



## **Calcom Cement India Limited**

**A Subsidiary of Dalmia Cement (Bharat) Limited**

### **Proposed Greenfield Clinkerisation Plant of 3.63 Million TPA along with 16 MW WHRB & Standby DG Set of 750 KVA**

**Village 19 Kilo Umrangso, Tehsil Umrangso,  
District Dima Hasao (earlier North Cachar Hills), Assam**

**Environmental Clearance under EIA Notification 2006**

**Sl. No. 3(b); Category 'A' ( $\geq 1.0$  MTPA)**

### **Summary Environmental Impact Assessment Report & Environmental Management Plan**

**(after TOR; for Public Consultation & Public Hearing)**

**TOR awarded vide MoEF&CC F. No. J-11011/306/2022-IA-II(I) dated 15.12.2022**

**January 2023**

### **EIA Consultant & Lab Accreditation Details**

**ABC Techno Labs India Private Limited, Chennai**

**Accreditation Certificate : NABET/EIA/1922/RA0155**

**Validity extended to 27.01.2023**

**(Sl. No. 3 of QCI/NABET List dated 13.12.2022)**

**ABC Lab Recognition : MoEF&CC vide Letter F. No. Q-15018/04/2019-CPW  
dated 14.10.2019 with validity of 5 years**

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A Subsidiary of Dalmia Cement (Bharat) Limited  
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**Village 19 Kilo Umrangso, Tehsil Umrangso, District Dima Hasao, Assam**

**Summary Environmental Impact Assessment Report**

**1.0 Introduction**

**1.1 Name of the Project, Applicable Schedule & Category as per EIA, 2006**

**M/s. Calcom Cement India Limited (CCIL)**, a Subsidiary of Dalmia Cement (Bharat) Limited-DCBL, has proposed a Greenfield Clinkerisation Plant of 3.63 Million TPA (**Million TPA or MTPA**) capacity along with associated Waste Heat Recovery System (WHRS) of 16 MW and D.G. Set of 750 KVA at village 19 Kilo Umrangso, Tehsil-Umrangso, District-Dima Hasao (earlier North Cachar Hills), Assam. The manufactured clinker will be transported to split located grinding unit/s of DCBL for manufacturing different varieties of cement.

As per EIA Notification dated 14<sup>th</sup> Sept., 2006 & as amended from time to time; this project falls under Sl. No. 3(b) Cement Plants under Material Production Activity & Category 'A' ( $\geq 1.0$  MTPA) as per EIA Notification, 2006. Installation of WHRS falls under Sl. No. 1(d)-Thermal Power Plants of EIA Notification 2006. However, as per General Condition No. (ii) of the amendment vide MoEF&CC Notification S.O. 1599 (E) dated 25<sup>th</sup> June 2014, and subsequently clarification vide OM dated 23<sup>rd</sup> January 2019, prior Environmental Clearance (EC) for installation of WHRS is exempted. Accordingly, prior EC Application for Cement Plants under Sl. No. 3(b) has been filed by DCBL vide online Proposal No. **IA/AS/IND/285957/2022** dated 09.08.2022. Terms of References (ToRs) for EIA Study are awarded by MoEF&CC vide Letter F. No. J-11011/306/2022-IA-II(I) dated 15.12.2022.

**1.2 Project Proponent**

**M/s. Dalmia Cement (Bharat) Limited (DCBL)** is one of the leading cement producers of India. It operates for manufacturing capacity of 35.9 MTPA across 14 Cement Plants and Grinding Units which are spread across 10 States. DCBL currently operates cement plants in Tamil Nadu (Dalmiapuram & Ariyalur), Andhra Pradesh (Kadapa), Meghalaya (Thangskai), Assam (Umrangso, Lanka & Jagir Road), Karnataka (Belgaum), Jharkhand (Bokaro), Odisha (Rajgangpur & Kapilas), Bihar (Kalyanpur), West Bengal (Medinipur) and Maharashtra (Chandrapur).

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**M/s. Calcom Cement India Ltd. (CCIL)** is a Registered Company under Companies Act, 1956. CCIL commenced its business on 1<sup>st</sup> November 2004. DCBL has taken over CCIL in January 2012 and CCIL is now a subsidiary of Dalmia Cement (Bharat) Limited. As per Board's Resolution, **Authorised Signatory of CCIL is Mr.Padmanav Chakravarty**, Executive Director & Regional Manufacturing Head. The registered & communication addresses are :

**Registered & Communication Address :**

M/s. Calcom Cement India Ltd.  
3<sup>rd</sup> & 4<sup>th</sup> Floor, Anil Plaza II,  
ABCG.S. Road, Guwahati,  
Assam-781005.  
e-mail: envhead.ccil@gmail.com

CCIL is operating the following Industries/Units in the Region :

**I. Existing Clinkerisation Unit at 16 Kilo :** CCIL is operating a Clinkerisation Unit of 1.52 MTPA clinker at 16 Kilo, Langcherui, Tehsil-Umrangso, District-Dima Hasao (earlier North Cachar-NC Hills), Assam EC has been obtained from MoEF&CC vide EC identification No. EC22A009AS128343 dated 5<sup>th</sup> May, 2022 - File No. J-11011/307/2006-IA.II(I). Consent to Operate has been accorded for 1.52 MTPA Clinker by Pollution Control Board, Assam vide Order WB/SLC/T-637/14-15/384/518 dated 3<sup>rd</sup> June 2022 with validity till 31<sup>st</sup> March 2023. Required Limestone of 2.31 MTPA is sourced from Captive New Umrangshu Limestone Mine nearby. Clinker manufactured is transported by Trucks through NH-627 (Lanka-Umrangso-Haflong Section) to Split located Grinding Unit of CCIL at Lanka. The total Employees in the Unit are 726.

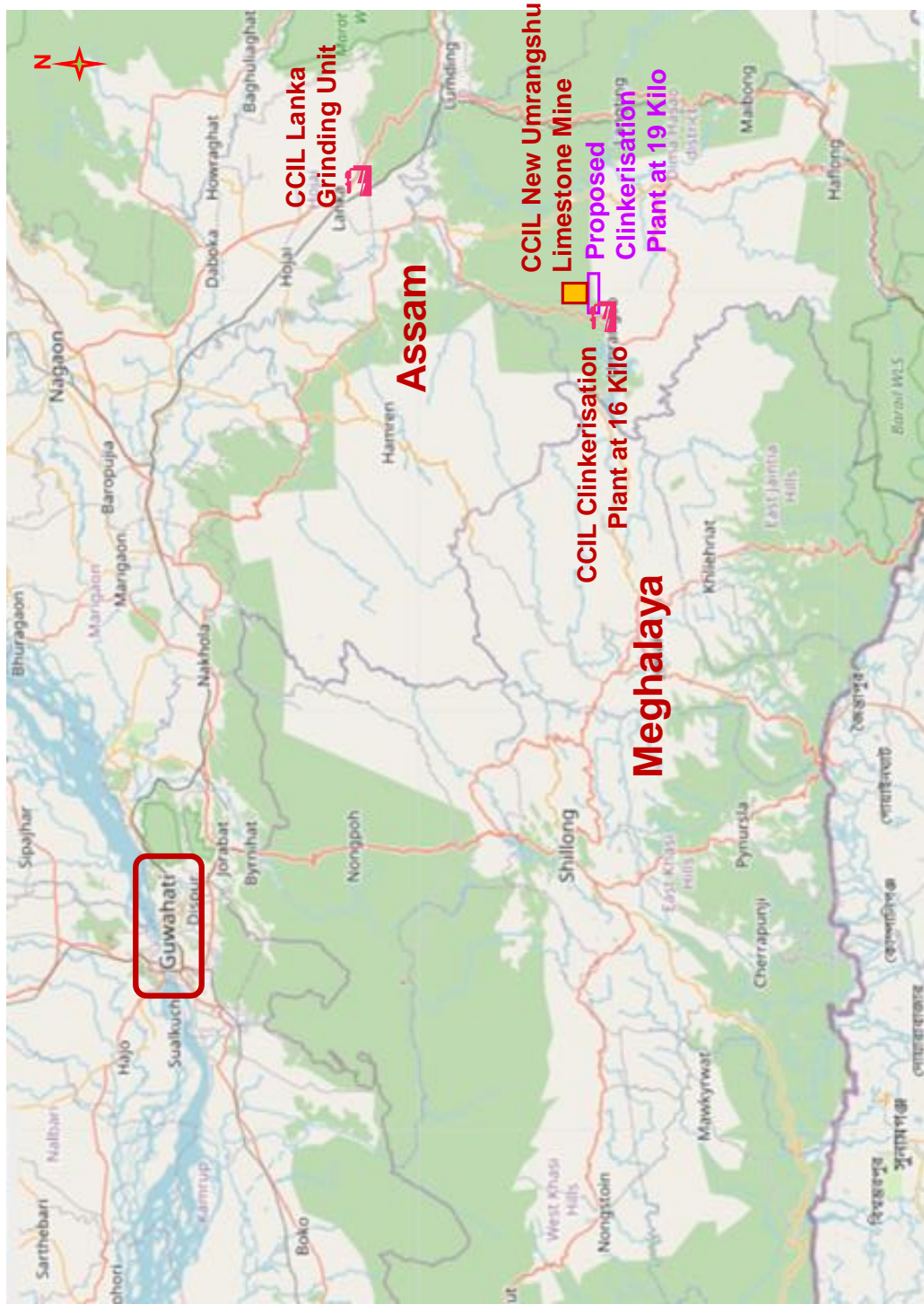
**II. New Umrangshu Limestone Mine :** New Umrangshu Limestone Mining Lease is over an extent of 417.50 Ha at New Umrangshu Village, Tehsil-Umrangso, District-Dima Hasao. EC for the Mine has been obtained vide F. No. J-11015/202/2011-IA.II(M) dated 11<sup>th</sup> June 2020 for **Limestone Production of 7.77 MTPA**. CTO is also obtained and now the Mine is in operation. **Opencast fully Mechanised-Conventional Mining method** (with Drilling & Blasting) is adopted.

