Ambuja Cement

Ref: ACL/BYT/ENV/2022-23/126

Date: 29.11.2022

To,
Regional Officer,
Integrated Regional office,
Ministry of Environment, Forest & Climate Change,
Aranya Bhawan , North Block ,
Sector-19, Naya Raipur, Atal Nagar,
Chhattisgarh 492002.

Sub: Submission of Half Yearly Environment Clearance Compliance Report along with Environmental Monitoring Report for the period **April 2022 to September 2022** for Maldi-Mopar Limestone Mines.

Ref: EC letter no. J-11015/252/2008-IA II (M) dated 13th August 2010.

Dear Sir,

Please find the enclosed herewith the six monthly Environment Clearance compliance report along with Monthly Environmental Monitoring report from **April 2022 to September 2022,** for Maldi-Mopar Limestone Mines Located at Maldi, Mopar, Devrani, Karmadih and Boirdih Village, Balodabazar Tehsil, Balodabazar Dist. Chhattisgarh.

This is for your kind information and record.

Thanking you.

Yours Sincerely,
For Ambuja Cements Limited
(Unit: Bhatapara)

(Mahaveer Singh Bolia)
Chief Operations Manager

Encl.: Six Monthly Environment Clearance compliance report along with Environment Monitoring report.

Copy to:

1. Central Pollution Control Board, Zonal Office, Sahkar Bhawan, North T.T. Nagar, Bhopal -462003.
2. The Member Secretary, Chhattisgarh Environment Conservation Board, Paryavas Bhavan, North Block Sector-19, Atal Nagar (C.G.) 490099.
3. The Regional Officer, CECB, Kabir Nagar Commercial Complex ,Chhattisgarh Housing Board Colony, Kabir Nagar, Raipur (C.G.)

AMBUJA CEMENTS LIMITED
(Unit - Bhatapara)
Village & PO. : Rawan, Tehsil Balodabazar, Dist.: Baloda, Bazar-Bhatapara, Chhattisgarh- 493 331
Ph.: 07727-220010 to 15, Fax: 077277220004
CIN: L2694GJ1981PLC004717, Website:www.ambujacement.com
Regd. Office: PO: Ambuja Nagar, Taluka: Kodinar, District: Gir Somnath,, Gujarat, 362715

Environment Clearance Half Yearly Compliance Report
(April 2022 – September 2022)
Of

Maldi Mopar Limestone Mine
(Capacity: 2.0 MTPA, Total Lease area: 553.656 ha.)

Located at
Maldi Mopar , Devrani , Karmadih and Boirdih Villages,
P.O. Rawan, Tehsil-Baloda Bazar,
District-Baloda Bazar- Bhatapara, Chhattisgarh

M/s AMBUJA CEMENTS LTD.
(Unit: Bhatapara)
P.O.: Rawan, Dist.: Baloda Bazar - Bhatapara
Chhattisgarh - 493331, India

SL. NO.	EC CONDITIONS	COMPLIANACE STATUS
i.	The environmental clearance is subject to approval of the State land use Department or concerned Authority in the State, Government of Chhattisgarh for diversion of agricultural land for non-agricultural use.	**Complied** Govt. Land Diversion Notification and Working permission from Distt. Collector in the Purchased Private land obtained and is attached as **Annexure- 1 &Annexure- 1a**
ii.	The project proponent shall obtain prior Consent to Establish and Consent to Operate from the Chhattisgarh Environment Conservation Board and effectively implement all the conditions stipulated therein.	**Complied** CTE Has been Obtained from CECB Raipur vide Letter No 3056/TS/CECB/ 2012 Raipur Dated 06.09.2012 and CTO Vide letter No 7966 TS/CECB/2020, Nava Raipur, Atal Nagar, dated 09.12.2020 valid upto 31.12.2023 for Mining of Limestone in 553.656 Ha with Production capacity of 2 MTPA.
iii.	The topsoil shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation plantation and green belt development.	**Complied** Topsoil generated is being temporarily stored along the lease boundary, Crusher ramp and haul road to develop greenbelt, photograph of the same is being attached as**Annexure-2.**
iv.	Catch drains and siltation ponds of appropriate size should be constructed for the working pit to arrest flow of silt and sediment directly into the agricultural fields, rivers and other water bodies. The water so collected should be utilized for watering the mine area, roads, greenbelt development etc. The drains should be regularly de-silted particularly after the monsoon and maintained properly. Garland drain (size, gradient and length) shall be constructed for the mine pit to prevent run off of water and flow of sediments directly into the agricultural fields rivers and other water bodies and sump capacity should be designated keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pit shall be constructed at the corners of the garland drains and de-silted at regular intervals.	**Complied** Catchment drain: Catch Drains are made all along the working pit and along the Lease boundary to arrest the flow of Silt and Sediments going outside the mining Lease area, all the Catch drains are interconnected with Siltation Pond and rainwater harvesting pits within lease area in south pit entire water from Catch drains will be used for Ground water recharging. Photograph of Catch Drains, Siltation Pond and Rainwater harvesting pit is attached as **Annexure- 3.** De-siltation ponds are constructed within the lease area in south pit. The siltation pond sizes are Minimum20m length x 20m width x 2m height. **Annexure-3a** Garland drains are constructed along the lease boundary and periphery of the mine pit and along the haulroad.**Annexure-3b.**
v.	Dimension of the retaining wall at the toe of solid waste benches within the mine to check run-off and siltation should be based on the rain fall data.	**Complied** Retaining walls are constructed along the lease boundary to protect the runoff from Mine. The photographs of same is attached as **Annexure- 4**
vi.	Plantation shall be raised in an area of at least 54.15 ha including a 7.5 m wide green belt in the safety zone around the mining lease, around the water body, reclaimed area, mine benches, along the roads etc. by planting the native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2000-2500 plants per ha. Greenbelt shall be developed all along the mine lease area in a phased manner and shall be completed within first five years.	**Complied** Greenbelt is developed along the lease boundary within the 7.5m wide safety zone. Drip irrigation is also provided to get the survival rate of Plantations is more than 95 %.The photographs of same is attached as **Annexure- 5** Afforestation is also developed within the lease area near crusher; the survival rate of plantation is more than 95 %. The photographs of same is attached as **Annexure- 5a** Native species2500 plants per ha in consultation with the local DFO/Agriculture Department. The photographs of same is attached as **Annexure- 5b.**

