Enhancement of MS Ingot/Billet Production from 58,360 to 168,000 TPA, through and Replacement of existing 3x10 Ton IF with 3x12 Ton Induction Furnace and installation of additional 1x12 Ton, Installation of Rolling Mill for production of 156000 TPA Rolled Products and 1x4 MVA + 1x2.5 MVA Submerged Arc Furnace for Production of 16,300 TPA Ferro Alloys (max.) or 27,300 TPA Pig Iron or combination of any

#### **EXECUTIVE SUMMARY**

#### For

Enhancement of MS Ingot/Billet Production from 58,360 to 168,000 TPA, through and Replacement of existing 3x10 Ton IF with 3x12 Ton Induction Furnace and installation of additional 1x12 Ton, Installation of Rolling Mill for production of 156000 TPA Rolled Products and 1x4 MVA + 1x2.5 MVA Submerged Arc Furnace for Production of 16,300 TPA Ferro Alloys (max.) or 27,300 TPA Pig Iron or combination of any

#### At

174-H, OP Jindal Industrial Park, Village- Punjipathra, Tehsil Tamnar ( Previusly Gharghoda), District- Raigarh (CG)

Study Period: Summer Season (1ST October to 31st December 2021)

#### **Applicant**

Mr. Pawan Kr. Agarwal
M/s Shree Banke Bihari Ispat Pvt Limited
Village- Punjipathra, Tehsil Tamnar ( Previusly Gharghoda),
District- Raigarh (CG)

## Environment Consultant Vardan EnviroNet

(NABET/EIA/1922/RA 0166) Plot No.82A, Sector 5, IMT Manesar, Gurugram-122052, Haryana Mail ID: metallurgy@vardan.co.in

Enhancement of MS Ingot/Billet Production from 58,360 to 168,000 TPA, through and Replacement of existing 3x10 Ton IF with 3x12 Ton Induction Furnace and installation of additional 1x12 Ton, Installation of Rolling Mill for production of 156000 TPA Rolled Products and 1x4 MVA + 1x2.5 MVA Submerged Arc Furnace for Production of 16,300 TPA Ferro Alloys (max.) or 27,300 TPA Pig Iron or combination of any

#### **EXECUTIVE SUMMARY**

#### i. Project Name and Location

Enhancement of MS Ingot/Billet Production from 58,360 to 168,000 TPA, through and Replacement of existing 3x10 Ton IF with 3x12 Ton Induction Furnace and installation of additional 1x12 Ton, Installation of Rolling Mill for production of 156000 TPA Rolled Products and 1x4 MVA + 1x2.5 MVA Submerged Arc Furnace for Production of 16,300 TPA Ferro Alloys (max.) or 27,300 TPA Pig Iron or combination of any at 174-H, OP Jindal Industrial Park, Village- Punjipathra, Tehsil Tamnar ( Previusly Gharghoda), District- Raigarh (CG).

#### ii. Person to be employed

Existing manpower of the plant is 119. The estimated additional direct manpower required after the proposed expansion shall be 181, comprising administrative, technical, non-technical, skilled, and unskilled workforce. Approx. 100 persons will be employed during construction phase. Potential for indirect employment is more due to the proposed expansion and is likely in Transportation, Travel, Packaging, Information Technology, Telecom, Automobile, Courier Sector etc.

#### iii. Address for Correspondence (Name, Designation and complete address)

Mr. Pawan Kr. Agarwal M/s Shree Banke Bihari Ispat Pvt Limited Village- Punjipathra, Tehsil Tamnar ( Previusly Gharghoda), District- Raigarh (CG)

#### iv. Products and capacities.

M/s Shree Banke Bihari Ispat Pvt. Ltd. has existing plant for production of 58,360 TPA MS Billet/Ingot. The unit has existing facilities of 3x10 Ton Induction Furnaces with CCM. The plant is located At: 174-H, OP Jindal Industrial Park, Village- Punjipathra, Tehsil Tamnar (Previusly Gharghoda), District- Raigarh (CG). Now, the project proponent has proposed for Enhancement of MS Ingot/Billet Production from 58,360 to 168,000 TPA, through and Replacement of existing 3x10 Ton IF with 3x12 Ton Induction Furnace and installation of additional 1x12 Ton, Installation of Rolling Mill for production of 156000 TPA Rolled Products and 1x4 MVA + 1x2.5 MVA Submerged Arc Furnace for Production of 16,300 TPA Ferro Alloys (max.) or 27,300 TPA Pig Iron or combination of any in the existing plant premises

