and agriculture. Keeping in view the importance of groundwater to the local population, samples of ground water were collected from the study area for the monitoring and assessment of groundwater quality. Ground water can be said to be affected by activities such as uncontrolled discharge of treated and/or untreated industrial effluent, open discharge of treated and/or untreated sewerage in the surrounding area.

The Quality of ground water was studied by collecting 8 water samples from representative hand pumps, tube wells. Sampling points were decided using Google imagery and field survey. Standard procedures were followed for the sampling and analysis of physico– chemical parameters of water.

The sampling sites were selected considering the following criteria –

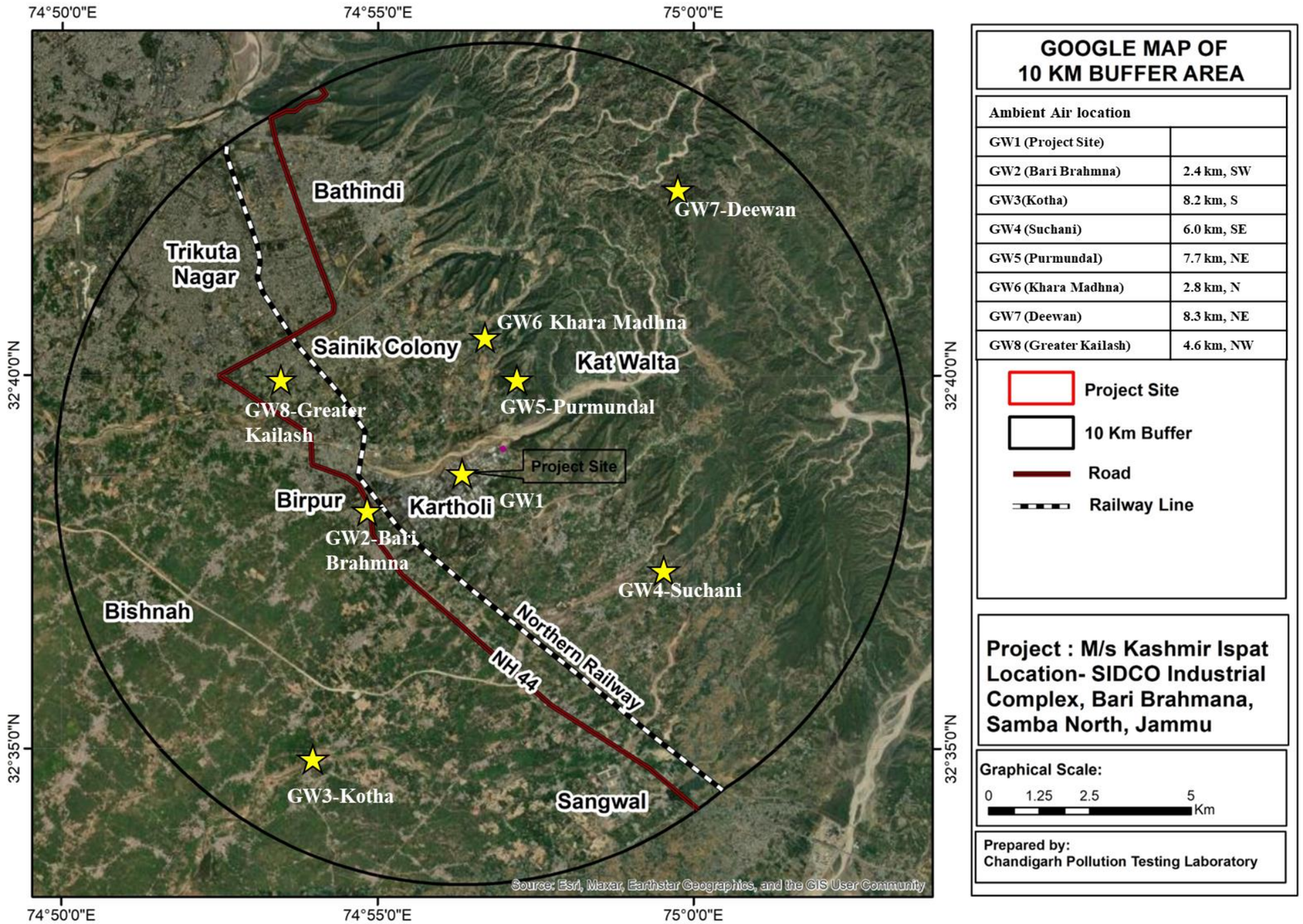
1. Topography of the study area Pattern.
2. Areas which may be affected due to the activity.
3. Any probable locations with open discharge of sewage or waste water.
4. Location of any solid waste dumping facility in the vicinity of the project site.
5. **Table 3.8** shows the details of location of ground water sampling stations and results of different parameters are given in **Table 3.9(a) and (b).**

TABLE-3.5
DETAILS OF GROUND WATER MONITORING STATIONS

Stations	Name of Village/ Location	Distance from the Plant (Km)	Direction w.r.t. Plant	Justification for the Selection	Type of Land
GW-1	**Project Site**	0 km		• Represent the project site	• Industrial Area
GW -2	**Bari Brahmna**	2.4 km	SW	• Crosswind direction of the project site	• Residential area
GW -3	**Kotha**	8.2 km	S	• Downwind direction of the project site	• Residential area
GW -4	**Suchani**	6.0 km	SE	• Crosswind direction of the project site	• Residential area
GW -5	**Purmandal**	7.7 km	NE	• Crosswind direction of the project site	• Residential area
GW -6	**Khara Madhna**	2.8 km	N	• Upwind direction of the project site project site	• Residential area
GW -7	**Deewan**	8.3 km	NE	• Crosswind direction of the project site	• Residential area
GW -8	**Greater Kailash**	4.6 km	NW	• Crosswind direction of the project site	• Residential area

FIGURE -3.4

LOCATIONS OF GROUND WATER



GOOGLE MAP OF 10 KM BUFFER AREA

Ambient Air location	
GW1 (Project Site)	
GW2 (Bari Brahmna)	2.4 km, SW
GW3(Kotha)	8.2 km, S
GW4 (Suchani)	6.0 km, SE
GW5 (Purmundal)	7.7 km, NE
GW6 (Khara Madhna)	2.8 km, N
GW7 (Deewan)	8.3 km, NE
GW8 (Greater Kailash)	4.6 km, NW

Project Site
10 Km Buffer
Road
Railway Line

Project : M/s Kashmir Ispat Location- SIDCO Industrial Complex, Bari Brahmana, Samba North, Jammu

Graphical Scale:
0 1.25 2.5 5 Km

Prepared by:
Chandigarh Pollution Testing Laboratory

TABLE – 3.6

RESULTS OF GROUND WATER SAMPLES (October, 2023 to December, 2023)

Parameters	Unit	GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8	* Limits
pH	-	7.25	7.23	7.57	7.48	7.39	7.62	7.48	7.38	**6.5-8.5**
Colour	Hazen	<5	<5	<5	<5	<5	<5	<5	<5	**5.0**
Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity	NTU	<1	<1	<1	<1	<1	<1	<1	<1	**1.0**
Total Dissolved Solids	mg/l	259	274	266	258	266	272	262	258	**500**
Total Hardness as CaCO3	mg/l	252	262	254	250	242	255	250	246	**200**
Calcium as Ca	mg/l	34.2	26.6	22.4	38.0	30.0	24.0	26.6	32.0	**75**
Magnesium as Mg	mg/l	14.2	16.0	14.0	16.8	16.4	14.4	12.2	14.2	**30**
Total alkalinity	mg/l	250	260	250	252	240	250	246	252	**200**
Chlorides as Cl^-	mg/l	12.4	14.9	16.6	12.4	14.9	12.2	10.2	10.2	**250**
Sulphates as SO4	mg/l	16.2	18.8	16.6	15.4	16.2	18.8	16.6	15.4	**200**
Iron	mg/l	0.12	0.13	0.10	0.11	0.12	0.13	0.10	0.11	**1.0**
Fluoride	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	**1.5**
Zinc	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	**5.0**
Nitrate as NO3	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	**45**
Chromium	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	**0.05**
Manganese	mg/l	7.25	7.23	7.57	7.48	7.39	7.62	7.48	7.38	**0.1**
Mercury	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	No relaxation
Cadmium	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	No relaxation
Fluoride (as F), mg/l	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	1.5
Residual Chlorine (as Cl2), mg/l		ND	ND	ND	ND	ND	ND	ND	ND	ND
E – Coli	per 100 ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Total Coliforms	per 100 ml	<2	<2	<2	<2	<2	<2	<2	<2	<2

**** As per IS:10500: 2012 acceptable limits***

OBSERVATION AND ANALYSIS:

The Results above shows that the pH of all the ground water samples was within the prescribed standards following in the range of 7.31-7.74.

The concentration of heavy metals like Total Chromium, Mercury, Selenium, and Cadmium were not detected. Along with that Zinc, Manganese was also found not detected. Fluoride was observed in the Range of 0.21 to 0.42 which illustrates that it lies below permissible limit accordance to IS: 10500:2012.

Total Hardness of the entire ground water samples were found to be 260-296 mg/l which is exceeding acceptable limit but below permissible limit at all location, on the other hand, concentration of Total Dissolved Solids ranged between 298-368 mg/l which demonstrate all the ground water location may less contaminated from anthropogenic activity.

3.6 RAIN WATER HARVESTING:

(A)Outside the industry:

For GW recharge outside the industry premises, the industry has proposed to adopt the village pond. All the detail related to ponds runoff collection for recharge purpose are provided below.

Pond calculation details for ground water recharge

Name of village where pond is adopted	Surface area of Pond m^2	Depth of Pond m	Volume of Water Held in Pondm^3	No. of Pond Filling considered in a year (as per CGWA Guidelines) No's	Runoff collected in the pond annually from the runoff generated in the catchment area KL/ Annum
Adopted	6798	3.5	23,793	3	71,379
Total					71,379
• The recharge value from the pond can be taken as 50% of annual runoff water collected in the pond, is equal to **35,689** KL/ Annum.					

Following activities will be carried out by the industry with assistance of the local villages and Gram Panchayat in order to augment rain water runoff from the catchment areas of the ponds described above.

1. General cleanliness in the natural catchment area
2. Repair and renovation work of the pond

3. Desilting of the pond
4. General awareness among people for the importance of RWH
5. Ban on village wastewater to pond

3.7 NOISE ENVIRONMENT:

Noise is one of the most undesirable and unwanted by-products of our modern life style. It may not seem as insidious or harmful as air and water pollutants but it affects human health and wellbeing and can contribute to deterioration of human well-being in general and cause neurological disturbances and physiological damage to the hearing mechanism in particular. It is therefore, necessary to measure both the quality as well as the quantity of noise in and around the site.

METHODOLOGY:

The intensity of sound energy in the environment is measured in a logarithmic scale and is expressed in a decibel, dB (A) scale. In a sophisticated type of sound level meter, an additional circuit (filters) is provided, which modifies the received signal in such a way that it replicates the sound signal as received by the human ear and the magnitude of sound level in this scale is denoted as dB (A). The sound levels are expressed in dB (A) scale for the purpose of comparison of noise levels, which is universally accepted by the international community.

The day noise levels have been monitored during 6.00 am to 10.00 pm and night noise levels, during 10.00 pm to 6.00 am at all the 8 locations, which covers residential areas, commercial area, industrial area and silence zone within 10 km radius of the study area.

SAMPLING LOCATIONS:

A preliminary survey was undertaken to identify the major noise generating sources in the area. The noise survey was conducted to assess the background noise levels in different zones. Gazettes Notification {S.O. 123(E)} of MoEF&CC dated February 14, 2000 on ambient air quality standards has different noise levels for different zones viz industrial, commercial, and residential and silence zones. Eight sampling locations were selected for the sampling of noise levels.

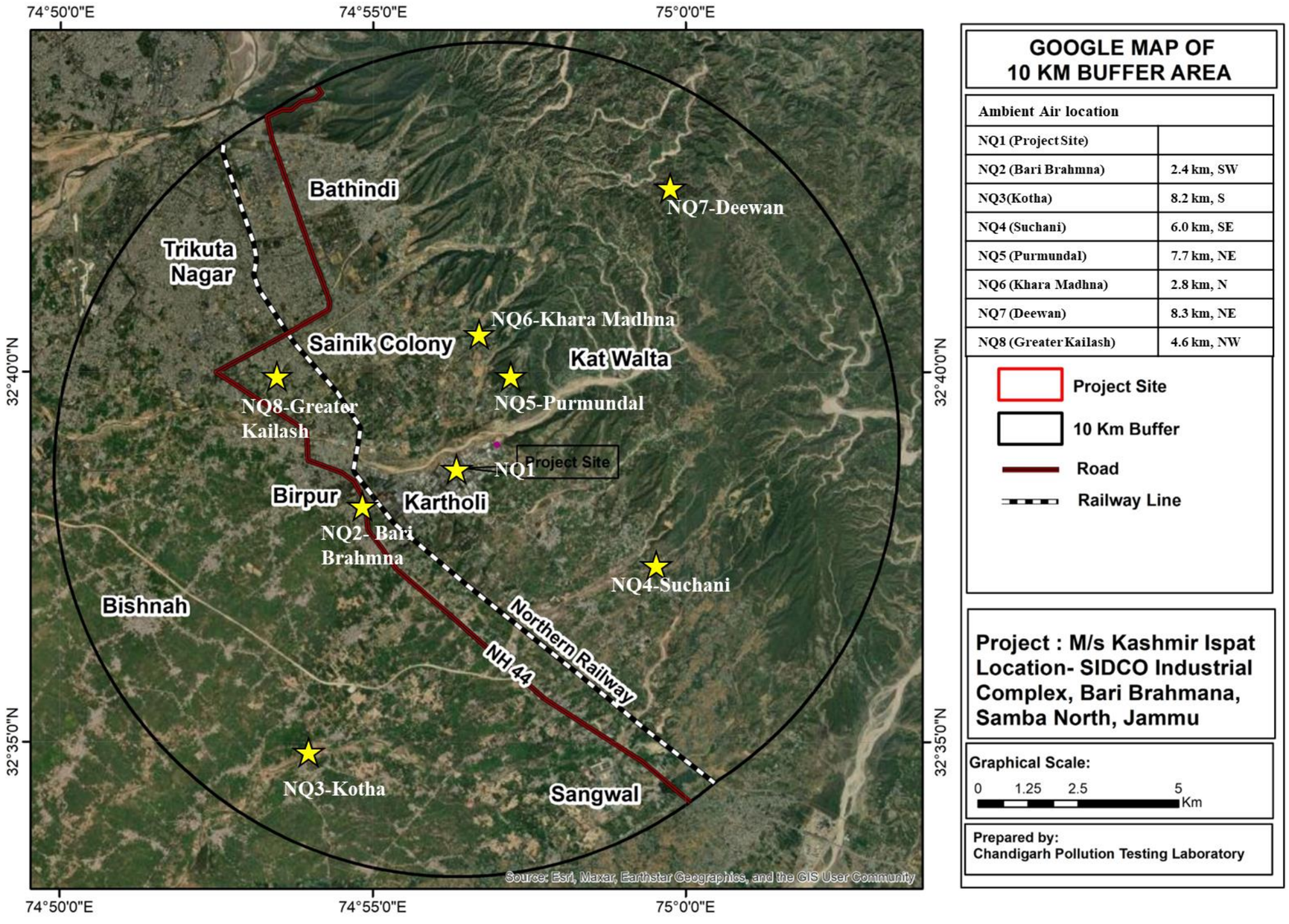
Noise levels recorded at each station are computed for Equivalent noise levels. Equivalent noise level is a single number descriptor for describing time varying noise levels. Location of noise monitoring station in topo sheet is given in **Figure 3.13.** List of noise monitoring stations are shown in **Table 3.10**

Table 3.7
Details of Noise Monitoring Stations

Stations	Name of Village/ Location	Distance from the Plant (Km)	Direction w.r.t. Plant	Justification for the Selection	Type of Land
NQ-1	**Project Site**	0 km		• Represent the project site	• Industrial Area
NQ -2	**Bari Brahmna**	2.4 km	SW	• Crosswind direction of the project site	• Residential area
NQ -3	**Kotha**	8.2 km	S	• Downwind direction of the project site	• Residential area
NQ -4	**Suchani**	6.0 km	SE	• Crosswind direction of the project site	• Residential area
NQ -5	**Purmandal**	7.7 km	NE	• Crosswind direction of the project site	• Residential area
NQ -6	**Khara Madhna**	2.8 km	N	• Upwind direction of the project site project site	• Residential area
NQ -7	**Deewan**	8.3 km	NE	• Crosswind direction of the project site	• Residential area
NQ -8	**Greater Kailash**	4.6 km	NW	• Crosswind direction of the project site	• Residential area

FIGURE -3.13

LOCATIONS OF NOISE MONITORING STATIONS



GOOGLE MAP OF 10 KM BUFFER AREA

Ambient Air location	
NQ1 (Project Site)	
NQ2 (Bari Brahmna)	2.4 km, SW
NQ3(Kotha)	8.2 km, S
NQ4 (Suchani)	6.0 km, SE
NQ5 (Purmundal)	7.7 km, NE
NQ6 (Khara Madhna)	2.8 km, N
NQ7 (Deewan)	8.3 km, NE
NQ8 (Greater Kailash)	4.6 km, NW

Project Site
10 Km Buffer
Road
Railway Line

Project : M/s Kashmir Ispat Location- SIDCO Industrial Complex, Bari Brahmana, Samba North, Jammu

Graphical Scale:
0 1.25 2.5 5 Km

Prepared by:
Chandigarh Pollution Testing Laboratory

Table 3.8
Noise Level Results Leq dB (A) in and Around Project Area October, 2023 to December, 2023

Sr. No.	Location No.	Day Time (Hourly Equivalent)	Night Time (Hourly Equivalent)
1.	Project Site	71.2	54.6
2.	Bari Brahmna	44.2	32.4
3.	Kotha	43.2	32.5
4.	Suchani	42.3	34.6
5.	Purmandal	41.4	33.3
6.	Khara Madhna	41.5	34.2
7.	Deewan	44.6	32.1
8.	Greater Kailash	43.2	33.0

Table 3.9
Noise Standards (Source-CPCB)

Area Code	Category of Area	Noise dB(A) Leq	
		Day Time (6.0am-10pm)	Night Time (10.0pm-6.0am)
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

INTERPRETATION:

Residential zone:

The day time noise level at the project premises was observed as 71.2 dB (A), and during night time the noise level was recorded to be 54.6 dB (A). The noise levels during the day time as well as night time were estimated to be under the prescribed standards by Central Pollution Control Board.

3.8 SOIL ENVIRONMENT:

Soil is generally considered as the upper layer of the earth that is dug or ploughed, especially the loose material in which plants grow. It is generally unconsolidated material composed of soil particles produced by disintegration of rocks. The void spaces between the particles may contain Air, Water or both. Physical characteristics of soil influence its use and behavior towards plants growth. The plant support, root penetration, drainage, aeration, retention of moisture & plant nutrients is linked with the physical condition of soils. Normally following physical parameters are important for determining the quality of soil: -

(i) **Texture**

(ii) **Porosity**

(iii) **Bulk density**

i. Texture

On the basis of texture, the study area may be classified as loamy sand, sandy loam and silty loam.

ii. Porosity

Volume of soil mass that is not occupied by soil particles and usually occupied by air & water are known as pore space. The plant roots grow & exist in the pore spaces. Porosity, therefore, refers to that percentage of soil volume which is occupied by pore spaces.

iii. Bulk Density

The bulk density weight of a unit of volume of soil inclusive of pore spaces is called bulk density. Generally, the soil with low bulk density has favorable physical conditions. The locations for collection of representative samples were selected considering -.

a. From different types of land uses in the study area.
b. From possible polluted & comparatively controlled locations in the study area
c. From the leeward and downward of the predominant wind direction

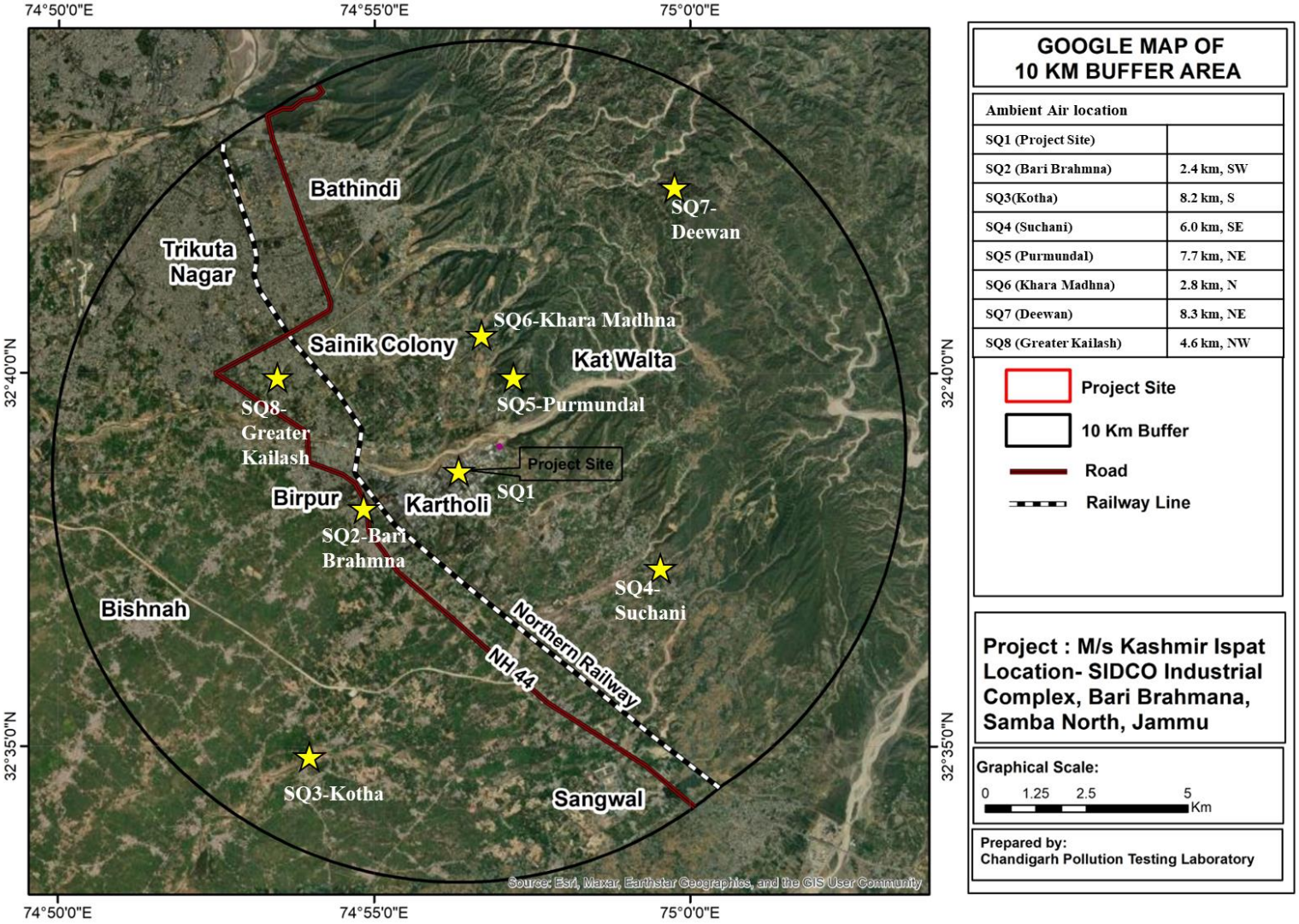
Locations of soil monitoring stations are given in Figure 3.6. List of soil monitoring station are given in Table 3.13.