vii.	The excavated area of 497.396 ha. left unfilled shall be converted into water body. The higher benches of excavated void/mining pit shall be terraced, and plantation done to stabilize the slopes. The slope of higher benches shall be made gentler for easy accessibility by local people to use the water body. Peripheral fencing shall be carried out along the excavated area.	Same will be compiled at the end of life of mine.
viii.	Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as mineral handling area, around loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	**Complied** Adequate air pollution control measures such as regular water sprinkling on haul roads, loading and unloading points and all transfer points adopted to control dust emission. We are doing the AAQM as per NAAQ2009 in core and buffer zone, monitoring report is enclosed **Annexure-6.**
ix.	The project authority should implement suitable water conservation measures including rainwater harvesting on long term basis to augment ground water resources in the area and work out a detailed scheme in consultation with the Regional Director, Central Ground Water Board/Central Ground Water Authority and submit a copy of the same to the Ministry of Environment and Forests and its Regional Office, Bhopal.	**Complied** Two ground water recharging structures Size 75m x 75m x 6 Mts and Three Number Surface recharge structures have been constructed with consultation of regional office CGWB. Photographs enclosed as **Annexure- 7, 7a & 7b.**
x.	Limestone from mines to Crushing plant shall be transported through covered dumpers up to crusher plant and from crusher plant to cement plant by conveyor belt and no other mode of transportation shall be used.	**Complied** Limestone transportation by pipe conveyor to plant. The photos of same is attached as **Annexure-8.**
xi.	Necessary safeguard measures shall be taken to ensure that the resultant particulate level in the area is well within the prescribed limit.	**Complied** Adequate air pollution control measures have been adopted in the mines to control dust emission. Ambient Air monitoring report is enclosed as **Annexure-9**
xii.	The details of project affected peoples (Land outsees / other affected peoples) shall be submitted to the R.O. Office of this Ministry at Bhopal and to the Ministry within 30 days from the issue of this letter. The project affected peoples shall be Rehabilitated and compensated as per the National Rehabilitation and Resettlement policy, 2007 in consultation with the State Government. Detailed Plan shall be prepared in this regard within 3 months and a copy of the same be submitted to Regional Office of this Ministry at Bhopal and to the Ministry immediately.	**Complied** There is no land acquisition involved in our mining lease area and hence there are no land outsees and people are not affected by our mining project. Therefore, rehabilitation and resettlement provisions are not applicable. A Study on the same is carried out by Accredited Consultant and the same is attached as **Annexure - 10**
xiii.	Land-use pattern of the nearby villages shall be studied, including common property resources available for conversion into productive land. Action plan for abatement and compensation for damage of agricultural land/common property land (if any) in the nearby villages, due to mining activity shall be prepared and implemented.	**Complied** At the time of EIA study land use pattern of 10 km radius with respect to mine lease studied. Agriculture and common property is not affected from mining activities. Land Use and Land Cover Study has been carried out recently by Accredited Consultant M/s ShrustiSeva Private Limited. Agriculture and Common Property are not affected by Mining Activity. Study Report is attached as **Annexure- 11, 11a.**

xiv.	The project authorities should undertake sample survey to generate data on pre-project community health status within a radius of 3 km from proposed mine. Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.	**Complied** Periodic health and hygiene survey are being conducted in villages around the Maldi-Mopar mine lease area in 3km. Medical Camp Photograph and Medical Report is attached for your Kind perusal please. Pre-placement medical examination and periodical medical examination of the workers engaged in the project has been carried out and records have been maintained at our OHC. Periodical Medical Examination report records maintained at our OHC.
xv.	Over burden (OB) shall be stacked at earmarked dump site(s) only and shall not be kept active for long period. The maximum height of the dump shall not exceed 30 m, each stage shall preferably be of 10 m and overall slope of the dump shall not exceed 28°. The OB dumps shall be scientifically vegetated with suitable native species to prevent erosion and surface run off. To the extent possible, the OB generated shall be back filled. The entire backfilled area shall be progressively afforested. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhopal on six monthly basis.	**Complied** The overburden dumps with a maximum height of 30m and overall slope of 28° will be maintained. Since Maldi mines is at its very early stage, presently only top soil is being removed which is being used for Plantation all along the Mining Lease boundary. NoOB Dump is created yet. As per the Mining Plan the OB will be used for Back filling in small portion of the area and will be progressively afforested, which will be regularly monitored till it will be self-sustained as desired.
xvi.	Regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of PM_{10} and $PM_{2.5}$ such as around crushing and screening plant, loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by Central Pollution Control Board in this regard.	**Complied** Regular water sprinkling on Haul road, Loading and Unloading points and all the transfer points is done to control dust emission. Please find Ambient Air Quality monitoring report for the Month of March 2022 all the parameters are within limits. AAQMS Study is being conducted at four different locations in core Mine Lease area and buffer Zone the report of the same is attached as **Annexure- 7**
xvii.	Regular monitoring of ground water level and quantity shall be carried out within the mines lease and in the surrounding area (up to 5 km of the mine lease) by establishing a network of groundwater monitoring stations (existing wells and installing new piezometers) during the mining operation in consultation with Central Groundwater Authority/Ground Water Board and groundwater table shall be monitored and records maintained. The periodic monitoring [(at least four times in a year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be send regularly to the Ministry of Environment and Forests and its Regional Office Bhopal, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity then mining shall be stopped and resumed only	**Complied** Online piezometer station is installed within the lease area for continuously monitoring ground water level. Periodically monitoring of groundwater table within core zone and buffer zone area is carried out. The quarterly ground water level reports are submitted to Regional Office Bhopal, the Central Ground Water Authority and the Regional Director, Central Ground Water Board, State Ground Water Board/Central Ground Water Authority. The Pre-monsoon, Monsoon, Winter and post monsoon data are enclosed as **Annexure-12**

