

# EXECUTIVE SUMMARY

OF

“Integrated Cement Plant of capacity 3.3 MTPA clinker, 2.8 MTPA cement and 16MW Waste Heat Recovery System ”

AT

Village Wahiajer Narpuh, Subdivision Khliehriat, District  
East Jaintia Hills, Meghalaya

Total Area: 111.69 ha

Proposed Production: 3.3 MTPA Clinker, 2.8 MTPA Cement & 16 MW  
WHRS

Schedule – 3(b) Category ‘A’

Total Cost of the project: Rs. 2450.55 Crores

Reference: TOR issued vide identification no.

TO24A1101ML5636060N, File No. IA-J-11011/89/2024-IA-II (Ind-1)  
dated 10.08.2024

## PROJECT PROPONENT

**M/s Meghatop Cement Private Limited**

Village Wahiajer Narpuh, East Jaintia Hills District,  
Meghalaya, 793210

E-Mail: [skrai@megatop.com](mailto:skrai@megatop.com)

## ENVIRONMENTAL CONSULTANT

M/s PERFECT ENVIRO SOLUTIONS PVT. LTD.

(NABET Registered vide list of accredited consultants organizations/  
(NABET/EIA/2225/RA 0284 (Rev 01))

NN Mall, Sector-3, Rohini, New Delhi-110085

Email: [info@perfectgroup.in](mailto:info@perfectgroup.in)

Phone No: 9818424364

# 1. Executive Summary

## 1.1. Introduction

**M/s Meghatop Cement Private Limited** is proposing Integrated Cement Plant of capacity 3.3 MTPA clinker, 2.8 MTPA cement and 16MW Waste Heat Recovery System at Village Wahiajer Narpuh, East Jaintia Hills District, Meghalaya over 111.69 ha land.

It has been made mandatory to obtain environmental clearance for all Cement Plants and the project lies under Item 3(b), as per EIA Notification 2006 and its subsequent amendments. Since the unit is for Integrated Cement Plant of capacity > 1 MTPA the project falls under Category "A" (As per EIA Notification dated 14th Sept., 2006 and as amended from time to time).

Terms of Reference (TOR) for the proposed project has been granted by MOEF&CC, Meghalaya vide identification no. TO24A1101ML5636060N, File No. IA-J-11011/89/2024-IA-II (Ind-1) dated 10.08.2024.

### 1.1.1. About the Project

The total area of the plant will be 111.69 ha. Due to increase in market demand, M/s Meghatop Cement Private Limited is planning for Integrated Cement Plant of capacity 3.3 MTPA clinker, 2.8 MTPA cement and 16MW Waste Heat Recovery System at Village Wahiajer Narpuh, East Jaintia Hills District, Meghalaya.

### 1.1.2. Location & Accessibility

The proposed project is located at Village Wahiajer Narpuh, East Jaintia Hills District, Meghalaya. The minimum elevation of the site is 605 m AMSL in the southeast close to the lease boundary whereas the maximum elevation is 696 m AMSL close to the western boundary.

The site can be accessed from NH-6 at 2.70 Km to W. The nearest Railway station is Hilara Railway Station which is 35.79 Km in SE direction. The nearest Airport is Silchar Airport which is at 65.72 Km in the SE direction of the project site.

## 1.2. Project Description

S.No.	Particulars	Proposed Details
<b>1</b>	<b>General Information</b>	
1a.	S.No. in the Schedule & Project Sector	<b>3(b), Cement Plant</b>
1b.	Category of the Project	<b>A</b>
1c.	Specific/General Condition applicable	<b>No</b>
1d.	Proposed Site/Land Details (Plot Area)	<b>111.69 ha</b>
1e.	GreenBelt Details	<b>37 ha (33.13 % of the project area)</b>
1f.	Project Cost	<b>Rs. 2450.55 Cr</b>
1g.	Manpower Details	<b>Construction Phase- 1500 (permanent- 39 &amp; temporary- 1461) Operation Phase- 498 (permanent- 318 &amp; temporary- 180)</b>
1h.	Details if project falls under the purview of a)FCA, 1980, b) WPA,1972 c) CRZ,2011	<b>Nonoe in 5km</b>
1i.	CPA/SPA/ESA/ESZ, if any	<b>None in 5km</b>
1j.	Interlinked Project, if any, with Status	<b>No</b>
1k.	No. of shifts	2 shifts of 8 hours duration
1l.	No. of working days in a year	<b>330</b>
<b>2</b>	<b>Production Details</b>	
2a.	Production Capacity	<b>Clinker Plant-3.3 MTPA</b>
		<b>Cement Plant -2.8 MTPA (Pozzolana Portland Cement (PPC), Ordinary Portland Cement (OPC)</b>
		<b>WHR generation capacity-16 MW (peak)</b>
<b>3</b>	<b>Power requirement &amp; Source</b>	
3a.	Power (Total)	<b>34 MW</b>
3b.	Power Source (s)	-Waste Heat Recovery system (WHRS) -13 MW -Grid substation of Meghalaya Power Transmission Corporation Limited (MePTCL) -21 MW Total - 34 MW
<b>4</b>	<b>Air Emission Management</b>	
4a.	D.G. Sets Capacity	<b>1 x 250 KVA (for emergency use only)</b>
4b.	Fuel type requirement for DG Set	<b>HSD, 25l/hr</b>
	Number of stacks & APCS for process stacks	7 no. of stacks & 3 vents. {APCS-Pulse jet Polyester Polymer bag Filter proposed for Limestone Crusher, corrective Crusher, Cement mill (VRM), Packing unit, Additive crusher, coal crusher & gypsum crusher; ESP proposed for clinker cooler, Pulse jet bag filter proposed for coal mill (VRM) & reverse air/pulse jet bag house proposed for raw mill (VRM) & Kiln}
<b>5</b>	<b>Water Requirement &amp; Waste Water Generation</b>	
5a.	Total Water Requirement	946 KLD

5b.	Fresh Water Requirement & Source	<b>186 KLD</b> freshwater will be withdrawn from Dongtangle Nala (Syrtang river)-NOC has been obtained from Office of the Executive Engineer Water Resources Department, East Jaintia Hills Division, Khliehriat vide letter no. EJH (WR)/Genl-58/2024-25/414 dated 30.07.2024
5c.	Rainwater Requirement & Source	<b>687 KLD</b> , rainwater collection tanks
5d.	Treated Water Requirement & Source	<b>73 KLD</b> , STP treated Water
5e.	Waste water generation	<b>77 KLD</b>
5f.	STP capacity	<b>95 KLD</b>
5g.	Waste Water Discharge	It is a <b>ZLD</b> plant
<b>6</b>	<b>Waste Generation</b>	
6a.	Hazardous waste, E-waste & Battery Waste	- <b>Used Oil/grease</b> -6.14 KLPA, Dispose to Kiln after taking necessary permission/will be sold to authorised recycler - <b>E-Waste</b> - 0.25 TPA , Sell/dispose to authorised vendor - <b>Battery Waste</b> - 0.25 TPA , Sell/dispose to authorised vendor
6b.	Solid Waste	- <b>Biodegradable (Organic Waste)</b> - 30 kg/day, use as manure for plantation - <b>Non Biodegradable</b> Plastic, paper, wood, glass, etc)- 45 kg/day, Sell to vendor/dispose to kiln
6c.	Non- Hazardous Waste	- <b>STP Sludge</b> - 8.91 TPA , use as manure - <b>Dust from APCS/Bag filter</b> - 82500 TPA -will be recycled in cement manufacturing. -Other Solid Wastes (MS Scrap, GI Scrap, Grinding media, Used/expired tyres, HDPE bags, Blow bar, Conveyor belt steel coated, misc. scarp)-833 - Sell/dispose to vendor
6d.	Other waste	- <b>Bio medical waste</b> - 0.5 TPA , Sell to authorised vendor - <b>Plastic waste</b> - 0.5 TPA , Sell to authorised vendor

### Resource Requirements

- **Land:** The proposed area will be located in an area of 111.69 ha in which no forest land is involved. NOC for the same has been obtained from PCCF vide letter no. MGF/CF/NFLC/MMMCR/JH/18502 on 20/03/2024 and is attached as annexure in section D.