TABLE 3.10

DETAIL LIST OF SOIL QUALITY MONITORING STATIONS

Stations	Name of Village/ Location	Distance from the Plant (Km)	Direction w.r.t. Plant	Justification for the Selection	Type of Land
SQ-1	**Project Site**	0 km		• Represent the project site	• Industrial Area
SQ -2	**Bari Brahmna**	2.4 km	SW	• Crosswind direction of the project site	• Residential area
SQ -3	**Kotha**	8.2 km	S	• Downwind direction of the project site	• Residential area
SQ -4	**Suchani**	6.0 km	SE	• Crosswind direction of the project site	• Residential area
SQ -5	**Purmandal**	7.7 km	NE	• Crosswind direction of the project site	• Residential area
SQ -6	**Khara Madhna**	2.8 km	N	• Upwind direction of the project site project site	• Residential area
SQ -7	**Deewan**	8.3 km	NE	• Crosswind direction of the project site	• Residential area
SQ -8	**Greater Kailash**	4.6 km	NW	• Crosswind direction of the project site	• Residential area

FIGURE-3.6
LOCATION OF SOIL MONITORING STATIONS



Ambient Air location	
SQ1 (Project Site)	
SQ2 (Bari Brahmna)	2.4 km, SW
SQ3(Kotha)	8.2 km, S
SQ4 (Suchani)	6.0 km, SE
SQ5 (Purmundal)	7.7 km, NE
SQ6 (Khara Madhna)	2.8 km, N
SQ7 (Deewan)	8.3 km, NE
SQ8 (Greater Kailash)	4.6 km, NW

TABLE –3.11

Result of Soil Samples (% W/W except pH)

S.No.	Parameter	Unit	SQ1	SQ2	SQ3	SQ4	SQ5	SQ6	SQ7	SQ8	Test Methods	Detection Limit
1	pH (1:2.5)	--	7.23	7.54	7.47	7.32	7.59	7.32	7.28	7.19	IS 2720(P-26),1987	1
2	Electrical Conductivity (1:2)	µmhos/cm	369	358	343	333	289	324	224	359	IS 14767,2000	2µs/cm
3	Texture	--	Loamy Soil	Loamy Soil	Loamy Soil	Loamy Soil	Loamy Soil	Loamy Soil	Loamy Soil	Loamy Soil	CPTL, Lab SOP No. 58	--
4	Bulk Density	(gm/cm^3)	1.48	1.32	1.22	1.33	1.36	1.24	1.38	1.18	IS 2720(P-3),1983	1g/cc
5	Soil Moisture Content	%	7.2	8.8	10.6	8.6	7.8	6.2	5.8	6.4	IS 2720(P-2,1973	1%
6	Color/ Visual Observation	--	Brown	Brown	Light Brown	Brown	Brown	Brown	Light Brown	Brown	Handbook of Agriculture, ICAR	--
7	Available Calcium	(mg/kg)	40.6	50.2	60.8	44.4	38.2	42.8	46.6	52.8	Handbook of Agriculture, ICAR	--
8	Available Magnesium	(mg/kg)	24.4	22.2	18.6	30.6	20.6	18.4	16.8	26.2	Handbook of Agriculture, ICAR	--
9	Available Sodium	(mg/kg)	126	132	142	146	143	122	138	128	CPTL, Lab SOP No. 50	--
10	Available Potassium	(kg/hectare)	30.6	24.8	20.2	36.4	28.8	18.6	24.6	22.8	CPTL, Lab SOP No.50	1.0 kg/ha
11	Available Nitrogen	(kg/hectare)	1.22	1.32	1.33	1.28	1.38	1.42	1.18	1.32	CPTL, Lab SOP No. 53	10%
12	Organic Matter	(%)	0.40	0.48	0.36	0.52	0.34	0.28	0.18	0.36	IS 2720(P-22),2001	0.1%
13	Available Phosphorus	Kg/hac	6.2	5.4	4.0	3.8	5.8	3.6	2.8	2.6	CPTL, Lab SOP No. 51	1.0 kg/ha
14	Cation Exchange Capacity	(meq/100gm)	0.52	0.49	0.51	0.46	0.42	0.34	0.28	0.36	CPTL, Lab SOP No. 58	--
15	Iron as Fe	(mg/kg)	1.28	1.34	1.28	1.33	1.16	1.24	1.38	1.18	CPTL, Lab SOP No. 54	--
16	Zinc as Zn	(mg/kg)	ND	ND	ND	ND	ND	ND	ND	ND	CPTL, Lab SOP No. 54	1.0 mg/kg

17	Lead as Pb	(mg/kg)	ND	ND	ND	ND	ND	ND	ND	ND	CPTL, Lab SOP No. 54	1.0 mg/kg
18	Manganese as Mn	(mg/kg)	ND	ND	ND	ND	ND	ND	ND	ND	CPTL, Lab SOP No. 54	1.0 mg/kg
19	Chromium as Cr	(mg/kg)	ND	ND	ND	ND	ND	ND	ND	ND	CPTL, Lab SOP No. 54	1.0 mg/kg
20	Cadmium as Cd	(mg/kg)	ND	ND	ND	ND	ND	ND	ND	ND	CPTL, Lab SOP No. 54	1.0 mg/kg
21	Copper as Cu	(mg/kg)	ND	ND	ND	ND	ND	ND	ND	ND	CPTL, Lab SOP No. 54	1.0 mg/kg
22	Permeability	cm/hr	26.8	20.2	16.4	18.2	18.8	26.4	22.8	16.9	Handbook of Agriculture, ICAR	-
23	Porosity	%	34.4	28.6	21.2	26.4	16.4	25.9	18.2	14.8	Handbook of Agriculture, ICAR	-
24	Water Holding Capacity	mm/cm	6.9	5.6	3.8	4.8	5.6	3.6	4.7	6.8	Handbook of Agriculture, ICAR	-

Conclusion (Describe significance of Porosity, Permeability and Water Holding Capacity):

The analytical results of the soil samples collected during the study period are summarized below.

The pH of the soil is an important property; vegetation cannot grow in low and high pH value soils. The normal range of pH in the soils is 7.24 to 7.63.

Based on the electrical conductivity, the soils are classified into four groups (Normal, Critical for germination, Critical for growth of the sensitive crops, Injurious to most crops). The electrical conductivity in the study area is varying from 328 to 366 µmhos/cm. This is good for germination.

The other important parameters for characterization of soil for irrigation are the primary nutrients – Nitrogen, Phosphorus and Potassium (N, P, K) and the secondary nutrients— Calcium, Magnesium and Sulphur (Ca, Mg, S). The primary and secondary nutrient elements are known as major elements. This classification is based on their relative abundance, and not on their relative importance.

Nitrogen encourages the vegetative development of plants by imparting a healthy green color to the leaves. The available Nitrogen as N in the study area is varying from 1.2 to 2.8 kg/hac. Phosphorus influences the vigor of plants and improves the quality of crops. In the study area available, Phosphorus was found in varying quantities of 2.4 to 3.9 Kg/hac.

Potassium enhances the ability of the plants to resist diseases, insect attacks, cold and other adverse conditions. The available potassium in the study area varies between 36.6 to 52.8 Kg/hectare. This is deficient for crops.

Organic Matter in the study area ranges from 0.54 to 0.84%. This is average to sufficient for the crops.

As per physical data, the soils in the study area are coarse to modularity fine texture, having modulated build density and impressively modulate water holding capacity. As per physical characteristics, the soils are rated as moderately to good for agriculture. Based on the observation during field visit of 10km buffer zone from the boundary of cement plant, the soils are sandy loam predominantly. These soils can be classified as modularity good soil with traces or gentle slopes and is modulate land for sustained agriculture as per USDA.

3.9 GEOMORPHOLOGY AND SOIL TYPES:

Samba town is situated on range of **Shivalik Hills** alongside the National Highway on the bank of river Basantar at a distance of 40 kilometers from Jammu city. The District Samba is bounded by District Udhampur in the North, District Kathua in the East, Tehsil Jammu and Bishnah of District Jammu in the west, while on the southern side, it has International Border with Pakistan. About two third of the area of District Samba is Kandi & rain fed. The area on southern side downside the National Highway is irrigated through Ravi Tawi Irrigation

Canal network and contributing towards major cereal crops and vegetable cultivation as special focus has been assigned by the Govt. of India, Ministry of Water Resources through Command Area Development Department.

An Industrial Growth Center has been established on the bank of river Basantar at Samba. A number of Small & Medium Scale Industrial Units have been established and have provided job opportunities not only to the educated unemployed youth, but also to the skilled and un-skilled labourers. To protect the traditional art of the area, the Government has established a Handloom Development Project at Samba and is providing employment opportunities to a large number of traditional weavers of Samba town who are earning their livelihood by way of weaving of clothes for the project. Samba is also famous in traditional Calico Printing, where local made dyes are used for printing weaved cotton fabrics. *(Source -http://cgwb.gov.in/District Profile/HP/Samba.pdf)*

3.10 HYDROGEOLOGY:

Geologically, the area can be explained as the northern hilly area underlain by the Siwalik rocks and the southern outer plain area underlain by the sediments of Recent Sub-Recent times laid down by the present-day stream area. Following geological succession occurs in the area.

	Geological Horizon	**Lithology**	**Age**
	Alluvium, fan, terrace deposits (Kandi and Sirowals)	Heterogeneous Clastic sediments	Sub-Recent to Recent
Upper Siwaliks	Boulder bed stage	Conglomerates sandstones with intercalations of red clays	Lower to Middle Pleistocene
	Pinjor Stage	Coarse sandstone, sand rock and massive sandstone beds.	Lower Pleistocene
	Tatrot Stage	Sandstone drab clays alternative	Upper Pliocene

		beds.	
Middle Siwaliks	Dhokpathan Stage	Sandstone & shale with isolated sand nodules	Lower Pliocene
	Nagri Stage	Sandstones & Shale, Hard & compact	Upper Miocene
Lower Siwaliks	Chingi Stage	Bright red shale and sandstones	Middle Miocene
	Kamlial Stage	Hard red sandstones & shale with pseudo conglomerates	Middle to lower Miocene

Drainage map of the study area depicts that Basanter River is another major tributary of the Ravi River. The Ravi is perennial Trans Boundary River flowing through north-western India and north-eastern Pakistan. Drainage map of the same is plotted using Landsat 8 Satellite Imagery Path/Row: 147/39 on dated 10.02.2022. Depth of water level pre and post monsoon is given in **Figure 3.7 (A).** Drainage map of the study area is given as **Figure 3.8.**

Figure – 3.7 (a)

Depth of Water level pre-monsoon

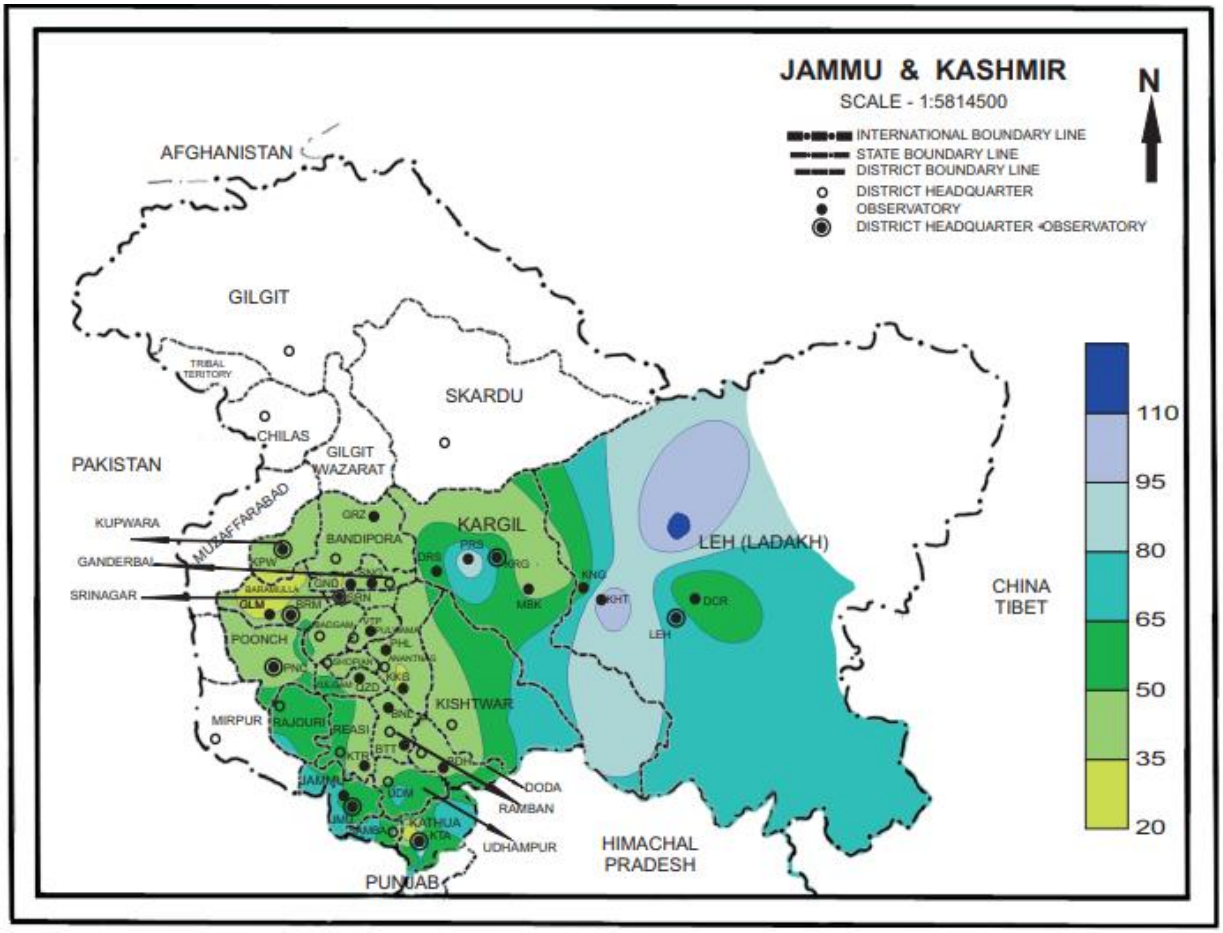
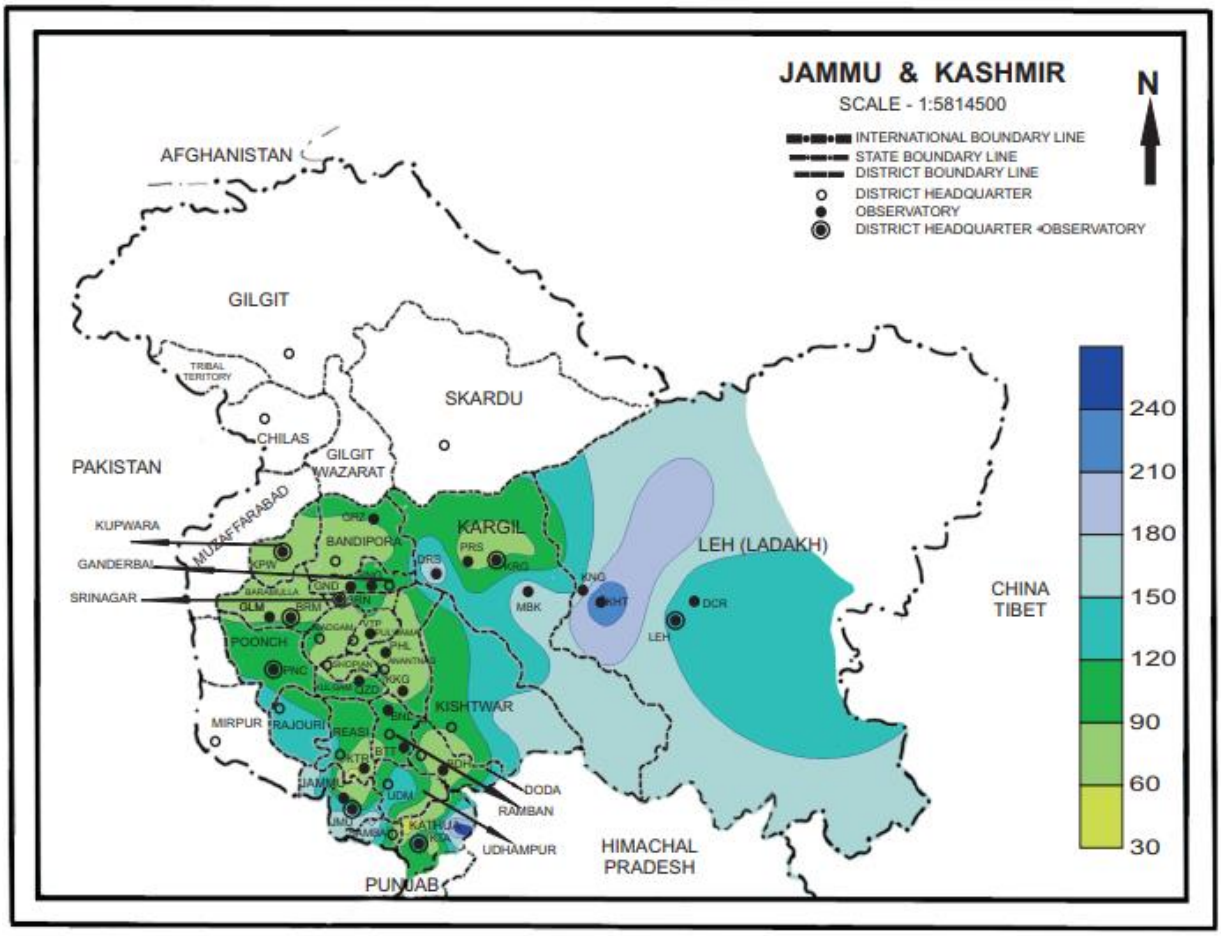


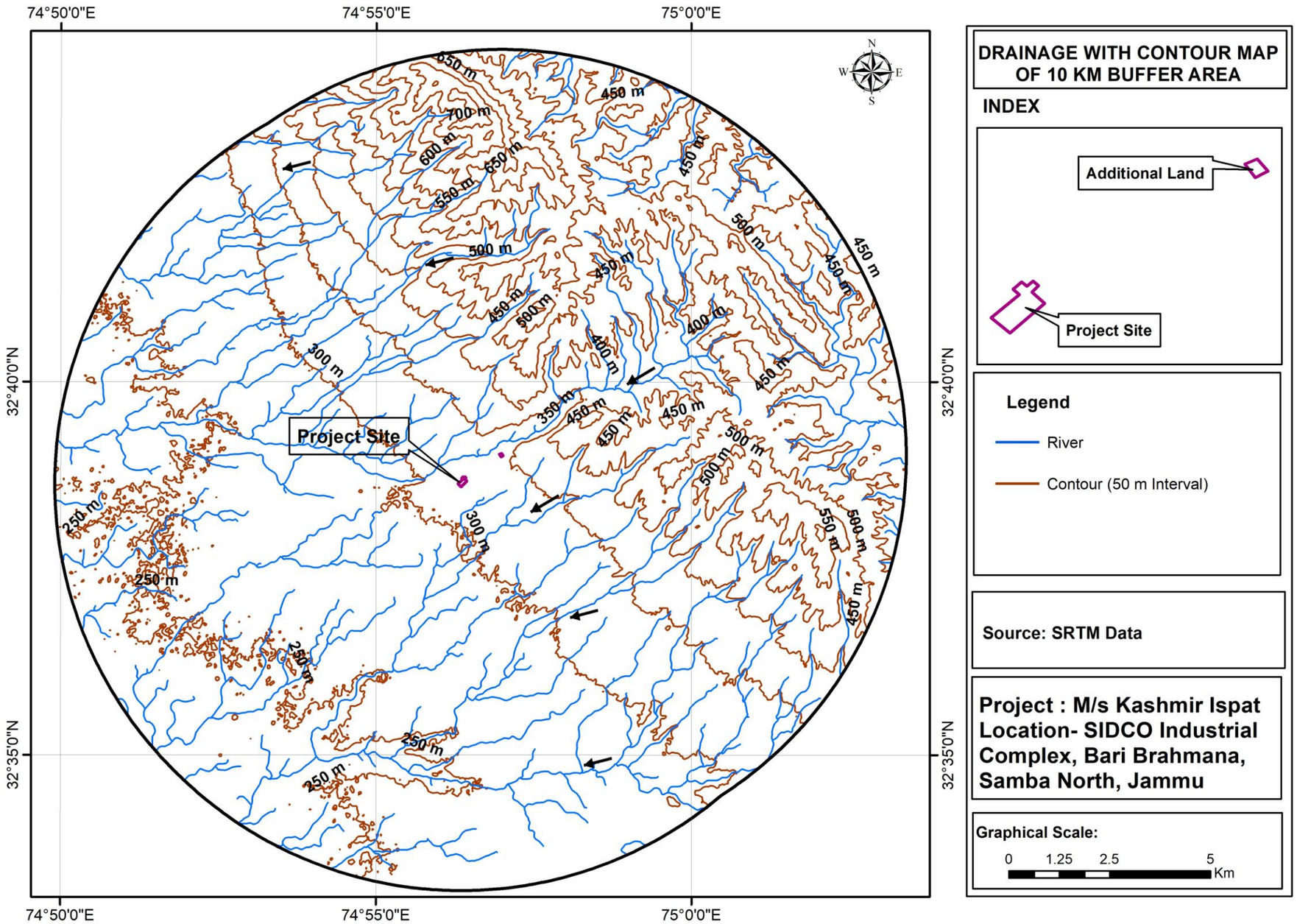
Figure – 3.7 (b)

Depth of water level post-monsoon



(Source -http://cgwb.gov.in/District Profile/Jammu & Kashmir/Samba.pdf)

FIGURE 3.8: DRAINAGE MAP OF THE STUDY AREA



3.11 LAND ENVIRONMENT:

The objective of assessing the land use details of the area is to know the existing land use pattern of the area and enable one to know about the land that can be used for the proposed development activities in the study area. It also enables to envisage the scenario emerging due to the increase in demand for land with increase in population and the impacts arising due to the interface with the various project activities.

GEOGRAPHICAL LOCATION OF THE STUDY AREA

The study area comprises 10km around the project site.

DATA COLLECTION AND QUALITY ASSURANCE SATELLITE DATA

The Indian Remote Sensing satellite data Landsat – 8 satellite imagery is being used for the analysis of Land Use and Land Cover around 10 Km of the study area.

Methodology

The land use / land cover map is prepared by adopting the interpretation techniques of the image in conjunction with collateral data such as Survey of India topographical maps and census records. Image classification has been done by using visual interpretation techniques and digital classification using ERDAS image processing 10.0 software and ARC/GIS 10.0 software. The various activities for preparation of LULC include preprocessing, rectification, enhancements and classifying the satellite data for assessing the change in land use land cover due to proposed developmental activities.

The imagery is interpreted and ground checked for corrections. The final map is prepared after field check. The different land use/land cover categories in the study area have been carried out based on the NRSC land use / land cover classification system.