	after mitigating steps to contain any adverse impact on ground water is implemented.	
xviii.	The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of ground water required for the project.	**Complied** NOC No CGWA/NOC/MIN/REN/1/2021/6607 has already been obtained from CGWA, Ministry of JalShakti, Department of Water Resources. The copy of same is attached as **Annexure- 13.**
xix.	Appropriate mitigative measures shall be taken to prevent pollution, percolation/seepage of water and breaching of the canal system adjoining the ML area. There shall be no use of canal water in this mine project in any way and at any point of time and no utility, if any, shall be constructed over the canals without prior approval of the concerned State Agency/Deptt. Of Chhattisgarh Govt.	**Complied** A safety zone has been left along the canal as per approved mine plan and necessary protective measures have been taken for percolation/seepage of water and breaching of the canal system adjoining the ML area. A Boundary wall is also being constructed all along the Canal for Protection purpose. Canal water shall not be used for mining purpose in any condition.
xx.	Drills shall either be operated with dust extractors or equipped with water injection system.	**Complied** Drills have been provided with Dust extractor as well as water injection system; these are inbuilt with the machine itself. The records area available in attached**Annexure-14**
xxi.	Need based assessment for the nearby villages shall be conducted to study economic measures which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people besides development of fodder farm, fruit bearing orchards, vocational training etc. can form a part of such programme. Company shall provide separate budget for community development activities and income generating programmes under CSR. This will be in addition to vocational training for individuals imparted to take up self-employment and jobs.	**Complied** Need Based Assessment study has been carried out by Accredited Consultant M/s ShrustiSeva Private Limited. Study report copy is attached as **Annexure-15.** Based on that the activity carried by ACF (Ambuja Cement Foundation) in Consultation with Local Village Head/Panchayat Head and Projects are taken on priority basis. The comprehensive details of CSR activities and Fund Allocation for the CSR activities, year wise expenditure incurred for the CSR activities is attached as **Annexure-15a.**
xxii	Sewage treatment plant shall be installed in ML area. ETP shall also be provided for the workshop and wastewater generated during the mining operation.	**Complied** STP & ETP is operational. The test report of STP &ETPis undertaken by a third party (NABL accredited).as **Annexure-16.**
xxiii.	Provision shall be made for the housing the labourers within the site with all necessary infrastructure and facilities such as fuels for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	**Complied** As the Housing colony is already established at Rawan cement Plant along with necessary amenities and infrastructure facilities, No Housing is desired at the Mine site. Necessary facilities like Rest shelter, drinking water, urinals, first aid center toilet etc has been provided at the Mine for Mine Workers.
xxiv.	The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The Circular No. J-20012/1/2006-IA.II(M) dated27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in, shall also be referred in this regard for its compliance.	**Complied** CAAQMS Display board is installed at Maldi Mopar Limestone Mines gate .CAAQMS has been installed in core and buffer zone and data of same is being reported to CPCB /SPCB Server . Also AAQ monitoring is undertaken by a third party (NABL accredited).
xxv.	The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered flora and fauna found in the	**Complied** The authentication of flora and fauna has been done from DFO as per EIA studies.

	study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. All the safeguard measures brought out in the Wildlife Conservation Plan so prepared specific to the project site shall be effectively implemented. A copy of action plan shall be submitted to the Ministry of Environment and Forests and its Regional Office, Bhopal.	Greenbelt developed along the lease boundary and native plant species are being planted. Fencing has been provided around the plantation area to avoid inadvertent entry of the animals in the plantation and mining area. The photographs and approved list of flora and fauna are attached as **Annexure-5,5a, 5b ,5c.**
xxvi.	Digital processing of the entire lease area using remote sensing technique shall be carried out regularly once in three years for monitoring land use pattern and report submitted to Ministry of Environment and Forests and its Regional Office, Bhopal.	**Complied** The Digital processing of entire lease area using remote sensing technique for the year 2022 has been submitted as **Annexure-17.**
xxvii.	A final mine closure plan, along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	**Complied** Agreed and will be complied. Mines is in very early stage of development.
xxviii.	The environment clearance is subject to the condition, if any, stipulated by the IBM on the mining scheme submitted by the project proponent for its approval.	Noted

General Condition

i.	No change in mining technology and scope of working shall be made without prior approval of the Ministry Of Environment & Forests.	**Complied** No change in mining technology and scope of working will be made without prior approval of MoEF&CC.
ii.	No change in the calendar plan including excavation, quantum of mineral and waste shall be made.	**Complied** We are proceeding as per guidelines in mining scheme.
iii.	At least four ambient air quality-monitoring stations shall be established in the core zone as well as in the buffer zone for PM_{10}, $PM_{2.5}$, SO_2, Nox monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State pollution Control Board.	**Complied** Four continuous ambient air quality-monitoring stations shall be established, in core and buffer zone with consultation of CECB, Letter in this regard submitted to CECB for their consent. Request Letter for CECB approval has been submitted and will be approved shortly.Air Quality monitoring report is enclosed as **Annexure-18.**
iv.	Data on ambient air quality (PM_{10}, $PM_{2.5}$, SO_2, Nox) should be regularly submitted to the Ministry including its regional office located at Bhopal and the State Pollution Control Board/ Central Pollution Control Board once in six months.	**Complied** Ambient air quality ((PM_{10}, $PM_{2.5}$, SO_2, Nox) .Monitoring report is enclosed as **Annexure –19** Regularly Ambient Air quality report submitted to MoEF&CC / CECB/CPCB along with Half yearly EC compliance Report.
v.	Measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc shall be provided with ear plugs/muffs.	**Complied** Workers engaged in operations of HEMM, etc ear plugs/muffs has been provided. Noise monitoring report enclosed as **Annexure-20**
vi.	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to	**Complied** Vehicle wash system with oil & grease trap and filtration system has been constructed in limestone mine for treatment of effluent generated from workshop.

	time. Oil and grease trap shall be installed before discharge of workshop effluents.	
vii.	Personnel working in dusty areas shall be provided with protective respiratory devices and they shall also be imparted adequate training and information on safety and health aspect. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	**Complied** Regularly necessary PPE's providing to workers and also training imparted on safety and health aspect. Occupational health surveillance program is in place, as a part of which pre-employment and periodic medical check-up of workers has been done and record of the same maintained by our OHC.
viii.	A separate environmental management cell with suitable qualified personnel shall be set-up under the control of a Senior Executive, who will report directly to the Head of the organization.	**Complied** A separate environmental management cell with suitable qualified personnel has been set-up under the control of a Senior Executive, who reports directly to the Unit Head. The details of same is attached as **Annexure - 21**
ix.	The project authorities shall inform to the Regional Office of the Ministry located at Bhopal regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	**Complied** Grant of environmental clearance: 13th August, 2010. Mine development work has been completed and limestone production started from May 2021.
x.	The fund earmarked for environmental protection measures shall be kept in separate account and should not be diverted to other purpose. Year wise expenditure shall be reported to the Ministry and its Regional Office located at Bhopal.	**Complied** Funds emarked for environmental protection measures will not be diverted. Year wise expenditure is reported to the Ministry. As the production and despatch activity has been started in June 2021 and environmental protection expenses details is attached as **Annexure 22**
xi.	The project authorities shall inform the Regional Office located at Bhopal regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	**Complied** Grant of environmental clearance vide letter no. J - 11015/252/2008- IA-II(M) dated 13th August., 2010.Mine development work has been completed and limestone production started.
xii.	The Regional Office of this Ministry located at Bhopal shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data/information/monitoring reports.	Noted and Agreed.
xiii.	The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional office, Bhopal, Central Pollution Control Board and State Pollution Control Board. The project proponent shall upload the status of compliance of the environment of the environmental clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests, Bhopal, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board.	**Complied** Six monthly compliance report submitted via mail on date **28.05.2022**. Environment Clearance copy up loaded on company website.
xiv.	The project proponent should advertise at least in two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality	**Complied** The advertisement copy is attached as **Annexure 23.**