Land has been purchased by the private owners. The application for transfer of land in the name of the company M/s Meghatop Cement Private Limited has been applied to Deputy Commissioner, Khliehriat, District-East Jaintia Hills, Meghalaya vide letter no. MCPL/CORRESPONDANCE/204 dated 16.11.2023. Land holding certificate is attached as annexure in Section D.

Further, the letter regarding transfer of land was sent to the Joint Secretary, Revenue and Disaster Management Department vide letter no. EJHD/Rev-337/2023/61 dated 08.01.24. In reply, the Joint secretary of Revenue and

Disaster Management Department, Government of Meghalaya has issued the permission for transfer of land for setting up of a cement plant to the Deputy Commissioner in the name of the company M/s Meghatop Cement Private Limited vide letter no. RDS.32/2021/138 dated 06.04.2024. Both the letters have been attached in Section D.

Also, NOC from the office of the Jaintia Hills Autonomous District Council, Jowai has been obtained for setting up of a cement plant vide letter no. JHADC/FOR/39/2022/340 dated 9th Feb 2024 renewal of the same has been obtained vide letter no. JHADC/ FOR/39/22/1204-205 dated 28.06.2024 and is valid till 31 March 2025.

- **Water Requirement:** During Operation, total water requirement of the plant will be 946 KLD, out of which, freshwater requirement will be 186 KLD, rain water will be 687 KLD and treated water requirement from STP will be 73 KLD. 946 KLD consists of water required for Domestic water (manpower) (23 KLD), Cement plant make-up water (400 KLD), WHRS make-up water (123 KLD), Gardening (370 KLD), Dust suppression (20 KLD) and Wheel Washing (10 KLD).
- **Power Requirement:** Total Power load will be 34 MW out of which 21 MW will be sourced from Grid substation of Meghalaya Power Transmission Corporation Limited (MePTCL) and 13 MW from inhouse Waste Heat Recovery system (WHRS) of capacity will be used for the power backup.
- **Fuel:** 25 lit/day of High Density Diesel will be required for the operation of DG set (emergency use only). 0.52 MTPA of coal and Alternate fuel (Agro briquette) as per availability will be required for Kiln and pre-calciner.
- **Manpower:** 1500 nos. of workers required during the construction phase and 498 nos. of workers will be required during the operation phase.
- **Operational Activities:** Operational activities involved in the unit are **Limestone Crushing**, Limestone Handling and Transportation to stockpile, Transport to pre-blending stockpiles, Corrective & additives crushing & storage, Coal Handling, crushing, drying & storage, Raw material grinding (VRM), Raw meal blending & Kiln Feed, Preheater, Precalciner, Kiln, Cooler and Clinker storage silo.
- **Pollution Sources:** Main Pollution sources from the project will be air & noise emission, wastewater generation and Solid & Hazardous waste.

**Total quantity of wastewater generation** from the industry will be 77 KLD which will be from Cement plant (40 KLD), Domestic wastewater (21 KLD), WHRB wastewater (7 KLD) & Wheel washing (9 KLD). Wastewater will be treated in STP of capacity 95 KLD and treated water will be reused for gardening, wheel washing & dust suppression purposes.

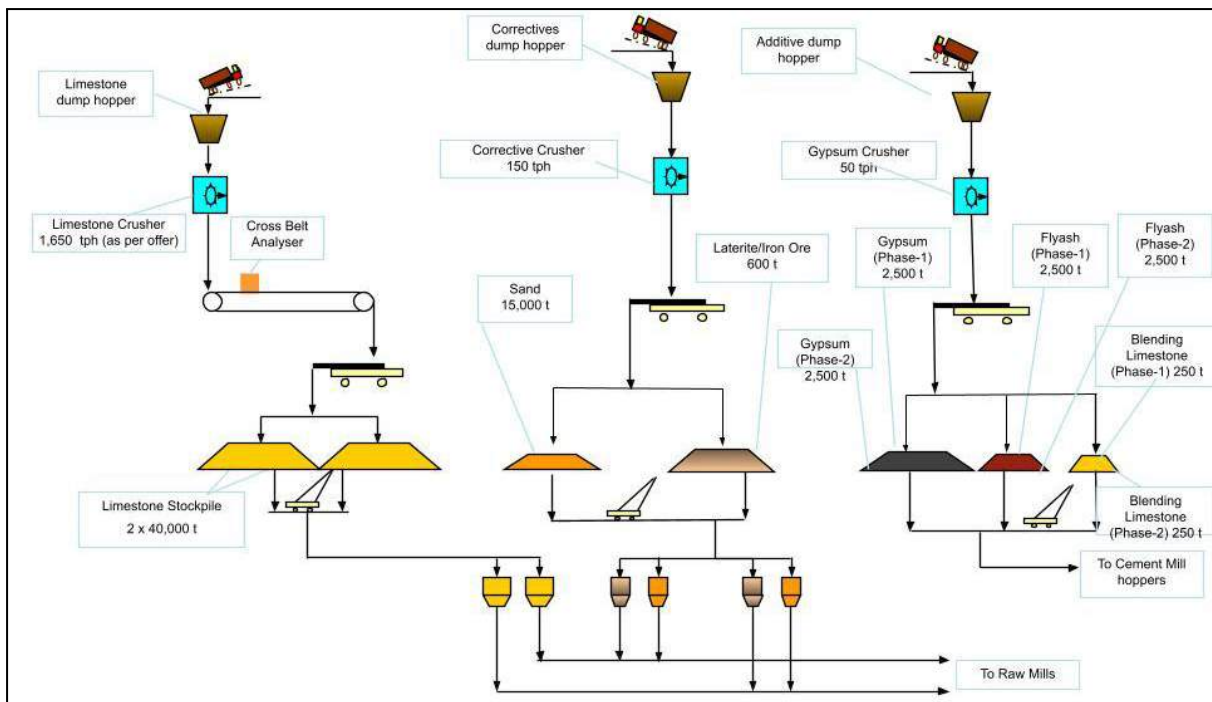
**Air Emissions** will be from the process machinery Limestone Crusher (ROM & Blending) having stack, Corrective Crusher, Coal Mill (VRM), Raw Mill (VRM) & Kiln having, Clinker Cooler, Cement Mill (VRM), Packing Unit, Additive Crusher, Coal Crush and Gypsum

Crusher. Adequate APCS i.e individual Pulse Jet Polyester Polymer Polyethylene Bag Filter with stack height of 30 m for Limestone Crusher (ROM & Blending), 30 m for Corrective Crusher, 40 m for Cement mill (VRM), 35 m for packing unit and vents for additive crusher and coal crushes each. APCS Pulse Jet glass Bag Filter will be installed for Coal Mill (VRM) with vent, Reverse Air/Pulse Jet Bag House (RABH) will be installed for Raw Mill (VRM) & Kiln with a stack height of 120 m. APCS Electrostatic Precipitator will be installed for Clinker Cooler with a stack height of 45 m. Also, there will be Flue gas emissions from D.G.Set having a capacity of 250 kVA. D.G set will be equipped with stack of height 3.2 m above roof level.