Table 1: Existing and Proposed Facilities and Capacities

Unit Configuration and Production capacity as existing EC	er Proposed Units	Total Capacity after Expansion
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Enhancement of MS Ingot/Billet Production from 58,360 to 168,000 TPA, through and Replacement of existing 3x10 Ton IF with 3x12 Ton Induction Furnace and installation of additional 1x12 Ton, Installation of Rolling Mill for production of 156000 TPA Rolled Products and 1x4 MVA + 1x2.5 MVA Submerged Arc Furnace for Production of 16,300 TPA Ferro Alloys (max.) or 27,300 TPA Pig Iron or combination of any

	Configuration	Production Capacity TPA	Configuration	Additional Production Capacity TPA	Configuration	Production Capacity TPA
Steel Meltin	g Shop					
Induction Furnace	3x10 Ton	59400 Liquid Steel	1x12 Ton IF (new) + 3x12 Ton IF (Replacement of Existing 3x10 Ton IF with 3x12 Ton IF)	111,000 Liquid Steel	4x12 Ton (Replacement of Existing 3x10 Ton IF with 3x12 Ton IF and addition of 1 new 12 Ton IF)	170400 Liquid Steel
Billet Caster / Ingot Casting	1 strand 6/11m	58,360 Ingot /Billets	1 strand 6/11m	109,640 Ingot /Billets	1 strand 6/11m	168,000 Ingot /Billets
<b>Rolling Mill</b>						
Rolling Mill	-	-	25 TPH	156,000	25 TPH	156,000
Ferro Alloy	Plant					
Submerged Arc Furnace	-	-	1x2.5 MVA + 1x4 MVA	13,650 TPA Silico Manganese or 16,300 TPA Ferro Manganese or 6,700 TPA Ferro Silicon or 27,300 TPA Pig Iron or in combination of any	1x2.5 MVA 1x4 MVA	13,650 TPA Silico Manganese or 16,300 TPA Ferro Manganese or 6,700 TPA Ferro Silicon or 27,300 TPA Pig Iron or combination of any

#### v. Project Implementation Schedule

Completion schedule of the project is 14 months. "Zero date" for a project is reckoned as the date on which all statutory clearance to start the project are received.

#### vi. Cost of the Project

Total Project Cost is estimated as Rs. 2869.5 Lakhs including cost of existing plant as Rs. 1384.5 Lakhs. Project Cost for additional facilities is estimated as Rs. 1485 Lakhs.

Items/Particulars	Existing Cost in Lakhs(Rs)	Proposed Cost in Lakhs(Rs)	Total Cost in Lakhs(Rs)
Land and Site Development	17.5		17.5
Building and Civil Work	122.6	120.0	242.6
Plant & Machinery & Other Equipment	933.5	900.0	1833.5
Misc. Fixed Asset	11.2	15.0	26.2
Electrical Installations	208.2	225.0	433.2
Pre and Pre- Operative	0.0	75.0	75.0

Enhancement of MS Ingot/Billet Production from 58,360 to 168,000 TPA, through and Replacement of existing 3x10 Ton IF with 3x12 Ton Induction Furnace and installation of additional 1x12 Ton, Installation of Rolling Mill for production of 156000 TPA Rolled Products and 1x4 MVA + 1x2.5 MVA Submerged Arc Furnace for Production of 16,300 TPA Ferro Alloys (max.) or 27,300 TPA Pig Iron or combination of any

Items/Particulars	Existing Cost in Lakhs(Rs)	Proposed Cost in Lakhs(Rs)	Total Cost in Lakhs(Rs)
Pollution Control Equipment	91.5	150.0	241.5
Total	1384.5	1485.0	2869.5

# vii. Descriptions of Environmental sensitivity in 10 km radius form the site. Selection of the project – Nature of land – Agricultural (single/double crop), barren, Govt/private land, status of is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest, eco-sensitive zones, accessibility:

Sl. No.	Particulars	Details		
1.	Site Location	OP Jindal Industrial Park, Village- Punjipathra, Tehsil Gharghoda, District- Raigarh, Chhattisgarh		
2.	Topo-sheet Nos.	F44L4, F44L8, F44R5		
3.	Center GPS Coordinates	Latitude: 22°03'44.98" N & Longitude: 83°20'18.61" E		
4.	Height above MSL	309 meters		
5.	Nearest Habitation	Nearest town/city is Raigarh which is located at 20 km from the project site.		
6.	Nearest River	Kelo River – 6.3 km in SE Kurket River – 7.2 km in NW		
7.	Nearest Airport	Raigarh Airport is the nearest airport located at 27 km from the project site.		
8.	Biosphere Reserve / National Park / Wildlife Sanctuary / Ecological sensitive area	Not within 10 km radius of the project site		
9.	Reserve Forest / Protected Forest	Hemgir Forest Range – 1.15 km in South		
10.	Nearest Education Facilities	Tumidih High School is at 0.43 km in WNW.		
11.	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	SH-1 is at 1.56 km in East.		
12.	Monuments/Religious Place	Shree Ram temple is at 0.86 km in NW		
		Existing: 30 KLD		
13.	Total Water Requirement	Proposed Additional: 305 KLD		
		Total after Expansion: 335 KLD		
		Power		
14.	Total Power Requirement	Existing: 6 MW		
		Total after expansion: 25 MW		

Enhancement of MS Ingot/Billet Production from 58,360 to 168,000 TPA, through and Replacement of existing 3x10 Ton IF with 3x12 Ton Induction Furnace and installation of additional 1x12 Ton, Installation of Rolling Mill for production of 156000 TPA Rolled Products and 1x4 MVA + 1x2.5 MVA Submerged Arc Furnace for Production of 16,300 TPA Ferro Alloys (max.) or 27,300 TPA Pig Iron or combination of any

Sl. No.	Particulars	Details			
		DG Sets			
	Proposed - 1x750 KVA				
	Fuel				
		HSD: 104 liters / hr (Emergency Power only			
		Existing: 119			
15.	Manpower Requirement	Additional: 181			
		Total: 300			
16.	Land Requirement	No Additional land is required for			
10.	Dana Requirement	proposed expansion.			
		Existing: Rs. 1384.5 Lakhs.			
17.	Project Cost	Proposed: Rs. 1485 Lakhs.			
		Total: Rs. 2869.5 Lakhs.			

#### viii. Requirement of land, raw material, water, power, fuel with source of supply

#### Land Requirement

The land use is Industrial. Existing land of the plant is 2.0 Ha. No Additional land is required for proposed expansion. The project site area is on lease for 30 years i.e. till the year 2035 from Jindal Steel and Power Limited.

#### Raw Material Requirement

List of raw material required is presented below:

**Table 2: Raw Material Requirement after the Proposed Expansion** 

S. No.	Item	Existing  Requirement	Proposed (Total after expansion) Requirement	Source	Transportation (By Road in km)	
		Ton per year	Ton per year			
	SMS – Induction Furnace (Existing – 59,400 TPA, After Proposed Expn 170,400 Liquid Steel)					
1	Sponge Iron	56430	161880	Local Market	50	
2	Pig iron/Scrap	12474	35784	Local Market & Inhouse	50	
3	Ferro Alloy & Aluminum	594	1704	In house	50	
	Total	69498	199368			

Enhancement of MS Ingot/Billet Production from 58,360 to 168,000 TPA, through and Replacement of existing 3x10 Ton IF with 3x12 Ton Induction Furnace and installation of additional 1x12 Ton, Installation of Rolling Mill for production of 156000 TPA Rolled Products and 1x4 MVA + 1x2.5 MVA Submerged Arc Furnace for Production of 16,300 TPA Ferro Alloys (max.) or 27,300 TPA Pig Iron or combination of any

S. No.	Item	Existing  Requirement Ton per year	Proposed (Total after expansion) Requirement Ton per year	Source	Transportation (By Road in km)
Cont	tinuous Casting (	Existing - 58360	TPA, After Prop	osed Expn 1	168000 TPA)
1	Liquid Steel	59400	170400	In-house	
Roll	ing Mill Plant (Pr	oposed – 156000	) TPA)		T
1	Steel Billets	-	168000	In-house	
Ferr	o Alloys - Silico M	langanese (Prop	osed – 13650 TF	PA)	
1	Mn ore/ FeMn Slag	-	30,030	Local Market & Inhouse	500
2	Coke	-	6,825	Local Market	500
3	Quartz	-	8,190	Local Market	100
4	Dolomite	-	3,410	Local Market	100
5	EC paste	-	480	Local Market	100
	Total	-	48,935	-	
Ferr	o Alloys - Ferro N	langanese (Prop	osed – 16300 TI	PA)	
1	Mn ore	-	29340	Local Market	500
2	Coke	-	9780	Local Market	500
3	Dolomite	-	4890	Local Market	100
4	EC paste	-	408	Local Market	100
	Total	-	44418	-	
Ferr	o Alloys - Ferro S	Silicon (Proposed	- 6700 TPA)		
1	Quartz	-	12,060	Local Market	150
2	Coke	-	7,340	Local Market	500
3	Mill Scale / iron ore	-	2,680	Local Market or in-house	50
4	EC Paste	-	335	Local Market	100
	Total	-	22,415	-	