	concerned, within seven days of the issue of the clearance letter informing that the project has been accordedEnvironmental clearance and copies of clearance letter are available with the State Pollution Control Board and also at the website of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same shall be forwarded to the Regional Office of this Ministry located in Bhopal.	
xv.	A copy of clearance letter shall be send by the proponent to concerned Panchayat, ZilaPanchayat/Municipal Corporation, Urban Local bodies and local NGO, if any, from whom suggestion/representation, if any were received while processing the proposal. The clearance letter shall also be put on website of the company by the proponent.	**Complied** We have given the Environmental clearance Letter to the following Sarpanch (dated 20.08.2010) 1. Sarpanch Maldi 2. Sarpanch Mopar 3. Sarpanch Dhandnih 4. Sarpanch Bordih
xvi.	State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industries Centre and Collector's office/ Tehsildar's Office for 30 days.	**Complied** Copies of EC are submitted to State PCB and RO , DIC on dated 02.12.2010.
xvii.	The environment statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and shall also be put on the website of the company along with the status of compliance of environmental clearance conditions. The same shall also be sent to the Regional Office of the Ministry by e-mail.	**Complied** The environment statement (Form-V) has been submitted to CECB Head Office Nava Raipur and Regional Office Kabir Nagar, our vide letter No.ACL/BYT/ENV/2022-23/93 dated30.09.2022.
5.	The Ministry of Environment and Forests reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction of the Ministry. MoEF may impose additional environmental conditions or modify the existing ones, if necessary.	Noted & agreed
6.	In case of any deviation or alteration in the project proposed from those submitted to this Ministry for clearance, a fresh reference should be made to the Ministry to assess the adequacy of the condition(s) imposed and to add additional environmental protection measures required, if any.	Noted & agreed
7.	Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.	Noted & agreed
8.	Any appeal against this environmental clearance shall lie with the National Environment Appellate Authority, if preferred, within a period of 30 days as prescribed under Section 11 of the National Environment Appellate Authority Act, 1997.	Agreed
9.	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules.	Noted

Annexure-1

न्यायालय नायब तहसीलदार भाटापारा जिला बलौदाबाजार-भाटापारा (छ.ग.)

//ज्ञापन//

क 4052 /वा./ना.तह./2018 भाटापारा, दिनांक 03.03.2018

प्रति,

01. प.ह.नं. 36
ग्राम– मल्दी
02. प.ह.नं. 37
ग्राम – मोपर, देवरानी

विषय :– अभिलेख दुरूस्त करने बाबत् ।

विषयांतर्गत लेख है कि इस न्यायालय के रा.प्र.क. 201707212500001/113अ–63अ/2016–17 में आवेदक अंबुजा सीमेंट कंपनी प्रबंधक रमेश मिश्रा विरूद्ध छ.ग.शासन ग्राम मल्दी, मोपर, देवरानी, के प्रकरण में ग्राम मल्दी प.ह.नं. 36 रा.नि.मं. निपनिया तहसील भाटापारा स्थित शासकीय खसरा नंबर 910, 903 1001, 858/1, 859, 858/2 रकबा क्रमशः 0.640, 0.182, 0.162, 39.985, 2.423, 1.021, कुल रकबा 44.413 हे0 ग्राम मोपर प.ह.नं. 37 रा.नि.मं. निपनिया तहसील भाटापारा स्थित शासकीय भूमि खसरा नंबर 1107, 1177, 1205, 1215, 1217, 1218/1 रकबा क्रमशः 0.101, 0.040, 0.081, 0.530, 0.474 1.887 हे0 कुल रकबा 3.113 हे0 ग्राम देवरानी प.ह.नं. 37 रा.नि.मं. निपनिया तहसील भाटापारा स्थित शासकीय भूमि खसरा नंबर 335 रकबा 0.012 हे0 । इस प्रकार ग्राम मल्दी मोपर एवं देवरानी के कुल रकबा 47.538 हे0 भूमि खसरा के कालम नंबर 12 में अंबुजा सीमेंट लिमिटेड का नाम शासकीय पट्टेदार के रूप में दर्ज किये जाने का आदेश दिनांक 03.03.2018 को पारित किया गया है।

अतः उपरोक्तानुसार अभिलेख दुरूस्त कर पालन प्रतिवेदन तीन दिवस के भीतर प्रस्तुत करें।

तहसीलदार
भाटापारा

Rpt
13-3-18

Print

220

फार्म 'अ'

(परिपत्र बी-1 की कंडिका 6 देखिए)

राजस्व आदेश पत्र (रेव्हेन्यू आर्डर शीट)

न्यायालय नायब तहसीलदार, भाटापारा

राजस्व प्रकरण क्रमांक: 201707212500001/11 सन्:- 2016-2017

प्रकार:-मूल मामला

मामले की श्रेणी:- राजस्व

विषय:- अ-6 अ (खसरे में अथवा धारा-114 के अधीन तैयार किये गये किसी अन्य भू-अभिलेख संबंधी कागजात में गलत प्रविष्टि का सुधार अथवा अन्य प्रविष्टी संबंधी विवाद।)

वाद भूमि :
तहसील: भाटापारा ग्राम : देवरानी(प.ह.न.- 00037), मल्दी(प.ह.न.- 00036), मोपर(प.ह.न.- 00037) खसरे :

रमेश मिश्रा (प्रबंधक पिता/पति/विशाग-स्व. रवि शंकर मिश्रा पता-गाँधी चौक बलौदाबाजार

-:आवेदक

विरुद्ध

-:अनावेदक

आदेश अथवा कार्यवाही की तारीख	पीठासीन अधिकारी के हस्ताक्षर सहित आदेश अथवा कार्यवाही	जहां आवश्यक हो पक्षों/वकीलों / प्रस्तुतकार लिपिक के संक्षिप्त हस्ताक्षर
11/07/2017	आवेदक रमेश मिश्रा पिता स्व. रविशंकर मिश्रा प्रबन्धक अंबुजा सीमेंट कंपनी रवान तहसील -बलौदाबाजार जिला - बलौदाबाजार-भाटापारा (छ.ग.) के द्वारा ग्राम मल्दी प.ह.न. 36 रा. नि. म. निपनिया तहसील भाटापारा स्थित शासकीय भूमि खसरा नंबर 910, 993, 1001, 858/1, 859, 858/2 रकबा क्रमशः 0.640, 0.182, 0.162, 39.985, 2.423, 1.021 हे0 भूमि ग्राम मोपर प.ह.न. 37 रा. नि. म. निपनिया तहसील भाटापारा स्थित शासकीय भूमि खसरा नंबर 1107, 1177, 1205, 1215, 1217, 1218/1 रकबा क्रमशः 0.101, 0.040, 0.081, 0.530, 0.474, 1.887, एवं ग्राम देवरानी प.ह.न. 37 रा. नि. म. निपनिया तहसील भाटापारा स्थित शासकीय भूमि खसरा नंबर 335, रकबा 0.012 हे0 भूमि को रजिस्टर्ड लीज डीड में प्राप्त होने के कारण खसरा के कालम नंबर 12 में आवेदक कंपनी के नाम से शासकीय पट्टेदार के रूप में दर्ज किये जाने हेतु आवेदन पत्र प्रस्तुत किया है। 02. प्रकरण मद अ-6 अ में दर्ज किया जावे। 03. ग्राम एवं दैनिक समाचार पत्र में ईश्तहार का प्रकाशन कराया जावे। दावा आपत्ति हेतु सुनवाई दिनांक: 28/07/2017 Mahesh Singh Rajput तहसीलदार भाटापारा(छ. ग.)	28/7/2017 1825/18 सत्य-प्रतिलिपि प्रभारी अधिकारी वास्ते, तहसीलदार भाटापारा जि.बलौदाबाजार भाटापारा