**III. Split Located Grinding Unit :** CCIL has a split located grinding unit at Village: 2 No. Pipalukhuri, Taluka: Lanka, District-Hojai (Assam). Environmental Clearance was also obtained from MoEF&CC vide letter dated 26<sup>th</sup> July, 2007 & SEIAA vide EC Identification No. EC22B009AS121520 dated 19.05.2022. As per EC, the proposed Grinding Capacity is 5.9 Mil. TPA Cement (1.72 MTPA implemented & 4.18 MTPA under implementation by Upgradation of existing Mills and by installation of new Cement Mill of 2.21 MTPA).

Existing Clinkerisation Unit at 16 Kilo-Umrangso, Grinding Unit at Lanka and New Umrangshu Limestone Mine are shown in **Plate I**.

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Plate : I CCIL Industries in Regional Setting



### 1.3 Need of the Project

Dima Hasao is one of the most backward Districts of India. No industries have been established in the area after 2013, except CCIL. There is no other major employment potential in this region and recently **the area has been freed from insurgency** so this project will give gainful employment directly and indirectly to youth of this district. The proposed project will generate **Temporary Employment for about 2,000 local people during Construction Phase and Direct Employment to 206 Persons and Indirect Employment to about 500 persons during Operation Phase**. Thus, proposed Project will boost the economy of the area with direct & indirect employment opportunities resulting in overall development of the region. Also, enhanced revenue will be generated to the Central & State exchequers in the form of Revenues from the Captive Mine as well as Clinkerisation Plants. New Umrangshu Limestone Mine has all statutory permission to operate at 7.77 MTPA, which is currently being operated to augment the limestone requirement of 2.31 MTPA of existing Clinkerisation Unit (1.52 MTPA Clinker capacity) of CCIL at 16 Kilo, Umrangso. To operate the limestone mine at full production of 7.77 MTPA, CCIL proposes to establish a **new pit-head Clinkerisation Plant of 3.63 MTPA** capacity at Umrangso. The clinker produce will be transported to Lanka Grinding Unit or to other Units to cater the market requirement.

### 1.4 The Proposal

On CCIL application for a suitable Site, the Revenue and Settlement Department of NC Hills Autonomous Council-Haflong has allowed the land admeasuring 280 Bighas (37.47 Ha) along with a separate Approach Road from NH-627, for industrial use on periodic Patta, at Village 19 Kilo, Tehsil-Umrangso, District-Dima Hasao, Assam (**Fig. 1.1**) vide its Letter S. CASE No.160(USO)2021-2022 Issue No.9757-60 dated 30.04.2022. Subsequently land has been allotted to CCIL with renewable periodic Patta No. 1007 dated 10.08.2022. Accordingly, CCIL is proposing Greenfield Clinkerisation Plant of 3.63 Million TPA capacity (**@ 11000 TPD**) along with WHRS of 16 MW and DG Set of 750 KVA in the Site at village 19 Kilo, Umrangso and no Cement Grinding is proposed (**Table 1.1**). The Project Cost is **Rs.2,240 Crores**. No Settlement is found within the project site. Thus, Resettlement & Rehabilitation (R&R) is not involved. **There is no Litigation against the Project.**

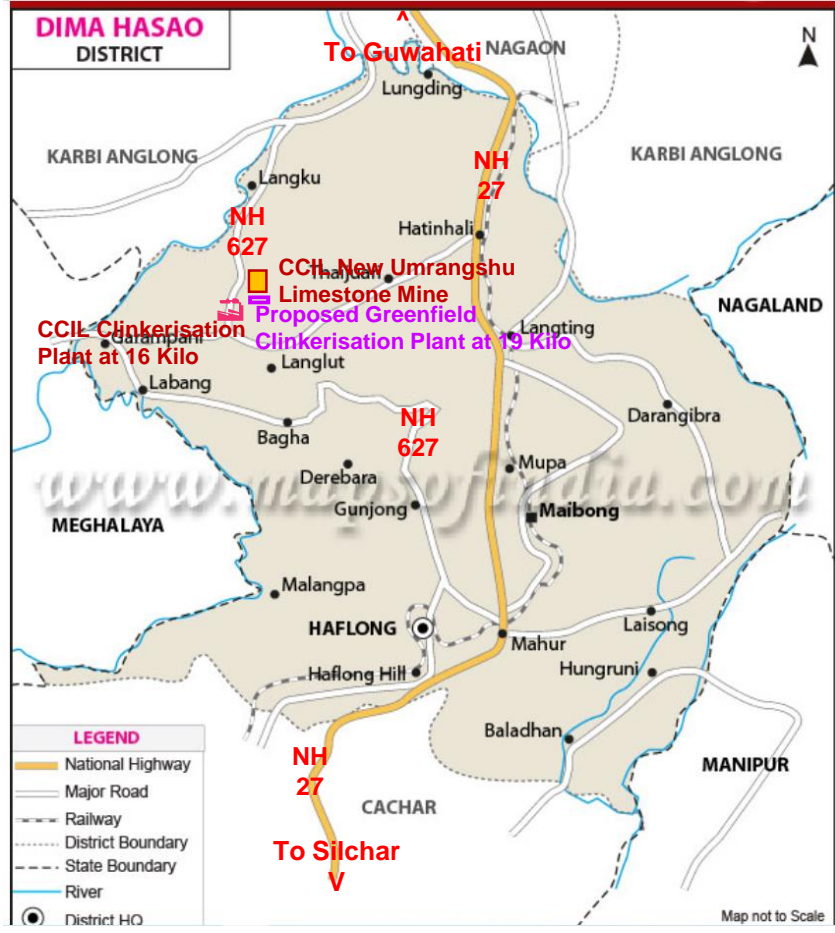
**Table : 1.1 Proposed Proposal**

<b>Name of the Unit</b>	<b>Production Capacity</b>	<b>Utilisation</b>
CCIL New Clinkerisation Unit at 19 Kilo	3.63 MTPA Clinker	Clinker to be transported to CCIL Lanka Grinding Unit & other Units
Waste Heat Recovery Boiler	16 MW	For Captive Use in the Plant
Diesel Generator	750 KVA	For standby/emergency operations

A Limestone Crusher of 2500 TPH equipped with wobbler is proposed within the adjoining New Umrangshu Limestone Mine. Limestone will be transported to the Crusher by haul road and the crushed limestone will be conveyed to the storage yard within the plant premises via covered conveyor belt.

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Fig. : 1.1 Index Map



## 1.5 Location & Accessibility

Proposed Site is located at village 19 Kilo Umrangso, Tehsil: Umrangso, District: Dima Hasao, Assam. Project area falls in Survey of India Topo Sheet No. G46O14 (83 C/14) (**Fig. 1.2**). The Plant Site is bounded by 25°31'19.08" - 25°31'29.24" North Latitudes and 92°47'44.13" - 92°48'41.56" East Longitudes. The dedicated Approach Road is bounded by 25°31'14.44" - 25°31'28.27" North Latitudes and 92°46'20.20" to 92°47'44.81" East Longitudes.

Site is (in southeast) at a distance of 120 km (aerially; 240 km by Road) from State Headquarters Guwahati and 136 km (270 km by Road) from Lokpriya Gopinath Bordoloi International Airport-Guwahati through National Highway (NH)-27 (Guwahati-Nagaon-Lanka-Haflong-Silchar Section) and from Lanka through NH-627 (Lanka-Umrangso-Haflong Section). Railway station at Lanka (70 km by road) is accessible through NH-627 (Lanka-Umrangso-Haflong Section). Proposed Site is accessible from NH-627 at 19 Kilo with a separate Approach Road (2.3 km aerially) of 2.6 km length, allotted to CCIL. Existing CCIL Clinkerisation Plant at 16 Kilo is at 3.1 km in southwest. Umrangso Town is at 5.8 km in west. Lanka City is at 44.7 km (70 km by road) in northeast. Site features are shown in **Plate II**.