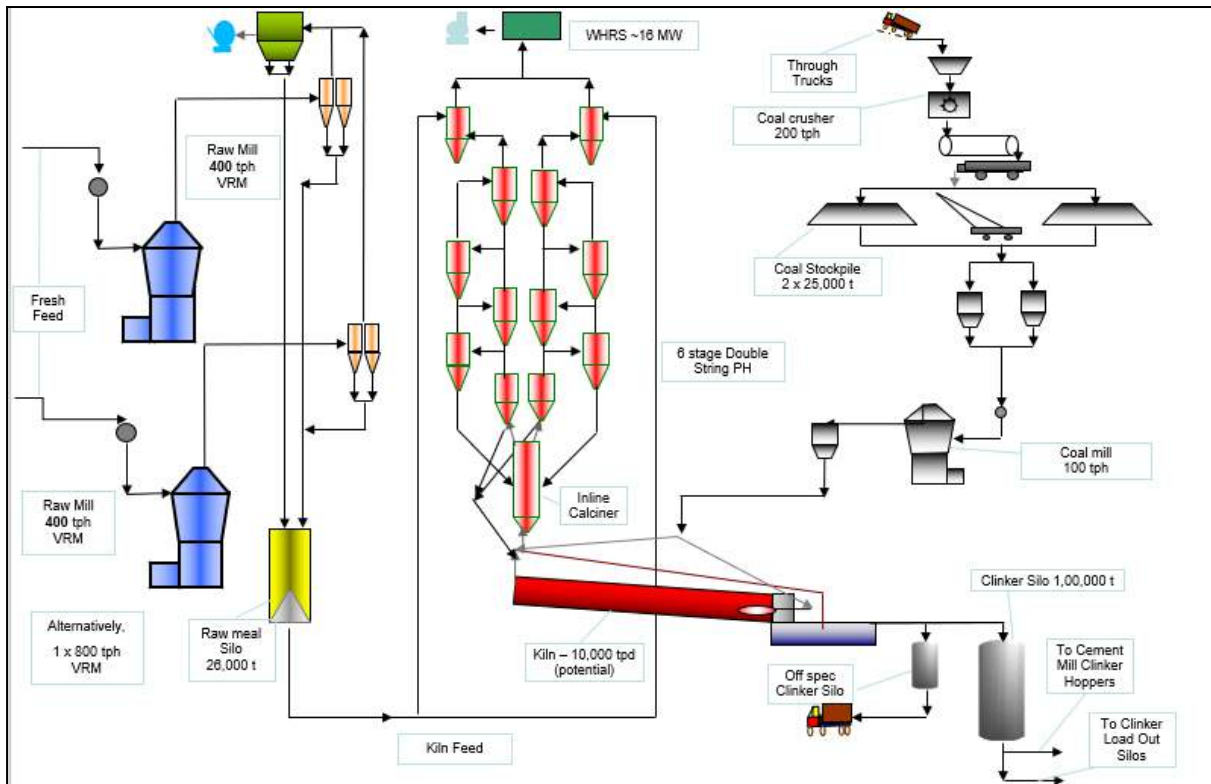
The main sources of **noise generation** from the unit will be operation of process machinery, transportation & DG sets (emergency use only) etc. Adequate engineering control will be taken to minimize the noise level during construction and operations.