Print

फार्म 'अ'

(परिपत्र बी-1 की कडिका 6 देखिए)

राजस्व आदेश पत्र (रेव्हेन्यू आर्डर शीट)

न्यायालय नायब तहसीलदार, भाटापारा

राजस्व प्रकरण क्रमांक: 2017072125000001/11 सन:- 2016-2017

विषय:- अ-6 अ (खसरे में अथवा धारा-114 के अधीन तैयार किये गये किसी अन्य भू अभिलेख संबंधी कागज में दर्ज प्रविष्टि का सुधार अथवा उसमें प्रविष्टी संबंधी विवाद)

प्रकार:-मूल प्रकरण

मामले की श्रेणी:- राजस्व

वाद भूमि :

तहसील: भाटापारा ग्राम : दैवरानी(प.ह.न.- 00037), मलदी(प.ह.न.- 00036), मोपर(प.ह.न.- 00037) खसरे :

रमेश मिश्रा (प्रबंधक पिता/पति/विभान-स्व. रवि शंकर मिश्रा पता-गाँधी चौक बलौदाबाजार

-:आवेदक

विरुद्ध

-:अनावेदक

आदेश अथवा कार्यवाही की तारीख	पीठासीन अधिकारी के हस्ताक्षर सहित आदेश अथवा कार्यवाही	जहां आवश्यक हो पक्षो/वकीलो / प्रस्तुतकार लिपिक के संक्षिप्त हस्ताक्षर
28/07/2017	- प्रकरण प्रस्तुत। - आवेदक रमेश मिश्रा उपस्थित। - प्रकरण में ईश्तहार सभी ग्रामो मल्दी, मोपर,एवं दैवरानी में प्रकशन उपरांत तामिल प्रति प्राप्त होकर संलग्न है,जिसके परिपेक्ष्य में नियत पेशी तिथि तक कोई दावा आपत्ति प्राप्त नहीं हुआ है। - प्रकरण में ईश्तहार दैनिक समाचार में प्रकाशन उपरांत प्राप्त होकर संलग्न है,जिसके परिपेक्ष्य में नियत पेशी तिथि तक कोई दावा आपत्ति प्राप्त नहीं हुआ है। - हल्का पटवारी से आवेदित भूमि के सम्बन्ध में जाँच प्रतिवेदन मंगायी जावे। पटवारी प्रतिवेदन हेतु सुनवाई दिनांक: 14/08/2017 Mahesh Singh Rajput तहसीलदार भाटापारा	14/8/17

18/8/17

सत्य-प्रतिलिपि

प्रभारी अधिकारी
वास्ते, तहसीलदार भाटापारा
जि.बलौदाबाजार भाटापारा

फार्म 'अ'

(परिपत्र बी-1 की कंडिका 6 देखिए)

राजस्व आदेश पत्र (रेव्हेन्यू आर्डर शीट)

न्यायालय नायब तहसीलदार, भाटापारा

राजस्व प्रकरण क्रमांक: 201707212500001/11: सन्:- 2016-2017

विषय:- अ-6 अ (धारा की अथवा धारा-114 के अधीन तैयार किये गये किसी अन्य भू अभिलेख संबंधी आवेदन में [illegible] प्रविष्टि का सुधार अथवा उसमें त्रुटियों संबंधी विवाद)

प्रकार:-मूल मामला

मामले की श्रेणी:- राजस्व

वाद भूमि :

तहसील: भाटापारा ग्राम : देवरानी(प.ह.न.- 00037), मलदी(प.ह.न.- 00036), मोपर(प.ह.न.- 00037) खसरे :

रमेश मिश्रा (प्रबंधक पिता/पति/विभाग-स्व. रवि शंकर मिश्रा पता- गाँधी चौक बलौदाबाजार

-:आवेदक

विरुद्ध

-:अनावेदक

आदेश अथवा कार्यवाही की तारीख	पीठासीन अधिकारी के हस्ताक्षर सहित आदेश अथवा कार्यवाही	जहां आवश्यक हो पक्षों/वकीलों / प्रस्तुतकार लिपिक के संक्षिप्त हस्ताक्षर
28/07/2017	- प्रकरण प्रस्तुत । - आवेदक रमेश मिश्रा उपस्थित । - प्रकरण मे ईश्तहार सभी ग्रामो मल्दी, मोपर,एवं देवरानी मे प्रकशन उपरांत तामिल प्रति प्राप्त होकर संलग्न है,जिसके परिपेक्ष्य मे नियत पेशी तिथि तक कोई दावा आपत्ति प्राप्त नही हुआ है । - प्रकरण मे ईश्तहार दैनिक समाचार मे प्रकाशन उपरांत प्राप्त होकर संलग्न है,जिसके परिपेक्ष्य मे नियत पेशी तिथि तक कोई दावा आपत्ति प्राप्त नही हुआ है । - हल्का पटवारी से आवेदित भूमि के सम्बन्ध मे जाँच प्रतिवेदन मंगायी जावे । पटवारी प्रतिवेदन हेतु सुनवाई दिनांक: 14/08/2017 Mahesh Singh Rajput तहसीलदार तहसीलदार भाटापारा	
28/07/2017	पुनश्च :- आपत्ति कर्ता रमेश वर्मा एवं तोरनलाल वर्मा द्वारा ईश्तहार के सम्बन्ध मे प्रारम्भिक आपत्ति दर्ज की गयी है जो प्रकरण मे संलग्न है । दावा आपत्ति पर सुनवाई हेतु सुनवाई दिनांक: 14/08/2017 Mahesh Singh Rajput तहसीलदार तहसीलदार भाटापारा	तोरनवर्मा रमेशवर्मा