Flowchart showing the methodology adopted for land use/land cover mapping is provided as **Fig 3.10.**

Land Use / Land Cover Study

The land use land cover study has been done through digital image processing and visual interpretation technique to generate output of Land use / Land cover map of study area on 1:50,000 scale. Land Use / Land Cover Map of Study Area (10 Km Buffer) **Fig 3.11**and a 10 Km radius False Color Composite

satellite map surrounding the project site is provided in **Fig 3.12**

Fig 3.9: Flowchart showing the methodology adopted for land use/land cover mapping

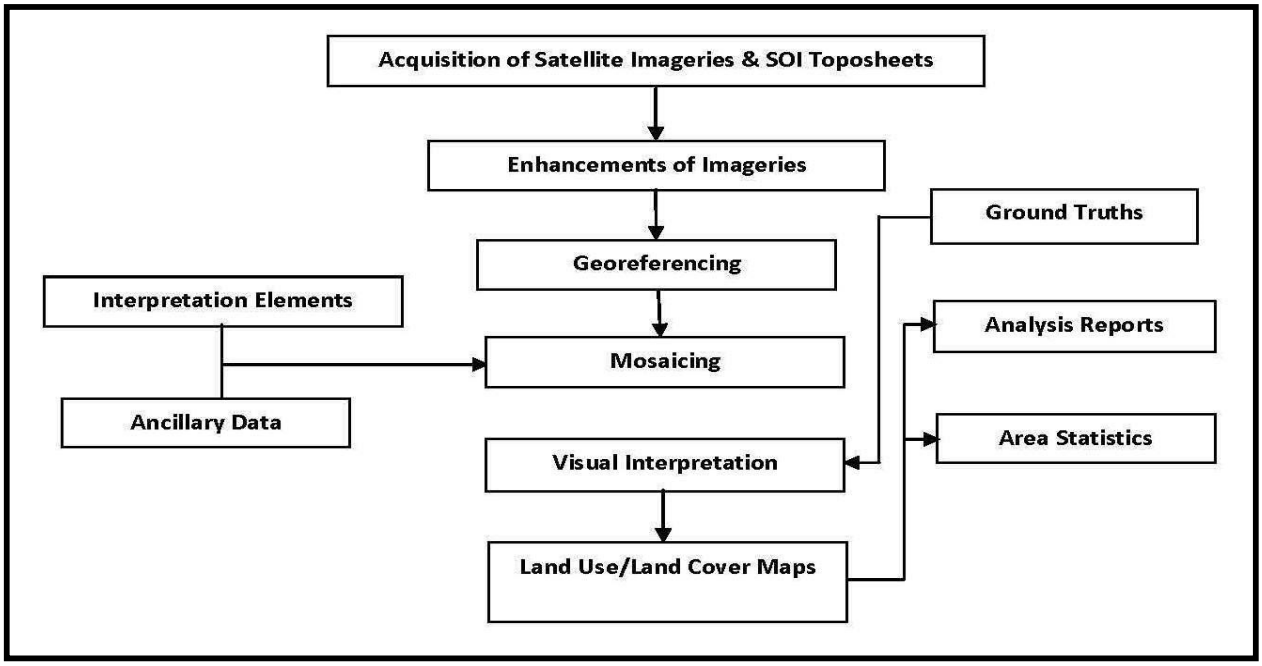


Table 3.12

Land Use/Land Cover Area Statistics

Land Use/Land Cover	Area (Ha)	Area Percentage
Built-Up Land	8445.58	24.65
Agricultural Land	11641.10	33.98
Agricultural Fallow Land	2245.39	6.58
Open Land	368.78	1.08
Riverbed	834.95	2.44
Forest	10715.20	31.28
Total	**34260.00**	100.00

The study area comprises of mainly agricultural land of about 11641.10 ha (33.98%) including agricultural fallow land 2245.39 ha (6.58 %) followed by Built up land in the study area cover-an area of 8445.58 ha (24.65%) approximately. The study area has open land of 368.78 (1.08 %) distributed in & around study area. The land cover pattern and the respective coverage are given in **Table 3.15.**

CONCLUSION & DISCUSSION:

Based on the perusal of field visit and interaction with framers, it is seen that over the period of time variants of fruits, vegetable and fodder have been successfully grown in the study area are indicator of healthy & conducive land environment.

INDUSTRIES WITHIN STUDY AREA (10KM RADIUS):

Table 3.13

List of Industries within study area (10km radius) (Distance of each industry along with its direction to be mentioned)

S.No.	Name of Industries	Type of Industries	Distance and direction
1.	Jai Beverages Pvt. Ltd	Pepsi Plant	1.0 km towards South West
2.	Nav Bharat Flour Mill	Manufacturer of Maize Flour, Basmati Rice & Poha	0.9 km towards North East
3.	Saraswati Plastotech India Pvt. Ltd	Manufacturing polycarbonate sheets	0.9 km towards North
4.	Prevest Denpro Limited	Research & development department which is responsible for the development of high-quality innovative dental materials.	0.3 km towards South East
5.	KK Roller Flour Mills	Modern and fastest growing Roller Flour Mills	0.6 km towards South East
6.	Ravenbhel Biotech	Epoxy flooring in RM stores, dispensing and sampling areas, manufacturing floor, quarantines, wash/cleaning area	0.5 km towards East
7.	Dabur India Ltd, Unit-5	Manufacturer, Wholesale Supplier / Wholesaler - Dabur Honey, Gulabari Rose Water, Dabur Almond Hair Oil, Dabur Vatika	0.3 km towards North

		Coconut Hair Oil, Dabur Almond Shampoo	
8.	JTH Industries	Modular Kitchen and Kitchen Accessories / Kitchen Chimneys / Jth Industries, Deep freezers/water coolers mfrs.	0.2 km towards North West
11.	GCMMFL (Amul) Jammu	Milk producers	1.8 km towards North West
12.	Rivigo services Pvt Ltd	Fastest and Safest Cargo Service with Largest Serviceability in India	1.6 km towards North West
13.	Alteus Remedies Pvt Ltd	Manufacturer of Pharmaceutical Tablets, Fragrance Perfume & Industrial Products	0.6 km towards South
14.	VJ Jindal Cocoa Pvt Ltd	Manufacturer, Supplier, Trading Company of Cocoa Powder, Chocolate Compound, Raw Material	0.5 km towards South
15.	Naturis Cosmetics Pvt Ltd	Cosmetic manufacturers	0.8 km towards South
16.	Uflex Limited Unit-II	Packaging company	1.8 km towards North
17.	Kc food Products Pvt Ltd	Manufacturer of Gold Cashew Cookies, Marie Teatime Biscuits, Shaktiman Glucose Biscuits, Butter Cookies and Chocolates	1.3 km towards South West

FIG 3.10: LAND USE / LAND COVER MAP OF STUDY AREA (10 KM BUFFER)

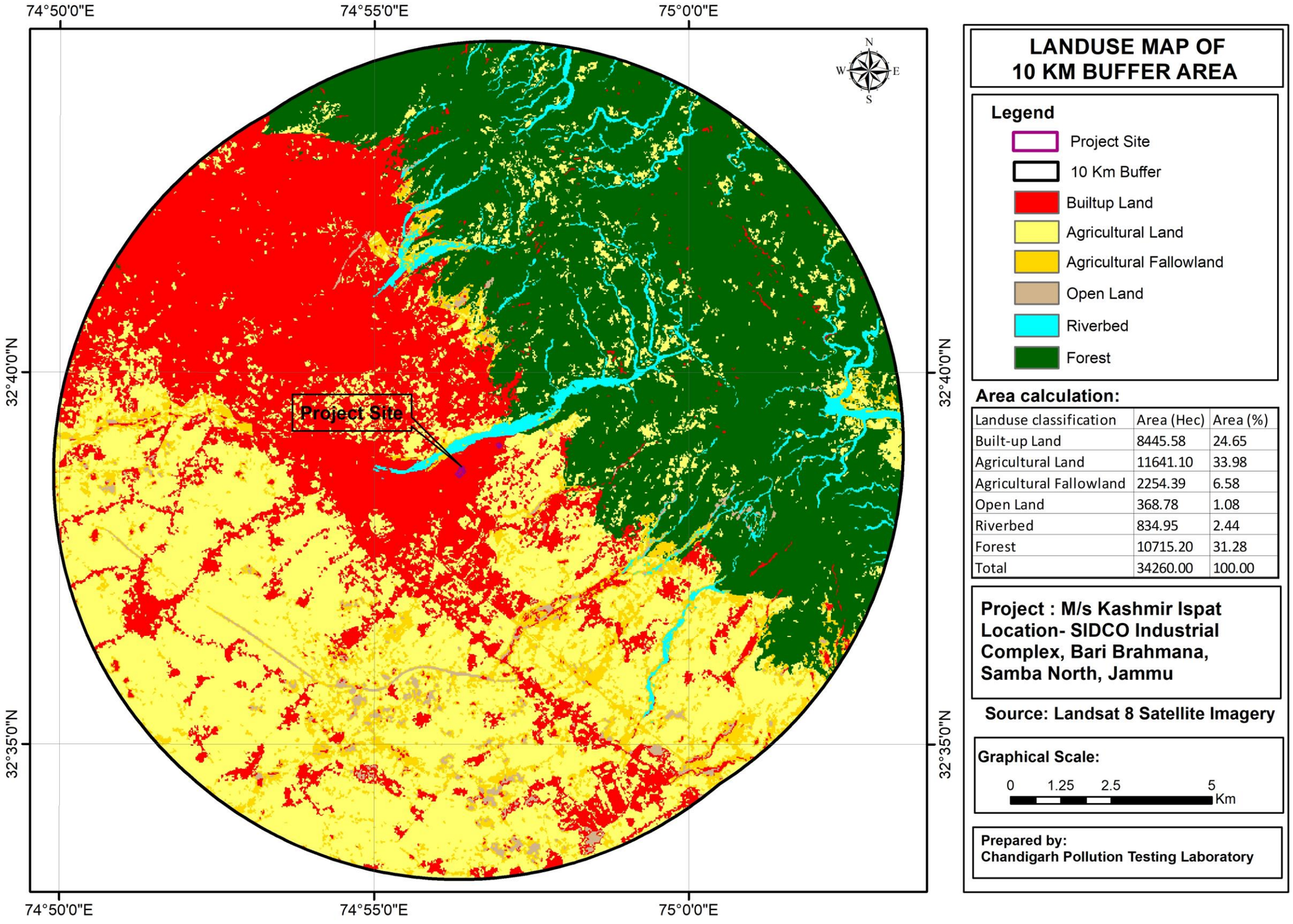
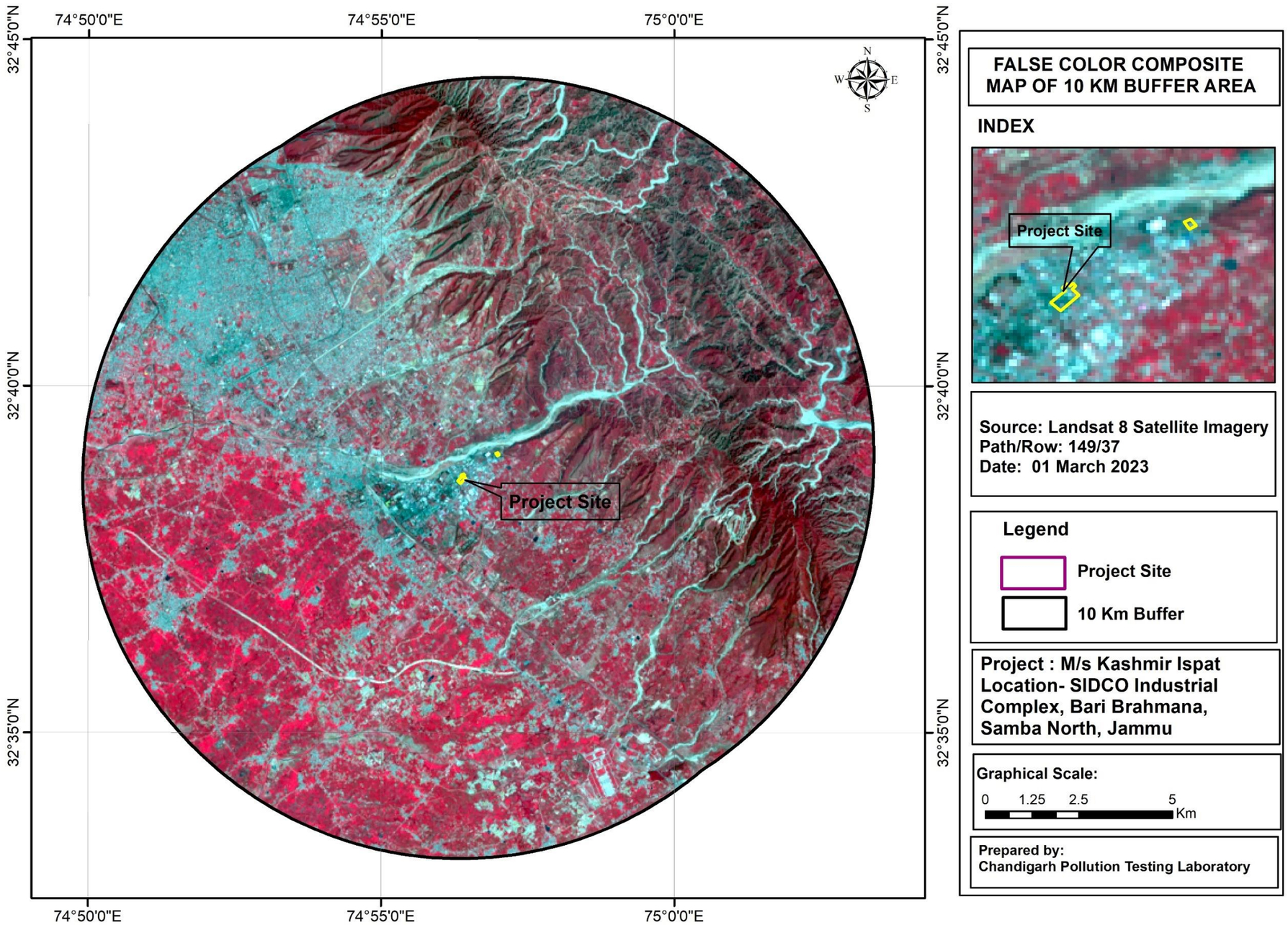


FIG 3.11: 10 KM RADIUS FALSE COLOR COMPOSITE SATELLITE MAP



3.12 BIOLOGICAL ENVIRONMENT:

Biological diversity (biodiversity) refers to "the full variety of life in an area, including the ecosystem, plant and animal communities, species and genes, and the processes through which individual organisms interact with one another and with their environment". Biodiversity occurs at many levels from the molecular to complete ecosystems and is a measure of the relative abundance of genes, species, and ecosystems Plant and animal communities are indicators of the environment. They respond not only to one environmental factor but also to an interactive group of factors. These communities influence and react sensitively to change in the balance of environmental stresses. Depletion of biodiversity is mainly due to intense anthropogenic pressure owing to "Population Explosion" mainly for expansion of agriculture, over grazing and illicit felling, shifting cultivation, development activities like irrigation, construction of hydro-electric dams, road construction including mining activities – all leading to dysgenic selection. Rational use of the resources is therefore; quite important in the management of biodiversity, the habitat, species and gene pools prevalent in an area, because once it is lost, it becomes an uphill task to reverse the process. Therefore, a detailed knowledge of the diversity of the area definitely helps in managing the area properly following suitable practices.

Before starting any Environmental Impact Assessment study, it is necessary to identify the baseline of relevant environmental parameters which are likely to be affected as a result of operation of the proposed project. A similar approach has been adopted for conducting the study on Biological Environment for this Project. Both terrestrial and aquatic ecosystems have been studied to understand the biological environment.

PHYSICAL ENVIRONMENT OF THE AREA:

Samba is a newly formed district, located in Jammu and Kashmir State. The district was earlier a part of District Jammu of the State. Samba is located at 32.57°N 75.12°E and has an average elevation of 384 m (1,260 ft). Samba is situated on a range of Shivalik hills on the east of Jammu alongside the National Highway 1-A on the bank of river Basantar at a distance of forty kilometers from Jammu city.

Samba District borders Udhampur District to the north, Kathua District to the east, Tehsils Jammu and Bishnah of Jammu District to the west, and the International Border Pakistan to the south.

STUDY PERIOD AND METHODOLOGY:

Detailed survey was conducted to evaluate floral and faunal composition of the study area. Primary data on floral and faunal composition was recorded during site visit and secondary data was collected from

the Forest department and published relevant literature. Inventory of flora and fauna has been prepared on the basis of collected data.

Methodology:

Table: 3.19 Mode of data collection & parameters considered during the survey

Aspect	Data	Mode of data collection	Parameters monitored
Terrestrial Ecology	Primary data collection	By conducting field survey	Floral and Faunal diversity
	Secondary data collection	From authentic sources like Forests department of Solan and available published literatures	Floral and Faunal diversity and study of vegetation, forest type, importance etc.
Aquatic Ecology	Primary data collection	By conducting field survey	Floral and Faunal diversity
	Secondary data collection	From authentic sources like Forests department of Solan and available published literatures	Floral and Faunal diversity and study of vegetation, forest type, importance etc.

- **Northern Dry Mixed Deciduous Forest (5B/C2):** This type is characterized by the presence of Anogeissus, latifolia, Acacia catechu. The upper canopy is light but fairly even and continuous in the climax form. The later condition is however, rarely encountered and irregular, often broken canopy is met with.
- **Northern Dry Mixed Deciduous Forest (5B/C2**): This type is characterized by the presence of Anogeissus, latifolia, Acacia catechu. The upper canopy is light but fairly even and continuous in the climax form. The later condition is however, rarely encountered and irregular, often broken canopy is met with.
- **Dry Deciduous Scrub (5/DS1):** A low broken soil cover of shrubby growth, 3 to 6m high including some tree species reduced to similar conditions, usually many stemmed from the base is the common vegetation of this type. The main tree species are Acacia catechu, Butea monosperma, Lannea coromandelica etc., and the bushes include Nyctanthes arbortristis, Dodonaea viscosa, Woodfordia fruticose etc.
- **Khair-Sissu Forest (511S2):** This type typically and conspicuously occurs on fresh sandy and

gravelly alluvium of river bed. Sissoo and Khair are the main species of this type and are mixed by other deciduous species in varying proportions depending on the extent of progression in the area.

- **Dry Bamboo Brake (5/E9):** Only one species, Dendrocalamus strictus occurs and forms relatively low but often dense brakes.

FLORA OF THE STUDY AREA:

A detailed biological study of the study area i.e., 10 km radius of the proposed project has been carried out to identify the composition of flora and fauna. A survey was carried out for assessment of vegetation for density, diversity, frequency and relative abundance. For fauna, random sites were selected for faunal identification. For both the parameters, data from district forest department was obtained. The plantation in the study area mostly consists of some ornamental species and avenue and fruit trees. The important species of plants found in the area: -

Flora

The altitudinal difference as well as aspect and biotic influences has caused diversity in vegetation type in the buffer zone. The climate difference in the tract, which are tropical in lower elevation and subtropical at higher elevation, result in development of different pes of forests. In the East of the project area bamboo forest and in the southern side Babul Forest dominates.

The common tree species found in the area are Neem, Shisham, Pepal, ber, babul. Amongst shrubs Curry patta (Murraya koenigii) wild berry are common. Weeds like Lantana and Parthenium hysterophorus (Congress grass) are extensively spread.

The plantation in the study area mostly consists of some ornament's species and avenue and fruit trees. The important species of plants found in the area: -

FLORA FOUND IN CORE & BUFFER AREA

SR. No.	Local name	Botanical name
1	Poplar	Populus alba
2	Vilayti Safeda(Laseen)	Leucaena leucocephala
3	Shesham	Dalbergia sissoo
4	Kikar	Acacia modesta
5	Drek	Melia azedarach
6	Ashoka	Polyalthia longifolia
7	Ber	Zizyphus jujuba
8	Bottle brush	Callistemon sp.
9	Gulmohar	Delonex regia

10	Arjun	Terminalia arjuna
11	Kachnar	Bauhinia variegate
12	Jamun	Syzygium cumini
13	Mango	Mangifera indica
14	Peepal	Ficus religiosa
15	Sat-patra	Alstonia scholaris
16	Bod	Ficus benghalensis
17	Araucaria	Araucaria sp.
18	Morepankh	Platycladus orientalis
19	Sirish/sareen	Albizia lebbeck
20	African kakri	Kigelia pinnata
21	Safeda	Eucalyptus lanceolatus

It is marked that in some patches are clad with dense forest. The following crops are grown in the plain area:

CROP & VEGETABLES GROWN IN STUDY AREA

Crop Name	**Details**
Paddy (Dhan)	Gobhi Sarson
Wheat (Gehon)	Oat
Maize (Makka)	Sudan Grass
Pearl Milet (Bajra/Bulrush Milet/Spiked Millet)	Onion
Sorghum (Jowar/Great Millet)	Cabbage
Black Gram (Urd Bean)	Cauliflower
Bengal Gram (Gram/Chick Pea/Kabuli/Chana)	Knol-Khol
Green Gram (Moong Bean/ Moong)	Bitter Gourd
Lentil (Masur)	Bottle Gourd
Peas (Field Peas/Garden Peas/ Matar)	Cucumber
Groundnut (Pea Nut/Mung Phalli)	Indian Squash (Tinda/Round Melon)
Indian rapeseed and mustard (Yellow sarson)	Brinjal
Raya (Indian mustard)	Chillies
Sesame (Gingelly/ITI)	Bhendi
Sunflower (Egyptian Clover)	Tomato
Rajmash Bean	Fenugreek
Pea (Vegrtable)	Radish
Coriander	Turnip (Saljam)

STATUS OF FAUNA:

Due to rich forest cover, many fauna is expected to be found in this area. The wild lives present in the study area are mainly monkey, Langoor, Jackal, Rabbits, Deer, Fox, etc. Among domestic animals: Cow, Buffaloes, Mules, Hen, Dogs, Goats, Oxen, Cats are common. Due to rich forest cover in the buffer zone many fauna is expected to be found in this area and are listed in table-3

Wild Animals: Considerably more common in the northern side of the study area, owing to presence of hills and forests. The present study area is comprising of villages agricultural fields and small khads, which restricts natural movements of wild animals.

Presently: Newla (mongoose), wild dogs, fox, wild cats, Lakarbaghha (Hyaena hyaena), monkey, langur and Khargosh (Lepus nigricollis) are reported from the area.

Wild Birds:The resident birds include peafowl; black and grey partridge. The birds of the southern study area are Bater, Lawa, janglimurga, kala tittar, dhaner and harial. Also are ullu or owl, koel or cuckoo, cheel or kite, jungle kawwa or crow, tota or parrot, nilkanth, snakes: In the study area, snakes such as Cobra, Krait and Viper. The Table below gives prevailing common fauna in the study area.

S.NO	Local Name	English Name	Zoological Name	Status (WLP Act.1972)
1.	Siyar	Jackal	Canisa ureus	II
2.	Kharghosh	Common Indian hare	Lepus ruficaudatus	IV
3.	Gilhari	Five stripped squirrel	Funambuluspennant	IV
4.	Chamgadad	Short nosed fruit bat	Cynopterus sphinx	V
5.	Chooha	Field rat	Bandicota benghalensis	V
6.	Lomadi	Indian Fox	Vulpus benghalensis	II
7.	Bandar	Monkey	Macaca mulatta	III
	Langur	Monkey	Presbytis phyarei	III
8.	Neloa	Mangoose	Herpetes edwardsi	IV
9.	Jangli billi	Jungle cat	Felis chaus	II
10.	Shahi	Indian porcupine	Hystrix indica	IV
11.	Wild boar	Jangli suar	Sus scrofa	III

Amphibia and Reptiles

S.NO.	Common/ English name	Zoological name	Status (WLP Act.1972) Schedule
1.	Common karait	Bungarus caeruleus	**IV**
2.	Dhaman/Indian rat snake	Ptyas mucosus	**II**
3.	Dhondwa/Water snake	Enhydris enhydris	**IV**
4	Girgit (Garden lizard)	Calotes Versicolor	**-**
5.	Nag/cobra	Naja naja	**II**
6.	Russel viper	Vipera ruselli	**II**
7.	Common toads	Duttaphrymus	**V**
8.	Small frog	Microhyla ornata	**V**

Avi fauna

S.NO.		Name	Family
1.	Northern Shoveler	Anas clypeata	Anatidae
2.	Common Swift	Apus apus	Apodidae
3.	Indian grey-hornbill	Ocycerors birostris	Bucerotidae
4.	Red-wattled lapwing	Vanellus indicus	Charadriidae
5.	Indian pond-heron	Ardeola grayii	Ardeidae
6.	Cattle Egret	Bubulcus ibis	Ardeidae
7.	Rock pigeon	Columba livia	Columbidae
8.	Collared-Dove	Streptopelia decaocto	Columbidae
9.	Laughing dove	Streptopelia senegalensis	Columbidae
10.	Common kingfisher	Alcedo atthis	Alcedinidae
11.	Indian Roller	Coracias benghalensis	Alcedinidae
12.	Little green Bee-eater	Merops orientails	Meropidae
13	Greater coucal	Centropus sinensis	Centropodidae
14.	Asian koel	Eudynamys scolopacea	Cuculidae
15.	Jacobin cukoo	Clamator jacobinus	Cuculidae
16.	Brahminy Kite	Haliastur indus	Accipitridae
17.	Shikra	Accipiter badius	Accipitridae
18.	Egyptian vulture	Neophron percnopterus	Accipitridae
19.	House crow	Corvus splendens	Corvidae
20.	Rufous treepie	Dendrocitta vagabunda	Corvidae Dicruridae
21.	Black drongo	Dicurus macrocercus	Dicruridae
22.	Brahmni kite	Haliastur indus	Accipitridae
23.	Pariah kite	Milvus migrans	Accipitridae
24.	Long- tailed shrike	Lanius Schach	Laniidae
25.	Indian Robin	Saxicoloides fulicata	Muscicapida
26.	Purple sunbird	Nectarinia asiatica	Nectarinidae
27.	Paddyfield pipit	Anthus rufulus	Motacillidae
28.	White wagtail	Motacilla alba	Motacillidae Passeridae
29.	House sparrow	Passer domesticus	Passeridae Ploceidae
30.	Baya weaver	Ploceus philippinus	Ploceidae
31	Bank myna	Acridotheres ginginianus	Sittidae
32.	Common myna	Acridotheres tristis	Sittidae Sturnidae
33.	Asian pied starling	Sturnus contra	Sturnidae
34.	Brahminy starling	Sturnus pagodarum	Sturnidae
35.	Rosy starling	Sturnus roseus	Sturnidae
36.	Common tailorbird	Orthotomus suttorius	Sylviidae
37.	Jungle babbler	Turdoides striatus	Leiothrichidae
38.	Little cormorant	Phalacrocorax niger	Phalacrocoracidae
39.	Indian cormorant	Phalacrocorax fuscicollis	Phalacrocoracidae
40.	Coppersmith barbet	Megalaaima haemacephalla	Megalaimidae
41.	Rose- ringed parakeet	Psittacula krameri	Psittacidae

42.	Spotted Owlet	Athene brama	Strigidae
43.	Barnowl	Tyto alba	Tytonidae
44.	Hoopoe	Upupa epops	Upupidae

3.13 SOCIO-ECONOMIC ENVIRONMENT:

INTRODUCTION:

Modern day cities have complex structure comprising of numerous & intertwined/ interwoven relationships due to which town planning judgments cannot be merely treated as technical-oriented as they affect the lives and interests of the whole community. In the present context, the slogan "Planning by the people and Planning for the people "exhibits a shift from Physical design oriented basic concept of town planning to more of a socially relevant and sensitive model of town Planning encompassing socio-economic richness and viability of existing communities.