**Manufacturing Process:**

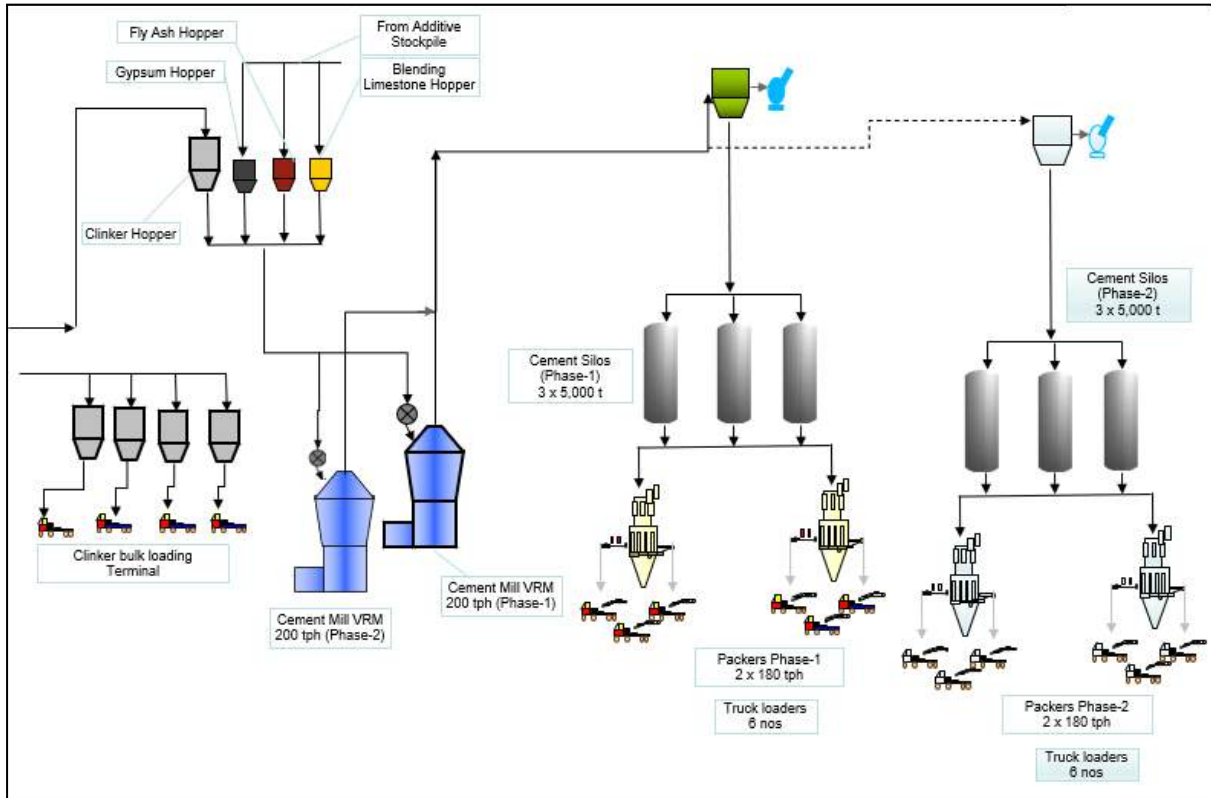
**PROCESS FLOW DIAGRAM SHOWING FLOW OF MATERIAL FROM HOPPERS TO MILLS**



### CLINKER MANUFACTURING

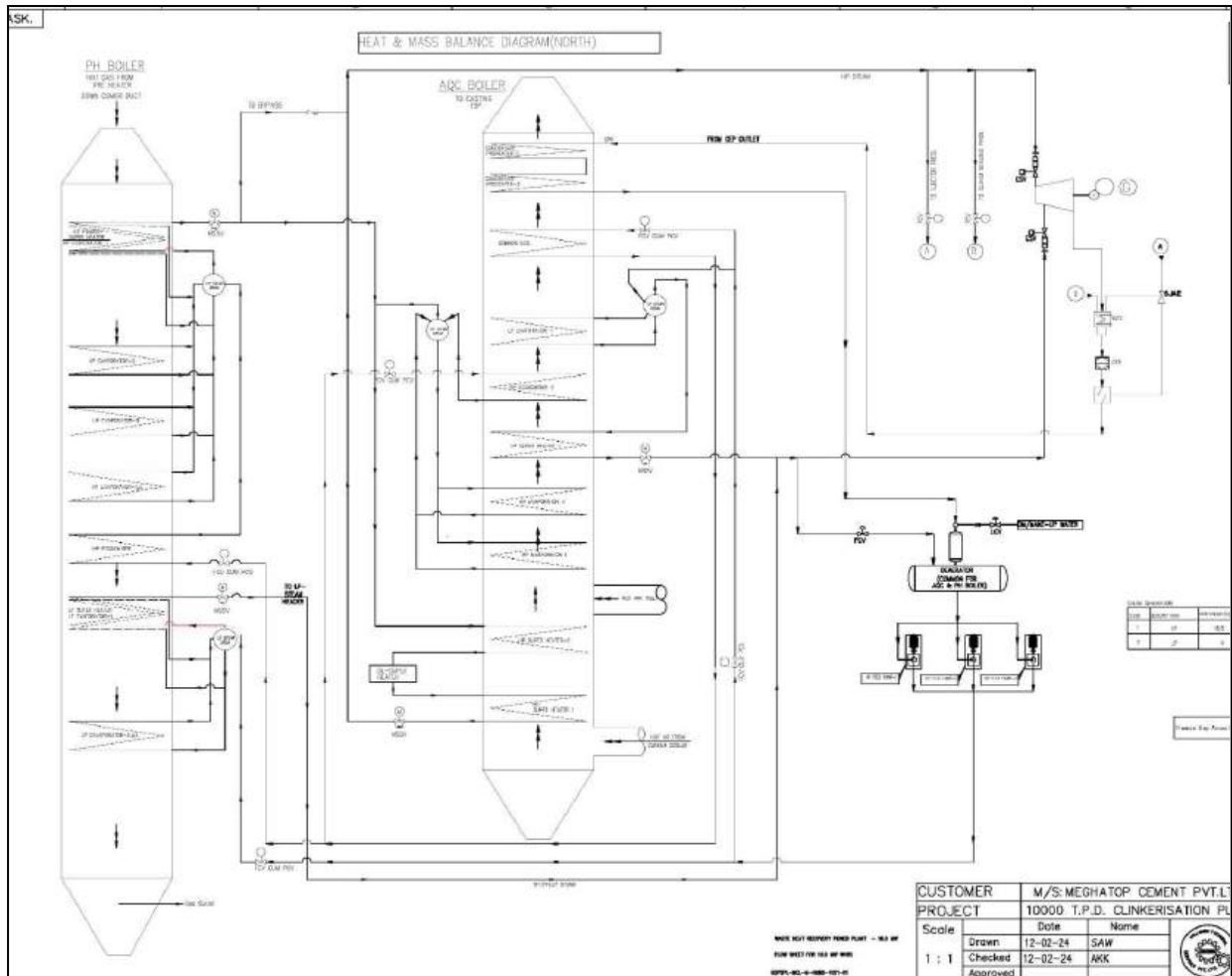


### CEMENT MANUFACTURING





WHRS



### 1.3. Description of Environment

The baseline data is generated through field study within the impact zone (Core Zone and Buffer Zone i.e. 10 Km from Project Boundary) for various components of the environment viz. Air, Noise, Water, Soil, Land, Traffic, Ecology and Socioeconomic. The baseline environmental quality has been assessed for Winter Season (December 2022- February 2023) and for Summer season (March - May 2024) (by NABL accredited laboratory Perfect Researchers Pvt Ltd, New Delhi) in a study area of 10 Km radius from the project site. The baseline data obtained is summarized below:

- **Land Use:**

**Core Zone:** The topography of land is hilly and undulating terrain. The proposed area will be located in an area of 111.69 ha in which no forest land is involved. NOC for the same has been obtained from PCCF vide letter no. MGF/CF/NFLC/MMMCR/JH/18502 on 20/03/2024 and is attached as annexure in section D.



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Out of total land of 111.69 ha, 33.13% of the total plant area, i.e, 37 ha. will be maintained as a Green Belt & Plantation Area, Main plant area (including) plant, & office building area will be 34 ha., Truck Parking Area will be 1.53 Ha., Road & open area will be 39.16 ha.

**Buffer Zone:** Out of total 10 km radius study area i.e. 36116.70 Ha, agriculture land is about 504.16 hectares (1.40%), built up area is about 1467.90 hectares (4.06%), waste/barren land is about 3309.46 hectares (9.16%), Water bodies area is about 313.77 hectares (0.87%), Forest land is about 30521.41 hectares (84.51%) of the total 10 km radius study area.

- **Natural Hazard:** The area under study falls in Zone-V , according to the Indian Standard Seismic Zoning Map which is classified as High Risk Zone intensity.
- **Geology:** The area is underlain by geological formations varying in age from Archaean to Recent. The Khliehriat area primarily comprises sedimentary rocks from the Jaintia Group and the Barail Group, formed during the Paleocene to Eocene age.
- **Hydrology:**

**Core Zone**

There is a water divide in the middle of the northern half of the core zone, with ephemeral streams of first to third order in a dendritic drainage pattern. The northern

water divide drains the rainwater to the Kukha Nala in the buffer zone. The Kukha Nala passes through the northwestern lease boundary. The southern part of water divide drains into the Um Lunar River.

- **Buffer Zone**

The Um Lunar River is a tributary of the Lubha/Lukha River and flows from north to south at about 0.48 km east of the site. The area's major River Lubha/Lukha flows from SSE to SSW near the southern periphery. The confluence of the Lubha/Lukha and UM Lunar lies about 7.00 Km SSE of the site. The study area is drained by the Seshympa, UM Lunar, and Lukha/Lubha Rivers, and Nalas are the Um Badoh, Um Sangat, Latynger, Um the, Um Talang, Dongtongle, Sebi, Moblai, Rangsniang, Wah Sakhain, Kairang, Urle, Wahlong, Moblai, Wah Thariang, Rashriang, Daphirawi, Sakha, Thangpyrshaid, Kukha and Um Ronsong, etc. The project area falls in the catchment of the Um Lunar River. The area has a dendritic drainage pattern having first to third-order streams. By and large, drainage ultimately flows towards the buffer area's south and southwest parts.

- **Ambient Air Quality:**

**Winter Season (December 2022 - Feb 2023)**

**Core zone:** The mean value of PM<sub>10</sub> at core zone locations ranges from (63.02 -64.91 µg/m<sup>3</sup>) & of PM<sub>2.5</sub> ranges from (27.95- 28.79 µg/m<sup>3</sup>), SO<sub>2</sub> ranges from (5.66µg/m<sup>3</sup>-5.83µg/m<sup>3</sup>) NO<sub>2</sub> ranges from (16.39-16.88 µg/m<sup>3</sup>) & CO (0.28 - 0.29mg/m<sup>3</sup>), all the parameters are within the limits of National Ambient Air Quality Standards (NAAQS).