1835/18

सत्य-प्रतिलिपि

प्रभारी अधिकारी

वास्ते, तहसीलदार भाटापारा

जि.बलौदाबाजार भाटापारा

Print

फार्म 'अ'

(परिपत्र बी-1 की कंडिका 6 देखिए)

राजस्व आदेश पत्र (रेव्हेन्यू आर्डर शीट)

न्यायालय नायब तहसीलदार, भाटापारा

राजस्व प्रकरण क्रमांक: 20170721250000l/11 सन:- 2016-2017

विषय:- अ-6 अ (खसरे में अथवा धारा 114 के अधीन तैयार किये गये किसी अन्य भू अभिलेख संबंधी मामला में गलत प्रविष्टि का सुधार अथवा उसमें परिवर्तन संबंधी विवाद।)

प्रकार:-मूल मामला

मामले की श्रेणी:- राजस्व

वाद भूमि :

तहसील: भाटापारा ग्राम : देवरानी(प.ह.न.- 00037), मलदी(प.ह.न.- 00036), गोंपर(प.ह.न.- 00037) खसरे :

रमेश मिश्रा (प्रबंधक पिता/पति/विभाग-स्व. रवि शंकर मिश्रा पता- गाँधी चौक बलौदाबाजार

-:आवेदक

विरुद्ध

-:अनावेदक

आदेश अथवा कार्यवाही की तारीख	पीठासीन अधिकारी के हस्ताक्षर सहित आदेश अथवा कार्यवाही	जहां आवश्यक हो पक्षों/वकीलों / प्रस्तुतकार लिपिक के संक्षिप्त हस्ताक्षर
14/08/2017	- प्रकरण प्रस्तुत। - आवेदक रमेश मिश्रा उपस्थित। उनकी ओर से आज दिनांक को अधिवक्ता श्री सत्यजीत सलूजा द्वारा वकालतनामा पेश किया जाकर उपस्थित। -आपत्ति कर्ता रमेश वर्मा उपस्थित। आपत्तिकर्ता की ओर से आज दिनांक को अधिवक्ता श्री हेमन्त साहू द्वारा वकालतनामा पेश किया जाकर उपस्थित। - आपत्तिकर्ता के द्वारा प्रस्तुत प्रारम्भिक आपत्ति की प्रति आवेदक अधिवक्ता को दिया गया। आवेदक/अपीलार्थी का जवाब हेतु सुनवाई दिनांक: 06/09/2017 Mahesh Singh Rajput तहसीलदार तहसीलदार भाटापारा	06/9/17 6/9/17

1835/18

सत्य-प्रतिलिपि

प्रभारी अधिकारी

प्रतिलिपि शाखा, तहसील भाटापारा

जि. बलौदाबाजार भाटापारा

भारत INDIA

FIVE RUPEES

पाँच रुपये

Annexure 7

कार्यालय कलेक्टर (खनिज शाखा) जिला बलौदाबाजार–भाटापारा छ.ग.
आदेश

क्रमांक 205/तीन–6/2003 बलौदाबाजार दिनांक 6/05/2014

प्रति,

मेसर्स अंबूजा सीमेंटस् लिमिटेड
युनिट भाटापारा
रवान तहसील बलौदाबाजार
जिला बलौदाबाजार–भाटापारा

विषय:– स्वीकृत क्षेत्र पर कार्य करने की अनुमति प्रदान करने बाबत ।

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आपको ग्राम मल्दी, मोपर, देवरानी, तहसील भाटापारा एवं ग्राम करमदी, बोईरडीह तहसील बलौदाबाजार जिला बलौदाबाजार– भाटापारा के रकबा 553.656 हेक्टर क्षेत्र पर दिनांक 18.02.2009 से 17.02.2039 तक अवधि के लिए खनिज चूनापत्थर खनिपट्टा स्वीकृत है।

स्वीकृत खनिपट्टा क्षेत्र पर आपके द्वारा कब्जे निजी स्वामित्व की भूमि ग्राम मल्दी मे ब्लॉक–एक एवं दो, रकबा 57.261 हेक्टर, ग्राम मोपर मे रकबा 131.589 हेक्टर, ग्राम देवरानी मे रकबा 24.089 हेक्टर, ग्राम करमदी मे रकबा 46.887 हेक्टर एवं ग्राम बोईरडीगढ मे रकबा 24.715 हेक्टर कुल रकबा 284.521 हेक्टर क्षेत्र पर भू–राजस्व संहिता 1959 की धारा 247, (3) (b) के तहत भू–प्रवेश कर खनन प्रारंभ करने की अनुमति प्रदान की जाती है।
(कलेक्टर महोदय द्वारा अनुमोदित)

06/05/2014
खनि अधिकारी
वास्ते कलेक्टर बलौदाबाजार

पृ क्रमांक 206/तीन–6/2003 बलौदाबाजार दिनांक 6/05/2014

प्रतिलिपि:–

1. तहसीलदार बलौदाबाजार/भाटापारा जिला बलौदाबाजार–भाटापारा को सूचनार्थ।
2. श्री अवधेश बारिक, खनि निरीक्षक बलौदाबाजार को सूचनार्थ।
3. सरपंच ग्राम पंचायत मल्दी/मोपर, देवरानी, विकासखंड भाटापारा एवं ग्राम डनढनी विकासखंड बलौदाबाजार जिला बलौदाबाजार–भाटापारा को सूचनार्थ।

06/05/2014
खनि अधिकारी
वास्ते कलेक्टर बलौदाबाजार

Annexure - 2

Photograph Showing the plantation and Drip irrigation

Afforastation and Greenbelt

Typical View of Afforastation and Greenbelt along the lease area

Typical View of Greenbelt along the lease area

Typical View of Greenbelt along the lease area

Typical View of native species in the greenbelt

Plantation along the haulraod

Typical view of Water Harvesting Pit-1

Water Harvesting under process Pit-2

Garland drain along with the greenbelt

Garland drain along with the greenbelt

Catchment drain along the water harvesting pit

Typical view of Siltation pond

Annexure-4

Typical View of Retaining Wall

Typical View of Retaining Wall

Annexu-5, 5a, 5b

कार्यालय वनमण्डलाधिकारी बलौदाबाजार वनमण्डल, बलौदाबाजार

E-Mail :- dfo_balodabazar@rediffmail.com, ☎ 07727-296526

क्रमांक/तकनीकी/विविध/2763 बलौदाबाजार, दिनांक 7/10/2022

प्रति,

मे. अम्बुजा सीमेंट लिमिटेड
यूनिट–भाटापारा
पो.आ.–रवान, तहसील–बलौदाबाजार
जिला–बलौदाबाजार–भाटापारा (छ.ग.)