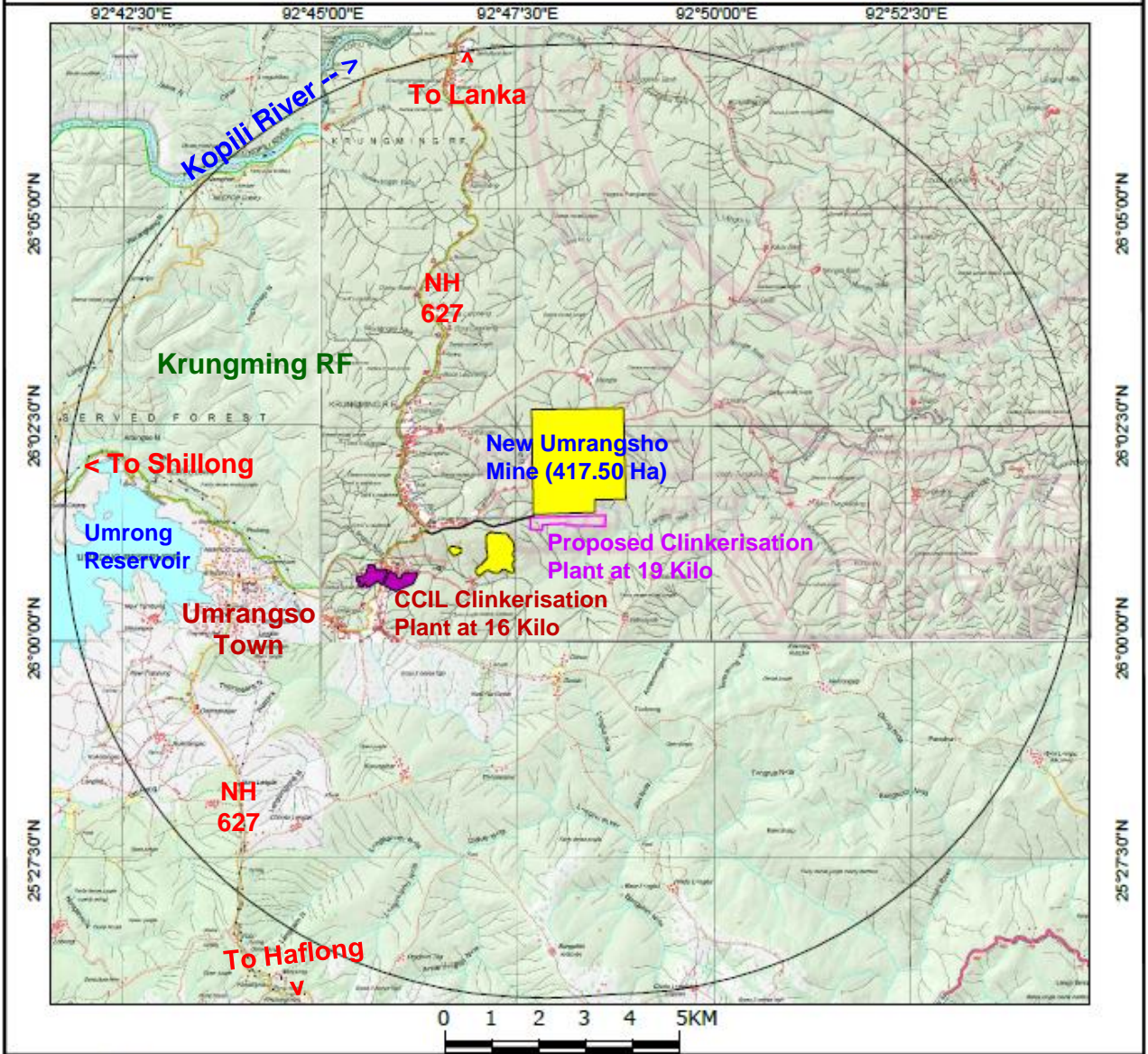
## 1.6 Environmental Setting

Study area falls in Survey of India Topo Sheet No. G46O10 (83 C/10), G46O11 (83 C/11), G46O14 (83 C/14) and G46O15 (83 C/15). Environmental Setting of the Project Site is given in **Table 1.2**. Study Area Environs are shown in **Plate III**. **Krungming Reserved Forest (RF)** is at 2.3 km in west of the Site. **Kopili River** (9.4 km in northwest) and its tributary **Diyung River** (14.7 km in northeast) drain the Region. Umrang Reservoir is at 7.1 km in the west. Amrang (Amlong) Nalla flows at distance ranging from 1.5 km (NW Corner of plant) to nearest 0.14 km (NE corner of plant) in the valley sloping towards east and confluences into Langyen Nadi which flows at distance ranging from 1.17 km (From SW Corner of plant boundary) to nearest 0.25 km (SE corner of plant) at 194 AMSL. Though number of streams generate and flow as nallas in the region, **heavy flood is not common occurrence** due to hilly terrain/topography of the region. There is no flood hazard to the site due to the nallas flowing in the foothills.

There are about 10 industrial establishments within the study area out of which only 6 are under operation including CCIL Plant & Mine and NEEPCO Hydro Electric Power Project. District Headquarters Haflong is at 40 km in southeast direction. As per Census, there is no village within 2 km from the plant site boundary. There are 13 villages/settlements within 2-5 km from the plant boundary with 578 households & with a population of 3034. There are 24 villages/settlements within 5-10 km from the plant boundary with 3056 households & with a population of 13924. Other than Umrangso Town Council is divided into 10 wards with total population of 10,376 (5,575 are males while 4,801 are females).

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**Calcom Cement India Limited**  
**Clinkerisation Plant at 19 Kilo, Umrangso**  
**Fig. : 1.2 Topo Map - 10 km Radius**



**LEGEND**

-  SITE
-  APPROACH ROAD
-  CCIL Existing Plant
-  OTHER MINE



**Plate : II Site & its Environs**



**Approach Road**

**NW Entrance**

**Jhum Cultivation Area**



**Table: 1.2 Environmental Settings**

<b>Environmental Setting (aerial distance and direction from nearest boundary of the site)</b>	
Nearest Town	Umrangso (5.8 km, West)
Nearest City	Lanka (44.7 km, NNE)
Nearest National Highway / State Highway	NH-627 (earlier SH-20) (2.3 km, West) SH-7 (5.55 km, West)
Nearest Railway station	Langting Railway Station (30.11 km, East)
Nearest Airport	Lokpriya Gopinath Bordoloi International Airport, Guwahati (136 km, NW); Kumbhigram Silchar Airport (69.3 km, SSE)
National Parks, Wildlife Sanctuaries, Biosphere Reserves, within 10 km radius	No National Parks, Wildlife Sanctuaries, Biosphere Reserves, within 10 km radius.
River / Water Body within 15 km radius	<b>Amrang Nalla</b> flows at 0.14 km (NE corner of Site) from Site boundary. Other Nallas/Rivers are:  Langyen Nadi (0.25 km in SE) Mongle Nadi (3.8 km in NE) Langlai River (6.1 km in S) Umrang Reservoir (7.1 km in West) Kopili River (9.4 km in NW) Diyung River (14.7 km NE)
Reserved Forests (RF) / Protected Forest (PF) within 15 km radius	Krungming RF (2.3 km in W) Langting Mupa RF(14.7 Km NE)
Seismic Zone	Zone - V [as per IS 1893 (Part-I): 2002]
Settlements/Villages	No village within 2.0 km from the boundary of the Site. The nearest Villages & Town are:  Umrangsho village at 19 Kilo (NW) – 2.05 km Wari Diplai (SE) – 2.10 km Umrangso Town Council (TC) (SW) – 5.8 km

## 1.7 EIA Study

The application in prescribed format (Form-I) along with Pre-Feasibility Report and proposed TORs for undertaking detailed Environmental Impact Assessment (EIA) Study was submitted to MoEF&CC vide online Proposal No. **IA/AS/IND/285957/2022** dated 09.08.2022 under Sl. No.3(b) Cement Plant as Category “A” ( $\geq 1.0$  MTPA) of the Schedule of EIA Notification 2006 (as amended).

The Proposal was considered in 13<sup>th</sup> meeting of Expert Appraisal Committee (EAC Industry-I) held during 14<sup>th</sup>-15<sup>th</sup> September, 2022 as Agenda Sl. No. 13.5. EAC was of the opinion that it is pertinent to undertake site visit to understand the ecological sensitivity of the area, overview of carrying capacity due to presence of other plant and mines unit and possible environmental/social impacts of the instant proposed project. Accordingly, the site visit was undertaken during 30-31.10.2022 by the Sub-Committee comprising of following Members:

1. **Dr. Dipankar Shome**, Vice Chairman & EAC Member.
2. **Dr. E V R Raju**, EAC Member.
3. **Dr. Sandeepan B.S**, Scientist ‘B’, MoEF&CC, New Delhi.

The Sub-Committee Report was placed and deliberated in 16<sup>th</sup> Meeting of EAC Industry-I held on 3<sup>rd</sup> November 2022 as Agenda Sl. No. 16.9 and accordingly CCIL has received the Sub-Committee Report vide MoEF&CC e-mail dated 4<sup>th</sup> November 2022 and submitted its confirmation on 4<sup>th</sup> November 2022 for acceptance and to undertake all suggestions/recommendations made by the Sub-Committee in the Report. Reconsideration of the Proposal “To Determine ‘TOR’ after Site Visit of EAC Sub-Committee” was held in 17<sup>th</sup> Meeting of EAC Industry-I held on 14<sup>th</sup> November 2022 as Agenda Sl. No. 17.3 and recommended TORs. The Ministry has **awarded the Additional TORs & Standard TOR with Public Hearing** vide Letter F. No. J-11011/306/2022-IA-II(I) dated 15.12.2022 . The baseline data pertaining to October-December 2022 (Postmonsoon Season) are utilised for the EIA Study.

The EIA Consultant, M/s. ABC Techno Labs India Private Limited, Chennai has been accredited for various Sectors including Sector-9 (Cement Plants) for Category ‘A’ by the National Accreditation Board for Education & Training (NABET), Quality Council of India vide Certificate NABET/EIA/1922/RA 0155 with validity extended till 27.01.2023 (Sl. No. 3 of QCI/NABET List dated 17.11.2022). The ABC Techno Labs India Private Limited Laboratory is accredited by the National Accreditation Board for Testing and Calibration Laboratories (**NABL**) vide Certificate No. TC-5770. The Lab is also recognised by the Ministry of Environment, Forest and Climate Change (**MoEF&CC**) vide Letter F. No. Q-15018/04/2019-CPW dated 14.10.2019 with validity of 5 years. The Summary EIA Reports (both in English and Assamese) along with Draft EIA Report have been submitted for conducting the Public Consultation & Public Hearing for the Project.

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## 2.0 Project Description

### 2.1 Resource Requirements

**Land Use :** The present land is Council Waste land which is converted into industrial use as allowed by the Revenue and Settlement Department of North Cachar (NC) Hills Autonomous Council, Haflong. No Forest Land is involved. Dima Hasao Forest Division (West) has issued a certificate stating 240 Bigha (32.12 Ha) Plant land and 40 Bigha (5.35 Ha) Approach Road is classified as “Revenue Waste (Khas) Land and Non-Forest Land” vide letter No. FRS/G/21/1(b)/PART/2019-20/840 dated 28.06.2022. Efforts are to be made to preserve existing well grown trees at the Site. If tree cutting is involved, PP has to obtain the necessary permission from DFO and carry out Compensatory Plantation as directed by DFO.