As per the Air Quality Index by CPCB, the air quality of the core zone is found to be Satisfactory during the sampling period - December 2022- Feb 2023.

**Buffer zone:** The mean value of PM<sub>10</sub> ranges from (61.13 - 70.58 µg/m<sup>3</sup>), PM<sub>2.5</sub> ranges from (27.12-32.99 µg/m<sup>3</sup>), SO<sub>2</sub> ranges from (5.49 - 6.68 µg/m<sup>3</sup>), NO<sub>2</sub> ranges from (15.90- 19.34 µg/m<sup>3</sup>) & CO ranges from (0.27 - 0.33 mg/m<sup>3</sup>) which are within the limits of National Ambient Air Quality Standards (NAAQS). As per the Air Quality Index by CPCB the air quality of the buffer zone is found to be Satisfactory during the period December 2022- Feb 2023.

As per the Air Quality Index by CPCB the air quality of the buffer zone is found to be Satisfactory during the period December 2022- Feb 2023.

### **Summer Season (March 2024 - May 2024)**

#### **Core zone:**

The mean value of PM<sub>10</sub> at core zone locations ranges from (61.48-63.33 µg/m<sup>3</sup>) & PM<sub>2.5</sub> ranges from (27.27-28.09 µg/m<sup>3</sup>), SO<sub>2</sub> ranges from (6.49-6.68 µg/m<sup>3</sup>), NO<sub>2</sub> ranges from (15.99-16.47µg/m<sup>3</sup>) & CO (0.27 - 0.28 mg/m<sup>3</sup>), are within the limits of National Ambient Air Quality Standards (NAAQS).

As per the Air Quality Index by CPCB, the air quality of the core zone is found to be Satisfactory during the sampling period March-May 2024

#### **Buffer zone:**

The mean value of PM<sub>10</sub> ranges from (59.64 - 72.55 µg/m<sup>3</sup>), PM<sub>2.5</sub> ranges from (26.46 - 32.18 µg/m<sup>3</sup>), SO<sub>2</sub> ranges from (4.15 - 5.05 µg/m<sup>3</sup>), NO<sub>2</sub> ranges from (15.51- 18.87 µg/m<sup>3</sup>) & CO ranges from (0.21 - 0.40 mg/m<sup>3</sup>) which are within the limits of National Ambient Air Quality Standards (NAAQS). As per the Air Quality Index by CPCB the air quality of the buffer zone is found to be Satisfactory during the period -March-May 2024.

- **Ambient Noise levels:**

### **Winter Season (December 2022 - Feb 2023)**

#### **Core zone:**

The ambient noise level during day time at the proposed project site varies from 63.8 dB (A) to 65.3 dB (A) which are within the day time standard limit of industrial area ~ 75 dB (A). During night the noise level at the project site ranges from 56.6 dB (A) to 57.4 dB (A) which are also within the night time standard limit of industrial area ~ 70 dB (A).

#### **Buffer Zone:**

The ambient noise level during day time at the residential area varies from 53.9 dB (A) to 57.3 dB (A) which is slightly higher than the daytime noise standard limit of the Residential Area of ~ 55 dB (A) due to vehicular activities in the area. During night the noise level ranged from 41.8 dB(A) to 45.3 dB(A) which is slightly higher than the night-time noise standard limit of ~ 45 dB (A). In Commercial area the ambient noise level during night time varies from 59.3 dB (A) to 66.9 dB (A) which is slightly higher than the daytime noise standard limit of the commercial area of ~ 65 dB (A) and during night time it varies from 51.8 dB (A) to 56.9 dB (A) which is

slightly higher than the night-time noise standard limit of commercial area~ 55 dB (A) due to high vehicular movement.

### **Summer Season (March 2024 - May 2024)**

#### **Core zone**

The ambient noise level during day time at the proposed project site varies from 63.5 dB (A) to 65.1 dB (A) which are within the day time standard limit of industrial area ~ 75 dB (A). During night the noise level at the project site ranges from 56.2 dB (A) to 57.1 dB (A) which are also within the night time standard limit of industrial area ~ 70 dB (A).

#### **Buffer zone**

The ambient noise level during day time at the residential area varies from 54.1 dB (A) to 57.5 dB (A) which is slightly higher than the daytime noise standard limit of the Residential Area of ~ 55 dB (A) due to vehicular activities in the area. During night the noise level ranged from 42.1 dB(A) to 45.5 dB(A) which is slightly higher than the night-time noise standard limit of ~ 45 dB (A). In Commercial area the ambient noise level during night time varies from 59.5 dB (A) to 66.8 dB (A) which is slightly higher than the daytime noise standard limit of the commercial area of ~ 65 dB (A) and during night time it varies from 52.1 dB (A) to 57.2 dB (A) which is slightly higher than the night-time noise standard limit of commercial area~ 55 dB (A) due to high vehicular movement.

- **Soil Quality:**

#### **Core Zone:**

#### **Winter Season (December 2022 - Feb 2023)**

The samples collected from the onsite - S1 shows that the soil moisture content in the core zone is 3.3% to 4.9, pH is 7.39 to 7.6 Amount of primary nutrients like Organic matter is 0.74% to 1.21%, the available nitrogen is 58.4 mg/kg to 92.4 mg/kg is very low, available Potassium is 19.9 mg/kg to 39.1 mg/kg is very low while the available Phosphorus is 8.2 mg/kg to 12.4 mg/kg is medium in range. Therefore, the Primary nutrient profile shows that soil is low fertile in the core zone due to low concentration of available nitrogen & potassium and medium concentration of available phosphorus.

#### **Buffer Zone:**

During the period of Dec 2022 - Feb 2023 the samples collected from the site S2-S8 shows that the soil moisture content in the buffer zone is between 1.8% to 6.6%,

pH is 6.49 to 7.52. Amount of primary nutrients like Organic matter is 0.26% to 2.25%, the available nitrogen 56.0 mg/kg to 88.2 mg/kg is low, available Potassium 10.6 mg/kg to 41.7 mg/kg is low while the available Phosphorus 6.4 mg/kg to 11.2 mg/kg is in medium to higher range. Therefore, the Primary nutrient profile shows that soil is low fertile in the buffer zone due to the availability of low amounts of available nitrogen & potassium and medium concentration of available phosphorus.

#### **Summer Season (March 2024 - May 2024):**

##### **Core Zone**

During the period of March-May 2024 the samples collected from the onsite - S1 shows that the soil moisture content in the core zone is 2.8-3.7%, pH is 7.37-7.57. Amount of primary nutrients like Organic matter is 0.69-1.19%, the available nitrogen is 62.4-95.6 mg/kg is very low, available Potassium is 18.8-31.3 mg/kg is very low while the available Phosphorus is 7.4 to 10.6 mg/kg is medium in range. Therefore, the Primary nutrient profile shows that soil is low fertile in the core zone due to low concentration of available nitrogen & potassium and medium concentration of phosphorus.