विषय :- **Maldi Mopar Limestone mine of M/s Ambuja Cements limited for Expansion in Limestone Production capacity from 2.0 Million TPA to 6.3 Million TPA, (Rom 6.5 million TPA including 0.2 Million TPA screen rejects), sub grade 1.7 Million TPA, Top soil 0.27 Million TPA, waste 2.55 Million TPA (Total Excavation 11.02 Million TPA) along with the existing crusher of 1800 TPH with Screen and a proposed crusher of 1800 TPH in the mine lease area of 553.656 ha., located at village - Boirdih and Karmadih (Tahsil-Balodabazar) and Maldi, Mopar and Devrani, (Tehsil-Bhatapara) District-Balodabazar-Bhatapara, Chhattisgarh-For Terms of Reference (Tor) regarding.**

संदर्भ :- आपका पत्र दिनांक 06.10.2022.

==:00:==

उपरोक्त विषयांतर्गत संदर्भित पत्र द्वारा भारत सरकार पर्यावरण, वन एवं जलवायु परिवर्तन नई दिल्ली के पत्र क्रमांक/J–11015/252/2008–IA.II (M) दिनांक 13.08.2010 एवं क्रमांक/J–11015/252/2008–IA.II (M) दिनांक 24.08.2022 के अनुपालन में प्रस्तुत ग्रीन बेल्ट डेवलपमेंट प्लान अनुमोदन कर एक प्रति मूलतः आपके अवलोकनार्थ एवं आवश्यक कार्यवाही हेतु संलग्न है। नियमानुसार समय–समय पर आवश्यक प्रमाण पत्र उपलब्ध कराना सुनिश्चित करें तथा आवश्यकतानुसार वन विभाग के क्षेत्रीय अधिकारियों को स्थल निरीक्षण में आवश्यक सहयोग प्रदान करें।

सहपत्र :- उपरोक्तानुसार।

वनमण्डलाधिकारी
बलौदाबाजार वनमण्डल, बलौदाबाजार
बलौदाबाजार, दिनांक 7/10/2022

पृ० क्रमांक/तकनीकी/विविध/2764

प्रतिलिपि :-

उपवनमण्डलाधिकारी बलौदाबाजार/परिक्षेत्र अधिकारी बलौदाबाजार की ओर उपरोक्त संदर्भ में सूचनार्थ एवं आवश्यक कार्यवाही हेतु अग्रेषित।

वनमण्डलाधिकारी
बलौदाबाजार वनमण्डल, बलौदाबाजार

GREEN BELT DEVELOPMENT PLAN

BY

AMBUJA CEMENTS LIMITED

MALDI MOPAR LIMESTONE MINE
(Area- 553.656ha.)

PO- Rawan, Tehsil- Baloda Bazar, Distt - Baloda Bazar- Bhatapara
State- Chhattisgarh
493331

CONTENTS

1. SALIENT FEATURES OF THE PROJECTS

M/s. Ambuja Cements Limited (Unit-Bhatapara) is proposing expansion in Limestone Production Capacity from 2.0 Million TPA to 6.3 Million TPA, (ROM 6.5 Million TPA including 0.2 Million TPA screen rejects), Sub Grade 1.7 Million TPA, Top Soil 0.27 Million TPA, Waste 2.55 Million TPA (Total Excavation 11.02 Million TPA) along with existing crusher of 1800 TPH with screen and a proposed crusher of 1800 TPH with Screen in Maldi Mopar Limestone Mine (ML Area – 553.656 ha) in Villages- Boirdih and Karmandih (Tehsil - Baloda Bazar) and Maldi Mopar and Devrani (Tehsil: Balodabajar), District- Baloda Bazar-Bhatapara, State-Chhattisgarh. Environmental Clearance for existing 2.0 million TPA Limestone Production Capacity in favor of M/s. Ambuja Cements Limited vide letter no. J-11015/252/2008-IA-II (M) dated 13.08.2010.

The proposed Maldi-Mopar limestone mining project covers a lease area of about 553.656-ha of land (>100-ha) and thus it is scheduled under "Category-A" project, as per the EIA Notification dated 14th September 2006.

LAND BREAKUP

Govt. Waste Land (Ha.)	Private Agriculture Land (Ha.)	Total (Ha.)
53.686	499.970	553.656

LAND DETAILS - SUMMARY BLOCK 1

S.No.	Name of Village	Mining Lease Area (In Ha.)		
		Private	Govt.	Total
1	Maldi	126.943	0984	127.927
2	Mopar	212.691	3.113	215.804
3	Devrani	62.582	0.012	62.594
4	Karmandih	48.116	5.120	53.236
5	Boirdih	35.050	4.468	39.518
	Total Land (Hect.)	**485.382**	**13.698**	**499.079**

LAND DETAILS - SUMMARY BLOCK 2

S.No.	Name of Village	Mining Lease Area (In Ha.)		
		Private	Govt.	Total
1	Maldi	14.592	39.985	54.577
	Total Land (Hect.)	**14.592**	**39.985**	**54.577**
	TOTAL BLOCK 1+BLOCK 2	**499.974**	**53.682**	**553.656**

The land area for proposed integrated cement plan is 238.970 Hectare. ACL is having 79.48 ha i.e 33.26% of total area as greenbelt area. The land use pattern is given in **Table 1.**

TABLE 1: LAND USE BREAKUP

SI.	Particulars	Available Area (In Ha.)	In %
1.	Area Occupied by Plant/ Equipment	24.11	10.09
2.	Area occupied by Thermal Power plant	4.26	1.78
3.	Area covered by Greenbelt	79.69	33.35
4.	Open Area (Roads, Storage, and Building etc.)	130.96	54.80
	Total available area of the plant	**238.96**	**100.00**

2. NEED FOR GREEN BELT DEVELOPMENT PLAN

Environmental protection has been considered as an important domain for industrial and otherdevelopmental activities in India. Ministry of Environment & Forests (MoEF) has taken several policyinitiatives and promoted integration of environmental concerns in developmental projects. One suchinitiative is the notification on Environmental Impact Assessment (EIA) of developmental projects issued in1994 and further revised notification in year 2006 under the provisions of Environment (Protection) Act.1986 EIA Guidance Manual for building, construction, townships, and area development projectsproactively talks about the importance of green belts in such projects.

Green belt in India refers to a buffer zone created beyond which industrial activity may not be carried on. This concept has developed through a long line of cases and today, green belts are present not only for the purpose of protecting sensitive areas to maintain ecological balance but are also be found in urban areas so as to act as a sink for the harmful gases released by vehicles and industries operating in the city area. In this regard, comprehensive Guidelines for Developing Green belts have been compiled by the Central Pollution Control Board.