**Layout :** The allotted Site is of **1.6 km (L) x 0.2-0.3 km (W) dimension** (west-east) at south of adjacent New Umarangsho Limestone Mine. Optimum Layout (**Fig. 2.1**) is proposed with **33.01% Green Belt (12.37 Ha)** of native species. The proposed Land Use at Site is given in **Table 2.1**. **No Railway Sidings** (as no Railway line nearby), **no Township and no Workshop** are proposed. All **internal roads** are designed for minimum **6 m width and 9 m turning radius** for smooth traffic flow inside including fire tender as per NBC. Road network is connecting all service areas.

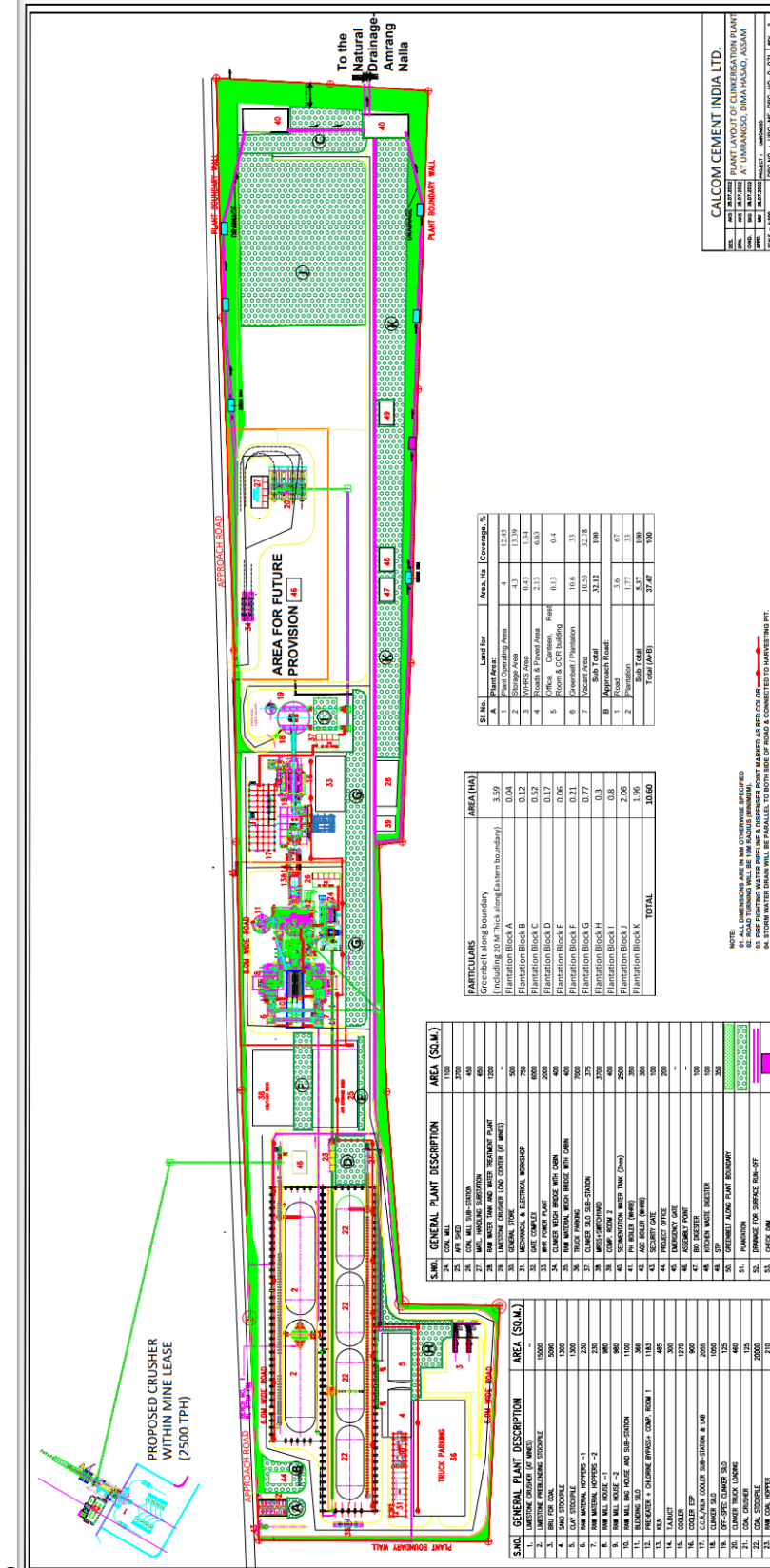
**Table : 2.1 Plant Land Use**

Sl. No.	Land Use	Area, Ha	Coverage, %
<b>A</b>	<b>Plant Area :-</b>		
1	Plant Operating Area	4.00	12.45
2	Storage Area	4.30	13.39
3	WHRS Area	0.43	1.34
4	Roads & Paved Area	2.13	6.63
5	Office, Canteen, Rest Room & CCR building	0.13	0.40
6	Greenbelt / Plantation	10.60	33.00
7	Vacant Area	10.53	32.78
<b>Sub Total</b>		<b>32.12</b>	<b>100</b>
<b>B</b>	<b>Approach Road :-</b>		
1	Road	3.58	67.00
2	Plantation	1.77	33.00
<b>Sub Total</b>		<b>5.35</b>	<b>100</b>
<b>Total (A+B)</b>		<b>37.47</b>	<b>100</b>

Garland drains in the eastern parts of the Site are proposed to channelize the rain water with 2 Nos. Settling Tanks (8,000 cu. m capacity) in NE corner and SE corner for settlement of suspended solids, if any, before discharge into natural drains/nallas. Also, the thickness of the Green Belt is proposed to be 20 m in this stretch.

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Fig. : 2.1 Plant Layout



CALCOM CEMENT INDIA LTD.  
PLANT LAYOUT OF CLINKERISATION PLANT  
AT UMRANGSO, DIMA HASAO, ASSAM  
SCALE: 1:1000 (AS PER DRAWING)

**Raw Material Requirements:** Details regarding raw material is given in **Table 2.2**.

**Table : 2.2 Raw Material Requirement, Source & Transportation**

Sl. No	Raw Material	Quantity (MTPA)	Source	Mode of Transport/ Approx. Distance
1	Limestone	5.45	Captive Limestone Mine (New Umarangshu)	Road/ adjacent
2	Hill Sand	0.3	Will be purchased locally	By road/~10 km
3	Coarse Sand (Silica)	0.1	Will be purchased locally	By road/~45 km

**Fuel/Coal Demand :** CCIL will use indigenous/imported Coal and Petcoke as primary feed. Mix of indigenous fuel will be the primary fuel for the plant. This will be further substantiated with AFR as may be available. Provision for Alternate fuel (AFR) firing system shall also be considered for upto 35% TSR (Thermal Substitution Rate) (**Table 2.3**). Necessary processing, storage and feeding system will be provided in the Plant.

**Table : 2.3 Fuel Demand**

Sl. No.	Name of Fuel	Quantity Required (MTPA)	Calorific value (Kcal /kg)	Ash (%)	Sulphur (%)	Source	Mode of Transportation / Approx. Distance
		Total					
1	Coal (Indian and Imported)/ Petcoke	0.75	4000-7500	24-4	<8	Local/ Assam/ Meghalaya/ South Africa/ Australia/ Indonesia	Imported coal by rail upto Lanka and thereafter by road/ (From Nearest Port Diamond Harbor)/ Local Coal by Road
2	AFR	0.03	3000	5	<3	Purchase from local area	By Road

**Power Demand :** The Power requirement for the proposed plant is estimated to be about 30 MW. Power will be sourced from 132 kV sub-station of Assam Power Distribution Company Ltd (APDCL) & stepped down to 11kV at plant and Proposed WHRS (16 MW). DG set of 750 KVA is proposed for back-up/emergency.

**Water Demand :** The water requirement for the proposed plant is **1250 KLD** (**Table 2.4**) which will be sourced from nearby flowing Longlai river, Amrang nalla, other rivers/ streams, Nallah, within a radius of 25 km of the Plant site. **No ground water drawl** is proposed.

**Table : 2.4 Raw Water Demand**

Description / Area	Water Demand, KLD
Cement Plant	750
Waste Heat Recovery System (WHRS)	400
Drinking and Sanitation	50
Landscaping and Gardening	50
<b>Total</b>	<b>1250</b>

**Manpower:** The proposed project will generate temporary and contractual employment during construction phase and Operation Phase which is 146 & 206 respectively. The company will give preference to local people in employment. In addition, approx. 2000 (max.) contract labours will also be employed at peak stage of construction which will be sourced locally to the extent possible. Apart from the above, various indirect employment opportunities are envisaged by way of transportation, workshops, petty contractors, network of retailers (cement stockists) throughout the state and in its marketing regions. Thus, the project will have positive impact on the employment pattern of the region and state.