##### **Buffer Zone**

The samples collected from the site S2- S8 shows that the soil moisture content in the buffer zone is between 1.5% to 4.4%, pH is 6.53 to 7.63. Amount of primary nutrients like Organic matter is 0.26% to 2.25%, the available nitrogen 61.6 mg/kg to 104.6 mg/kg is low, available Potassium 10.6 mg/kg to 41.7 mg/kg is low while the available Phosphorus 6.4 mg/kg to 11.2 mg/kg is in medium to higher range. Therefore, the Primary nutrient profile shows that soil is low fertile in the buffer zone due to the availability of low concentrations of available nitrogen concentrations of available nitrogen & potassium and medium concentration of phosphorus.

- **Surface Water Quality:**

#### **Winter Season (December 2022 - Feb 2023)**

The results of water quality of surface water for all locations i.e SW1 (Dongtangle Nala (Sartang River), SW2 (Wah Lukha river Upstream), SW3 (Wah Lukha river Downstream), SW4 (Lubha River) shows that these are meeting the criteria class "D" i.e. Propagation of Wildlife and Fisheries as per CPCB surface water quality- Designated Best Use Water Quality Criteria defined by CPCB.

**Summer Season (March 2024 - May 2024):**

The results of water quality of surface water for all locations i.e SW1 (Dongtangle Nala (Sartang River), SW2 (Wah Lukha river Upstream), SW3 (Wah Lukha river Downstream), SW4 (Lubha River) shows that these are meeting the criteria class "D" i.e. Propagation of Wildlife and Fisheries as per CPCB surface water quality- Designated Best Use Water Quality Criteria defined by CPCB

- **Ground Water Quality:**

**Winter Season (December 2022 - Feb 2023)**

**Core Zone:**

The values were found within the drinking water standards (IS:10500). The **Total Dissolved Solids (TDS)** of the sampling locations is 86.8 mg/l. **Total Hardness** of the sampling locations is 48 mg/l, **Magnesium content** in the sampling location is 5.83 mg/l, **Alkalinity** of the sampling locations is 40 mg/l, **Calcium** Concentration of the sampling locations is 9.6 mg/l, **Chloride** Concentration of all the sampling locations is 6 mg/l.

**Buffer Zone**

The values were found within the drinking water standards (IS:10500). The **Total Dissolved Solids (TDS)** of the sampling locations ranges from 134.4 mg/l to 276.8 mg/l. **Total Hardness** of the sampling locations ranges from 60 mg/l to 92 mg/l, **Magnesium** content in the sampling locations ranges from 9.72 mg/l to 12.64 mg/l, **Alkalinity** of the sampling locations ranges from 44 mg/l to 72 mg/l, **Calcium** Concentration of the sampling locations ranges from 11.2 mg/l to 16 mg/l, **Chloride** Concentration of all the sampling locations ranges from 4.0 mg/l to 10.0 mg/l. All parameters are well within the prescribed drinking water standards for all the sampling locations.

**Summer Season (March 2024 - May 2024):**

**Core Zone**

The values were found within the drinking water standards (IS:10500). The **Total Dissolved Solids (TDS)** of the sampling locations is 90.20 mg/l. **Total Hardness** of the sampling locations is 50.0 mg/l, **Magnesium** content in the sampling locations is 5.83 mg/l, **Alkalinity** of the sampling locations is 42.0 mg/l, **Calcium** Concentration of the sampling locations is 10.40 mg/l, **Chloride** Concentration of all the sampling locations is 7.0 mg/l. All parameters are well within the prescribed drinking water standards for all the sampling locations.

### **Buffer zone**

The values were found within the drinking water standards (IS:10500). The **Total Dissolved Solids (TDS)** of the sampling locations ranges from 142 mg/l to 284.60 mg/l. **Total Hardness** of the sampling locations ranges from 64 mg/l to 96 mg/l, **Magnesium content** in the sampling locations ranges from 7.29 mg/l to 12.64 mg/l, **Alkalinity** of the sampling locations ranges from 46 mg/l to 76 mg/l, **Calcium** Concentration of the sampling locations ranges from 12.80 mg/l to 17.60 mg/l, **Chloride** Concentration of all the sampling locations ranges from 5 mg/l to 11 mg/l.

- **Biological Environment:**

**Flora:** In the core zone, broomstick, bamboo, Assam Broom Grass etc are present. In the buffer zone, trees (Acacia, Bael, Kadam, Banyan, Peepal, Ashoka, Screw Pine etc), shrubs (Indian Acalypha, Bidens, Globba, Orange Jasmine, Lantana etc), herbs (Turmeric, Ginger, Holy Basil, Shrimp plant etc) were observed.

**Fauna:** In the core zone, fauna primarily consisted of birds like crows, sparrows, and red-vented bulbuls, alongside common animals such as squirrels, mongooses, and garden lizards, with occasional sightings of butterflies. In the buffer zone, during primary survey, the presence of Rhesus Macaque (*Macaca mulatta*), Indian Palm Squirrel (*Funambulus palmarum*), and Indian Peafowl (*Pavo cristatus*) were noted. Additionally, local communities reported sightings of Nilgai (*Boselaphus tragocamelus*), Wild Boar (*Sus scrofa*) etc in the buffer zone.

As per The Indian Wildlife (Protection) Act, 1972, 11 schedules I species have been identified in the buffer zone namely *Felis catus* (Domestic Cat), *Herpestes edwardsii* (Indian Grey Mongoose), *Hoolock hoolock* (Hoolock Gibbon), *Hystrix indica* (Indian Crested Porcupine), *Manis pentadactyla* (Pangolin), *Nycticebus bengalensis* (Slow Loris), *Python molurus* (Indian Python), *Naja naja* (Indian Cobra), *Pavo cristatus* (Indian Peafowl), *Buceros bicornis* (Great Pied Hornbill), *Gyps bengalensis* (White-rumped Vulture). Conservation plan will be submitted for the Schedule I species found in the buffer zone.

- **Socioeconomic Environment:** According to the secondary data the study area consists of 3755 no. of households and 22073 no. of population. Survey data was collected from Seven villages for Primary study namely Thangskai village, Wahiajer, Chiehruphi Village, Nangsing, Tongseng, Umlong and Umrasing Village. The total population of the above-mentioned villages in the Primary study area is 4287 having 816 households. People mainly depend on Agriculture, Labors, private services, Govt. job, business and self employed for a source of livelihood. The main crop in the surveyed area is Betel Leaves (11%), followed by Arecanut (11%),



Broomsticks(24%), Paddy (33%), Orange 14% & Maize 4% are also produced in the area. There is the availability of banks, ATMs, Post Office, Public transportation in the villages. Drinking water is primarily sourced from Tube Wells, Hand Pump, supply water & River/Lake/Pond. Medical facilities include Asha workers in most of the villages. Most of the villages have Anganwadi and Govt. primary school in the study area and has a 100% electricity facility for domestic use.

- **Traffic Studies**

The carrying capacity of the NH-6 is much Higher than the proposed traffic volume. The traffic (to & fro) from the Proposed Establishment of an Integrated Cement Plant Unit will not create any traffic congestion.

The volume/capacity ratio is likely to change from 0.24 to 0.30 for NH6 with LOS being “B” to “B” only and for approach road it is likely to change from 0.01 to 0.12 with LOS being “A” to “A”

## 1.4. Additional Studies

The project is situated in the Seismic zone-V area and is a high risk zone. Proper measures will be taken during the construction to avoid damage and loss. To avoid flooding or water logging in the area due to the river passing through the project site, the site will be raised above the existing road level. All measures will be taken as per law.

A detailed fire safety and management plan as well as on-site and off-site management plan have been developed for the site.