The economic sectors i.e., primary, secondary and tertiary form the economic base of the town. Nothing can hamper the physical growth/ development of an area more than the economic incompetence. The identity of a town depends upon the character of its population. Demographic profile determines the demographic character of the town area in terms of population, growth rate, density, literary rate etc. which further helps in determining the social as well as the economic character of the area. The natural population growth has special significance because it is a vital index of economic development, social awakening.

METHODOLOGY:

The aim / objectives of the study and how it was done (methodology) are given in Table 3.20.

Table 3.14

Approach and Methodology for Conducting the Socio-economic study

S.No.	Aim / Objective	Area		Methodology
		Study Area	Core Area Only	
Objective- To Identify and Assess Social status of society in the focused area. To do this it is required to get reliable information with regards to				
1.	People residing in the study area along with key demographic figures as per the	√		Primary and secondary survey

	secondary data (mainly Census of India) giving information on: population, literacy, gender and occupation			
2.	To Identify and Assess Main sub-communities dwelling in the core zone by caste and religion		√	Primary and secondary survey
3.	To Identify and Assess People who are vulnerable classes such as: Below Poverty Line (BPL), Scheduled Castes (SC) and Scheduled Tribes (ST)		√	Primary and secondary survey
To Identify and Assess Economic status of society in the study area. To do this it is required to get reliable information with regards to				
4.	Occupational pattern from secondary data (mainly Census of India) giving information on: main workers / marginal workers /non-working population	√		Secondary data collection and collation from Census of India
5.	Sources of revenue available to Panchayati Raj Institutions (PRIs)	-	-	-
6.	Economic well-being of different classes by gaining an understanding of: prevailing daily wage rates for labor (male /female), status of land holding across different classes / landless households, major crops and farmer support, livestock and animal husbandry	-	-	-
To Identify and access Status of physical and social infrastructure within the core and buffer areas. To do this, it is required to get reliable information with regards to				

7.	Physical infrastructure - reliable information on availability and adequacy with respect to: educational facilities, road infrastructure, power, water for drinking and irrigation, sanitation, garbage / MSW, banking facilities	√		From interviews with PRI representatives
8.	Social infrastructure – reliable information on availability and adequacy with respect to infrastructure associated with: sports, community events and community self-help / support group			
9.	Cultural heritage of the area	√		From published literature and site visits
To Identify and Access the Effect of				
10.	Ongoing impacts of other developments in the vicinity of the subject development on people and their lifestyle within the core impact zones, as determined by the EIAC in interaction with FAE (WP / AP&AQ / SHW / RH & NV)		√	From focus group discussions
11.	Likely impacts of proposed operations (if a greenfield project) on people and their lifestyle within the core impact zones mentioned above		√	From focus group discussions
12.	**To Determine** Needs of different communities based on the work done in identification and assessment mentioned above		√	From data analysis, internal / Client discussions

13.	**To Propose** a Social Management Plan with budgets, timelines and actionable items to achieve the expected outcomes		√	From data analysis, internal / Client discussions

SAMBA DISTRICT:

Demographic profile of Samba District based on 2011 census is given in the Table below-

S.No.	**Description**	
1.	No. of households	65,385
2.	Total Population	318,898
3.	Male Population	169,124
4.	Female population	149,774
5.	Sex Ratio	886
6.	Child Sex Ratio (0-6 Age)	779
7.	Total Hindu population	275,311
8.	% Hindu Population	86.33 %
9.	Total Muslim population	22,950
10.	% Muslim population	7.2 %
11.	Total Christian population	2,306
12.	% Christian population	0.72 %
13.	Total Sikh Population	17,961
14.	%Sikh Population	5.63 %
15.	Total Buddhist Population	48
16.	%Buddhist Population	0.02 %
17.	Total Jain Population	16
18.	%Jain Population	0.01 %
19.	Others	6
20.	% Others	0.00 %

21.	Literates	90,759
	Males	38,812
	Females	51,947
22.	Average Literacy (%)	81.41%
	Male	77.05%
	Female	65.32%
23.	Child Population (0-6 Age)	38,669
	Boys Population (0-6 Age)	21,737
	Girls Population (0-6 Age)	16,932
24.	Scheduled caste	91,835
25.	Scheduled Tribe	17,573
26.	Main workers	
	Person	74,129
	Male	67,523
	Female	6,606
27.	Marginal Worker	
	Person	18,397
	males	14,429
	Females	3,968
28.	Cultivators	
	Persons	12,960
	Males	11,788
	Females	1,172
29.	Agricultural Labourers	
	Persons	2,414
	Males	2,243

	Females	171
30.	Workers in household industry	
	Persons	1,079
	Males	968
	Females	111
31.	Others	
	Person	57,676
	Males	52,524
	Females	5,152

(Source: Primary Census Abstract 2011)

METHODOLOGY APPLIED FOR SELECTION OF SAMPLE & DATA COLLECTION:

The methodology which is applied for primary source of data collection i.e., gathering data through field survey for socio- economic environment is depicted below:

A. Sampling Method:

A judgmental and purposive sampling method was used for choosing respondents of various sections of the society i.e., Sarpanch, Adult Males and Females, Teachers, Medical Practitioners, Businessmen, Agriculture labourers, Unemployed Group etc. Judgmental and purposive sampling methods were adopted to assess the total population that helps to fulfill the purpose of research needs.

B. Data Collection Method:

For the process of data collection through primary source certain methods were used, amongst that are:

i. Field Survey and Observation:

Field survey and observations were made in nearby sampling village and the socioeconomic status of that region was studied. Visits are made at Health Centers, Schools, Gurudwaras, Panchayat office etc.

ii. Interview Method:

Structured interview method was used to collect data regarding the awareness and opinion from the samples selected of the various socio- economic sections of the community. Structured interviews involve the use of a set of predetermined projected questions that includes fixed and alternative

questions. The questionnaire mainly highlights the parameters such as income, employment and working conditions, housing, food, water supply, sanitation, health, energy, transportation and communication, education, environment and pollution to assess the standard of living of that particular region and general awareness, opinion and expectation of the respondents about the proposed project. Interview method helps to collect more correct and accurate information as the interviewer is present during the field survey.

Socio-economic data of study area:

The Project falls in Solan District of Himachal Pradesh. The study area comprises the 10km buffer around Project. Hence to create a baseline of the study area, from the Land Use map, the Villages in the Study area are Identified. The Village data was collected by referring to Census data. These villages are situated in different distance & direction from the project site, which is mentioned below.

SECONDARY SURVEY:

BISHNAH VILLAGE:

Bishnah is a town and tehsil in Jammu district of Jammu & Kashmir. Total area of Bishnah tehsil is 158 km² including 142.83 km² rural area and 15.35 km² urban area. Bishnah tehsil has a population of 1,11,438 peoples, out of which urban population is 19,667 while rural population is 91,771. Bishnah tehsil has a population density of 705 inhabitants per square kilometer. There are about 22,632 houses in the sub-district, including 3,940 urban houses and 18,692 rural houses.

ANANDPUR VILLAGE:

Anand Pur village is located in Samba tehsil of Samba district in Jammu & Kashmir, India. It is situated 25km away from Samba, which is both district & sub-district headquarter of Anand Pur village. The total area of village is 1089 hectares. Anand Pur has a total population of 1,207 peoples, out of which male population is 617 while female population is 590. Literacy rate of Anand pur village is 65.53% out of which 69.69% males and 61.19% females are literate. There are about 246 houses in Anand pur village.

BAGLA VILLAGE:

Bagla village is located in Samba tehsil of Samba district in Jammu & Kashmir, India. It is situated 15km away from Samba, which is both district & sub-district headquarter of Bagla village. The total geographical area of village is 2419.2 hectares. Bagla has a total population of 10,255 peoples, out of

which male population is 5,335 while female population is 4,920. Literacy rate of Bagla village is 75.26% out of which 79.85% males and 70.28% females are literate. There are about 2,094 houses in Bagla village.

3.14 TRAFFIC DENSITY ANALYSIS:

- Dedicated parking lots for trucks/tractors. No vehicle is allowed to be parked outside the designated parking lot.
- Separate entry and exit points have been provided.
- A service road have been provided outside the project for smooth merging of traffic from project.
- Inside the project there are guided traffic ways with sufficient width of drive ways to ensure smooth movement of vehicles.

The project location in notified industrial area is approachable from the NH-44 via industrial road which is sub-arterial 2-lane (Two way) carriage way of width 7.5 m having good quality earthern shoulders. The project site falls at a distance of 2.0 km from NH-44 There are scattered industries in the industrial area & well connected with road network. There is not heavy traffic on the road adjacent to the project site. Traffic density analysis was conducted on industrial road & the findings are tabulated below:

Traffic scenario on Industrial Road adjacent to project (Both Ways)

S.no.	Road	Width of road (m)	Type of carriage ways	Recommended designed scenario (PCC/Hr.)	Existing vehicle distance PCC/Hr.	Existing V/C ratio	Existing LOS
1.	Industrial road	7.5	Two lane (two way)	1200	333	0.28	Very good

[Ref IRC-106-1990, Sr No:5, page-11, sub–Arterial Road with frontage access no standing vehicles & high-capacity intersections]

Existing Volume of Traffic on Industrial Road:

S. No.	Vehicle Type	No. of Vehicles	Equivalency Factor PCU	Total no of vehicles PCU/Hr
1	Two-Wheeler	50	0.5	25
2	Three-wheeler	25	1.2	30
3	Four-wheeler/Car	40	1.0	40
4	Bus/trucks	70	2.2	154
5	LCU	60	1.4	84
Total		**245**	**-**	**333**

Maximum peak hourly traffic has been considered as per IRC-106-1990 Equivalent PCC with 5% composition of vehicle type is considered in traffic stream.

FIGURE: 3.12

TRAFFIC STUDY

Existing Traffic scenario & LOS

(Design service vol. as per IRC-166-1998)

Road	V	C PCU/Hr	Existing V/C ratio	LOS	Performance of road
Industrial Road	333	1200	0.28	B	Very good

(Design service vol. as per IRC-166-1998)

LOS represent a condition of free flow with average travel speed usually ≈90% of free flow speed for sub-arterial class. Individual users are generally unaffected by others in traffic stream.

V/C Ratio, LOS and Performance Standard

***Capacity 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/Average/Fair
0.6-0.8	D	Poor
0.8-1.0	E	Very Poor

Impact of traffic during operation phase

Sr. No.	Vehicle Type	Vehicle/day	Equivalency Factor (PCU)	PCU/day
1.	Trucks	18	2.2	40
2.	Two-Wheeler	40	0.5	20
3.	Car	4	1.0	4
Total PCU/Hr				**64**

During peak hours (morning & evening) for all the project vehicles, PCU/day has been considered equal to PCU/Hr.

On an average 64 PCU will be added to the carriage way after project operations

Modified traffic Scenario

Road	V	C	V/C ratio	LOS	Performance of road
Industrial Road	333+64=397	1200	0.33	B	Very good

Conclusion:

After the project coming into operation, on an average 64 PCU/hr will be added to the existing traffic on this road. The project traffic after traversing the Industrial Road will ultimately join the NH-44. The existing V/C ratio will be slightly changed from existing 0.28 to 0.33 but the LOS & performance of road will remain the same. Hence, it is concluded that there will not be any significant impact on the existing road network due to proposed project.

3.15 Slag Analysis

The furnace slag from the operating unit has been analyzed as per CPCB methods and the following are the analytical results:

Table 3.15- Slag Analysis

S.No.	Parameters	Result (mg/kg)
1.	Cu	6
2.	Cr	9
3.	Ni	5
4.	Pb	9
5.	Mn	22
6.	Zn	8
7.	Hg	<0.05
8.	Cd	5.0
9.	Sr	9
10.	Co	6.4
11.	As	<0.1

A perusal of above analytical values reveals that the presence of heavy metals as highly stable oxides is within the acceptable limits. Moreover, slag is not characterized as HW under the HWM rules. Columns Leachate study of slag has also been done as per CPCB methods for metals that Leachate out from materials and the same has been found <0.1mg/kg (The limits prescribed by USEPA) and therefore passes the TCLP test.

CHAPTER 4.0

ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

4.1 GENERAL

Prediction of impacts is the most important component in the Environmental Impact Assessment studies. Several scientific techniques and methodologies are available to predict impacts of developmental activities on physical, ecological and socio-economic 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 minimize the adverse impacts on environmental quality during pre and post project execution. Generally, the environmental impacts can be categorized as either primary or secondary. Primary impacts are those, which are attributed directly by the project and secondary impacts are those, which are indirectly induced and typically include the associated investment and changed patterns of social and economic activities by the proposed actions.

The primary function of an environmental impact assessment is to assertion the potential impacts of project on environmental components such as air, water, noise, soil, flora, fauna, land and socio-economic and their magnitude during construction and operation for adoption of satisfactory mitigation measure.

The Impacts of project are divided into two categories i.e., impacts of a project during construction phase and impacts during operation phase. Major project impacts will occur during operation phase as construction work will be done in staggered manner within a small area and for short degradation.

Environmental parameters considered for impact analysis are: -

1. Landform and Topography
2. Air Environment
3. Water Environment
4. Noise Environment
5. Biological Environment
6. Socioeconomic Environment

Table4.0 Matrix of potential impacts

Construction Phase	Environmental impact							Ecological impact	Soci-economic Impact
	LUCU	Air Quality	Noise	Solid Waste	Effluent/Sewage	Ground Water	Soil		
Excavation Work	•	•	•	X	X	•	•	X	•
Filling of Foundation	•	•	X	X	X	X	X	X	•
Vehicle movement for material transportation	X	•	•	X	X	X	•	•	X
Disposal of construction waste	X	X	X	X	X	•	•	•	X
Generation of waste water and sewage	X	X	X	X	•	X	X	X	X
Heavy Fabrication Work	X	•	•	X	X	X	X	X	•
Final Clearing of Site, Temporary Structure.	X	•	X	X	X	X	X	X	•
Operational phase									
Transportation of Raw Material	X	X	•	•	X	X	X	X	X
Handling Storage of	X	X	X	X	X	X	X	•	X

Raw Material									
Manufacturing process	X	•	X	•	•	X	X	X	X
Waste Water Management	X	X	X	•	X	X	X	X	X
Municipal Solid Waste generation & management	X	X	X	X	X	X	X	X	X
Storm Water management	X	X	X	•	•	X	X	X	X
Employment to Locals	X	X	X	X	X	X	X	X	•
Green Belt development	X	•	X	•	X	X	X	•	X
Use of Dg Set	X	•	•	X	X	X	X	•	X
Storage lifting of Transportation	X	•	X	•	X	X	X	•	X
Start up and start Down Activities	X	X	•	X	X	X	X	X	X

4.2CONSTRUCTION PHASE IMPACTS

4.2.1 Impacts & Mitigation measures due to location of the project Impacts

The proposed expansion shall be undertaken within the existing manufacturing unit. There will therefore be no impact on the land use of the study area.

Mitigation Measures

No negative impact is anticipated due to project location on the existing environment and no mitigation measures are required.

4.2.2 Impact and Mitigation measures due to project design Impacts

The expansion will be based on the proven I.F. technology available in the country and no adverse impacts are anticipated on this account.

Mitigation Measures

Best available technology practicable has been considered to minimize or avoid emissions. e.g.:

- APCS comprising side suction hood, spark arrestor, bag house and ID fan will be installed.
- The APCS will be operated & maintained as pet SOP prescribed by CPCB.
- Bag Filter cleaning will be done offline by compartmentalizing the bag house.

4.2.3 Impacts & Mitigation measures during Construction Phase

The components of environment likely to be affected includes: land use, ground water, water quality, air quality, noise etc. as discussed below:

i. Land Use

Impacts

Being proposed within the existing facility, almost all the construction will be limited to the plant boundaries within the existing area involving small scale excavation, loss of top soil and soil erosion. The meagre impacts if any will be limited to construction phase and short lived.

ii. Ambient Air Quality

Activity	Impact	Mitigation Measures
• Civil works e.g., excavation • Movement of vehicles • Laying of machineries.	• Fugitive dust • Vehicular emissions • Emission from the construction machinery	• The impacts due to excavation, vehicles and machinery will be limited to construction phase and within the plant boundary. • Proper planning, sequencing and scheduling of construction operation and timely availability of infrastructure support. • Covered transportation vehicles will be employed. • Adequate dust suppression at vulnerable areas to control fugitive dust. • Storing the construction materials in covered shed or enclosed space. • D.G. set conforming to emission norms will be used. • Proper servicing and maintainace of construction equipments will be done. • Construction workers will be provided with appropriate PPE's. • Monitoring of air quality at regular intervals will be done.

iii. Noise Levels

Activity	Impact	Mitigation Measures
• Operation of construction equipments, metal fabrication and vehicular traffic	• Generation of noise from 75 dB (A) – 90dB (A). However, this noise will be near the source with little effect outside the plant boundary.	• Construction equipments and machinery will be kept in good working conditions by proper lubrication, servicing & maintenance. • PPE's e.g., ear muffs will be provided to workers exposed to high noise as preventive measures.

iv. Water Quality- (a) Surface Water

Activity	Impact	Mitigation Measures
• Site cleaning, leveling, exaction • Storage of construction materials	• Increase in suspended solids in surface run off. However, for proposed expansion no large-scale exaction and leveling are required.	• Routing the storm water runoff through storm water drains through catch pits. • Quality of construction waste water will be controlled through existing drainage system. • Storing the construction materials in covered sheds. • Sediments traps & drainage network will be periodically cleaned especially before the onset of monsoon.

(b) Ground Water

The water requirement during construction will be met from the existing water sources. It is therefore unlikely that any significant impact will occur on the ground water regime of the area.

v. Socio- Economic

During the construction phase, substantial employment will be generated as direct and indirect employment which will be provided to locals. But these socio-economic impacts which are positive are temporary and limited to construction phase only.

4.3 OPERATIONAL STAGE: - (LONG TERM)

The environmental impacts during operation phase may arise from: Air Emission, Waste water discharge, waste disposal & Noise. All these emissions, discharges & disposals are associated with direct environmental impacts and indirect /secondary impacts.

i. Ambient Air Quality

Activity	Impact	Mitigation Measures
• Operation of plant	• Emission of particulates, gases as point source and	• PM from stack to be limited to 30mg/Nm^3 • Work zone fugitive dust shall be kept below to 10mg/m^3

	fugitive emissions from area sources such as R.M and intermediate material handling.	• Water (plain) type dust suppression system is provided all around raw materials stock piles, dust extraction and filtration system comprising suction hood, fans and bag filters are installed. • Energy efficiency induction furnace requiring less heat time will be employed.

The following are the detail of stack emission:

Existing				
S.No.	**Source of stack emission**	**Capacity**	**Stack height (m)**	**APCD**
1.	Induction Furnace	Nil	--	--
2.	D.G. Set	125KVA	3m above roof level	Stack of adequate height provided.
After Expansion				
1.	Induction Furnace	1x25 TPH	30m above ground level	pulse jet bag filter with off line cleaning technology.
2.	D.G. Set	125&325KVA	3m above roof level	Stack of adequate height provided.

Specific Measures:

- The I.F shall be provided with APCS comprising side suction hood, spark arrestor, bag filter & ID fan will be provided.
- The APCS will be operated and monitored as per SOP prescribed by the board.
- Dispersal of gases & particulate through adequate stack height.
- Fugitive emission during process operation will be controlled by suction hood and routed to bag filter.
- Heat dissipation in work zone will be affected by exhaust ventilation.

General Measures:

- Regular sweeping and sprinkling of roads.

- Speed limit for vehicles.
- Unnecessary blowing of horns and idling of vehicles will be prohibited.
- Vehicles meeting the vehicular emission norms will be employed.
- All internal roads are paved.

Air Pollution Impact Prediction through Modeling

- ***Aermod Cloud***

AERMOD is an air dispersion-modeling package, which seamlessly incorporates the popular USEPA Models, ISCST3, ISC-PRIME and AERMOD into one interface without any modifications to the models. These models are used extensively to assess pollution concentration and deposition from a wide variety of sources.

- ***Aermod Model***

The AMS/EPA REGULATORY MODEL (AERMOD) was specially designed to support the Environmental Regulatory Modeling Programs. AERMOD is a regulatory steady – state modeling system with three separate components;

- AERMOD (AERMIC Dispersion Model);
- AERMAP (AERMOD Terrain Preprocessor); and
- AERMET (AERMOD) Meteorological Preprocessor.

The AERMOD model includes a wide range of options for modeling air quality impacts of pollution sources, making it popular choice among the modeling community for a variety of applications. AERMOD requires two types of meteorological data files, a file containing surface scalar parameters and a file containing vertical profiles. These two files are provided by AERMET meteorological preprocessor program.

- PRIME building downwash algorithms based on the ISC – PRIME model have been added to the AERMOD model;
- Use of arrays for data storage;
- Incorporation of EVENT processing for analyzing short-term source culpability;
- Explicit treatment of multiple – year meteorological data files and the annual average; and
- Options to specify emissions that vary by season, hour-of-day and day-of-week.

Deposition algorithms have been implemented in the AERMOD model – results can be output for concentration, total deposition flux, dry deposition flux, and / or wet deposition flux. The model contains algorithms for modeling the effects of settling and removal of large articulates and for modeling the effects of precipitation scavenging for gases or particulates.

- ***Aermet***

In order to conduct a refined air dispersion modeling project using the AERMOD short term air quality dispersion model, it is necessary to process the meteorological data representative of the study area being modeled. The collected meteorological data is not always in the format supported by the model; therefore, the meteorological data needs to be pre-processed using AERMET program.

The AERMET program is a meteorological preprocessor, which prepares hourly surface data and upper air data for use in the AERMOD air quality dispersion model. AERMET is designed to allow future enhancements to process other types of data and to compute boundary layer parameters with different algorithms. AERMET processes meteorological data in three stages and from this process two files are generated for use with the AERMOD model. A surface file of hourly boundary layer parameters estimates a profile file of multiple-level observations of wind speed, wind direction, temperature and standard deviation of the fluctuating wind components.

- ***Application of AERMOD***

The AERMOD model with the following assumptions has been used to predict the cumulative GLC due to emissions from the proposed activity:

- The stack tip down wash is not considered.
- Plume rise is estimated by Brigg's formula but the final rise is limited to that of mixing layer.
- Buoyancy induced dispersion is used to describe the increase in plume dispersion.
- Calm processing route is used by default.
- Complex terrain is used in computation.
- It is assumed that the pollutants don't undergo any physico-chemical transformation and there is no pollutant removal by dry deposition.
- Wash out due to rain is not considered.
- Receptors on that terrain with no flag pole have been considered.

Atmospheric Stability

The stability class has been estimated using the hourly monitored wind velocity along with the other computed data.

Mixing Heights

Due to non-availability of site-specific missing heights "Hourly Mixing Heights & Dissimilative Capacity of Atmosphere in India" published by Environment Monitoring & Research Centre, IMD, New Delhi has been referred for hourly mixing heights.