## 2.2 Process

**Clinkerisation :** Clinker manufacturing process is based on **Dry Process** technology (**Fig. 2.2**) involving :

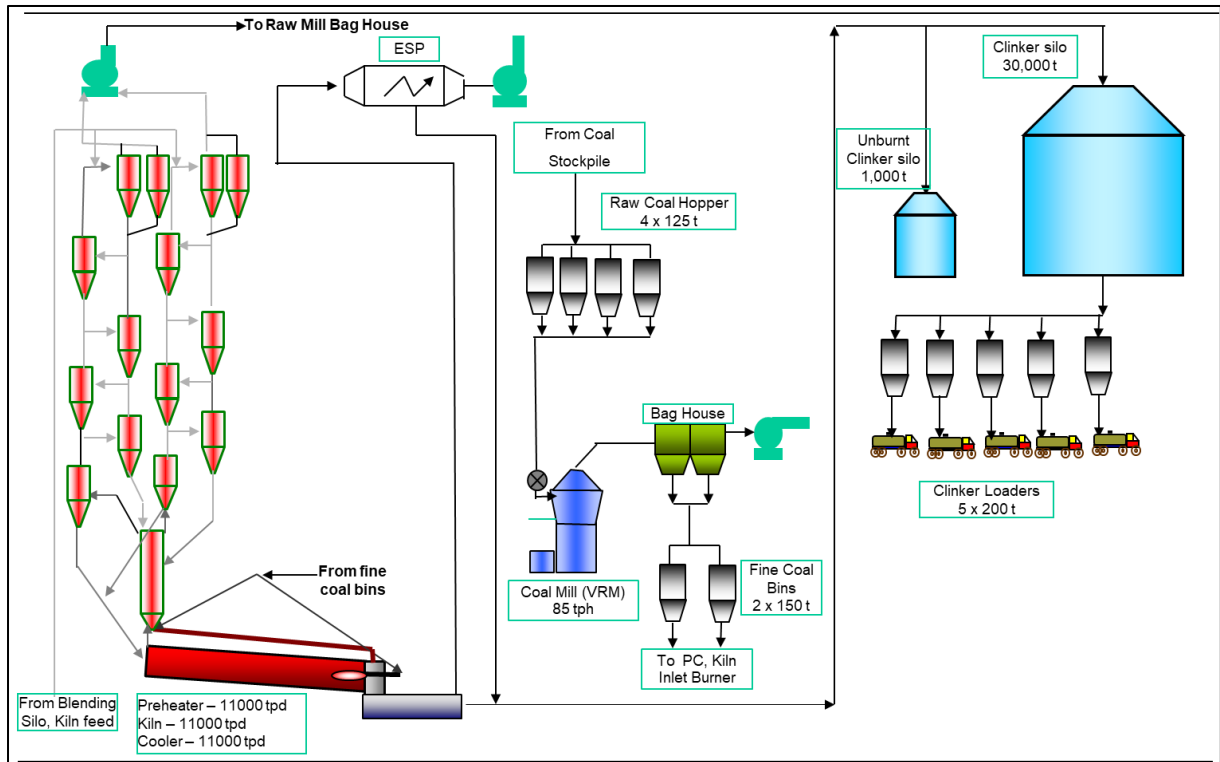
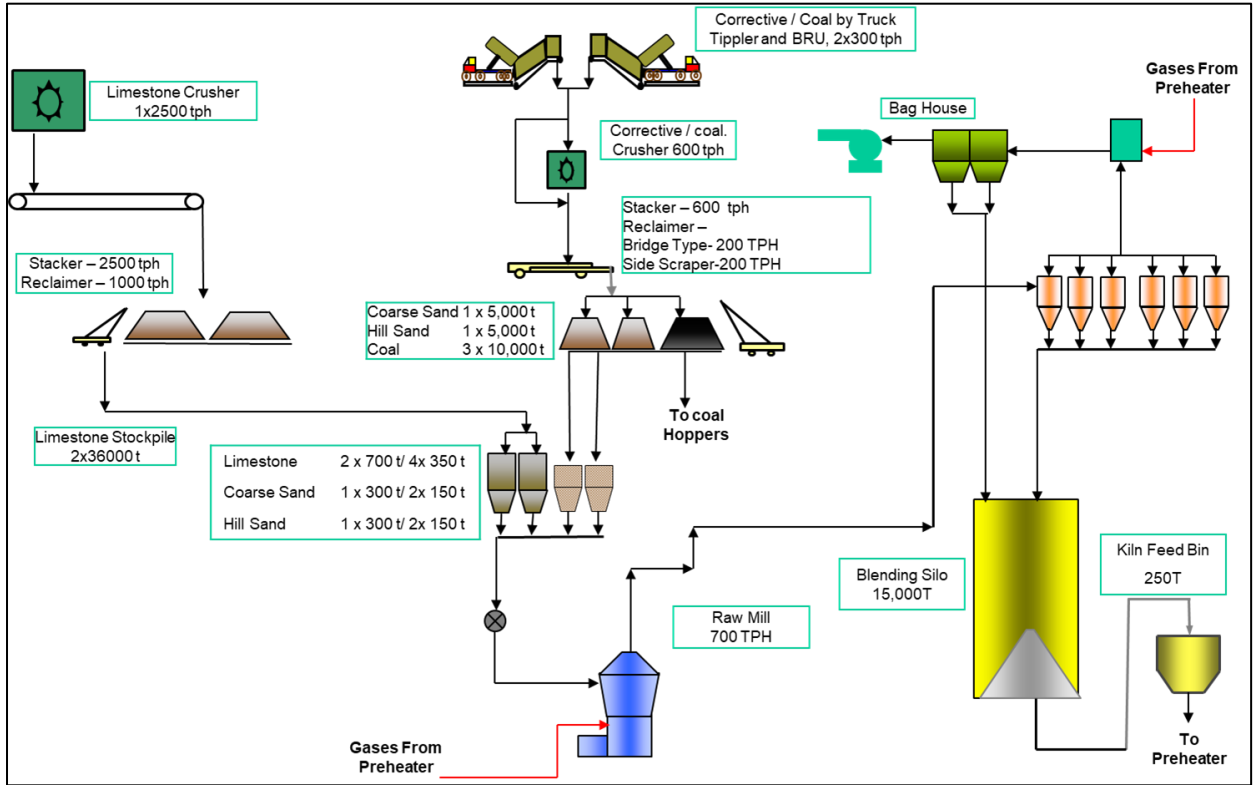
1. Limestone Quarrying and crushing (in the Lease).
2. Conveying of crushed limestone to the Plant by covered conveyor belt.
3. Storage of raw material in covered storage yard/silos
4. Raw Mix Preparation & Homogenization - Grinding the proportioned materials to a high degree of fineness.
5. Preheating, Calcination & Clinkerization - Pyroprocessing the raw mix in a Rotary Kiln to produce Clinker.
6. Cooling, Storage and Transport of Clinker to Cement Grinding Units.

Adequate **storage facilities** will be provided for the storage of raw materials & finished product.

**WHRB :** The Waste Heat coming out of Pre-heater and cooler, will be used in Waste Heat Recovery Boiler to produce low pressure steam which will be fed to turbine to produce power of 16 MW. WHR boiler will be based on steam ranking cycle and envisaging recovery of heat from exhaust gases at two points viz. pre-heater and clinker cooler (tapping at exhaust or mid-cooler). Steam generated in the boiler will be used in the turbine to generate electricity in the generator.

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Fig.: 2.2 Process Flow sheet and Mass Flow Diagram





## 2.3 Key Pollution Concerns

**Air Pollution :** Adequate Air Pollution Control Equipments are proposed (Table 2.5).

**Table : 2.5 Details of Air Pollution Control Equipments**

Sl. No.	Location	Type of APCE
1	Raw Mill and Kiln	Bag House
2	Coal Mill	Bag House
3	Clinker Cooler	ESP

**Water Pollution :** No wastewater will be generated from clinker manufacturing process. However RO Rejects and Boiler blow downs (total **136 KLD**) will be treated in ETP and treated water will be reused back in process/ dust suppression & Green Belt. Domestic sewage of 40 KLD will be treated in a **50 KLD STP (Extended Aeration)**. Treated water will be re-used for greenbelt development. '**Zero Liquid Discharge**' will be adopted.