### **Some General safety measures**

- Occupational health surveillance programmes will be done six monthly & their records will be maintained.
- At the project site, an emergency First Aid facility will be provided. A room will be provided separately with provision of bed and an experienced doctor.
- Health check-up camps will be organised on a regular basis at company dispensary /nearby locations for nearby people to evaluate exposure of the workers to chemicals during pre-placement and periodic medical monitoring.
- Proper medical facility arrangements will be provided in case of any accidental release.
- Label Precautions and First Aid facility will be provided.
- Emergency plans will be prepared and mock drills of the on-site emergency will be conducted.

- Employers and employees will be made aware of the hazardous properties of materials in their workplaces, and the degree of hazard each poses.
- Inspection of the industrial activity will be done at least once a year and an annual status report on compliance with the Rules will be submitted.
- An Environment, Health and Safety (EHS) Manager will be available, who handles all the safety issues related to man, machine & materials.
- Exterior refuge or safe areas include parking lots, open fields or streets which will be located away from the site of the emergency and which provide sufficient space to accommodate the employees.

### **Occupational Health & Safety management plan**

- Occupational health surveillance programmes will be done six monthly & and their records will be maintained.
- Health check-up camps will be organized on a regular basis at company dispensary/nearby locations for nearby people.
- Label Precautions and First Aid facilities will be provided.
- Emergency plan will be prepared and mock drills of the on-site emergency will be conducted.
- Inspection of the industrial activity will be done at least once in a year and an annual status report on the compliance with the Rules will be submitted.
- An Environment, Health and Safety (EHS) Manager will be available, who handles all the safety issues related to man, machine & materials.
- Exterior refuge or safe areas include parking lots, open fields or streets which will be located away from the site of the emergency and which provide sufficient space to accommodate the employees.
- Specific written instructions will be obtained before any welding, burning, grinding or other flame heat producing work commences in coal processing areas.

## **1.5. Project Benefits**

The unit will generate direct & indirect employment and benefits with respect to availability of social, physical infrastructure and other benefits, such as,

- The project will cater to the increasing demand of cement in the country as well as increase export capacity of the country
- The basic requirement of the community will be development infrastructure like roads, footpaths, drainage systems, community centre, playgrounds, and streetlights, floodlight/high-mast lightning, Provision of Solar street lights, Establishment of secondary level educational institution, etc. in different villages which will help in uplifting the living standards of local communities.

- The industry will spend Rs. 18 Cr as Social welfare activities like infrastructure like roads, footpaths, drainage systems, community centre, playgrounds, and streetlights, floodlight/high-mast lightning, Provision of Solar street lights, Establishment of secondary level educational institution, Financial Assistance of 50% (of school fee) & under government allotted seats and 20% of expenditure (of school fee) in private institutions to student of village Wahiajer Narpuh in pursuing higher education in courses like MBBS, BE or any other technical courses, etc, Establishment of secondary level educational institution and children of the employees (plant) shall be free of cost for the poor students and concessional to all, In case of any natural calamity Immediate financial assistance or any other means of support to the financially backward families, etc in the nearby villages for development.
- Employment opportunities will lead to a rise in income and improved standard of living. The industry would also generate jobs for the labourers during the construction phase as well as during the operation phase. It will provide direct and indirect employment to local youth. Unit will employ a minimum of 60% people of the residents of Wahiajer Narpuh Village and 40% to others if suitable candidates are available as per job requirements
- M/s Meghatop Cement Private Limited will improve their efficiencies and use technological advances to reduce their impact on the environment. The industry also aims to use dust collected in Pulse Jet bag filters will be provided with each process stack i.e Limestone Crusher (ROM & Blending), Corrective Crusher, Coal Mill (VRM), , Raw Mill (VRM) & Kiln, Clinker Cooler,Cement Mill (VRM) , Packing Unit, Additive Crusher, Coal Crusher and Gypsum Crusher.
- M/s Meghatop Cement Private Limited is using technological advances to reduce their impact on the environment. The industry also aims at continuing their use of dust collected in bag filters and fly ash generated back into the process to minimize the quantity of waste generated by the plant.
- The industry is Environmental Friendly as it will be consuming Fly ash & dust generated as a waste material from power plant in the process.

## 1.6. Environment Management Plan

### Air Quality Management Plan

#### For Construction Phase

- Water sprinkling will be done to reduce the dust generation.
- Flexible dust suppression systems (water spray) will be done as per the requirement at the construction site.

- No excavation of soil will be carried out without adequate dust mitigation measures in place.
- No loose soil or sand or Construction Waste or any other construction material that causes dust will be left uncovered.
- Construction Waste processing and disposal sites will be identified and required dust mitigation measures be notified at the site.
- To minimize the occupational health hazard, proper masks will be provided to the workers who are engaged in dust generation activity.

### **For Operation Phase**

- Workers will be trained properly regarding handling of raw materials/chemicals, appropriate PPEs like nose masks and goggles will be provided to the workers.
- Enclosures will be provided for all unloading operations, except wet materials. The enclosures for the unloading sides could be flexible curtain type material covering up to the height of dumpers discharged from the roof.
- If required, water will be sprayed at the dust generation point.
- The air emissions will be controlled by proper mitigating measures such as regular dust suppression by sprinkling of water which helps in reducing the effect. In addition, periodical monitoring will be done and results will be analysed. In case any change shows adverse effects, it will be attended to for improvements.
- In the proposed plant the main sources of emissions will be from stacks attached to Limestone Crusher (ROM & Blending), Corrective Crusher, Coal Mill (VRM), Raw Mill (VRM) & Kiln, Clinker Cooler, Cement Mill (VRM), Packing Unit, Additive Crusher, Coal Crusher and Gypsum Crusher. Adequate APCS i.e Pulse Jet Bag Polyester Polymer Polyethylene Bag Filter will be provided to each stack of Limestone Crusher (ROM & Blending), Corrective Crusher, Cement Mill (VRM), Packing Unit, Additive Crusher, Coal Crusher, Gypsum Crusher, Pulse Jet glass Bag Filter will be attached to Coal Mill (VRM), Reverse Air/Pulse Jet Bag House (RABH) will be attached to Raw Mill (VRM) & Kiln and Electrostatic Precipitator to clinker cooler along with adequate stack height as per CPCB norms will be provided.
- All the personnel working in dust/noise prone areas are provided with appropriate personal protective equipment (PPE) such as helmets, safety shoes, safety goggles, industrial grade gloves, safety harnesses, nose masks.
- DG set (1x250 kVA) stack of 3.2 m from the roof will be provided and will be used in case of emergency only.
- Appropriate PPEs will be provided to the workers.
- Frequent work area monitoring will be done to ensure fugitive emission is under control.

- Green belt/ greenery will be developed along most of the periphery of the project area as well as along roads. Green area in the plot will be 37 ha (33.13% of plot area).