Enhancement of MS Ingot/Billet Production from 58,360 to 168,000 TPA, through and Replacement of existing 3x10 Ton IF with 3x12 Ton Induction Furnace and installation of additional 1x12 Ton, Installation of Rolling Mill for production of 156000 TPA Rolled Products and 1x4 MVA + 1x2.5 MVA Submerged Arc Furnace for Production of 16,300 TPA Ferro Alloys (max.) or 27,300 TPA Pig Iron or combination of any

S. No.	Item	Existing	Proposed (Total after expansion)	Source	Transportation (By Road in km)
NO.		Requirement Ton per year	Requirement Ton per year		(by Road III Kill)
Pig l	Iron (Proposed -	27300 TPA)			
1	Iron ore and Mill scale	-	40950	Local Market	500
2	MS Item	-	275	Local Market	100
3	Coke/Coal/ Charcoal	-	16380	Local Market	500
4	Limestone / Dolomite/Lime	-	2730		100
5	Electrode paste	-	410		50
	Total	-	60745	-	

#### Water requirement

The requirement of makeup water for industrial and domestic purposes after the proposed expansion will be 335 KLD. The requirement will be met from Ground water. Permission for the expansion quantity shall be obtained from CGWA. The existing water requirement is met through Ground water for which NOC from CGWA is obtained. The water requirement details are provided below.

**Table 3: Total Water Requirement for the Proposed Plant** 

Units	Existing (KLD)	Total after Proposed Expansion (KLD)
Industrial (Cooling)	25	321
Domestic	5	14
Total	30	335

#### **Power Requirement**

The plant at present requires 6 MW power which is provided from the Jindal Steel and Power Ltd. It is now proposed to draw total Power 25 MW after proposed expansion which will also be sourced from Jindal Steel and Power Ltd.

For emergency power requirement 1x750 KVA DG Set have been proposed to be installed under the proposed expansion.

#### ix. Process description in brief

**Induction Furnace** - IF are basically furnaces meant for use of Sponge Iron as major raw material to produce mild steel. These furnaces work on the principal of electromagnetic

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induction. After the furnace is switched on, current start flowing at a high rate and comparatively low voltage through the induction coil of the furnace, producing an induced magnetic field inside the central space of the coils where the crucible is located. The induced magnetic field thus generated cut through the packed charge in the crucible. As the magnetic flux cut through the scrap/pig iron and complete the circuit, they generate an induced current in the scrap. The induced current as it flows the highly resistive path of scrap mix, generate tremendous amount of heat and melting the scrap. When these additives have melted completely, the power input may be increased to bring the temperature of metal up to the point most desirable for pouring. The current is then turned off and the furnace is tilted for pouring into the ladle. As soon as pouring has ceased, the crucible is cleaned completely from any slag or metal droplets adhering to the wall of the crucible and the furnace is now ready for charging again.

Tap-to-tap time has been aimed at approx. 120 – 130 minutes enabling production of 10 heats per day from each Induction Furnace. The Induction Furnace lining will require repair / replacement after about 15-16 heats. Lining repair will be done in-situ. To ensure uninterrupted operations a second crucible, lined and ready should be available. Thus, each furnace station will consist of two crucibles complete with all fitting and auxiliaries installed adjacent to each other

11.2.2.2 Continuous Casting MachineThe ladle containing liquid steel is placed on the turret and brought over the tundish. The tundish act as a buffer and enable the liquid steel to move homogeneously down through nozzles, provided at the bottom of the tundish into moulds. The automatic mould level controller controls the steel level in the mould. The subsequent primary and secondary cooling transform the liquid steel into billets of the required dimensions and is drawn out with the help of a withdrawal and straightener unit and cut into required length by the shear provided in each strand. Once a ladle is emptied another ladle is brought into the casting position and the casting continues. The billets are gradually shifted to the cooling beds and then stacked orderly at the dispatch end for outside dispatch. CCM is used to produce billets of different cross-sections.