Meteorological Data

The hourly meteorological data recorded at site is converted to the mean hourly meteorological data as specified by CPCB and the same has been used in the model. Hourly mixing heights are taken from the "Atlas of Hourly Mixing Height and Assimilative Capacity of Atmosphere in India" published by India meteorological department, 2008, New Delhi. The meteorological data recorded during study period continuously on wind speed, wind direction, temperature etc., have been processed to extract the data required for simulation by AERMOD using AERMET.

Dispersion Modeling Results

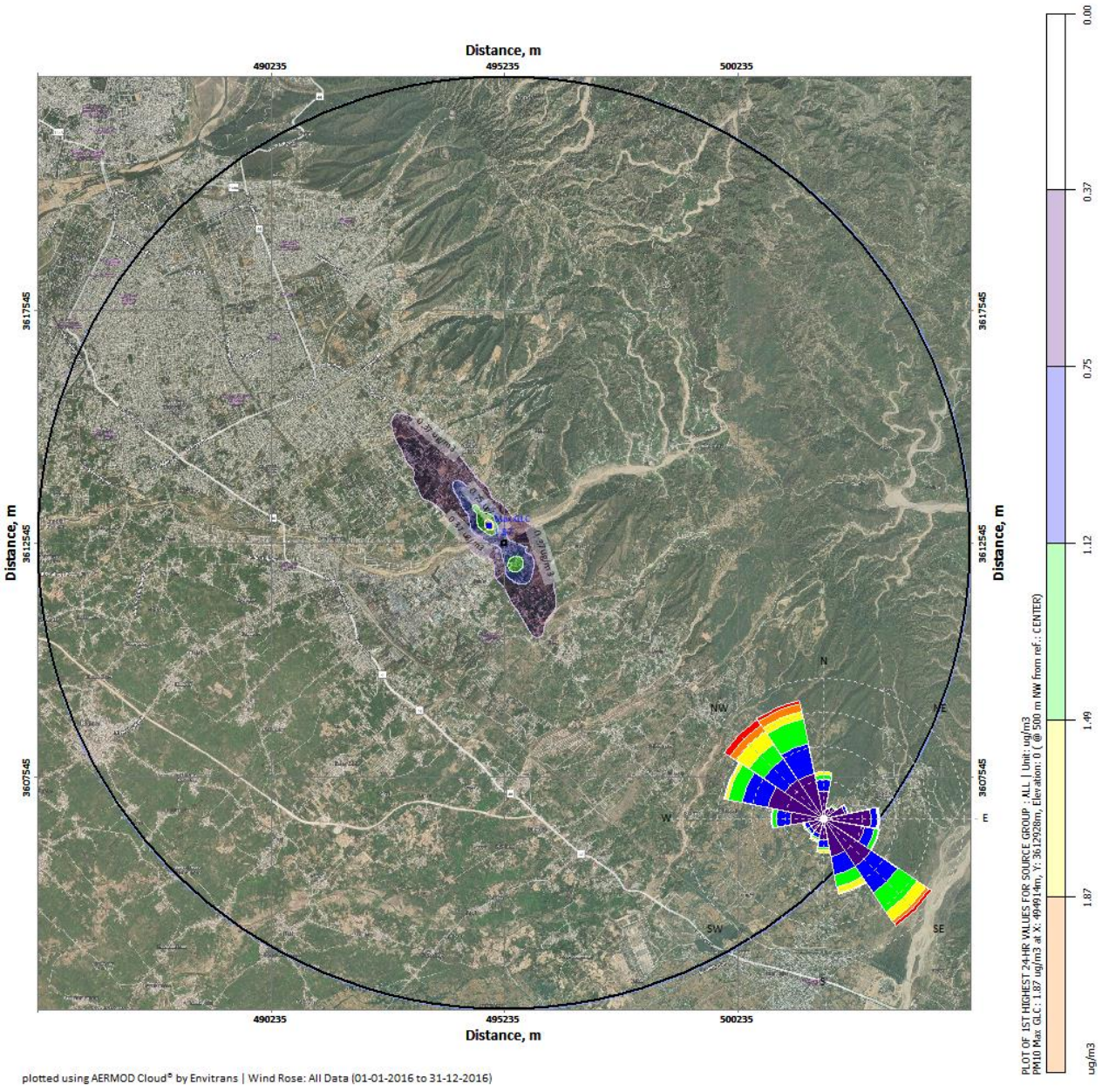
The 24-hourly average ground level concentration (GLC) values from proposed project have been computed for PM considering topographical featured around the proposed project and applicable stability classes. Input data for air quality modeling is given in **Table 4.1 and 4.3**. The predicted 24-hourly short terms Maximum Incremental Concentration values for PM_{10} from the existing and proposed project are given in **Table- 4.2 and 4.4.** Corresponding isopleths plotted are shown in **Figure 4.1.**

Table 4.1

Input data for Air Quality Modeling (Proposed)

S. No.	Items	Induction Furnace @ 25 TPH
1.	Stack height	30 m
2.	Stack diameter	2.0 m
3.	Velocity of gases	11 m/s
4.	Gas Volume, $Nm^3/hr.$	1,25,000 hr/Nm^3
5.	Discharge standard.	30 mg/Nm^3
6.	Pollution Load	7.8 kg/day

Fig 4.1: Isopleths showing Existing 24 hourly predicted GLC's of PM_{10}



Predicted GLC's of the existing project

It is predicted that the maximum contribution in GLC's, with unit operation are 1.87 µg/m^3 for PM at 500 m NW direction from stack.

Table-4.2

Predicted 24 hourly short terms Maximum Incremental Concentrations

Pollutants	Maximum GLC in µg/m^3	Baseline concentration in µg/m^3	Baseline Concentration after project implementation in µg/m^3
PM_{10}	1.87	81.6	83.47

ii) Water Environment

No water is used in the process and hence no waste water is generated. The only water requirement is for C.T in which the entire water is recycled and only makeup water equal to evaporation loss & blow down is added. The waste water from domestic use and the C.T blow down after treatment is used for plantation within premises. As water conservation measures the C.T is operated on high COC resulting in minimum blow down and make up water. Since, no waste water is discharged; there is no impact on ground water quality.

Water Conservation Measures:

- Installation of water closets.
- Urinals to reduce flushing demand.
- Treated domestic waste water will be used on land for plantation and C.T blow down used in dust suppressions.
- Reheating furnace will be used occasionally to reduce C.W demand.
- Push type drinking water taps to be used in place of convention taps.

iii) Noise Environment

The main sources of noise are:

- Movement if transportation vehicles
- Mechanized handling of raw material
- Blowers, fans & compressors
- Operation of plant equipments

The noise level from these devices varies from 85-95 dB (A), for the control of which hoods, enclosures, laggings and screens are provided to the extent possible. Though there is likelihood of increase of noise levels but the personal exposure level will be less than 85 dB (A) over 8 hrs.

Mitigation Measures

- Noise level at 1m distance shall be kept below 85 dB (A).
- Reducing vibration in high-speed rotating machines.
- All the equipments will be processed in such a way as to keep noise level <85 dB (A).
- Periodic monitoring of noise level in and around the plant.
- Noisy machinery shall be enclosed in acoustic enclosures.
- Rotation of workers working in high noise areas will be practiced.
- Trees & shrubs of suitable varieties will be planted as noise attenuating measures.

Land Environment

No additional land has been acquired for the unit. The machinery will be installed in the existing land. There will be no adverse effect on the land environment with the coming up of the unit.

SOURCE	IMPACT	MITIGATION MEASURES
Rainfall	Flooding and siltation problem inside industrial premises	To avoid any change in slope and drainage pattern, transport activity will not be allowed on muddy or wet area
Surface runoff water during rainy days	Flooding and siltation problem outside industrial premises	Care will be taken to avoid change in existing drainage pattern and proper drainage system is already provided for rain water

v) Socio Economic

Social aspects can be defined as the consequences to people of any proposed action that changes the way they live, work, relate to one another, organize themselves and function as individuals and members of society. This includes social-psychological changes, for example to people's values, attitudes and perceptions of themselves and their community and environment.

Sometimes impact on people can be by far the most important consideration. Adverse social impacts can reduce the intended benefits of a proposal, and can threaten its viability if they are severe enough.

Broadly social and economic aspects could be as under: -

iv) Individual Life Style – These are ways people behave & relate to family, friends & cohorts on day-to-day basis.

1 **Community aspects**- These are infrastructure, services, voluntary organizations, activity networks and cohesion.

2 **Health aspects**- These include mental, physical and social wellbeing of the persons in general

3 **Rehabilitation and Resettlement**- These include displacement of families beyond defined thresholds. There is no rehabilitation and resettlement of people involved in the project.

vi) Soil Environment

SOURCE	IMPACT	MITIGATION
Solid waste Liquid waste Dust from Scrap	Soil contamination	i) About 17.28 TPD of slag which is not a H.W will be generated and the same after recovering of iron will be supplied to manufacturers of cement concrete blocks, pavers & tiles under proper agreement. ii) Sprinkling of water will be done on the scrap material to avoid dust generation and direct contact of scrap with the soil will be avoided.
Particulate matter from Stack emission	Particulate matter when settles down on agricultural fields, can reduce its Porosity and water and mineral soaking capacity and hence its fertility.	Proper stack height is provided to disperse the PM in air. Bag filters are provided to trap the maximum amount of PM.

(vii) Ecological Environment

As the proposed expansion is being undertaken in the existing premises involving no environmental sensitivities, there is little likelihood of impact on ecology of area as the impacts if any will be manifested over a few hundred meters radius having no wildlife. The threshold

level of SO_2 and NO_2 from the plant is 25 and 100 respectfully. Since, these gases will not be generated; there will be no impact on flora of the area.

However, an elaborate green belt in minimum 40% of project area will be developed to ameliorate fugitive emission & noise from plant.

(viii) Solid & Hazardous Waste

Secondary metallurgical operations generate solid waste some of which are hazardous. Therefore, arrangement will be in place for their disposal.

Solid Waste

Furnace slag after iron recovery will be disposed off to manufacturers of cement concrete blocks, pavers and tiles under proper off take agreement.

Hazardous Waste

i. Flue gas cleaning residue (APCD dust) which is a hazardous waste shall be disposed off to approved re-processors for metal recovery.
ii. Used oil from D.G. set is being used as lubricant within the industry or else will be given to approved recyclers.

Waste Refractory Material

This shall be given to suppliers under take back agreement.

Environmental sound technologies for Recycling of Hazardous Waste

The major H.W generated by M/s Kashmir Ispat. is used oil, zinc & lead bearing flue gas cleaning residues. However, M/s Kashmir Ispat is not involved in recycling of any identified H.W. The same will be disposed of to approved reprocessors/recyclers.

(ix) Additional Management Approach

In order to ameliorate the adverse environmental impacts of project for scientific development, a comprehensive Environmental Management Plan (EMP) shall be prepared based on the existing environmental conditions, impacts appraisal and environmental prediction. The EMP will take care of formulation, implementation and the monitoring of environmental protection measures during the construction and operation of project.

4.4 Occupational Safety and Health

During construction phase, work force may be exposed to variety of physical hazards depending upon the specific work function. The most significant occupational hazards may include fall from height, carrying heavy loads, accidents due to malfunctioning of machinery and falling objects from height etc.

4.4.1 General Safety Measures

- Standard methods and machinery is being used.
- Use of Personal Protective Equipment (PPE) is mandatory.
- Elevated platforms and walkways, and stairways and ramps are equipped with handrails, toe boards and non-slip surfaces.
- Electrical equipment will be grounded, well insulated and conform to applicable codes.
- Employees are/will be provided with hard hats, safety boots, eye and ear protection, and snug fitting gloves as appropriate.
- Masks and dust-proof clothing are/will be provided to personnel working in areas with high dust levels.

4.4.2 General Health Measures

- Sanitation facilities are well equipped with supplies (e.g., protective creams) and employees are being encouraged to wash frequently, particularly those exposed to dust.
- Ventilation systems have been provided to control work area temperatures and humidity;
- Pre-employment and periodic medical examinations are being conducted for all personnel, and specific surveillance programs instituted for personnel potentially exposed to health hazards.

4.4.3 Occupational Health Monitoring

At the time of placement each worker is medically examined by a qualified doctor to ascertain his physical fitness for specific job. During the course of employment, the workers are examined for such parameters as

Chest X-ray

Vision

Audiometry

Spirometry

ECG,

The examination is conducted once in six months in the occupational health center by a part time factory medical officer, to evaluate the effect of exposure. The medical examination records are maintained and made available to workers as well as Inspectorate of Factories. The records are maintained in the following format.

Name of Employee	
Age	
Dept	
General physical condition	
Eye sight	
Color recognition	
ECG	
Chest x -ray	
Audiometry	
Spirometry	
Any Other observation	
Suitability for work	

Remark: In my opinion, the above employee is fit /unfit for the work in the manufacturing process operations in steel manufacturing unit.

Signature of Doctor

4.4.4 Occupational Audit, Frequency, Review and Corrective action

Occupational audit is conducted once in a year and self-certified as introduced by Directorate of J&K. However, statutory compliance clarified by external agencies is employed

4.4.5 Corrective Measures

As a follow up of audit by external agencies, corrective actions are taken against major and minor non-conformances. A major non-conformance results from absence of documented and implementation process or absence of process, minor non-conformance results from partially documented and implementation process. An action plan is chalked, detailing the action to be taken to address any identified non-conformance by including the responsibility for personal and subsequent completion dates. The action is taken within 30 days of receiving the audit report.

4.6 Conclusion

It can be seen from the assessment of impacts that the proposed construction and operation of unit will not have any significant impact on the surrounding environment. Proper arrangements for collection and treatment of effluents and supply of water are unlikely to affect water environment adversely. Proper pollution control measures proposed for furnaces and disposal of hazardous waste would ensure that air, water, solid waste and noise environment do not have any adverse impact. It is concluded that with the adoption of appropriate mitigation and enhancement measures, there will be improvement in the development of commercial activities, generation of direct and indirect employment opportunities and the overall quality of life in the surrounding area.

CHAPTER - 5.0

ANALYSIS OF ALTERNATIVES

5.1 ANALYSIS OF ALTERNATIVE SITES FOR LOCATION OF PROPOSED EXPANSION

Since the proposed expansion is being carried out in existing premises, it is viable on account of the following

- No forest land is involved.
- The site has easy access to raw material, road, rail connectivity and market.
- Power connectivity from J&K State Power Corporation Limited. The total 15,945 KW Power Grid is viable to meet the requirement of continuous power supply due to proposed expansion and there shall not be any impacts on the surrounding consumers.
- Water Requirement full fill from SIDCO supply.
- Manpower availability from nearby areas.
- No resettlement and rehabilitation issues.
- Absence of areas of archeological and historical importance within 10 km radius.

Based on the above criterion, proposed site is conducive to undertake expansion.

5.2 ANALYSIS OF ALTERNATIVE FOR TECHNOLOGY SELECTION

The proposed expansion involves the replacement of existing I.F with furnace of higher capacity which has been considered technologically best on account of the following: Optimized consistency;

- Consistence in quality issues.
- Quick start up, production rate can be customized.
- Since, in I.F no direct contact with flame or heating elements is involved, the product quality is improved.
- Site specific heat is supplied to the small area without heating any other part thereby insuring extended life of fixtures
- Induction heating does not burn traditional fossils fuel. The system is environmentally sound.
- Reduced energy consumption thereby reduced utility bills.
- No warm up or cool down cycle is required.
- Least Environment Pollution.

5.3 CONCLUSION AND RECOMMENDATION:

Based on the analysis of alternatives site and technology, the undertaking of expansion at the existing site is justified.

CHAPTER -6

ENVIRONMENTAL MONITORING PROGRAM

6.0 Prelude

Assessment of environmental and social impacts arising due to implementation of the proposed project activities is at the technical heart of EIA process. An equally essential element of this process is to develop measures to eliminate, offset or reduce impacts to acceptable levels during implementation and operation of projects. The integration of such measures into project implementation and operation is supported by clearly defining the environmental requirements within an **Environmental Management Plan** (EMP).

6.1 Environment Monitoring Program

The monitoring of environmental parameters like air, water, noise, soil, and meteorological data and performance of pollution control facilities and safety measures in the plant are vital for Environmental management of any industrial project.

Therefore, the company shall create environmental monitoring facilities by the environmental and safety department to monitor air and water pollutants as per the guideline. Moreover, air, noise, drinking water, and soil shall be monitored by outside agencies authorized by SPCB at regular frequencies. This department shall also carry out periodically check of fire and safety equipment.

6.2 Objective of Monitoring Plan

The basic objective of implementing a monitoring plan on a regular basis is as follows:

- Know the pollution status within the plant and its vicinity. Generate data for corrective action in respect of pollution
- Examine the adequacy of pollution control system
- Assess the Environmental impacts

6.3 Schedules for Environment Monitoring

As no project can succeed unless it is monitored at regular intervals & results analyzed. Keeping this requirement in view an elaborate Monitoring programme has been developed for this project. Regular monitoring of all significant environmental parameters will be carried out to check the compliance status vis-à-vis the environmental laws and regulations.

The objectives of the monitoring will be as follows:

- To verify the results of the Impact Assessment Study with respect to the proposed projects.
- To study the trend of concentrated values of the parameters, which have been identified as critical and then planning the mitigating measures.
- To check and assess the efficacy of pollution control equipment.
- To ensure that any additional parameters, other than those identified in the impact, do not turn critical after the commissioning of proposed project.

A comprehensive Environmental Monitoring Program that has been prepared for the purpose of implementation in the proposed Industrial unit is given below:

- Identification of any environmental problems that are occurring in the area.
- Initiating or providing solution to those problems through designated channels and verification of the implementation status.
- Controlling activities inside the project, until the environmental problem has been corrected.
- Suitably responding to emergency situations.

To implement the EMP, a structured Environment Management Cell (EMC) interwoven with the existing management system will be created. EMC will undertake regular monitoring of the environment and conduct yearly audit of the environmental performance during the construction of the project. It will also check that the stipulated measures are being satisfactorily implemented and operated. It shall also co-ordinate with local authorities to see that all environmental measures are well coordinated. EMC detail is provided at Chapter- 10.

6.4 Environmental Monitoring during Construction Phase

The environmental monitoring cell of the construction team will be coordinating all the monitoring programs during the construction phase of the proposed expansion project.

Table- 6.1

Environmental Monitoring Program for Construction Phase

Source	Monitoring Location	Parameters to be Monitored	Frequency

Ambient Air Quality	Two locations: upwind direction and downwind direction	$PM_{2.5}$, PM_{10}. SO_2, NO_x and CO	Twice a year or as per conditions of EC
Ambient Noise	Two locations	Day & Night Equivalent Noise Level	Twice a year or as per conditions of EC
Groundwater	One location	As per standards	Twice a year or as per conditions of EC
Soil Quality	2 locations outside the project site	As per standards	Twice a year or as per conditions of EC
DG Stack Monitoring	DG sets used during the construction	Particulate Matter, SO_2, NO_x	Twice a year or as per conditions of EC

6.5 Environmental Monitoring during Operation Phase

The environmental monitoring cell will co-ordinate all the monitoring programs at the industry and data thus generated will be regularly furnished to the State Regulatory Agencies.

6.5.1 Plantation

Greenbelt in minimum 33% of project area shall be developed to attenuate the air and noise pollution.

Greenbelt Development Inside the premises:

Area allocation for green belt: 15% (3641.7 sqm) of total area will be maintained as greenbelt as per MoEF&CC stipulated norms. A total of 910 trees needs to be planted.

Selection of plant species: Tree species are Arjun, Baheda, Jamun, having height 5-6 feet will be planted.

Action plan & estimated budgetary allocation for proposed green belt development

The proposed green belt will be developed in phase wise manner viz. plantation will be done in in next monsoon season after grant of EC.

Budgetary allocation: Rs. 9.0 Lakhs as capital cost and Rs 9.0 lakhs for 3 years as recurring cost under EMP cost.

S. No.	Type of Species	No. of trees	Per Unit cost (Rs.)	Total Cost (Rs.)
1.	Arjun	303	1000	3,03,000

2.	Baheda	303	1000	3,03,000
3.	Jamun	304	1000	3,04,000
Total		910		**9,10,000**

Greenbelt Development Outside the premises:

Area allocation for green belt: 18% (4296.7 sqm) of total area will be maintained as greenbelt as per MoEF&CC stipulated norms. A total of 1074 trees needs to be planted.

Selection of plant species: Tree species are Kachnar, Safeda, Kiker, Simbal, Shahtoot, having height 5-6 feet will be planted.

Action plan & estimated budgetary allocation for proposed green belt development

The proposed green belt will be developed in phase wise manner viz. plantation will be done in in next monsoon season after grant of EC.

Budgetary allocation: Rs. 10.0 Lakhs as capital cost and Rs 10.0 lakhs for 3 years as recurring cost under EMP cost.

S. No.	Type of Species	No. of trees	Per Unit cost (Rs.)	Total Cost (Rs.)
1.	Kachnar	215	1000	2,15,000
2.	Safeda	213	1000	2,13,000
3.	Kiker	217	1000	2,17,000
4.	Simbal	214	1000	2,14,000
5.	Shahtoot	215	1000	2,15,000
Total		1074		**10,74,000**

6.5.2 Budget allocation for Environment Management

To maintain the environmental parameters within the stipulated standards, regular monitoring of various environmental components is necessary which will be complied as per conditions. An amount of Rs. 160.0 lakhs have been earmarked under EMP budget as capital cost and Rs 43.0 lakhs per annum as recurring cost.

Table-6.2

Environmental Monitoring Program for Operation Phase

Source	Monitoring Location	Parameters to be Monitored	Frequency
Furnace Emissions	Stack attached to APCD	PM, SO_2, NO_X and CO	Twice a year or as per conditions
Furnace slag	Storage of slag	Na2O, MgO, Al2O3, SiO2, CaO, TiO2, MnO	Once a year
Ambient Air Quality	At 2 locations (one inside the project site & one at boundary of the project site along predominant	PM10, PM2.5, SO_2, NOx & CO	Twice a year or as per conditions of EC or as per requirement of
Ambient Noise	At 2 locations (one inside the project site & one at boundary of the project	Day & Night Equivalent Noise Level	Twice a year or as per conditions of EC or as per
Occupational Health	Continuous database management of	General Health aspects	Yearly
DG Stack Monitoring	DG sets used during the construction	Particulate Matter, SO_2, NO_X	Twice a year or as per conditions

CHAPTER -7.0

ADDITIONAL STUDIES

7.0 PREAMBLE

The Public hearing for the proposed project will be conducted by SPCB at the premises of project or elsewhere as decided by the authority. This Draft EIA-EMP report is therefore being submitted as a pre-requisite for the conduct of public hearing.

- **PUBLIC CONSULTATION**
- **RISK ASSESSMENT**

7.1 PUBLIC CONSULTATION

Public consultation will be conducted by SPCB and this DEIA has been prepared for the same.

7.2 RISK ASSESSMENT

General

Industrial accidents result in great personal and financial loss. Managing these accidental risks in today's environment is the concern of every industry because the real or perceived incidents can quickly jeopardize the financial viability of a business. Many facilities involve various manufacturing processes that have the potential for accidents which may be catastrophic to the plant, work force and environment or public. The main objective of the risk management study is to propose a comprehensive but simple approach to carry out risk analysis and conducting feasibility studies for industries including planning and management of industrial prototype hazard analysis study in the Indian context.

Risk analysis and risk assessment provide details on Quantitative Risk Assessment (QRA) techniques used the world over to determine risk posed to people who work inside or live near hazardous facilities and to aid in preparing effective emergency response plans by delineating a Disaster Management Plan (DMP) to handle on-site and off-site emergencies. Hence, QRA is an invaluable method for making informed risk-based process safety and environmental impact planning decisions, as well as being fundamental to any facility-sitting decision making. QRA whether site specific or risk specific for any plant is complex. It needs extensive study that involves process understanding, hazard identification, consequence modeling, probability date, vulnerability model/data, local weather, terrain conditions and local population data. QRA may be carried out to serve the following objectives:

- Identification of safety areas.
- Identification of hazard sources.