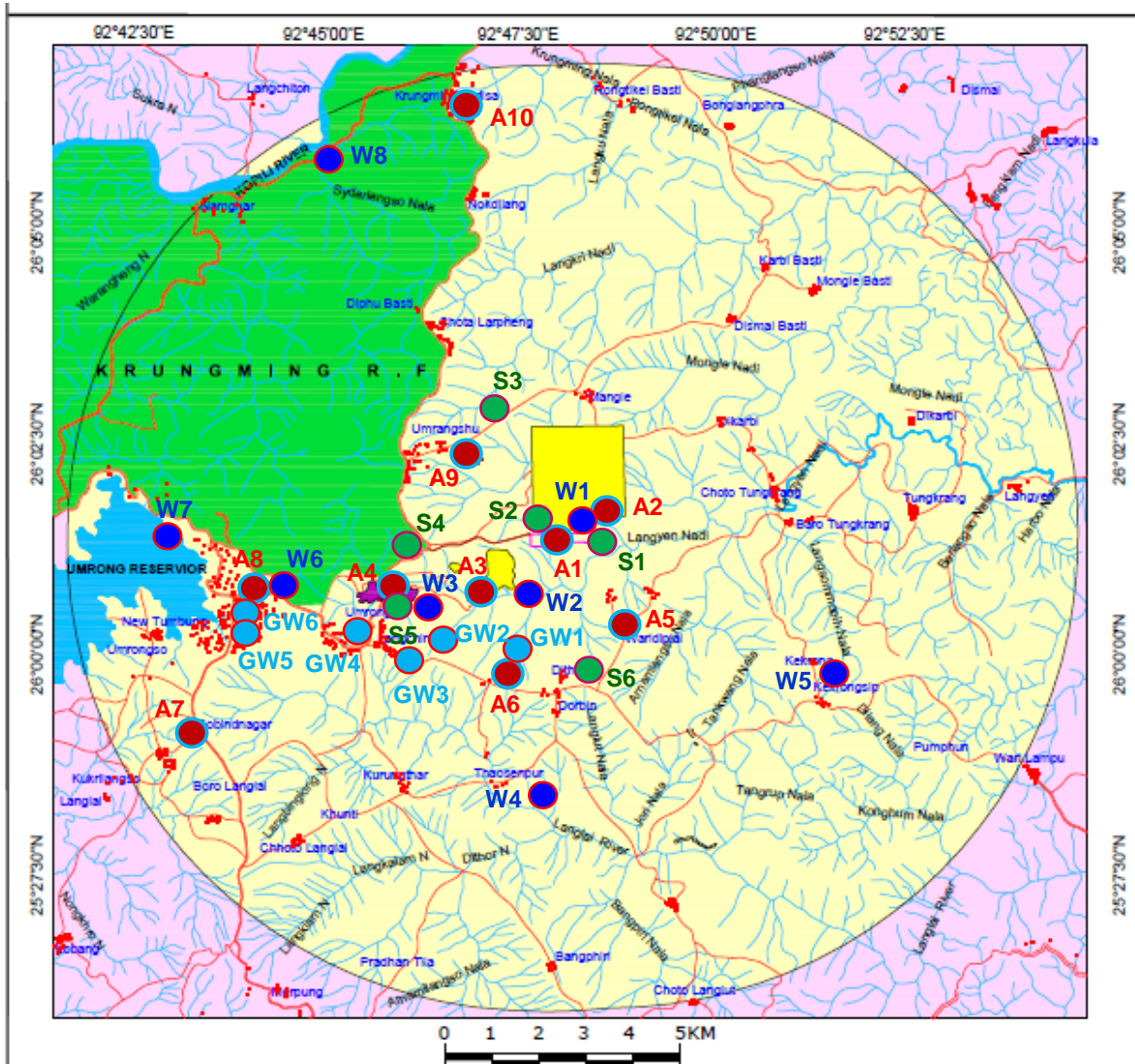
**Solid/Hazardous Wastes :** Dust collected from various air pollution control equipment is estimated to be about 10,000 Tons/month which will be recycled back into the process. Used Oil & Grease (Cat. 5.1) (2 KL/Month), Contaminated Cotton Rags (Cat. 33.2) (0.5 Tons per Month), Empty barrels/containers/liners contaminated with hazardous chemicals/wastes (200 Nos./annum) will be generated and stored in the designated area & will be disposed-off/sold to Authorized recyclers/ actual user as per HWM Rule, 2016. Used Oil & Cotton rags can be co - processed in Kiln. STP Sludge (0.4 kg/day) will be used as manure for greenbelt development.

## 3.0 Baseline Environmental Studies

Project Area dose not fall in **Critically Polluted Industrial Clusters** listed by CPCB. The study area of 10 km radius (from boundary) (**Fig. 3.1**) has been considered for assessing the baseline environmental status-**Cumulatively**. Considering the Environmental setting of the project, project activities and their interaction, environmental regulations and Standards, following Environmental Attributes have been included in EIA Study :

1. Site specific Micrometeorological Data (hourly readings from CAAQMS at CCIL Plant) on wind speed, wind direction (wind roses), temperature, humidity, cloud cover, rainfall, etc.
  2. Ambient Air Quality Monitoring on 1/8/24-hourly basis, continuously for 2 days in a week for 4 weeks in a month for a season as per NAAQ Norms at 10 Locations for all 12 parameters as per NAAQ Norms, revised as per GSR 826(E) dated 16.11.2009.
  3. Noise Level Measurements at all air quality monitoring station for Leq, Lday and Lnight times once in the season.
  4. Water Quality Monitoring – grab sampling once in the Season for Surface Waters at 8 Locations as per CPCB Norms and Ground Waters at 6 Locations as per IS:10500 Norms.
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**Fig. : 3.1 Environmental Quality Monitoring Stations**



**Legend :-**

- Ambient Air Quality & Noise Monitoring Stations
- Surface Water Quality Monitoring Stations
- Ground Water Quality Monitoring Stations
- Soil Quality Monitoring Stations

- A1-Proposed Site Area
- A2-New Umrangshu Mine
- A3-Jamunanagar Mine
- A4-CCIL Plant (16 Kilo)
- A5-Waridiplai Village
- A6-Dithur Village
- A7-Gobindnagar
- A8-Umrangso Town (12 Kilo)
- A9-Umrangshu Village (19 Kilo)
- A10-Krungminglangdisa (29 Kilo)

- W1-Amrang Nala
- W2-Langyen Nadi
- W3-Langjuri Nala
- W4-Langlai River (Plant Intake Point)
- W5-Langsommopih Nala
- W6-Pond, NEEPCO Colony
- W7-Umrong Reservoir
- W8-Miyungmadaoga Water Falls

- GW1-Springwell, Dithur
- GW2-Springwell, Langchirui
- GW3-Dugwell, Langriya (15 Kilo)
- GW4-Springwell, Langrong
- GW5-Borewell, Umrangso (Lily Hotel Road)
- GW6-Dugwell, Umrangso

- S1-Proposed Site
- S2-OB Dump, NU Mine
- S3-Jhum Cultivation Area, Umrangshu
- S4-Krungming RF
- S5-Green Belt, CCIL Plant
- S6-Barren Land, Dithur (Opp. To Kopili Tea Garden)

5. Soil Quality Monitoring at 6 Locations during the Season for Physical, Textural & Nutrients.
6. Land Use pattern based on Satellite Imagery.
7. Biotic Attributes for : Flora & Fauna - Core & Buffer zones.
8. Socio-Economic Profile, based on 2011-Census & Household Surveys/FGD once in the study period for : Total Population / Household Size / Age, Gender Composition, S.C / S.T, Literacy Level, Occupational Structure, etc.
9. Traffic Study on NH-627 ((Lanka-Umrangso-Haflong Section): 1 Location

Monitoring Works are shown in **Plates IV-V**. The findings of baseline environmental status of the Study Area are summarized in **Table 3.1**.

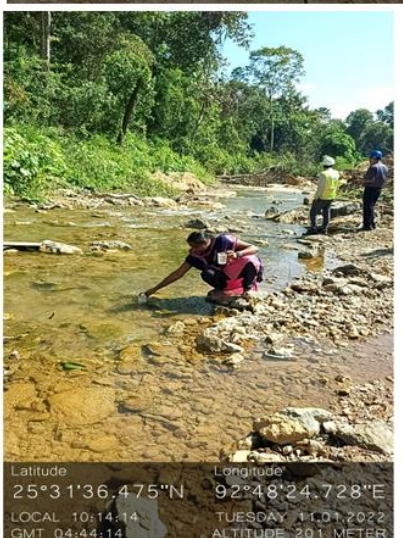
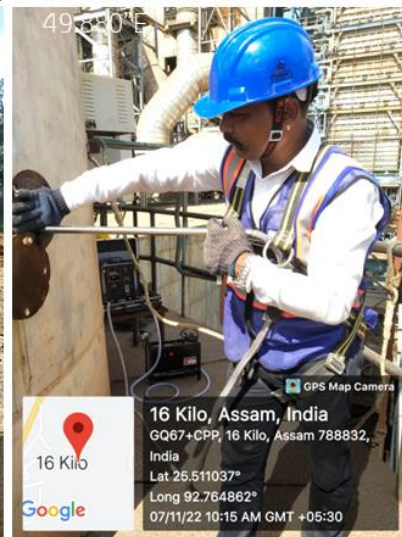
**Table : 3.1 Environmental Baseline Status**

Envl. Component	Parameters	Minimum	Maximum	Mean	Applicable Norms
Ambient Air Quality (24-hly), ug/m <sup>3</sup>	PM2.5	10	35	19.2	60
	PM10	17	64	37.1	100
	SO <sub>2</sub>	6	17	10.1	80
	NO <sub>x</sub>	6	21	12.3	80
Ambient Noise, dB(A)	Leq-day	38.9	50.7	42.8	55
	Leq-night	37.4	52.3	41.0	45
Surface Waters	TDS, mg/l	55	280	-	500/2100
Ground Waters	TDS, mg/l	105	280	-	500-2000
Soil Status	Texture	-	-	Silty Loam	-
	EC, mmhos/cm	1.12	1.52	-	0.2-0.5
	SAR	2.07	2.94	-	<5

Legend : PM2.5-Particulate Matter size less than 2.5 um; PM10-Respirable Particulate Matter size less than 10 um; SO<sub>2</sub>-Sulphur dioxide; NO<sub>x</sub>-Oxides of Nitrogen; Leq-Day & Leq-Night : Equivalent Noise Levels during Day & Night Times; TDS : Total Dissolved Solids; EC-Electrical Conductivity & SAR-Sodium Absorption Ratio.

1. The collected meteorological data during this season represented local weather phenomena.
2. While comparing with the National Ambient Air Quality (NAAQ) Standards, **all monitored values were found to be well within the respective limit values for 24-hourly periods** for Industrial, Residential, Rural and other Areas. **Study Area is falling under Low Pollution Category.**
3. Ambient equivalent Noise Levels (Leq) during day and night times were found to be well within the MoEF&CC Norms. Workzone Noise Levels were well within the Limit of 85 DB(A) for 8-hours exposures.
4. The water quality of surface waters were found to be in compliance with CPCB/BIS Norms.
5. The ground water quality was found to be in compliance with the IS:10500-2012 Norms.
6. The soil in the study area would very well support vegetation after amending it suitably.
7. There is no eco sensitive area exists in the study area.
8. The area is thinly populated with low infrastructures.