#### **11.2.2.3 Rolling Mill**

The company has proposed for installation of 25 TPH Hot Rolling Mill complex. Red hot billet from CCM will be directly fed to Rolling mill for production of Strips/ TMT Bars / Structures. Production of Billets from the proposed plant will be 168,000 TPA from which approx. 156,000 TPA rolled product will be produced.

#### 11.2.2.4 Ferro Alloy Plant

Ferro alloys are consumables required to manufacture steel. Ferro alloys are used to manufacture various types of carbon and steel, essentially to impart certain physical and chemical properties in a particular grade of steel viz change of tensile strength, ductility, hardness, corrosion resistance, wear resisting or abrasion resistance properties etc. Ferro alloys are also commonly used for de-oxidation and refining of quality steel.

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## x. Baseline environmental data- air quality, surface and ground water quality, soil Characteristic, flora and fauna, socio-economic condition of the nearby population:

#### **Baseline Environmental Study**

To predict the impact of the proposed activities on the surrounding environment, the current baseline environmental status was studied by collecting the data and carrying out monitoring for the period of 1<sup>st</sup>October to 31<sup>st</sup> December 2021. The baseline data for ambient air quality, surface and ground water quality, noise and soil quality was collected and analyzed for various parameters are as per norms.

Table 4: Baseline data with Permissible Limits

Parameters	No. of Sites	Description	Permissible Level
Air Quality	8	<ul> <li>PM2.5 48.1 to 24.1 μg/m3</li> <li>PM10 83.1 to 54.1μg/m3</li> <li>SO2 37.9 to 6.8 μg/m³</li> <li>NO2 47.9 to 11.3μg/m³</li> <li>CO 2.9 to 0.5mg/m³</li> </ul>	60 μg/ m <sup>3</sup> 100 μg/ m <sup>3</sup> 80 μg/ m <sup>3</sup> 80 μg/ m <sup>3</sup> 2 mg/m <sup>3</sup>
Ground Water Quality	8	<ul> <li>pH varies from to 7.62 to 7.77</li> <li>Total Hardness varies from 213 to 246mg/l</li> <li>Total Dissolved Solids varies from 401 to 467 mg/l.</li> <li>Chlorides varies from 58.30 to 77.64 mg/l</li> <li>Fluoride varies from 0.38 to 0.54 mg/l</li> </ul>	6.5-8.5 200-600 mg/L 500-2000 mg/L 250-1000 mg/L 1.0-1.5 mg/L
Surface Water Quality	8	<ul> <li>pH varies from 7.54 to 7.79</li> <li>Dissolved Oxygen varies from 5.1 to 6.7 mg/l.</li> <li>BOD varies from 10.0 to 14.0 mg/l.</li> <li>COD varies from 36.0 to 54.0 mg/l.</li> </ul>	IS:2296 Class C Norms
Soil Quality	8	<ul> <li>pH varies from 7.29 to 7.50</li> <li>Potassium varies from 126.11 to 186.11 (Kg/ha)</li> <li>Available nitrogen varies from 122.11 to 216.11 (Kg/ha)</li> <li>Organic matter varies from 0.41% to 0.57%</li> </ul>	
Noise Level	8	<ul> <li>Day Time (6:00 a.m. to 10:00 p.m.) 42.51Leq dB(A) and 69.50 Leq dB(A)</li> <li>Night Time (10:00 p.m. to 6:00 a.m.) 33.54Leq dB(A) and 58.80Leq dB(A)</li> </ul>	75 Leq dB (A) 70 Leq dB (A)

xi. Likely impact on air, water, land and measures for mitigating the impact on the environment

Enhancement of MS Ingot/Billet Production from 58,360 to 168,000 TPA, through and Replacement of existing 3x10 Ton IF with 3x12 Ton Induction Furnace and installation of additional 1x12 Ton, Installation of Rolling Mill for production of 156000 TPA Rolled Products and 1x4 MVA + 1x2.5 MVA Submerged Arc Furnace for Production of 16,300 TPA Ferro Alloys (max.) or 27,300 TPA Pig Iron or combination of any

#### Impact on Air Environment and Mitigation Measures

During operational phase air pollution shall be from gaseous and dust emissions arising from different activity like Raw Material Handling, SAF, IF etc.