- Generation of accidental release scenarios for escape of hazardous materials from the facility.
- Identification of vulnerable units with recourse to hazard indices.
- Estimation of damage distances for the accidental release scenarios with recourse to Maximum Credible Accident (MCA) analysis.
- Hazard and Operability Study (HAZOP) in order to identify potential failure cases of significant consequences.
- Estimation of probability of occurrences of hazardous events through fault tree analysis and computation of reliability of various control paths.
- Assessment of risk on the basis of above evaluation against the risk acceptability criteria relevant to the situation.
- Risk mitigation measures based on engineering judgment, reliability and risk analysis approaches.
- Delineation/up-gradation of DMP.
- Safety Reports with external safety report/ occupational safety report.

The Risk Assessment Report covers the following in terms of the extent of damage with recourse to MCA analysis and delineation of risk mitigation measures with an approach to DMP.

- Hazard identification: Identification of hazardous activities, hazardous materials, past accident records etc.
- Hazard quantification: Consequence analysis to assess the impacts.
- Risk presentation.
- Risk mitigation measures.
- Disaster Management Plan.

Identification of Hazards

Identification of hazards in the proposed plant is of primary significance in the analysis, quantification and cost-effective control of accidents involving materials and process. A classical definition of hazard stated that hazard is in fact the characteristics of system /plant/ process that presents potential for an accident. Hence, all the components of a system/ plant/ process need to be thoroughly examined to assess their potential for initiating or propagating an unplanned event/ sequence of events, which can be termed as an accident. The following two methods for hazards identification have been employed in the study:

- Identification of major hazardous units based on Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 of Government of India (GOI Rules, 1989) and
- Identification of hazardous units and segments of plants and storage units based on relative ranking technique, viz. Fire-Explosion and toxicity Index **(FE & TI).** Details are given in EIA report. The brief of risk involved due to hazardous situation and the. safety systems are given below:

Table 7.0 Hazard Identification & proposed safety system

S. No	Plant Area	Causes	Consequences	Mitigation Measures
1.	Furnace Operation	Moisture containing scrap & recirculating water coming in contact with molten metal	Steam Explosion	• Usage of moisture free R.M • Drying of R.M
2.	Transformer Area	• Oil temperature build up • Unsafe electrical installation • Varying room temperature	Sudden flashing of fire & bursting	• Proper Electrical installation • Transformer room temperature monitoring
3.	H.T electrical installation	Loose Fowls, cable cut, short circuits & burning of fuse	Sparks in the beginning & devastative fire if neglected	Properly laid cables & switches & fuse
4.	Extremely Hot Working area	Heat from Furnace, Unsafe clothing, seasonal factors e.g., temperature, pH & air movement	Heat Shocks	• Rotation of workers • Exhaust air ventilation • Shielding from radiant heat
5.	Furnace &	• Touching Hot	Burns	• Providing specific

	Molding	Surface • Splashing of molten metal • Radiation		PPE are to measures risk of manual operation • Protective barriers to explosion
6.	Furnace & molding	UV & IR radiation of high intensities from molten metal pouring	High Radiation	• Safety education to workers • Labeling of risky areas • Providing suitable PPE

Exposure Limits

The exposure level of work zone concentrations is within the Permissible Exposure Level (PEL) as specified in Section 41F, Sch-II of Factories Act, 1948 (Permissible Level of certain Chemical Substance in Work Environment) and the OSHA standards for Permissible Noise Exposures which are reproduced below:

S.No.	Duration per day in Hours	Sound Level dB(A) slow response	Remarks
1.	8	90	1. No noise environment excess of 115 dB (A) is to be produced. 2. For any period of exposure falling between any figures indicated in column I, the permissible sound level is determined by exposure.
2.	6	92	
3.	4	95	
4.	3	97	
5.	2	100	
6.	1½	102	
7.	1	105	
8.	½	110	
9.	¼ or less	115	

All effects shall be made to comply with the standards after the operation of proposed expansion.

Ambient Air Quality Standards in respect of noise

Area Code	Category of Area	Level in dB (A) Leq

		Day Time	Night Time
(A)	Industrial Area	75	70
(B)	Commercial Area	65	55
(C)	Residential Area	55	45
(D)	Silence Zone	50	40

Hazard Assessment & Evaluation

A preliminary hazard analysis shall be carried out to identify major hazards associated with storages in the facility. This is followed by consequence analysis to quantify these hazards. Finally, the vulnerable zones are plotted for which risk reducing measures are deduced and implemented.

Before evaluating the environmental risks, the following terms related to environmental risks are defined.

Term	Environmental Risks
Harm	Damage to person, property or the environment
Hazard	Situation that poses a threat to life, health, property or the environment
Risks	The likely hand of harm or harmful occurrence and its severity, Environmental risk is a measure of potential threats to the environment, life & property.
Consequences	Effect due to the occurrence of event endangering the environment temporarily or permanent.
Environmental Disorder	The consequences are so severe that it can extensively damage anyone or all the four components of environment namely: • Physiochemical • Biological • Humans & • Aesthetic

Environmental Risk Evaluation

Risk analysis (RA) is a sort of scrutinizing vehicle for establishing the perversely in risk management that concerns human health and the environmental quality in general. Though the proposed facility is not manufacturing, storage or handling any potentially hazardous/toxic chemicals as scheduled in the MSIHC Rules 1989 and its subsequent amendments, the Risk

Management measures for the proposed project are:

- The adaption of best safety practices.
- Incorporation in design and engineering facilities/protection measures for release to air, water, environment and land.
- Electrical safety by quick response circuit breakers.
- Adequate fire protection system.

Frequent Causes of Accidents

- Fire and explosion, explosives, flammable material.
- Struck by falling objects.
- Snapping of cables, ropes, chains & slings.
- Handling heavy objects.
- Electricity (electrocution).
- Poor illumination.
- Falls from height inside industrial units or on the ground.
- Struck by moving objects.
- Slipping on wet surfaces.
- Sharp objects.
- Oxygen deficiency in confined spaces.
- Lack of personal protective equipment (PPE), housekeeping practices Safety signs.
- Hackles, hooks & chains.
- Cranes, winches, hoisting and hauling equipment.

Physical Hazards

- Noise.
- Extreme temperatures.
- Vibration.

Hazardous Substances & Wastes

- Heavy and toxic metals.
- Organo metallic substances.
- Lack of hazard communication (storage, labeling, material safety data sheets).
- Fire-fighting liquids.
- Welding fumes.
- Volatile organic compounds (solvents).

- Inhalation in confined and enclosed spaces.
- Physical hazards.
- Noise.
- Extreme temperatures.
- Vibration Radiation.
- (UV, radioactive materials).

Mechanical Hazards

- Trucks and transport vehicles.
- Scaffolding, fixed and portable ladders.
- Impact by tools, sharp-edged tools.
- Power-driven hand tools, saws, grinders and abrasive cutting wheels.
- Failure of machinery and equipment.
- Poor maintenance of machinery and equipment.
- Lack of safety guards in machines.
- Structural failure

Ergonomic & Psychosocial Hazards

- Repetitive strain injuries, awkward postures, repetitive & monotonous work, excessive workload.
- Long working hours, shift work, night work, temporary employment.
- Mental stress, human relations (aggressive behavior, alcohol and drug abuse, violence).
- Poverty, low wages, minimum age, lack of education and social environment.

General Concerns

- Lack of safety and health training.
- Poor work environment.
- Inadequate housing and sanitation.
- Inadequate accident prevention and inspection.
- Inadequate emergency, first-aid and rescue facilities.
- Lack of medical facilities and social protection.

Major Hazards

Induction Furnace

- Moist scrap being charged may cause explosion.
- Cooling water in contact with molten metal may cause explosion.
- Radioactive scrap being charged liberates extremely harmful radiation.
- Explosive material present in scrap may cause explosion.

Continuous Casting Machine

Spillage of molten metal can occur resulting in damage to mechanical and civil structures, electrical cables and hydraulic equipments.

Prevention and Control of Fire and Explosion

- Operational staff is being and shall be trained for safe work practices.
- Risk assessment to consider the potential impact of explosion in and outside the plant.
- Regular safety audits shall be undertaken.
- Refractories shall be preheated and dried before use.
- Scrap will be inspected, shredded and cut to size before put to use.

Nature of Hazards

Equipment/Process	Associated Hazard
Induction	Hot metal spillage/ steam and fire explosion
Continuous Casting Machine	Hot metal spillage
Rolling Mill	Hot metal spillage
Electrical rooms	Fire and Electrocution
Transformer area	Fire and Electrocution

Possible Hazards & Risks from Secondary Metallurgical Industries

The various process operations, which are having potentially high risk to human exposure and which have high levels of attention area identified in **Table 7.1.**

Table-7.1

Possible Risk

S.No.	Plant Area	Possible Deviation from normal operation	Likely Causes	Consequences

1	Furnace	Re-circulating and cooling water coming in contact with the molten iron or slag.	Leakage of water from the walls Spurting of metal/ slag.	Explosion under extreme cases.
		Presence of Oil & Grease and other Impurities in raw materials.	Fire	Sudden fire & flames
2	High Power Transforme	Oil temperature being very high.	Varying room Temperatures.	Sudden flashing of fire or bursting.
3	High Tension Electrical Installation	Heavy sparking at the pot heads and the joints.	Loose joints, cable cut, burning of fuses, short circuits etc.	Sparks in the beginning, devastating fire if neglected.

Table 7.2

Specific Hazard & their Control

S.No.	Hazard	Reason	Control Measures
1	Molten Metal Explosion - Steam Explosion - Chemical Explosion	- Use of oxidized or rusted iron. - Damp refractories or tools. - Containers of aerosols mobile & phone batteries. - Accidentally mixing of oxidizing substance e.g., KNO_3 $(NH_4)_2NO_3$ in furnace. - Incorrect combination/ ratio of metals being processed.	- Checking the refractories moisture & strategies for pre-heating the furnace & the refractories. - Proper storage system to ensure against accidental use and outside the excessive heat area. Storage paints, solvents and other combustible material specially.
2	Heat Stress	- Working in extreme hot condition.	- Shielding heat radiations from hot surface. - Supply of clean drinking

			water - Educating workers about the symptoms of excessive heat exposure. - Short breaks & rotation of workers.
3	Burns	- Splashing of molten material - Touching of hot surface - radiation	- Providing specific PPE's - Providing protective barriers to minimum exposure. - Proper design & Process Control. - Automation to minimize risk associated with material handling or casting.
4	Light Radiation	- UV & IR radiations of high intensity from molten metal especially the pouring areas.	- Educating the workers regarding risks and safety measures. - Proper labeling of risky areas w.r.t radiation. - Shielding of workers and providing proper PPE's.

First Aid Measures

Following first aid measures will be taken:

a. Eye Contact: Rinse eyes thoroughly with water for at least 15 minutes, including under lids, to remove all particles. Seek medical attention for abrasions and burns.

b. Skin Contact: Wash with cool water and a pH neutral soap or a milk skin detergent. Seek medical attention for rash, burns, irritation and dermatitis.

c. Inhalation: Move person to fresh air. Seek medical attention for discomfort or if coughing or other symptoms.

d. Ingestion: Do not induce vomiting. If conscious, have person drink plenty of water. Seek medical attention.

Exposure Controls & Personal Protection

Exposure Controls

- Control of dust through implementation of good housekeeping and maintenance.
- Proper fume and dust extraction system to control fume/dust emission in work zone.
- Use of PPE, as appropriate (e.g., masks and respirators).
- Use of mobile vacuum cleaning systems to prevent dust buildup on paved areas.

Personal Protective Equipment (PPE)

- Respiratory Protection: When the dust level is beyond exposure limits or when dust causes irritation or discomfort use respirator.
- Eye Protection: Wear Safety goggles to avoid dust contact with the eyes. Contact lenses should not be worn when handling the materials.
- Skin Protection: Wear impervious abrasion and alkali resistant gloves, boots, long sleeved shirt, long pants or other protective clothing to prevent skin contact.

Fire Fighting Facilities

- Keeping in view the nature of fire and vulnerability of the equipment and the premises, following fire protection facilities have been envisaged for the plant.

Hydrant System

- Internal hydrants will be provided in all major plant units at suitable locations and in different levels inside the plant buildings. Internal hydrants will also be provided for conveyor galleries. Yard hydrants will be provided in the vicinity of each plant unit, normally along the road to meet the additional requirement of water to extinguish fire.

Portable Fire Extinguishers

- All plant units, office buildings, laboratory, welfare buildings, etc. will be provided with adequate number of portable fire extinguishers to be used as first aid fire appliances. Sufficient quantities of the following extinguishers will be provided at strategic locations in the plant.

Other Safety Measures

- Safety training to the workers will be given.
- PPE will be provided to the workers.
- The maintenance and cleaning of bag filters will be carried out regularly.

- The dust removal efficiency of bag filters will be check regularly.
- Work place environment monitoring will be carried out regularly and records will be maintained.
- Good housekeeping will be implemented in the plant.
- First aid box will be provided.
- The industry will provide adequate lighting facility inside the plant premises.
- General ventilation will be provided to control dust levels below exposure limits.
- Fire extinguishers will be provided to withstand the fire or explosion condition.
- Pre-employment and periodical medical examination of workers will be done by government approved medical practitioners and the details will be recorded as per the Regulations.
- The industry will prepare on-site emergency plan.
- In case any emergency, arrangement of ambulance van will be done from nearest Hospital.
- Two main gates will be provided for entry and exit of the workers.

Disaster Management Plan (DMP)

Disaster

Disaster is an unplanned event that can cause death or significant injuries to employees, customers or public. It is a catastrophic situation in which suddenly, people are plunged into helplessness and suffering. As a result, they need protection, clothing, shelter, medical, social care and other necessities of life.

Disasters can be divided into two main groups, namely, natural and manmade. There can be no set criteria for assessing the gravity of a disaster, since this depends to a large extent on the physical, economic and social environment in which it occurs. However, all disasters bring in similar consequences that call for immediate action, whether at the local, national or international level for the rescue and relief of the victims.

Objectives of Disaster Management Plan

Disaster Management Plan (DMP) is the process of preparing for mitigating measures, responding to and recovering from an emergency. The DMP is aimed at ensuring safety of life, protection of environment, protection of installation, restoration of production and salvage operations, in this same order of priorities. For effective implementation of the DMP, it should be widely circulated and personnel training should be provided through rehearsals/ drills.

The DMP should reflect the probable consequences of the 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 is based on available and reliable information, incident data from internal and external sources, and, if necessary, the reports of outside agencies.

The objective of the industrial DMP is to make use of the combined resources of the plant and the outside services to achieve the following:

- Effect the rescue and medical treatment of causalities.
- Safeguard other people.
- Minimize damage to property and the environment.
- Initially contain and ultimately bring the incident under control.
- Provide authoritative information to the news media.
- Secure the safe rehabilitation of affected area.
- Preserve relevant records and equipment for the subsequent inquiry into the cause and circumstances of the emergency.
- In effect, it is to optimize that the operational efficiency to rescue, rehabilitate and render medical help and restore normalcy.

Emergency Plan

Emergency planning is primary for the protection of plant personnel and people in nearby areas and the environment that could be affected by unplanned hazardous events. The emergency may arise from the leakage, explosion caused by over pressure in equipment, chemical storage and handling, fire due to combustible material and social disorder.

Furnace Hazard

Furnaces are associated with fire and electrical hazard due to sudden generation of pressure or temperature that leads to damage, injury and death. Temperature and pressure are closely related, and when flammable or combustible mixture is present in process equipment that leads to worst consequences. Thus, an engineering evaluation will be done for worst-case scenario.

Safety Measures

- Installation of automatic alarm.
- Explosion suppression system with detector technique and suppressant.
- Means of shutting off the power and raw material supply.
- Standard Operating Practices (SOPs) for starting sequence of furnace should include along

with checkup for exhaust system prior to ignition

- Piping, valves and fitting should be metallic and be in accordance with NFPA-30. (Flammable & combustible liquid code)

Fire & Explosion

Fire consequences can be disastrous, since they involve high voltage current and huge quantities of raw material with fuel either stored or in dynamic inventory in conveyors or hoppers or in nearby areas. Toxic releases can affect persons working around.

Preliminary Hazard Analysis has provided a basis for consequence estimation. Estimation can be made by using various pool fires, tank fire consequence calculations.

During the study of Risk Assessment, the nature of damages is worked out and probability of occurrence of such hazards is also drawn up. The aim of DMP is to introduce the pragmatic guidelines for safe storage and warehousing of hazardous/ combustible materials, thus protecting human health and environment. The following control/ mitigating measures should be adopted.

- Eliminate all sources of ignition. However, it is difficult to ascertain.
- All the sources of ignition, especially if there are any moving parts.
- DCP type extinguishers are recommended.
- All emergency and safety related equipment must be frequently and regularly checked and maintained to ensure that their condition is satisfactory. Records should be kept of all checks and maintenance carried out on this equipment.
- The necessary first aid equipment should include emergency showers and eyewash facilities.
- The firefighting media should be selected according to mode of action and their use in combating or preventing the spread of fire. It may be water, dry chemical powder, carbon dioxide and foam.
- Extinguishers should be fitted with means to provide visual indications that the unit has partially or wholly been discharged.
- A fire detection alarm and automatically activated CO or equal fire suppression system should be provided in the electrical room.

On-Site Emergency Plan

On-site emergency is caused by an accident that takes place in a hazardous installation and the

effects are confined to factory premises involving the people working in the factory. Preparation of On-site Emergency plan is the responsibility of Factory Management. When the consequences of an emergency situation are restricted essentially within plan boundaries/ premises, it becomes an on-site emergency. Site - Emergency is under the control of senior offer of the organization not below the rank of General Manager. Separate cell will be created to handle emergency occurred due to natural or man–made disasters. Evacuation plan will be prepared. Fire tenders, ambulance and mobile hospital facilities will be provided to the victims at the shortest time. One Health Centre equipped with modern technology will be identified which has tied up with Government district hospital to get services of the various areas.

Emergency Communication

Whoever notices an emergency situation such as fire, growth of fire, leakage etc. should inform his immediate superior and Emergency control center. The person on duty in the Emergency Control Centre should appraise the Site Main Controller (SMC).

Emergency Responsibilities

a. Site Controller

On receiving information about emergency, he would rush to Emergency Control Center (ECC). Declares Emergency and orders for operation of emergency siren. He has to organize announcement by public address system about the location of emergency. He would assess which areas are likely to be affected, or need to be evacuated or are to be alerted.

b. Incident Controller

The incident controller assembles the incident control team, directs operations within the affected areas, directs the shutting down and evacuation of plant, ensures that all key personnel help is sought, provides advice and information to the Fire and Security Officer, coordinates with emergency services at the site.

c. Emergency Coordinator

- Rescue, Fire Fighting.
- Medical, Mutual Aid, Rehabilitation, Transport and Communication.
- Updating emergency plan, organizing mock drills verification of inventory of emergency facilities and furnishing report to site controller.
- Maintains liaison with Civil Administration.
- Controls rehabilitation of affected areas on discontinuation of emergency.

- Maintains essential services like Diesel Generator, Water, Firewater, Compressed Air/ Instrument Air, Power Supply for lighting.
- Ensures availability of adequate quantities of protective equipment and other emergency materials & spares.

General Responsibilities of Employees during an Emergency

It becomes more enhanced and pronounced when an emergency warning is raised, the workers, if they are in-charge of process equipment, should adopt safe and emergency shut down and attend any prescribed duty as essential employee. If no such responsibility is assigned, he should adopt a safe course to assembly point and wait for instructions. He should not resort to spread panic. On the other hand, he must assist emergency personnel towards objectives of DMP.

Emergency Facilities

a. Emergency Control Centre

Emergency Control Centre (ECC) with intercom, telephone, self-contained breathing apparatus, fire suit, hand tools, wind direction indications, public address megaphone, hand bell, telephone directories, factory layout, site plan, emergency lamp, hazard chart, emergency shut-down procedures, address with telephone numbers and key personnel, emergency coordinator, and essential employees.

b. Assembly Point

Number of assembly point depending upon the plant location would be identified wherein employees who are not directly connected with the disaster management would be assembled for safety and rescue. Emergency breathing apparatus, minimum facilities like water, etc. would be organized there. In this project there is two assembly points in opposite direction.

c. Emergency Power Supply

Plant facilities would be connected to DG and would be placed in auto mode. Thus, water pumps, plants lighting and emergency control center, administrative building and other auxiliary services are connected to emergency power supply.

d. Fire Fighting Facilities

First Aid and Fire Fighting equipment suitable for emergency should be maintained in each and at bulk storage of fuel.

e. Location of Wind Sock

On the top of the administration block / security block / production blocks, wind socks would be installed to indicate direction of wind for emergency escape.

f. Emergency Medical Facilities

Stretchers, gas masks and general first aid materials for dealing with fire burns etc. Apart from plant first aid facilities, external facilities would be augmented. Names of medical personnel, medical facilities in that particular area would be prepared and updated.

g. 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.

h. Emergency Shutdown

There could be a greater number of persons in the storage area and other areas in the vicinity. The area would have adequate number of exits, staircases, etc.

i. All Clear Signal

At the end of an emergency, the Site Controller orders for an all-clear signal. When it becomes essential, the Site Controller communicates to the District Emergency Authority, Police and Fire Service personnel regarding help required or development of the situation into an Off-Site Emergency.

j. Mutual Aid

Mutual aid in the form of technical personnel, runners, helpers, special protective equipment, transport vehicles, communication facility, etc., should be sought from the neighboring industrial management.

k. Mock Drills

Emergency preparedness is an important aspect of planning in Industrial Disaster Management. Personnel would be trained suitably and prepared mentally as well as physically in emergency response through carefully planned and simulated procedures. Similarly, the key personnel and essential personnel should be trained in the operations. List of Key persons during emergency situation will be mentioned in the **Table 7.3**

Table-7.3

List of Key persons

S. No.	Emergency Coordinator

1	General Manager
2	Manager (Project)
3	Manager (Maintenance)
4	Shift In charge

Hazardous Chemicals & Associated Hazards

There is no storage of any hazardous chemical in the industry.

Off-Site Emergency Plan

Major emergencies like bursting of tankers are classified as offsite emergency and it is not possible for single factory to handle the situation. The task of preparing the off-Site Emergency Plan lies with the District Collector. However, the off-site plan could be prepared as a Composite off-site Emergency Plan with the help of the local district authorities and the nearby industries in the Industrial Estate.

Off-site emergency plan follows the on-site emergency plan. When the consequences of an emergency go beyond the plant boundaries, it becomes an off-site emergency.

Off-site emergency is essentially the responsibility of the public administration. However, the factory management should provide the public administration with the technical information relating to the nature, quantum and probable consequences on the neighboring population.

The off-site plan in detail should be based on those events, which are most likely to occur, but other less likely events, which have severe consequence, should also be considered. An early decision will be required in many cases on the advice to be given to people living within the range of the accident. The main aspects, which should be included in the emergency plans, are:

a. Organization

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

b. Communications

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

c. Specialized Knowledge

Knowledge includes details of specialist bodies, firms and people upon whom it may be necessary to call, for example those with specialized knowledge, laboratories.

d. Chemical Information

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

e. Meteorological Information

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

f. Humanitarian Arrangements

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

g. Public Information

Arrangements for dealing with the media press office and informing relatives.

h. Assessment

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

i. Role of the Emergency Co-ordination Officer (ECO)

The ECO should co-ordinate various emergency services. The ECO should coordinate closely with the site main controller. The external control should be passed to a senior local authority administrator or even an administrator appointed by the central or state government.

j. Role of the Local Authority

The duty to prepare the off-site plan lies with the local authorities. The Emergency Planning Officer (EPO) appointed should carry out his duty in preparing for a whole range of different emergencies within the local authority area. Rehearsals for off-site plans shall be organized by the EPO.

k. Role of Police

Formal duties of the police during an emergency include protecting life and property as well as controlling traffic movements.

l. Role of Fire Authorities

The cessation of a fire should normally be the responsibility of the senior fire brigade officer who would take over the handling of the fire from the site incident controller on arrival at the site.

m. Role of Health Authorities

Health authorities including doctors, hospitals, and ambulances and so on are a vital part of the emergency plan. Major off-site incidents are likely to require medical equipment and facilities additional to those available locally. A medical "mutual aid" scheme should exist to enable the assistance of neighboring authorities to be obtained in the event of an emergency.

n. Role of Government Safety Authority

In the event of an accident, local arrangements regarding the role of the factory inspector will apply. List of key persons will be mentioned in the Off- Site Emergency Plan in **table 7.4.**

Table-7.4

List of Key persons of offsite EP

S. No.	Emergency Coordinator
1	District Magistrate
2	Fire Brigade
3	Controller of Explosive
4	SP
5	DHO
6	SPCB

7.3.1 SOCIAL IMPACT ASSESSMENT

The impact of the proposed expansion activity will begin with the starting up of the construction activities at the site. The proposed expansion activity will provide employment to considerable number of skilled, semi-skilled and un-skilled construction laborers. In normal circumstances, the local people will be given preference for the unskilled activities, as there are many construction laborers in the vicinity of the project and are expected to be available with normal wages.