**Plate : IV Baseline Monitoring Stations**



**Plate : V Baseline Monitoring Stations**



Assam 788931, India  
 Latitude 25°29'28.972"N Longitude 92°51'30.910"E  
 LOCAL 11:58:01 WEDNESDAY 11.02.2022  
 GMT 06:28:01 ALTITUDE 529 METER



GP6M+HW9, Umrangso, Assam 788931, India  
 Latitude 25°30'40.204"N Longitude 92°44'4.756"E  
 LOCAL 12:26:03 TUESDAY 11.01.2022  
 GMT 06:56:03 ALTITUDE 594 METER



LAKE ATHABASCA CANADA  
 Latitude 25°32'44.933"N Longitude 92°47'10.560"E  
 LOCAL 09:53:58 THURSDAY 11.03.2022  
 GMT 04:23:58 ALTITUDE 417 METER



**Focussed Group Discussions at Umrangshu Village (19 Kilo) on 02.11.2022**



**HH Survey at Waridiplai**



**HH Survey at Kekrangship**

## 4.0 Anticipated Environmental Impacts

Any Project would create impact on the environment in two distinct phases viz. Construction Phase which may be regarded as temporary & short term and Operation Phase which would have long term effects. The impacts have been assessed for the Project by assuming that the **existing industrial activities has already been covered under baseline environmental status** and continue to remain same till the operation of the Project.

### 4.1 Construction Phase

Site is vacant. Thus, there will be no demolition works. About 161,000 cu.m excavated earth is anticipated & entire quantity will be utilized within the Site. No earthworks will be disposed outside/stored outside the plant premises. Top soil will be stored separately & subsoil including other earthworks will be simultaneously used for levelling & bunding. The top soil will be used as top cover for greenbelt development. Construction materials as available locally such as sand (from **approved quarries**), steel, (own) cement, metal will be sourced.

On an average, 10-12 Truck loads/day (for transporting all construction materials) will be visiting the site during the construction period. Due to existence of NH-627 and own Approach Road, there will not be any adverse impact to existing traffic volume in the vicinity.

The construction water requirement of about 200 KLD will be met from existing Plant water storage/nearby nalla/other surface water resources. Local Labourers will be engaged and provided with all Personal Protective Equipments (PPEs) like Mask, Gloves, etc. Sanitization will be ensured at workplaces. Water, electricity, toilet facilities, etc. will be provided for Construction Labours during the Construction Phase. Thus, the Construction Phase activities will not cause any significant adverse impact on the environment. Plant construction activities will be completed in about **18 months**, after obtaining all statutory approvals. Life of the Plant will be about **50 years**.

### 4.2 Operation Phase

#### 4.2.1 Impact on Air Quality

The Plant operations will be in compliance with new Emission Standards issued by MoEF&CC for Cement Industry vide Notifications dated 25.08.2014 and amended on 09.05.2016 & 10.05.2016 as below :

PM Emissions from all Major Stacks : <30 mg/Nm<sup>3</sup>

SO<sub>2</sub> Emissions from Kiln Stack : <1000 mg/Nm<sup>3</sup> (Pyritic Sulfur >0.5 %)

NO<sub>2</sub> Emissions from Kiln Stack : <600 mg/Nm<sup>3</sup> (rotary Kiln In-Line Calciner).

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**SO<sub>2</sub> Control :** There is high pyritic sulfur (0.57%) reported in the limestone. The fuel sulfur will also contribute for SO<sub>2</sub> generation. In view of this, SO<sub>2</sub> emission level in the plant is expected to be higher. Pyro-process itself acts as a long SO<sub>2</sub> scrubber but by seeing high sulfur content in limestone, CCIL is proposing to install **De-SOX system** and the SO<sub>2</sub> emission shall further reduce.

**NO<sub>x</sub> Control :** The company will take adequate measures to keep NO<sub>x</sub> at the minimum level. These measures include installation of low NO<sub>x</sub> Calciner, Low NO<sub>x</sub> burner and usage of Alternate Fuel (AF). CCIL is considering the use of AF including plastics and proposes to install upgraded processing and feeding system. Usage of AF would help to control NO<sub>x</sub> level further.

In compliance with existing **CREP Guidelines** for the Cement Industry, **fully Covered Conveyors, Sheds and RCC Silos** are proposed for Raw Materials & Clinker Storages to control the Fugitive Emissions. **All material transportations** will be done in fully closed/covered conveyors and environmentally compliant.

**Prediction Modelling : AERMOD View (9.6.5 Version)** is used for the Prediction Modelling for **applicable Parameters PM2.5, PM10, SO<sub>2</sub> & NO<sub>x</sub>**. The Model was run for both Existing Plant & Mine Operations and Proposed Plant operations. The predicted GLCs (cumulative impact) are given in **Table 4.1**. There will be **adequate Buffer (51-66%)** in the Air Environment.

**Table : 4.1 Predicted GLCs**

Sl. No.	Pollutant	Background Concentration (24-hly. Avg.), ug/m <sup>3</sup>	Max. Predicted Ground Level Concentration, ug/m <sup>3</sup>	Distance from the Site (max.), km	Total Concentration, ug/m <sup>3</sup>	NAAQ Norms, ug/m <sup>3</sup>	Buffer Available in the Atmosphere
1	PM2.5	19.2	4.99	1.4	<b>24.19</b>	60	<b>59.68</b>
2	PM10	37.1	11.67	1.4	<b>48.77</b>	100	<b>51.23</b>
3	SO <sub>2</sub>	10.1	18.54	1.4	<b>28.64</b>	80	<b>64.20</b>
4	NO <sub>x</sub>	12.3	15.19	1.4	<b>27.49</b>	80	<b>65.64</b>

#### 4.2.2 Noise Levels/ Impact on Ambient Noise Quality

The noise level within the plant at a distance of one meter from the source shall be maintained at <85 db(A) for 8-hours exposure. Noise level at nearest plant boundary will be <55 dB(A) during day times and <45 dB(A) during night times. Thus, the noise levels will be well within the permissible MoEF&CC Norms for Residential Areas.

#### 4.2.3 Impact on Traffic Volume

For assessing the baseline status, the Traffic Survey based on Indian Road Congress-**IRC:64** (Guidelines for Capacity of Roads in Rural Areas) **Norms** at the Approach Road-NH 627 Junction

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during the Week end (Sunday; 30.10.2022) and also during a Week Day (Wednesday; 02.11.2022). Based on the Survey, the existing traffic volume in the Project vicinity was found to be **1022.6 PCU/day @ 42.61 PCU/hour**. In the Post-Project Scenario, there will be an addition of 971 vehicles (2919 PCU/day) to the existing traffic in the vicinity due to New Clinkerisation Unit at 19 Kilo. **The net (cumulative) traffic volume will be 3941.6 PCU/day only @ 164.23 PCU/hour**. The revamped 2-Lane NH627 will be adequate to handle the proposed addition of traffic volume.

#### **4.2.4 Impact on Surface Waters Resource and Quality**

The region constitutes the eastern flank of the Shillong Plateau, more specifically 'Kopili Plateau' of Umrangso. The project site area falls under "Structural Origin-Low Dissected Hills and Valleys". The structural valley resulting from Haflong-Disang thrust trending ENE-WSW forms a curvy-linear valley (with thin alluvial sediments) along southwestern part. The plant site has undulating topography with cliff faces. The topography is very rugged involving frequent uplifts. Some springs are encountered in the study area due to its rugged topography. This First / Second Order streams join in the valley area to form nallas or nadis in the region. Amrang (Amlong) Nalla is one of the streams flows adjacent to the site (about 140 m) in the valley sloping toward east and confluences into Langyen Nadi which flows at 0.25 km distance in SE. These nallas from the region confluence into Diyung River flowing in northeast which finally confluences into Kopili River.

Though number of streams generate and flow as nallas in the region, heavy flood is not common occurrence due to hilly terrain/topography of the region. There is no flood hazard to the site due to the nallas flowing in the foothills. No Natural water resources will be disturbed/realign because of the proposed plant. Looking into the site conditions, as ground water abstraction and recharge is not possible, storm water drains along with retaining walls will be constructed to channelize the rain water and will be released in natural drainage after proper sedimentation.

Waste water will also be not discharged out of plant boundary. Waste water will be treated in STP/ETP and treated water will be reused within plant itself. Hence, no impact is anticipated from the proposed plant on Natural surface water resources and quality.

#### **4.2.5 Impact on Ground Waters Resource and Quality**

There is no ground water tapping proposed for the Industrial needs, Thus, there will not be any impact on the ground water regime.

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#### **4.2.6 Impact on Terrestrial and Aquatic Habitat**

The plant will not have any significant impact on surrounding ecology and biodiversity and 33% green belt in and around the plant boundary are proposed. No waste water will be discharged in any natural water resources outside plant boundary, neither any natural water course will be disturbed, therefore impact on aquatic habitat is not envisaged.

#### **4.2.7 Impact on socio-economic environment**

The plant shall be contributing revenue to the State & Central Govt. exchequer after start of operation. The proposed plant will generate employment during construction (146) & operation phase (206). During construction, about 2000 contractual labours will get employment opportunity. It is likely that the project will generate 10 lakhs man days of employment during construction. Also, proposed plant will contribute to various indirect employment & business opportunities like network of retailers in its marketing regions, maintenance & housekeeping contract, transportation, workshops, shopkeepers. It will strengthen their economic conditions & improve standard of living. Employment opportunities however is limited and require certain skill set. The area is dominated by tribal population, in order to maximise the benefits and improve the socio-economic status of the people, various socio-economic developmental activities by imparting livelihood trainings, creation of self-help groups, Health care / medical facilities, education facilities to underprivileged, social awareness & development programmes, Sanitation facilities etc. are undertaken by CCIL.