#### Emission from Point Source (Stack)

Flue gases generated at Induction Furnace and Submerged Arc Furnace contains dust and gaseous emission.

#### Emission from Area Source (Fugitive Emission)

Fugitive emissions are expected during Material & Product Handling area, operation of SAF & IF and due to vehicular movement.

Details of existing and proposed pollution control facility are provided below in table. For adequate dispersion of gases, stacks of adequate height have been provided. For heat dissipation in the work zones arising from furnaces adequate ventilation systems has been provided.

Table 5: Details of the Air Pollution Control facilities with Proposed Units

S.No.	Unit	Type of Pollution Control Facility	Nos.	Connected with Stack	Stack Height*	Stack Emissions
1	2.5 MVA SAF	Pulse Jet Type Bag Filter	1	1	30 m	< 30
2	4 MVA SAF	Pulse Jet Type Bag Filter	1	1	30 III	mg/Nm3
3	1x12 Ton IF	Pulse Jet Type Bag Filter	1			
4	1x12 Ton IF	Pulse Jet Type Bag Filter	1	1	20	< 30
5	1x12 Ton IF	Pulse Jet Type Bag Filter	1	1	30 m	mg/Nm3
6	1x12 Ton IF	Pulse Jet Type Bag Filter	1			
Total ı	al number of Bag Filters		6	2	ı	-
1	Material Handling Area	Dust suppression system	All transfer points, screens etc.		-	

#### Impact on Water Environment and Mitigation Measures

Total fresh water requirement of the proposed expansion project is estimated to be 335 KLD. Major portion of this water is utilized as make up to the cooling water systems. Water will be sourced from Ground water.

Waste water generation from the proposed operations will be due to blow downs from cooling towers, back wash from Softening Plant and domestic waste water. Wastewater streams comprising cooling tower blow down, Softening Plant back wash wastewater

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will be collected and utilized quantitatively for Dust Suppression. The sewage & sanitary wastewater from toilets, washrooms and canteen shall be treated in STP (15 KLD) and the treated water will be used in dust suppression and cleaning purposes.

Waste water discharge from the process will be 29 KLD from Cooling Tower blow down and softening plant backwash waste water. The waste water will be utilized for re-use and re-cycling. Other effluent streams such as cooling tower blow down and miscellaneous intermittent water such as softening plant rejects etc. will be used for Dust Suppression

Thus, no plant effluent will be discharged in to public water ways or drains. Hence, the plant will be designed for **zero liquid discharges (ZLD).** 

#### Solid Waste Generation and Management

The solid waste generated from the plant after proposed expansion is provided in the following table.

**Table 7: Solid waste generation details** 

Type of Waste	Quantity in Tons (TPA)		Mode of Disposal		
	Existing	Total after			
		proposed			
		expansion			
Steel Melting Shop					
IF Slag	8316	23856	After metal recovery (approx. 10%), remaining slag shall be crushed and will be used as aggregates		
IF Bag Filter Dust	1782	5112	Will be reused in Pellet Plant		
Mill Scale	345	800	Will be reused in for production of Pig Iron / Ferro-silicon		
End Cut / Reject	695	1600	Will be reused as scrap in IF		
Rolling Mill					
Mill Scale	-	4,000	Will be reused in for production of Pig Iron / Ferro-silicon or Sold to Ferro Alloys Plants		
End Cut / Cobbles	-	8,000	Will be reused as scrap in IF		
Ferro Alloys					
Si-Mn Slag	-	11050	Slag is non-hazardous and will be used for construction of roads or filling of low-lying area		
Si-Mn BF dust	-	260	Will be given to Sinter Plant		
Fe-Mn Slag	-	16300	Will be used for production of Si-Mn		
Fe-Mn BF dust	-	375	Will be given to Sinter Plant		
Fe-Si Slag	-	335	Ferro Silicon Slag will be used for cement manufacturing/ industries as a raw material & used for medium carbon silico manganese production purpose		

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Type of Waste	Quantity in Tons (TPA)		Mode of Disposal
	Existing	Total after proposed expansion	
Pig Iron Slag	-	27300	Pig Iron Slag will be given to cement manufacturing industries. Or for Metal recovery and grounded slag be used for Plinth Filling and Road Making.
Pig Iron BF dust	-	530	Will be given to Sinter Plant.