## **Noise Level Management Plan**

### **For Construction Phase**

- The noise will be limited only for specified periods of construction and most of the activities will be carried in the daytime only.
- Provision of protective devices like earmuffs/ plugs to the workers will be done.
- Ready Mix concrete will be used instead of a concrete mixer so no noise generation will be there due to it.
- Proper training will be given to the workers regarding handling of construction materials. Workers will not be allowed to throw the construction materials like bricks, debris, etc. from height.
- Loading and unloading of Construction waste will be done from loaders/excavators directly to tippers/trucks to ensure minimal noise generation. Workers will be provided with ear plugs/ear muffs.
- Machines and equipment will be properly greased, lubricated and regularly maintained and shall be provided with vibration isolators and noise damping, construction will be done during the day time only, proper barricading of the project site will be done and maintained during the construction.
- Appropriate PPE like ear plugs and muffs will be provided to the workers at the project site. Also, acoustic flooring using tiles will be done in the admin building so that it acts as a noise absorber.
- Proper barricading will be done around the project site which helps in controlling noise emission to & from the site to some extent.

### **For Operation Phase**

To reduce Ambient Noise level the following measures will be adopted:-

- Proper training will be given to the workers for handling raw materials. If required, PPE will be provided to the workers.
- Process machinery (coal crusher, cement mill) will be provided with Improved mufflers & silencers will be provided in the machinery generating high noise.
- Machineries of the reputed make and less noise producing will be purchased.
- Stationary machineries and equipment will be properly enclosed by enclosures and will be provided with dampeners for minimizing noise generated due to vibration of machineries.
- It is re-checked and assured that mufflers systems, vibration damping systems etc. will be installed in engines of machineries which will help in reduction of noise.
- Less noisy machinery/equipment will be installed.

- Sufficient oiling and lubrication will be done to all the parts of the machineries to ensure that minimal noise is generated.

### **Solid & Hazardous Waste Management plan**

**During Construction Phase-** Domestic solid waste generated from the unit will be 225 kg/day out of which biodegradable waste will be 90 kg/day which will be sent to vendor and Recyclable Waste (Plastic, paper, wood, glass, etc) will be 135 kg/ day, The generated waste will be handed over to authorised vendor.

**During Operation Phase-** The following steps will be taken:-

- Proper care of waste will be taken while handling & transportation, appropriate PPE will be used.
- There will be no generation of hazardous waste from the process in the project.
- During the operational phase, Total 75 kg/day of solid waste will be generated, out of this 30 kg/day will be organic waste which will be sent to authorised vendors and the rest 45 kg/day will be inorganic waste which will be given to approved recyclers.
- Used oil of 6.14 KLPA will be generated, and will be disposed of to Kiln after taking necessary permission/Sold to authorized vendors.
- STP sludge of 8.91 kg/day will be used as manure for plantation
- Dust from Bag filter of 82500 TPA will be collected from bag filters and will be recycled in cement manufacturing
- Other Solid Wastes (MS Scrap, GI Scrap, Grinding media, Used/expired tyres, HDPE bags, Blow bar, Conveyor belt steel coated, misc. scarp) of 833 TPA will be sell/dispose to vendor
- E-waste of 0.25 TPA will be sell/disposed of to authorized vendor as per E-waste (Management) Rules, 2016 and amendment as to date.
- Battery waste of 0.25 TPA will be given to the sell/disposed of to authorized vendor as per Battery waste & Management Rules 2023 and amended as to date.

### **Wastewater & Effluent Management Plan**

#### **For Construction Phase**

- 90 KLD will be required out of which 68 KLD will be for drinking & domestic purpose and 22 KLD for construction purpose. Waste water generated will be 65 KLD which will be treated in mobile STP. Fresh water for drinking purposes will be sourced from Dongtangle Nala (Sartang river) & for construction purposes STP treated water will be used.
- During the construction period, runoff from the construction site will not be allowed to stand (water logging) or enter the roadside or nearby drain.

- The runoff due to rain water from the site will be collected and reused.

### **For Operational Phase**

**Source of Freshwater:** Dong Tangle Nala (Sartang River), Rain water & STP treated water.

- During Operation, total water requirement of the plant will be 946 KLD out of which freshwater requirement will be 186 KLD, rain water will be 687 KLD and treated water requirement from STP will be 73 KLD. 945 KLD consists of water required for Domestic water (manpower) (23 KLD), Cement plant make-up water (400 KLD), WHRS make-up water (123 KLD), Gardening (370 KLD), Dust suppression (20 KLD) and Wheel Washing (10 KLD).
- Total wastewater will be 77 KLD which will be from Cement plant (40 KLD), Domestic wastewater (21 KLD), WHRB wastewater (7 KLD) & Wheel washing (9 KLD). Wastewater will be treated in STP of capacity 95 KLD and treated water will be reused for gardening, wheel washing & dust suppression purposes.

### **Biological Environment Management Plan**

- Green area of 37 ha, i.e. 33.13% out of the total area of the project will be developed.
- Total of Trees required @2,500 trees per ha of green area is 92500 nos.
- Species to be planted are Ajhar, Arjun, Ashoka, Bamboo, Bogi Poma, Bokul, Karanj, Koli, Neem, Sal, Soom, Sisu, Moj, etc.
- Considering 80% survival rate No. of tree saplings to be planted: 1,15,625 no.
- Approx. 200 no. of trees exists at site, out of which 135 trees will be cut down/transplanted. Permission for the same has been applied from the competent authority.

### **Socio Economic Environment management plan**

- The Industry will require raw materials, skilled and unskilled laborers. It will be available from the local area. Due to increasing industrial activities, it will boost the commercial and economical status of the locality, to a positive extent.
- About 1500 no. of people will be employed during construction of the project, out of which 39 nos. will be permanent and 1461 nos. will be on contractual basis. And Total 498 no. of people will be hired during operation phase, out of which 318 no. of permanent people and 180 no. of temporary people will be employed during the operational stage of the project & there will be indirect employment opportunities & business opportunities such as in transportation, workshop, packing, repair & maintenance, supply of machineries etc. Unit will employ a minimum of 60% people of the residents of Wahiajer Narpuh Village and 40% to others if suitable candidates are available as per job requirements. The project will



be beneficial in the government's target of increasing the production capacity. Employment will be given to students who cleared class X standard and above provided they attain the age of 18 years and above.

- The industries will require raw materials, skilled and unskilled labourers. It will be available from the local area. People from nearby villages will be employed for housekeeping, gardeners, minds helper, night watchman, driver, etc Due to increasing industrial activities, it will boost the commercial and economic status of the locality, to some positive extent.

## 1.7. Cost & EMP Implementation Budget

The total cost of the project is Rs. 2450.55 Crores. The total capital cost for the EMP Budget will be Rs. 46.2 crores and recurring cost will be Rs 2.74 Crores/Year.

Sr. No.	Particulars	Capital Cost (Crores)	Recurring Cost/ Annum (Rupees in Crores)
1	Air Pollution Control Devices & stacks, water sprinkling	20.1	1.0
2	Noise management (enclosures etc)	1	0.03
3	Wastewater Treatment	1.5	0.4
4	Landscaping / plantation	3.46	0.86
5	Rainwater collection	0.4	0.02
6	Social Activities	18	-
7	Environment monitoring	-	0.07
8	Occupational Health & Safety	-	0.23
9	Public Health & Safety	-	0.13
	<b>Total</b>	<b>46.2</b>	<b>2.74</b>

### Cost Summary

S.No.	Cost Summary	Cost for Total (Rs. in Crores)	% of the project Cost
1	Project Cost	2450.55	100
2	Capital cost for Environment Management Plan	46.2	1.88
3	Recurring cost for Environment Management Plan	2.74	0.11
4	Social activities (included in EMP capital)	18	0.73
5	Occupational Health and Safety and Public Health & Safety (included in EMP capital)	0.36	0.014