Provision of wage employment to the local populace during construction period of the project will benefit the local area to some extent. This will enhance the income levels of the construction laborers and lead for their socio-economic wellbeing during the construction phase of the proposed expansion activity, which will be positive impact due to the project. Tertiary sector employment and provision of goods and services for daily need, including transport.

In line with the above, some more recommendations are given below:

- Local people will be given preference;
- All the guidelines under the Factories Act, 1948 will be implemented during the construction work to avoid any accidents;
- The contractor will be instructed to provide cooking fuel to the workers to prevent damage to trees. This will be part of the contractual agreement between the project proponent and the contractor engaged for construction; and
- The construction site will be secured with fencing and will have guarded entry Points.

7.3.2 REHABILITATION & RESETTLEMENT PLAN

The expansion project shall be carried out within the existing plant boundary located in notified industrial area. No land has been acquired for the proposed expansion except for plantation. Hence the proposed expansion project does not involve any displacement of persons and no rehabilitation and resettlement is required.

CHAPTER -8.0

PROJECT BENEFITS

8.1 INTRODUCTION

The development of industrial projects plays a key role in the economic growth of any country. Iron is the most important metal to the mankind, which is widely used for domestic, agricultural, industrial and defense purposes. Per capita iron / steel consumption is a major indicator of economic status of any country. The growth of the steel industry significantly contributes to economic growth as it generates employment both directly and also due to development of downstream industries. Peripheral development takes place and due to more influx of money through the area, overall importance of the area increases and overall, the infrastructure improves.

8.2 EMPLOYMENT POTENTIAL

8.2.1 Direct Employment

Employment opportunities are moderate and not growing as per growth of education. People mainly depend on the agriculture and Industries for their living in the area. The present expansion project has employment generation potential by way of recruiting local people directly for different activities of the project.

The proposed project shall generate direct employment for additional 90 persons as per details below.

S.No.	Description	Nos.
1	Rolling Mill In charge	1
2	Quality In charge	2
3	Marketing In charge	2
4	Shift Engineers	3
5	Supervisors	4
6	Foreman	4
7	Workers	66
8	Clerks	6
9	Accountants	2
10	**Total**	90

The required manpower for the proposed expansion can be classified into categories such as managerial, supervisory, highly skilled, skilled, semi-skilled and unskilled. The direct employment figure presented above is for the regular plant operations at full capacity.

8.2.2 Indirect Employment

Indirect employment and income effects of any steel plant are non-marginal and usually remain widespread across a long region. It is expected that substantial portion of the investment will trickle down to the local people in the form of employment and income. The project is expected to generate substantial indirect employment in other sectors such as service units. Employment and income indicate that the project has strong positive effect. Since the infrastructure for maintenance of the specialized plant and machinery may not be readily near site, adequate maintenance facilities for day- to- day and minor plant maintenance including a well- equipped workshop and trained technicians shall be developed for the project. Major maintenance and annual turn around will be contracted out to reputed agencies. Odd jobs, plant cleaning, hiring of vehicles, road and maintenance, plant security, gardening / green belt development etc. will be locally contracted out.

8.3 IMPROVEMENT IN INFRASTRUCTURE

M/s Kashmir Ispat intended to provide the following infrastructure in the study area of 10 km radius:

Road Transport: There will be improved road communication due to the proposed project and timely maintenance will be done

Market for product: Need for the proposed products are based on the demand and supply gap in the current market. With increasing utilization of the current products and to meet the future needs, it is essential to have the proposed manufacturing unit.

Market for Consumer Goods: With the implementation of the project and development of area, demand patterns will change and local consumer market will grow thus more income opportunities for the local people will be there. The proposed project is going to have positive income effect and consequently, the multiplier effect is expected to lead to an overall increase in average consumption of the people of the study area.

Increasing other business opportunities for local people- There will be scope of hiring vehicle like tractors & trolleys, bulldozers, JCB, excavators during construction and operation phase of the project.

8.4 EDUCATION

The local peoples' interest towards education will increase due to the expectation of getting jobs, especially from non- agricultural sources. The project is expected to increase such aspirations by bringing opportunities of some direct & indirect employment for the local people. The general awareness towards the importance of education is expected to increase as a result of the proposed expansion. The project will have positive impact on the level of education of the people.

8.5 OTHER TANGIBLE BENEFITS

Steel plants by nature serve as the nuclei for development of small- scale industries in the areas around them. These small- scale units usually have input- output linkage with the steel plants. The demand for spares, assemblies and sub- assemblies by steel plants are generally met through the supply (of these items) from small- scale units located nearby. The present project is likely to accelerate such industrialization through "Bubble Effects" in the study area. It is important to note that the small- scale units are usually labor- intensive and high- priority industries from social point of view.

The proposed project is expected to serve as center of significant small- scale industrial economy around it complemented by the services sector. This is expected to play a major role in the future economic and social development of this area.

8.6 CORPORATE ENVIRONMENT, HEALTH & SAFETY POLICY

The steps of corporate environment, Health & Safety policy are given below:

- Minimize the Environmental Aspect & impacts
- All incidents are preventable
- "Zero Harm" across the work place and offices
- Preserve natural resources for future generations and
- No task is so important that risk of injury to people or damage to the environment is justified.

The objectives of this EHS Policy shall be achieved by

- Integrating the EHS plan and procedures into every operation of the joint venture.
- Achieving an incident free work places and offices through proactive capturing and correcting of maximum number of UA/UC/UB, Near miss and First-Aid cases and subsequent reduction of severity rate, frequency and fatality rates.
- Compliance to applicable Legal and other requirements.

- Elimination and reduction of OH&S Hazards and Risks.
- Encouraging the preparation of HIRA across the sites and offices to have better proactive EHS hazard control measures and minimize the environmental aspects and impact.
- Indicating a positive EHS culture among employees through continuous training and awareness programs
- Encouraging communication, consultation and coordination among employees stack holders and external agencies.
- Achieving continual improvement by integrating EHS procedures into every process and through periodic internal/external auditing of management system.
- Continuous monitoring of EHS implementation across the firm through various software modules.
- Assessing and employing the sub-contractors complying with VTL-VRS JV IMS Standard.
- Engages, motivates and develops employees to promote sustainability initiatives that result in innovative ideas, operational efficiencies, cost savings and a reduced Environmental footprint.
- Preserving water through reduce, reuse and recycle principles.

8.7 DETAILS OF INFRASTRUCTURE FACILITY

Most of the labor force during construction and operation phase will be hired from the local areas. Sanitation and rest rooms are available for the casual workers and truck drivers. Sufficient toilet facility i.e. one toilet for ten persons is there.

8.8 ENTERPRISE SOCIAL COMMITMENT

Being a small industry and not covered under the Companies Act, the promoters are well aware of their role and responsibility toward the society and stack holders. For fulfilling the social responsibility, the company will earmark a specific amount towards enterprise ESC. Items wise detail and time bound action plan shall be chalked out based on the public consultation issues and the representative of surrounding villages. The same shall be submitted along with comprehensive EIA report. In addition to issues which may crop up during public hearing the following social activities have been planned.

- Awareness plan on girls education
- Spreading legal awareness amongst people and disadvantageous section of society about their rights & safeguards available.

- Formation of a task force of volunteers to educate people, regarding judicious use of water resources.
- Green belt development on village common land in association with concerned village Panchayat.
- Promotion of sports activities in nearby village.
- Development of crematorium in one village of study area.

8.9 LITIGATION AND PENDING CASES

The unit has never violated the provisions under the environmental protection rules. Neither any litigation is pending against the project nor any directions /order has ever been past by any court of law.

CHAPTER -9.0

ENVIRONMENTAL COST BENEFIT ANALYSIS

9.1 ESTIMATED PROJECT COST

The estimated project cost will be Rs 3196.39 Lacs. including Rs 2831.78 Lacs as cost of Expansion.

9 .2 SCHEDULE OF PROJECT IMPLEMENTATION

Schedule of implementation of the project is of utmost importance and the same will be executed within the reasonable time. This takes into account the time required for various activities i.e., detailed engineering of the unit including structural designs, civil construction, procurement of equipment and machinery including utilities and services, equipment test and trial runs etc. One year shall be needed for completion of the project after the EC is granted.

Key factors that would facilitate successful and timely project implementation:

a) Proper choice of technology and machinery suppliers.
b) Adequate diligence in formulating the technical concept and system design / selection of the plant.
c) Proper choice of contractors for civil construction and erection of equipment.
d) Formulation of effective project team led by an experienced Project Manager.
e) Establishment of efficient system for project planning & monitoring including reporting procedures for progress review & co- ordination.
f) Customization of project execution plan to suit the promoter's profile.

9.2.1 Implementation Strategy

Typically, project has four core dimensions viz:

a) Engineering: This directly impacts the smooth operations of the plant over its entire life
b) Procurement: It is critical on account of the impact that it has on investment and performance benchmarks and also in ensuring the choice of appropriate technology.
c) Construction: It is critical in terms of its impact on completion quality and duration of the project phase.
d) Project Management: other than its obvious impact on project time it also contributes to risk minimization for the promoter.

9.3 Environment Cost Benefit Analysis

9.3.1 Net Present Value

Net present values provide a basic to assessing the fairness of any future financial benefits and liabilities of a project. Considered Rs 4505.00 Lacs as the full-on value of present investment of Rs 3196.39 Lacs and discounted rate of 5%. The present value of project will be for five years.

$$\frac{3196.39}{1.05^5} = 2505.0 \text{ Lacs.}$$

Hence, Rs 4505 Lacs is worth Rs 2505 Lacs agreed lum-sum payment to five years.

9.3.2. Internal Rate of Return

Internal rate of return is calculated using the formulae $\frac{Future\ Value}{Present\ value}$

$$\frac{4505}{2505} = 1.798$$

With ration of value (IRR)= $(1.798)^{0.2} = 0.36$

= (0.36-1.0) X100

= (-0.6403 X 100) =-6.4%.

9.3.3. Benefits Cost Ratio

Benefits cost ratio is sort of data driven approach for the organization in making solid investment decisions.

Benefit cost ratio is achieved by using the formulae:

$$= \frac{Present\ Value\ of\ future\ benefits}{Present\ values\ of\ future\ cost}$$

$$= \frac{4505}{3196.39} = 1.40$$

Since the ratio is more then 1.0, the project is economically valuable.

9.3.4. Cost Effectiveness Analysis (CEA)

Generally, the cost effectiveness analysis is considered to compare the relative cost of two or more alternatives and is a sort of alternative to cost beneficial analysis. Since in this case no

alternative to site and process is considered the cost effectiveness analysis hence therefore been not considered.

9.3.5. Environmental Benefits

- With the adoption of state-of-the-art laboratory for air pollution control there will be significant improvement in the air quality as the as the resultant pollution load in the environment will decrease.
- With the development and modernization of Greenbelt, the aesthetic seismic view of the area will improve in addition to general improvement on the environment.
- With the adaption of RWH within the premises and its subsequent reuse, the impact on GW absorption will be controlled.
- Since, it is ZLD unit, no component of the environment will be affected by its operation.

9.3.6. Improvement in Social Infrastructure

- There will be positive outcome in the surrounding population.
- The project worker collaborates the conservation of structural shield in the severity marked.
- As per MOEF&CC On dated 30.09.2020 to company will present in physical form and undertake social and environmental activities acrossed the project site in a time bond manner in consultation with local authorities, the implementation of listed will be done as per of EMP.
- The proposed expansion will result in direct and undirect employment in the nearby area subject to availability of skilled and unskilled manpower.
- The project is quite competent to state and central exchequer by way of taxes and duties.

CHAPTER -10

ENVIRONMENT MANAGEMENT PLAN

10.0 Introduction

Environmental management plan (EMP) describes the administrative aspects of ensuring that mitigation measures are implemented and their effectiveness monitored, after the grant of EC. It consists of various policies, control measures etc. for abatement of critical environmental impacts arising out of the proposed project. Mitigation measures are proposed on the basis of identified impacts. Further a suitable environment management plan will be introduced in the project to implement and practice measures to protect and enhance the quality of environment. The EMP is only as effective as its implementation. An appropriate environmental management strategy is developed and presented in the form of an EMS. It is the responsibility of the project proponents to control the utilization of resources and discharges of waste by adopting suitable control measures in the factory to avoid adverse effects of industrial activities on the environment and in turn to enhance the quality of the existing environment.

10.1 Summary of Potential Impacts with Mitigation Measures during Construction Phase

10.1.1 Land Environment

The site is flat and already leveled, hence no leveling is required. Earth excavated during civil foundations will be reused for raising the plinth and backfilling the columns. Dust generated due to earthwork including excavation and transportation activities, especially during dry weather conditions, will be controlled by water sprinkling.

10.1.2 Air Environment

Dust will be generated at work site during the construction activity like excavation and vehicular movement. Suitable surface treatment to ease the traffic flow and regular sprinkling of water will reduce the dust generation will be provided. All internal and external roads will be asphalted and cleaned daily, so as to minimize the regeneration of road dust.

10.1.3 Water Environment

Temporary drainage will be maintained, removed and reinstated as required, and all other precautions will be taken for avoidance of damage by flooding and silt. Sedimentation pit of sufficient capacity will be constructed to trap silt-laden water during monsoon. The wastewater will be reused for dust suppression by adopting suitable mechanism. These will be cleaned on regular basis.

10.1.4 Noise Environment

The noise generated during the constructed phase will be due to the movement of vehicles and construction equipment. Construction equipments and transport vehicles would be properly maintained so that noise generation is minimized. Regular maintenance schedule will be adopted for all construction equipment and vehicles.

10.1.5 Solid Waste Management

Careful design, planning and good site management would minimize waste of materials such as concrete, mortars and cement grouts. Construction waste will be segregated as much as possible at site itself to increase the feasibility of recycling concrete and masonry as filling material and steel pieces as saleable scrap.

Muck shall be generated from drains and sedimentation pits. The muck shall be collected daily and stored at earmarked place. It shall be finally disposed within the plant premises for plinth raising purpose. Litter disposal and collection points shall be established around the all-construction work sites. Construction waste shall be segregated as much as possible at site itself to increase the feasibility of recycling concrete and masonry as filling material and steel pieces as saleable scrap.

10.1.6 Sanitation, Welfare and Safety Measures of Construction Workers

Construction workers will be made aware of possible hazards and safety measures that need to be taken during construction activities through routine training. Personal Protective Equipments (PPEs) such as dust masks, goggles, earplugs/ earmuffs, safety gloves, safety belts, shoe with toe protection, gumboots will be made available at construction site. Construction workers and vehicle drivers will be provided with drinking water, canteen and toilet / washroom facility. Rest room facility for truck drivers will be provided.

10.2 Summary of Potential Impacts with Mitigation Measures during Operational Phase

10.2.1 Air Environment

The major source of air emission is fugitive dust from induction furnace. The dust emissions will be controlled by using fume capture devices and bag filters. The air pollution control system will consist of air-cooled ducts, hood for furnace, bag house, ID fan and chimney. Adequate spares (bags, cages, compressors, pumps, and machine parts, etc.) shall be maintained by the industry. O&M of the bag filter shall be done as per schedule prescribed by the manufacturer.

Gaseous emission from DG stack will contribute significantly in particulate matter, SO_2 and NO_x level in ambient air. Stacks heights as per norms will be provided for the proper dispersion of pollutants. The resultant air quality will conform to the stipulated standards.

10.2.2 Water Environment

Pollution of groundwater, odor from waste water treatment plant and domestic sewage are some potential impacts of liquid effluent. There will be no use of water in the process and hence, no waste water generation requiring subsequent treatment. Domestic sewage will be treated in sewage treatment plant and treated effluent will be collected in treated effluent tank reused in sprinkling, watering, irrigation of green belt and horticulture, etc. The water for cooling of furnaces will be re-circulated and no wastewater will be discharged from outside the premises. Roof-top rain water will be collected, stored and used for non-process operations such as plantation and dust.

10.2.3 Noise Environment

Noise level will increase due to equipment and machineries in the plant area. Equipments will be designed to conform to noise levels prescribed by regulatory agencies where necessary, high noise generating equipment should be acoustically treated or housed. Provision of and plantation would further help in attenuating noise. Acoustic enclosure will be provided for DG sets. Noise attenuation will be acquired to reduce noise level to 85 dB (A) at 1m distance. Ear plugs/ear muffs will be provided to employees working in high noise areas as protective device.

10.2.4 Solid and Hazardous Waste

Waste	Source	Quantity	Potential Impact
APCD Dust	Induction Furnace	0.7 TPD	Health Implication, land pollution
Sludge	STP	1.5 kg/d	No adverse environmental impact except little odor nuisance.
Furnace Slag	Induction Furnace	17.28 TPD	No adverse impact. It will be used in road making and land filling.
Used Oil	DG sets	0.03 Kl/A	possibility of soil and water contamination due to spillage

MSW from every day & Domestic	Employees	30 kg/d	Hazardous Gas Emission. Natural Habitat Degradation

Management

- Dust from bag filters shall be stored in a covered dumping pit of R.C.C. and disposed to designated TSDF site/ or approved reprocessors of hazardous waste for final disposal.
- Municipal solid waste due to everyday sweeping and domestic activities will be collected in bins.
- The sludge from waste water treatment systems shall be composted and used as manure in horticulture.
- Slag produced from manufacturing process as by-product will be periodically tapped and left to solidify. The slag will be then crushed and iron particles are taken out through the process of magnetic separation. Mill scales are either sold in the market or used back in I.F.
- Domestic waste will be handled and managed as per MSW Rules.

Summary of Environmental Impact and mitigation Measures:

S. No.	Component of Environment	Impact	Mitigation Measures
CONSTRUCTION PHASE			
1	Air	Health implications	Personal protective equipments for workers, water sprinklers. Since the proposed project is within the industrial land, no impact is envisaged on the outside areas.
2	Noise and Vibration	Noise induced affects	Construction activity to be restricted in day time only. Proper servicing of vehicles, PPE to be provided.

3	Water	Ground water pollution leading to health implications	Proper sanitation facilities are/will be provided. No change in land use as the project execution will be in the existing land.
4	Land	Soil quality and indirectly food chain	Construction waste will be used within the site and sanitation facilities already exist which will be further strengthened.
5	Biological	Noise level may impact the fauna	Green Belt development takes care of this aspect.
6	Socio Economic	Employment of workers	Positive impact as people from the study area will be employed.
7	Occupational Health and Safety	Respiratory ailment due to dust and auditory due to noise.	Water sprinklers and PPE's
OPERATIONAL PHASE			
1	Air	Health implications	Provisions of proper APCS and their operation as per SOP, adequate stacks and compliance as per SPCB norms. PPE for employees, regular monitoring and compliance with HWMTB management riles-2016.
2	Noise and Vibration	Noise induced affects	Equipment will conform to noise level of 85 dB (A). Proper maintenance of equipment and PPE. General public will not be affected.

3	Water	Ground water pollution leading to health implications	Proper sanitation facilities. The sludge from domestic waste water treated to be used as manure and treated water for plantation.
4	Land	Soil quality and indirectly food chain	Domestic waste water shall be used in plantation after treatment.
5	Biological	Disturbance due to noise	Proper education to drivers and transportation in day time only.
6	Socio Economic	Employment to locals	Positive impact
7	Occupational Health and Safety	Accidents to operational activities and auditory ailments	Low noise equipments will be employed which conform to noise level of 85 dB (A). Proper PPE to be provided. Storage of H.W. as per rules. Proper safety training to staff.

10.2.5 Occupational Health & Safety

Sources and Impacts: Exposure to noise, dust, heat and gases like CO are occupational hazards identified in steel plant. Silicosis, Bronchitis and Noise induced hearing loss are the diseases that could occur due to prolonged exposure / concentration found to be above the Permissible Exposure Level. Workers involved in raw material handling section, dusty environment, near furnaces, and are exposed to high dust levels. Workers working near / close to the furnaces are exposed to heat stress. Over a long period of time such exposure is likely to result in respiratory problems / occupational health problems.

Management: Plant personnel working in dust prone areas shall wear personnel protective equipment like air filters over their nose. Job rotation schemes shall be practiced for over-exposed persons, particularly for heat stress. Proper illumination shall be maintained at each and every nook and corner of the work places.

PPE like earplugs and muffs shall be provided to workers working near air compressors, pipe plant and mills, and administrative pressure applied to the workers to use them. Workers exposed to mechanical accident-prone areas are given personal protective equipment (PPE) like tight rubber goggles, safety helmets, welders hand shields and welding helmets, plastic face shields, ear plugs, ear muffs, rubber aprons, rubber gloves, shoes with non-skid soles, gum boots, safety shoe with toe protection.

Table 10.1 Safety and Occupational Hazards

Safety Hazards			
Risk	**Equipment**	**Causes**	**Mitigation Measures**
Steam Explosion	Furnace	• Cooling water coming in contact with molten metal as Slag • Excessive moisture in Slag • Due to refractors	• Making C.W. system leak proof • Pre heating of raw materials • Pre heating of refractors
Chemical Explosion	Furnace	• Accidental mixing of oxidants such as points/varnishing & oily scrap • Chemicals/substances in scrap	• Segregation of scrap before use
Fire & Explosion	Transformers	• High oil temperature • Varying room temperature	• Locating transformers at isolated place • Encompassing the oil filled equipment by RCC wall
Sparks followed by fire	Electrical installation/Sub-station	• Loose fowls, cable cut, short circuits etc.	• Due diligence in designing the electrical sub station

Occupational Health Hazards		
Hazard	**Causes**	**Mitigation/Control**
Heat Stress	• Working in extreme hot conditions	• Shielding heat radiations from hot surface • Supply of clean drinking water • Educating workers about the symptoms of excessive heat exposure • Short breaks & rotation of workers
Burns	• Splashing of molten material • Touching of hot surface • Radiation	• Providing specific PPE's • Providing protective barriers to minimum exposure • Proper design & process control • Automation to minimize risk associated with material handling or casting
Light Radiation	• UV & IR radiations of high intensity from molten metal especially the pouring areas	• Educating the workers regarding risks and safety measures • Proper labeling of risky areas w.r.t radiation • Shielding of workers and providing proper PPE's
Electrocution	• Contact with live wires • Flash over • Strong Electromagnetic filter	• Elimination of source of risk • Safety switches • Task specific PPE
Mechanical Hazard	• Accidental fall of heavy equipments	• PPE • Proper training
Hearing problems	• Excessive Noise	• Insulate ventilation proper • Compulsory use of PPE

10.3 STRUCTURE AND ADMINISTRATIVE RESPONSIBILITIES OF ENVIRONMENT MANAGEMENT CELL (EMC)

M/s Kashmir Ispat is an existing company having qualified and experienced personnel in environmental management and pollution control. The company has existing environmental monitoring cell for environment monitoring and legal compliances. The details of cell are given below:

The EMC will be headed by two Partners of the Company. They will be assisted by General Manager (Environment) and Consultant. However, actual responsibility for execution of environmental mitigation measures will be General Managers, Deputy General Manager and their subordinates.

General Manager: He will be responsible for legal compliances of the company related to MoEF, CPCB & PPCB. He will arrange regular monitoring of the proposed pollution control system through his associates. He will arrange evaluation environmental performance of the systems and ensure that the stipulated measures are being satisfactorily implemented and operated. He will ensure that there shall not be any adverse impact on air, water, noise and land environment due to construction & operation of proposed expansion project. As per report of DGM Environment the plant management shall take effective steps through the concerned section head to curb the pollution and effective environmental management.