## xii. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk:

**Hazardous waste Management:** Generation of 'Used Oil', after the proposed expansion shall be approx. 0.45 KL per annum and will be sold to the registered recyclers. Used oil will be collected in dedicated drums and stored on impervious concrete floor for maximum 90 days before disposal.

Workers will be informed, kept aware and trained about occupational health hazards, due to any activity. Workers health related problem if any, will be properly addressed.

#### xiii. Emergency preparedness plan in case of natural or in plant emergencies:

On-site and Off-site Emergency Preparedness Plan has been developed to control emergency situations. The emergency control room and Assembly area shall be set up at a safe location and marked on the site plan and will be manned round the clock. The control room will be activated in case of an emergency to direct and co-ordinate the operations to handle the emergency. It will be furnished with external and internal telephone connections etc; list of essential telephone numbers; list of key personnel and their address; fire fighting system and site plan. Depending upon site requirements, additional control room will be considered.

#### xiv. Issues raised during public hearing and response given:

The public Hearing Issues and its action plan to address issues raised during public hearing along with budget will be incorporated in the Final EIA report after conduct of Public Hearing by Chhattisgarh Environmental Conservation Board.

#### xv. Budget for commitments made to address issues raised during Public hearing:

Office Memorandum issued by Ministry of Environment, Forest & Climate Change on 30th September, 2020 states that EAC will deliberate on the commitments made by the project proponent to address the concerns raised during the Public Hearing. Therefore, action plan to address the issues raised in the public hearing along with its budget for implementation of the activities proposed based on the issues raised during the Public Hearing and Social need assessment during SIA Study shall be prepared.

#### xvi. Occupational Health & Safety (OH&S) Measures:

The project proponent strongly believes in the safety and health of the workers. The company will conduct regular medical checkup of the worker and on the safer side

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there will always be a rotation of the job for the worker who are exposed to dust and high noise. Safety being the first policy of the company.

M/s Shree Banke Bihari Ispat Pvt. Ltd. shall establish procedures and systems for reporting and recording of Occupational accidents and diseases and dangerous occurrences and incidents. All reported occupational accidents, occupational diseases, dangerous occurrences, and incidents together with near misses shall be investigated with the assistance of a person knowledgeable/competent in occupational safety.

#### xvii. Greenbelt Development

Green Belt will be developed over 33% of the plant area. Indigenous trees will be planted in 0.66 Ha. out of the total area of 2.0 Ha. Tree density of 2500 trees per hectare with local board will be planted. Existing green belt is already developed in 0.66 Ha. (33% of 2.0 Ha.) with 1200 nos. of trees planted till date. The project proponent will further develop the greenbelt in additional 0.12 Ha. which results in total green belt area of 0.72 Ha. (36% of 2.0 Ha.) after the proposed expansion.

#### xviii. Environment Monitoring Program

Environmental Monitoring is an essential tool for sustainable development and ensuring effective most implementation and monitoring of Environmental Management Plan and mitigation measures. Monitoring involves periodic checking to ascertain whether activities are going according to the plans. A detailed monitoring plan has been prepared to keep regular check on Ambient Air quality, to keep check on Stack emissions, ground water quality, surface water quality and effluent discharges, once in each quarter.

#### xix. Project Benefits:

The proposed project would have the following advantages:

- Direct employment to approx. 100 persons and indirect employment is expected to be much more in the area of transport, ancillary development etc.
- Improvement in infrastructure like road, market, installation of hand pump, dug well etc
- Improvement in Education & Healthcare facilities
- Land is available with the project proponent, hence no procurement of land or displacement of people.
- Revenue for the State.
- Socio-economic benefits and consequent improvement in the living conditions of local population in the study area and in region.

#### xx. Implementation of Environment Management Plan:

M/s Shree Banke Bihari Ispat Pvt. Ltd. is responsible for implementation of all the mitigation and management measures. A separate department "Environment Management Cell" (EMC) headed by EHS Head exists to look after all environmental related matters of the plant. The EMC supervises the reported activity time to time for smooth implementation of Environmental Mitigation and Management measures and

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also take necessary actions if required. It also ensures to meet all the Statutory Requirements. A suitable EMP shall be implemented as provided in the EIA report and its compliances shall be reported to MoEFCC and CECB on regular intervals.

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