### **5.0 Alternative Analysis**

CCIL has considered 3 viable Sites to set up the proposed Clinkerisation Plant in the Assam State viz. existing Standalone grinding unit at **Lanka (Site-1)**, existing Clinkerisation Plant at **16 Kilo Umrangso (Site-2)** and Pit Head Site at **19 Kilo Umrangso (Site-3)**. All siting criteria are analysed and identified **Site-3 is environmentally and techno-economically feasible Site** for the Proposal.

### **6.0 Environmental Monitoring Programme**

**Continuous online stack monitoring equipment/systems** for PM, SO<sub>2</sub> and NO<sub>x</sub> will be installed at all main stacks and the online real time monitoring data is being transmitted to SPCB & Central Pollution Control Board (CPCB) servers continuously. **One number Continuous Ambient Air Quality Monitoring Stations** will be installed in the Plant for online real time monitoring data which will be connected to CPCB & SPCB Servers round-the-clock. Data on PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub> and NO<sub>x</sub> will be displayed outside the premises for the general public view also.

Periodical monitoring of the ambient air quality as per Revised NAAQ Norms, fugitive emissions (4 locations), stack emissions, noise levels (at boundaries), water (once in a season) and soil

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quality (once in a season) shall be undertaken. The periodical status reports shall be submitted to SPCB monthly, and MoEF&CC, Regional Office, Guwahati as Half Yearly Status Reports.

Greenbelt/plantation will be developed @2500 trees/ha over an area of 12.37 ha i.e. 33% of the total project area (10.6 ha within Plant area & 1.77 ha along proposed approach road). Survival rate of green belt developed shall be monitored on periodic basis to ensure that damaged plants are replaced with new plants in the subsequent years.

## **7.0 Additional Studies**

Risk assessment: Detailed risk assessment and mitigative measures are delineated and an effective Disaster Management Plan, for natural and man-made disasters, is in place.

Public Hearing: Public Hearing will be conducted and as per OM dated 30<sup>th</sup> Sept., 2020, & OM dated 20<sup>th</sup> Oct., 2020 implementation of various Socio-Economic Developmental activities on the basis of the issues raised during Public hearing will be made part of EMP cost.

## **8.0 Project Benefits**

**Environmental Benefits** : Plantation is proposed on 12.37 Ha area i.e. 33% of total project area (10.6 ha within Plant area & 1.77 ha along proposed approach road). WHRS will convert waste heat into productive use. Waste including Hazardous waste of industries, can be used as AFR in sustainable manner by co-processing in kiln. The numerous potential benefits possible through the use of hazardous and other wastes in cement manufacturing processes as AFR include: the recovery of the energy content of waste, conservation of non-renewable fossil fuels and natural resources, reduction of CO<sub>2</sub> emissions, and reduce the problem of disposal of HW and thus reduce contamination.

**Social Benefits** : The region is underdeveloped & remote. This plant will help to meet gap of unemployment prevailing in area & uplift socio-economic status of area by way of direct (352) & indirect employment opportunities. During construction, about 2000 contractual labours will get employment opportunity. It is likely that the project will generate ~10 lakhs man days of employment during construction. There is no other major employment potential in this region and recently the area has been freed from insurgency so this project will give gainful employment directly and indirectly to youth of this district.

**Financial Benefits** : This project will boost the economy of the area as well as generate direct & indirect employment opportunities resulting in overall development of the region and enhanced revenue to the Central & State exchequer in the form of Revenue from the captive mine as well as plants.

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## **9.0 Environmental Management Plan**

An Environmental Management Plan (EMP) is formulated for mitigation of adverse impacts and is based on present environmental status and impact appraisal. It is mandatory to comply with the various regulatory Norms for Prevention and Control of Pollution. The following environmental management plans are proposed for mitigation of impacts on the environment :

### **9.1 Construction Phase**

1. PPE shall be provided to the construction workers.
2. Construction employees shall have access to the safe drinking water and to existing Toilet facilities.
3. Protection devices viz. ear plugs/ear muffs shall be provided to the workers during welding works.
4. Smooth flow of traffic should be ensured on the internal roads to avoid idling of vehicles.
5. All the debris resulting from the site shall be disposed off effectively as per existing Norms.
6. EMP Cell ensure the periodical Monitoring of Environmental Parameters during the Construction Period and ensure its compliance with Norms.

### **9.2 Operation Phase**

#### **9.2.1 Air Quality Management Plan**

1. All efforts shall be undertaken to maintain the PM emission levels from the main stacks as  $<30 \text{ mg/Nm}^3$ .
2. NO<sub>x</sub> emission levels from Line-II with New Kiln shall be  $<600 \text{ mg/Nm}^3$ .
3. The periodical evaluation for the efficiency performance of ESPs and Bag Filters shall be carried out.
4. Fugitive emissions due to storage, transportation, etc. and the leakages and spillages shall be continuously monitored and controlled.
5. Thermal insulation is provided wherever necessary to minimize heat radiation from the equipment, piping, etc, to ensure protection of personnel.
6. Periodical Ambient Air Quality and Stack Emissions shall be undertaken and the Status Reports shall be submitted to the Authorities as required.

#### **9.2.2 Noise Quality Management Plan**

1. All rotating items are well lubricated and provided with enclosures as far as possible to reduce noise termination.
  2. Extensive vibration monitoring systems are provided to check and reduce vibrations.
  3. For all fans, compressors etc. vibration isolators are provided to reduce noise.
  4. Provision of silencers are made wherever possible.
  5. Proper lubrication and housekeeping are maintained.
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6. The operator provided with necessary safety and protection equipment like ear plugs, ear muffs etc.

### **9.2.3 Land Environment (Solid & Hazardous Waste Management Plan)**

1. Dust collected from various air pollution control equipment is estimated to be about 10,000 Tons/month which will be recycled back into the process.
2. Used oil & Grease (Cat. 5.1) (~2 KL/Month), Contaminated Cotton Rags (Cat. 33.2) (~0.5 Tonnes per Month), Empty barrels/containers/liners contaminated with hazardous chemicals/wastes (~200 Nos./annum) will be generated, stored in the designated area and disposed-off/sold to Authorized recyclers/ actual user as per HWM Rule, 2016.
3. Sludge (~0.4 kg/day) from STP will be used as manure in greenbelt development / Plantation.
4. Refractory bricks (~165 Tons/month) due to wear & tear will be replaced once in a year, it has high recycling values hence will be sold to outside agencies.
5. Redundant machinery or equipment scraps (~1200-1300 Tons/Annum) as and when generated, will be segregated, stored and sold to the authorised recyclers.
6. Municipal solid waste (~100 kg/day) generated from plant and will be disposed off after segregating into bio –degradable and non- biodegradable waste. Bio –degradable waste will be composted & will be used as manure in greenbelt development. Non-biodegradable waste will be disposed off suitably.
7. Used Lead acid batteries (~600-800 Nos./annum, or 5.0 Tons /annum) will be generated which will be stored in the designated storage area and will be disposed off / sold to registered vendors as per prevalent rules.

### **9.2.4 Water Environment/ Effluent Management Plan**

1. No ground water tapping for industrial use.
2. Water consumption shall not be more than the consented quantity.
3. No trade effluent shall be discharged from the Plant.
4. Cooling water is put into closed circuit to minimize the evaporation losses.
5. The domestic sewages from the Plant shall be treated effectively in the STP so to meet the SPCB Discharge Norms and the treated sewage shall be used for Green Belt.
6. 'Zero Effluent Discharge' shall be practiced.
7. No percolation of treated water to the deep ground water table is done.
8. Periodical monitoring for specific parameters shall be done regularly.

### **9.2.5 Storm water management plan**

1. Garland drains are proposed in the eastern parts of the Site, with check dams/Baffles made of biodegradable/ geotextile material at adequate intervals.
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2. 2 nos. of Settling Tanks in the northeast corner and southeast corner are proposed for settlement of sediments & suspended solids, if any, before the discharge into natural drains/nallas.
3. Also, the thickness of the Green Belt is proposed to be 20 m in this stretch.

### **9.2.6 Occupational Health**

CCIL is operating an **Occupational Health Centre at nearby unit** for supporting the health care needs of employees & their families. The facility of existing **Occupational Health Centre at nearby unit** will be extended for the proposed plant. Periodic Health tests (Pulmonary test, Audiometric test, blood test, chest x-ray examination etc.) will be conducted every year for the employees.

### **9.2.7 Green belt development plan**

1. Out of the total plant area; 33% i.e. 10.6 ha area including the laydown area, will be covered under greenbelt development / plantation with a tree density shall not less than 2500/Ha. Plantation will also be done along proposed approach road. Also, the thickness of Green Belt towards eastern side of plant, is proposed to be min. 20 m.
2. Green Belt shall be maintained effectively. Survival rate of green belt developed shall be monitored on periodic basis to ensure that damaged plants are replaced with new plants in the subsequent years.
3. Local species and fruit bearing trees may also be developed to have a thick canopy cover.
4. The treated sewage shall be used fully for the Green Belt development.

### **9.2.8 Socio-economic management plan**

1. As per OM dated 30<sup>th</sup> Sept., 2020, & OM dated 20<sup>th</sup> Oct., 2020 implementation of various Socio-Economic Developmental activities on the basis of the issues raised during Public hearing will be made part of EMP cost.
2. As per the Companies Act 2013, Companies should spend at least 2% of the Profit after Tax of the previous year for the CSR activities but not lower than 2% of average of previous three years Profit after Tax.
3. CCIL is presently carrying out various Socio Measures for the local as well as regional populations which shall be continued as per existing CSR Norms.

### **9.2.9 Project Cost & EMP Implementation Budget**

Project Cost is **Rs.2240 Crores**. A budgetary allotment of Rs.120 crores has been made as Capital Cost for EMP Measures and Rs.20 crores per annum towards Operating Cost.