Consultant: He will supervise the monitoring & analysis of water and effluent quality by the laboratory. As per requirement he will arrange the additional tests through external agencies. He will also arrange regular measurement of ground water quality in the study area and implementation of rain water harvesting measures. He will monitor the performance of air pollution control systems through on-line continuous stack emission monitoring systems and online continuous ambient air quality monitoring stations. He will also ensure the CPCB guidelines by arranging the outside agency to carry out monitoring & analysis of the air quality parameters which are not available in online systems. He will facilitate the inspection, monitoring & analysis of pollution control systems by the SPCB officials as and when required. His other functions would be hazardous waste management. He will co-ordinate for proper reuse or disposal of hazardous wastes. EMP costing detail is provided at **Table 10.2.**

Table-10.2

EMP Budget

S. No	Title	Capital Cost Rs. Lakh	Recurring Cost Rs. Lakh
1	Pollution Control during construction stage	5.0	2.0
2	Air Pollution Control (Installation of APCs)	90.0	5.0
3	Water Pollution Control/ STP (15 KLD)	15	5.0
4	Noise Pollution Control	5.0	1.0
5	Landscaping/ Green Belt Development	20.0	20.0 (for Three years)
6	Solid Waste Management	5.0	5.0
7	Environment Monitoring and Management	5.0	3.0
8	Occupational Health, Safety and Risk Management	10.0	2.0
10	Miscellaneous	5.0	--
	TOTAL	**160.0**	**43.0**
ADDITIONAL MANAGEMENT ACTIVITIES			
	DESCRIPTION	**Estimated Cost (in Rs. Lacs)**	**Time Line/Action Plan**
1	Plantation in community areas in consultation with concerned village panchayat.	Rs 15 Lacs	Starting after six months of grant of EC, plantation will be completed within three successive monsoon seasons
2	Water Recharge/Harvesting by deepening of existing ponds of three villages.	Rs 10.0Lacs	One each per year after grant of EC.
3	Distribution of biodegradable carry bags to surrounding population and employees to discourage the use of SUP.	Rs 7.0 Lacs	Twice a year

To maintain the environmental parameters within the stipulated standards, regular monitoring

of various environmental components is necessary which will be complied as per conditions.

10.4 CORPORATE ENVIRONMENT POLICY

It is a company managed by Partners. The promoters of the project are well aware of issues and concerns regarding environmental matters pertaining to the project. The company has well established administrative set up to deal with the environmental issues and ensuring the compliance of statutory norms and EC conditions as per following.

Environment Policy of the Company:

- We will involve our customers, suppliers, vendors and contractors in environmental sustainability endeavors by sharing our expectations to collaboratively achieve our environmental objectives and adopting the 3-R' (Reduce, Reuse, Recycle) concept.
- We will survive to comply withal applicable and related legal and other requirements.
- To implement all these measures, we shall devise an Environmental Management Plan (EMP) which could consist of mitigation measures for each activity to be undertaken to minimizing environmental impacts, if any.
- We will communicate our environmental policy to all employers, business associates and other stockholders and ensure that the reporting of the environmental related compliance is done through appropriate communication channels.
- We will review the environmental policy and allied management systems periodically to ensure continuing and relevance to our operations.
- Preserve and enhance biodiversity in our unit ardently promote 'green procurement' for our all-upcoming projects.

CHAPTER -11.0

SUMMARY & CONCLUSION

11.1 Project name and location

The proposed Brownfield project is a Secondary Metallurgical Process based industry. The plant is located at SIDCO industrial complex Bari Brahmana, Samba, Jammu. It is proposed to install one new Induction Furnace of capacity 25 TPH and one Continuous Casting Machine. Thus, the total production will increase from 85,876 TPA to 1,13,050 TPA of Round Angle, Channel, TMT Bars and Flats & 1,19,000 TPA of MS Ingots/Billets.

Tab. 11.1. Salient Features of the Project

Name of Project	M/s Kashmir Ispat		
Type of Project	Steel Manufacturing Unit (Expansion)		
Location	SIDCO Industrial Complex, Bari Brahmana, Samba, Jammu.		
Product	MS Ingots/billets & Flats, Steel Bar, Tor Steel, Steel Angle, Channels, Rounds, Wire rod, Square, Girders & TMT Bars.		
Capacity (TPA)			
Product & Bye Product	**Existing (TPA)**	**Additional (TPA)**	**Total (TPA)**
MS Ingots/Billets	NIL	1,19,000	1,19,000
Flats, Steel Bar, Tor Steel, Steel Angle, Channels, Rounds, Wire rod, Square, Girders & TMT Bars.	85,876	27,174	1,13,050
Cost of the Project	Existing -Rs 364.61 Lacs Proposed -Rs 2831.78 Lacs **Total -Rs 3196.39 Lacs**		
Total Land	2.365 Hectare or 23650 sqm		
Power Requirement (KW)			
Existing	2997		
Additional	12948		
Total	15945		
Source of power	J&K State Power Corporation Limited		
Source of water supply	SIDCO Water Supply		
Consumption of Water For Summer Season (KLD)			
	Existing	**Proposed**	**Total**

Domestic	4.0	6.0	10.0
Cooling	16.0	40.0	56.0
Total	**20.0**	**46.0**	**66.0**
Consumption of Water For Winter & Rainy Season (KLD)			
	Existing	**Proposed**	**Total**
Domestic	4.0	6.0	10.0
Cooling	16.0	20.0	36.0
Total	**20.0**	**26.0**	**46.0**
Source of water supply	SIDCO Supply		
Effluent Quantity	Domestic = 8.0 KLD Cooling = Recirculation		
Effluent treatment	Domestic- through STP and used for plantation		
Air pollution control	Bag filter		
Solid waste	About 17.28 TPD of slag which is not a H.W will be generated and the same after recovery of iron will be supplied to manufacturers of cement manufacturing plant under proper agreement.		
Hazardous waste	Hazardous/solid waste generated (0.03kl/annum) from DG sets in the form of used oil which is sold to authorized recyclers. APCD dust of 0.7 TPD will be sent to TSDF site for final disposal.		
Environment Management Cell (EMC)	A duly constituted EMC comprises the following: 1. Partner 2. Process In charge/GM 3.Environment Consultant		

11.2 Description of the Environment

Various Environmental factors as existing in the study area which are liable to be affected by the activities have been assessed both quantitatively and qualitatively. Baseline environmental data generation of study area was carried out during the period.

In Frequency: The monitoring frequency was 24hrs, twice a week at each station spread over the entire monitoring period with gas sampling done six times (at 4 hrs intervals)

S.No.	Sampling Parameters	Sampling Equipments	Analytical Equipments	Detection Limits	Methods
1	PM10	Respirable dust samples with cyclone and flow measurement	Gravimetric, Analytical balance	10.0 ug/m^3	IS:5182 (P-3),208
2	PM2.5	Fine particulate samples	Gravimetric, Analytical balance	10.0 ug/m^4	IS: 5182 (P-24, 2019
3	SO2	Gaseous flow Impinger with TCM with RDS	Spectro photometer	4.0 ug/m^3	IS: 5182 (P-2) 2001 (RA-2017)
4	NOx	Gaseous flow Impinger with Sodium Arsenide with RDS	Spectro photometer	6.0ug/m^3	IS: 5182 (P-6) 2006 (RA-2017)
5	CO	Teddler bag & Pump	IS. (GC method)	0.5mg/m^3	IS: 5182 (P-10) 1999 (RA-2003)

Ambient Air Quality

The $PM_{2.5}$, PM_{10}, SO_2, NO_2, CO levels were monitored at eight locations in the study area for three months. The P98 levels of criteria pollutants are as follows: $PM_{2.5}$ is 40.2 µg/m^3, PM_{10} is 82.2 µg/m^3, SO_2 is 8.5 µg/m^3, NO_2 is 23.2 µg/m^3 and CO is 0.73 mg/ m^3. The baseline air quality level is within the National Ambient Air Quality Standards prescribed for industrial, residential, rural & other area. **(Standards are 60, 100, 80, 80µg/m^3 and 4.0mg/m^3 for $PM_{2.5}$, PM_{10}, SO_2, NO_x and CO respectively).** Due to better pollution abatement facilities in the proposed expansion, there will rather be improvement in the existing air.

Water Quality

Eight groundwater samples and one surface water sample were collected from the study area for chemical and bacteriological analysis. The groundwater quality of the study is satisfactory. No physical or bacterial contamination was found in the water quality. But bacterial contamination is found in surface water. Since, no waste water will be discharged to the environment, water quality is not likely to be impacted.

Noise Environment

Ambient noise levels were monitored at 8 locations in the study area. Noise levels at the Project site was found to be 71.2 dB (A) during day time and 54.6 dB (A) at night. The baseline noise levels are borewell within the Noise Standards prescribed by the CPCB. Proposed expansion will not have insignificant impact as there will be no noise generating machinery and process.

Soil Quality

Eight soil samples were collected from the study area and analyzed. The texture of soil is silt loam. The organic matter, nitrogen, potassium and phosphorus content of the soil are moderate. The pH of all the soil samples is within the acceptable range. No impact on soil will be there for proposed plant as no waste will be discharged on land.

Ecological environment

Ecological data has been collected through secondary sources and by site visits. The tree species kikar, Jamun, Peepal and Mango etc. are the dominant plant species of the study area. Mongoose, porcupine, jungle cat, cobra, krait, snakes, hare, pigeon and variety of birds are the common animals of the study area. No endangered species of plants and animals are found in the study area, so no impact on ecological environment.

Sensitive Ecosystem

Within the study area, no plant or animal species were found to be on the endangered list. No ecologically sensitive area like biosphere reserve, tiger reserve, and migratory corridors of wild elephant, wetland, national park and wildlife sanctuary are present in the study area. Agriculture and industrial workers dominate the occupational structure of the study area. Several induction furnaces, rolling mills, ferroalloy plants, brick kilns, and other small units are present in the study area.

Socioeconomic Condition:

Socioeconomic status has been studied through secondary sources and by site visits. The social requirements identified such as Drinking water requirement, Promotion of Educational institutions and medical facilities to the villagers (especially Senior Citizens and infants or pregnant ladies). Community centers, recreation facilities etc. will also be developed as part of social responsibility.

Possible Hazards & Risks from Secondary Metallurgical Industries

The various process operations, which are having potentially high risk to human exposure

and which have high levels of attention area identified in Table provided below:

Possible Risk

S.No.	Plant Area	Possible Deviation from normal operation	Likely Causes	Consequences
1	Furnace	Re-circulating and cooling water coming in contact with the molten iron or slag.	Leakage of water from the walls Spurting of metal/ slag.	Explosion under extreme cases.
		Presence of Oil & Grease and other	Fire	Sudden catches fire & flames
2	High Power Transformer	Oil temperature being very high.	Varying room Temperatures.	Sudden flashing of fire or bursting.
3	High Tension Electrical Installation	Heavy sparking at the pot heads and the joints.	Loose joints, cable cut, burning of fuses, short circuits etc.	Sparks in the beginning, devastating fire if neglected.

Likely impact of the project on air, water, land, flora-fauna and nearby population

No, likely impact of the project site on the air, water, land, flora-fauna and nearby population will be seen with the proposed expansion coming into being.

11.3 Anticipated Environmental Impacts and mitigation measures

The purpose of mitigation measures is to avoid, reduce or minimize unwanted impacts on the environment. The detailed impact prediction and its mitigation measures are given at Chapter 4. However, the generic detail with regard to mitigation measures to be taken is delineated as under:

- **Air pollution control**

➢ To minimize & control the emission from Induction Furnace, the process emission will be collected and sucked by installing well designed side hood. The emissions so collected will be passed through spark arrestor, air cooling and finally bag filters before its discharge to atmosphere. The APCD will be installed based on latest technology to contain the concentration of particulate matter in the process of within the standards laid down by the MoEFCC/PPCB.

➢ DG set is attached with a stack of adequate height for dispersion of pollutants of exhaust gases into the atmosphere at the required height.

- **Solid and hazardous waste control**

➢ About 17.28 TPD of slag will be generated and the same after recovering of iron contents will be supplied to manufacturers of Tiles/cement manufacturing plant for reuse and to local market.

➢ APCD dust of about 0.7 TPD will be sent to TSDF Site for final disposal.

- **Water pollution control**

No wastewater will be generated from process, only domestic wastewater will be generated which will be treated in STP. The treated wastewater will be reused for plantation and dust suppression

- **Noise pollution control**

➢ Loading and unloading of raw material and product will be carried out especially during day time by taking necessary mitigation measures at the sources to rule of the possibility of increase in the ambient noise levels due to these activities.

➢ DG set is fitted with a canopy to contain the sound pressure level within the prescribed limits. Further the machinery, which is lively to cause increase in the ambient noise level, will be kept in good condition at all the times to rule out the possibility of contribution of noise level in the atmosphere.

➢ Green belt will be provided in the open areas to attenuate the noise levels to be generated from various activities/sources as mentioned above. In addition, this green belt will help to attenuate the fugitive emissions to be generated from the premises of the unit. Ear muff/plug will be provided to all workers working at noisy area

A tabular presentation of mitigation measures is given below:

The following are the mitigation measures for the existing & proposed facility:

S. No.	Source	No.	Fuel	APCD
1.	Induction Furnace	NIL	--	--
2.	Rolling Mill	01 No. (15 TPH)	Coal	Cyclone, Wet Scrubber
3.	D.G. Set	125 KVA each	HSD	Stack of adequate height provided
After Expansion				
1.	Induction Furnace	25 TPH	Electricity	Bag Filters
2.	Rolling Mill	01 No. (15 TPH)	Coal	Cyclone, Wet Scrubber
3.	CCM	01 No.	--	--

4.	D.G. Set	125 x 325 KVA	HSD	Stack of adequate height provided
Hazardous Waste				
S.No.	**Waste Category**	**Existing**	**Disposal**	
1.	35.1 Flue gas cleaning residue	0.7 TPD	Send to TSDF site/ final disposal	
2.	5.1 Used oil/Spent oil	0.03kl/annum	Sold to Authorized Recyclers	
Solid Waste				
S.No.	**Waste Category**	**Existing**	**Disposal**	
1.	Slag	17.28 TPD	Sent to tile/cement manufacturing plant for reuse and to local market.	

11.4 Environmental Monitoring Programme

The monitoring of environmental parameters like air, water, noise, soil, and meteorological data and performance of pollution control facilities and safety measures in the unit are vital for environmental management of any industrial project.

Therefore, the company shall create environmental monitoring facilities by the environmental and safety department to monitor air and water pollutants as per the guideline. Moreover, air, noise, drinking water, and soil shall be monitored by outside agencies authorized by Pollution Control Board at regular frequencies. This department shall also carry out periodical check of fire and safety equipment.

11.5 Additional Studies

The various process operations, which are having potentially high risk to human exposure and which have high levels of attention area identified in Table provided below

Possible Risk

S.No.	Plant Area	Possible Deviation from normal operation	Likely Causes	Consequences
1	Furnace	Re-circulating and cooling water coming in contact with the molten iron or slag.	Leakage of water from the walls Spurting of metal/ slag.	Explosion under extreme cases.

		Presence of Oil & Grease and other Impurities in raw materials.	Fire	Sudden catches fire & flames
2	High Power Transformer	Oil temperature being very high.	Varying room Temperatures.	Sudden flashing of fire or bursting.
3	High Tension Electrical Installation	Heavy sparking at the pot heads and the joints.	Loose joints, cable cut, burning of fuses, short circuits etc.	Sparks in the beginning, devastating fire if n neglected.

11.6 Project Benefits

The proposed expansion will be carried out in existing premises; it is justified on account of the following:

- The implementation of proposed project will bring employment to many people.
- Being one of the largest steel producers, the proposed project will contribute to the economic growth.
- No forest land is involved.
- The site has easy access to raw material, road, rail connectivity and market.
- Manpower availability from nearby areas.
- No resettlement and rehabilitation issues.
- Absence of areas of archeological and historical importance within 10 km radius.

11.7 Environmental Management Plan

Environmental management plan (EMP) describes the administrative aspects of ensuring that mitigation measures are implemented and their effectiveness monitored, after grant of EC. It consists of various policies, control measures etc. for abatement of critical environmental impacts arising out of the proposed project. Mitigation measures are proposed on the basis of identified impacts. Further a suitable environment management plan will be introduced in the project to implement and practice measures to protect and enhance the quality of environment. The EMP is only as effective as its implementation. An appropriate environmental management strategy is developed and presented in the form of an EMS. It is the responsibility of the project proponents to control the utilization of resources and discharges of waste by adopting suitable control measures in the factory to avoid adverse effects of industrial activities on the environment and in turn to enhance the quality of the existing environment.

11.8 Conclusion of EIA Study

The proponent has proposed to expand the existing manufacturing facility with due concerns for the environment.

Proven technology coupled with adequate and appropriate pollution control equipments will lead to insignificant environmental impacts which will be further mitigated by taking preventive measures. The production activities will be undertaken in accordance with the well-established and time practices and procedures' project authorities being well versed with the process are capable of handling any abnormal and emergence situation

The project will result in a boost to commercial business, employment, increase revenue and infrastructural development. Based on the study its concluded that the project would be environmentally, socially and economically sustainable in accordance with the EIA legislation and standards**. The proposal may therefore may be considered for granting Environmental Clearance.**

CHAPTER -12

DISCLOSURE OF CONSULTANTS ENGAGED

12.1 Organizational Profile:

Organization – Chandigarh Pollution Testing Laboratory Address – E-126, Phase -VII, Industrial Area, Mohali.

Contact person – Mr. Sital Singh (CEO)

Contact No. – 98145-00295

Email ID – sital_cptlmohali@yahoo.com , cptleia@gmail.com

Brief of resume and nature of consultancy rendered by M/s Chandigarh Pollution Testing Laboratory (CPTL) was established in 1996 and has more than two decades of varied experiences in the field of environment. The consultancy is operating in the field of environment consultancy and allied services.

Head quartered at Mohali (Pb), CPTL has been servicing its clients, including MNC's, government institutes, public and private Indian enterprises across several sectors for the last 25 years.

12.2 VISION:

CPTL- EIA Division aims at becoming pioneers in the field of complete consultancy to help the industrialists to take care of the Environment and try to improve it. Towards that end the company provides wide range of Environmental Services covering Environmental Impact Assessment Studies, Environmental Management Plans, Monitoring Plans and their physical implementation, turn key projects.

To achieve our vision, we work to the following objectives:

1. Employ high quality staff.
2. Work closely with our clients to fully understand their requirements.
3. Promote a culture of excellence.
4. Providing a flexible and supportive workplace.
5. Encourage our staff to continuously develop their skills and knowledge.
6. Promote innovation in the environmental consultancy market.

MISSION:

CPTL- EIA DIVISION will endeavor to become a leading consultancy organization of highest standard in the field of EIA/EMP and carrying out Environmental Monitoring/Analysis and Audit in a most professional, systematic and accurate manner. This will be achieved through

customer satisfaction through dedicated professional experts in the organization with State-of-the-Art technical support, excellent work environment, continuous improvement and implementation of ISO 9001:2015 Quality Management System. Special attention will be given for implementationof the Rules & Regulation framed under EPA 1986. The policy is dynamic and will be reviewed from time to time depending upon legislative and customer requirements.

12.3 SCOPE OF SERVICES:

CPTL is ISO: 9001:2015 & OHAS 18001:2007. The customer service provided by CPTL includes

Consultancy Services- Environment Impact Assessment, statutory environmental audits/environment statements/compliance and consent Management.

Laboratory Services- Chemical and waste testing and field sampling. The laboratory division has well equipped laboratory with modern instruments and experiences staff, catering to the need of statutory and advisory environment testing of water, wastewater. CPTL is widely acclaimed laboratory is accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL), a constituent Board of Quality Council of India. The laboratory is capable of monitoring ambient and air emission, eater including surface water, soil.

CPTL-EIA Division is an accredited EIA Consultant Organization (ACO) by NABET/QCI under EIA accreditation scheme as per mandatory requirement of MoEF&CC, GoI for carrying out Environment Impact Studies of developmental projects. It has accredited EIA Coordinator, Functional Area Experts undertaking EIA and related studies in all the approved functional area.

12.4 EIA Team Member

The work presented in this report was carried out by CPTL-EIA, division, with active corporationfrom M/s Kashmir Ispat. The manner of EIA coordinator and FAE's engaged for the project has already been detailed. CPTL- EIA, division members along with their roles are tabulated below-

Functional Areas	Name of the Expert	Task
Project Coordinator.	Mr. Sital Singh	Site visit, identification of the project, assist in identification of impacts of projects and suggestions

		of mitigationmeasures, preparation of EMP &environment Budgetary issues
Air Pollution Prevention, Monitoring& Control (AP),	Dr. Satpal Verma	Finalization of monitoring locations, checking air quality data, evaluation of result of Ambient Air Quality Monitoring (AAQM) and contribution to EIA documentation
Meteorology, Air Quality Modeling &Prediction (AQ).	Mr. Ranbir Singh Rana	Finalization of monitoring locations, checking air quality data, evaluation of results of Ambient Air Quality Monitoring(AAQM)
Water Pollution, Prevention, Control &Prediction of Impacts (WP).	Mr. Arun Kumar Jaggi TM – Daljeet Singh	Finalization of sampling locations for Ground water and Surface water, water balance for the project, evaluation of water pollution management, identification of impact, suggestions and finalization of mitigation measures, contribution to EIA documentation.
Risk and hazard Management (RH).	Mr. Aprup Anant Adawadkar TM-Mr. Ranbir Singh Rana	Assistance in perfection of risk Assessment report and developing. and interpreting consequence analysis
Socio-Economics (SE).	Mrs. Ramandeep Kaur TM – Mr. Ranbir Singh Rana	Site visit, assist in identification of report and suggesting mitigation measures, preparation of EMP and environmental budgetary issue, identification of Project

Solid and Hazardouswaste management.	Mr. Surinder Singh Matharu Mr. Mohan Shri Ram Bhagwat (SW Only)	Identification of water generation from theproposed plant, suggesting adequacy of mitigation measures and management of wastes, contribution to EIA documentation.
Ecology & Biodiversity (EB)	Mr. Nagendra Prasad Todaria	Site visit, field services, assessment of impacts of proposed project as biological environment, preparation of EIA report.
Hydrogeology (HG)	Mr. Mohan Shri Ram Bhagwat	Understanding and reporting Ground water conditions, finalization of Ground water sampling locations
Geology (Geo)	Mr. Mohan Shri Ram Bhagwat	Geology & Geomorphologic analysis based on the secondary data, Finalization of sampling locations, analysis of collected data, identification of mitigation measures.
Noise and Vibration(NV)	Mr. Parag Shyamrao Khujnare Mr. Jagir Singh (Noise only) TM – Mr. Jagir Singh (Vibration)	Site visit, checking of noise monitoringresults, analysis of data, identification of impacts and mitigation measures.
Land Use (LU)	Mrs. Debharti Ghosh	Site visit, development of land use mapsof study area using GIS, related tasks, site visit for ground truth survey, finalization of land use maps, contribution of EIA documents.
Soil Conservation (SC)	Mr. Nagendra Prasad Todaria TM – Mrs Faiza Khalil	Site Visit, Finalization of soil sampling locations, finalization of survey findings, identification of impacts, suggestion of mitigation measures and contribution to EIA documentation.

Laboratory	Daljeet Singh and team	Sample analysis of water, soil and air collected from the study area as perMoEF&CC requirement.
Independently review	Mr. Sital Singh	Independent review of EIA report againstpre-set structure.

NABET CERTIFICATE

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Certificate of Accreditation

Chandigarh Pollution Testing Laboratory - EIA Division (CPTL - EIA), Mohali

E - 126, Phase VII, Industrial Area, Mohali, IDSAS Nagar, Punjab, Pin – 160055

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

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals including opencast/ Underground mining	1	1 (a) (i)	A
2	River Valley projects	3	1 (c)	A
3	Metallurgical industries (ferrous only)	8	3 (a)	A
4	Cement plants	9	3 (b)	A
5	Synthetic organic chemicals industry	21	5 (f)	B
6	Distilleries	22	5 (g)	A
7	Sugar Industry	25	5 (j)	B
8	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	B
9	Bio-medical waste treatment, storage and disposal facilities	32A	7 (d a)	B
10	Common Effluent Treatment Plants (CETPs)	36	7 (h)	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, Functional Area Experts are mentioned in RAAC minutes dated June 17 and Supplementary Minute dated Sept 23, 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/22/2544 dated Sept 28, 2022. The accreditation needs to be renewed before the expiry date by Centre for Chandigarh Pollution Testing Laboratory - EIA Division (CPTL - EIA), Mohali following due process of assessment.

Sr. Director, NABET
Dated: Sept 28, 2022

Certificate No.
NABET/EIA/2225/RA 0250

Valid up to
Feb 12, 2025

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