GREEN BELT DEVELOPMENT PLAN

A large number of gaseous and particulate air pollutants are emitted in the air environment. The physical and chemical properties and effects of these pollutants vary a great deal individually and synergistically. The nature and quantum of pollutant depends on the type of industry and the kind of raw material and energy used in its operation.

The development of green belts, by using pollution tolerant plants, can add significantly towards air quality improvement. This involves selecting suitable plant species, determining climatic and edaphic parameters, studying wind and temperature probes, nature of pollutants to be ameliorated and general landscape of the locality. The design of the green belt and its composition may vary from place to place and industry to industry. Only the green belts designed on the basis of site geography, ecology meteorology, and industry can achieve the objective of significant pollution control. The planning of green belts, also involves facets of bio-aesthetics. Accordingly, the selection of plant species may involve plant characteristics, tolerance, canopy structure, foliage form, height of plant and its overall lowering and production potential. This involves careful scrutiny of plants in nature as well as in horticultural conditions, in order to assess their suitability and performance in a stressed ecological situation of pollutedenvironment.

Plantations also generate recurring hidden profits in terms of better health and happiness of its workers which in turn leads to better harmony and increased production vis-a-vis profit in quantified figures.

According to Rao (1992), pollutants emanating from thermal power plants, cement factories, metal processing plants, lime and brick kilns, pulp and paper factories, fertilizer plants, mining area and quarries, oil refineries, etc., though varying in their physical and chemical properties, are similar with respect to their effects on plant, animal and human life.

The physical state of pollutants may be particulate or gaseous. The particulate ones may be either settle able or suspended (SPM). In either case, they may eventually fall out of surfaces of materials, plants and animals. The gaseous pollutants may also get absorbed on surfaces. The effect of a pollutant on the impinging surface is a function of the degree of toxicity of the pollutant.

The pollutants thus falling out may remain suspended for some time in the air shed. But they would eventually get deposited either as wet deposition or dry deposition on surfaces of vegetation, soil, water, buildings, roads etc. They may also be deposited on outer surfaces of animal bodies or inhaled in to their lungs.

The effect of the pollutants, either adsorbed on the surface or absorbed inside the system of plants and animals, or of inanimate objects, depends on the characteristics of the impinging surface and the chemistry of the pollutant. In case of plants all those external and internal factors which affect the stomata aperture also affect the level of pollution interacting with the plants.

The control of air pollutants can only be affected at the emission source. Once a pollutant enters into the air environment, it's effect can only be reduced through detoxification, oxidation, or absorption adsorption on to surfaces

Several methods have been developed to evaluate the suitability of plants for using them for the purpose mentioned above. Bio-monitoring of air pollutants through the use of plants, microbes and animals has now become a standard procedure in the study of air pollution ecology.

The acute effect of an air pollutant on a plant can be easily seen as chlorotic or necrotic foliar injury but the chronic effects can be identified only with the help of microscopic examination and physiological experimentation. These changes are manifested quickly in the pollutant-sensitive species; this in turn helps in the identification of pollutants in the field. The less sensitive or tolerant plants are able to withstand pollution for longer times. They have the capacity to detoxify the pollutants and use them as a raw materialin their metabolic processes or just accumulate them in their system.

According to Innes (Baby 1998) tree barriers between Industrial and residential areas can reduce air pollution considerably. A plantation of 30m depth gives almost complete dust interception and significant reduction in gaseous pollutant concentrations. Even a single row of trees can reduce pollution levels markedly if it is planted on green verges with or without an underlay of shrubs. One row can lead to 25 percent reduction of dust concentration observed in tree lined streets. Free circulation of air within the canopy of a tree barrier also helps to promote the altering of pollutants. The noise is significantly reduced by tree barriers of less than 30 m depth and the cosmetic and psychological benefits of plantings are considerable.

Innes further states, "planting techniques such as contouring can help to reduce the impact of pollution on the area surrounding each source. The landscape architect can thus assist local planning authorities and industry by slitoulating lands coping schemes around industrial and residential sites thatwill help to ameliorate the level of air pollution. Grass swards absorb twice as much of some pollutants as does bare soil. The scavenging effect increases with the inclusion of shrubs and trees. Thus, the averageconcentration of a pollutant in the atmosphere declines with increasing proportions of well planted openspace in industrial and urban areas".

OBJECTIVES OF GREENBELT DESIGN

Green belt (GB) development envisages a multiplicity of objectives ranging from the microlevel air pollution abetment to enhancement of socio-economic value of the region. Some of the objectives are listed below:

i. The prime objectives of GB is attenuation of air and noise pollution. A GB can cushion accidental release explosion, minimising the risk to a considerable level. The accidental release are mostly at ground levels for example Bhopal tragedy and the episode which occurred a Shriram Mills, New Delhi. In such situations GBs can significantly reduce further dispersion of pollutants.

ii. GBs help in soil protection and erosion losses, enhance the aesthetic value and beauty of the landscapes. Some of the waste water generated in an industry can be best utilised for GB maintenance after due treatment for converting them to manure.

iii. Development of GB can help generate employment and thus involve the mass participation in environmental protection.

iv. GBs can help in the detection of fugitive release of pollutants into the environment (using sensitive plant species).

v. Gbs can significantly effect noise pollution control.

vi. GBs enable significant wastewater reuse.

vii. GBs balance the ambient oxygen and carbon dioxide levels.

viii. GBs mitigate fugitive emissions including malodors.

ix. GBs enable extensive Optimum use of waste lands and help in environmental conservation.

FACTORS INFLUENCING GREENBELT DESIGN

Greenbelt development mainly depends upon:

i. Nature and extent of pollution load
ii. Assimilative capacity of the ecosystem
iii. Climatic factors
iv. Soil and water quality

For optimization of width of green belt, the prime considerations are:

i. Height and canopy area of trees
ii. Mean wind velocity and direction
iii. Distance from source location of sources of pollutants
iv. Pollutant concentration
v. Nature of pollutants
vi. Dry deposition velocity of plants (specific to pollutants and plants)
vii. Topography and size of the land available

CRITERIA FOR GREENBELT DEVELOPMENT

The Government of India has made it mandatory to have green belts around the new as well as existing industries. However, no specific norms regarding the width of the GB and pollution potential activity have been promulgated so far.

The classification of industries as per the international norms depends on the following aspects:

- Area of industrial complex
- Total work-force
- Situation and distance from town center housing areas
- Transport facilities required
- Raw materials and products to be transported/ handled and manufactured
- Nuisance produced
- Air pollution
- Noise
- Hazards

The width and the floral composition of a GB would vary from industry to industry in India, many governmental and private sector agencies are recommending GB development around industrial complexes. But the know-how for scientifically designing green belts to achieve optimum benefits is not available.

DESIGNING OF GREEN BELT

Designing of a GB is a very specialized task. It needs careful consideration of the local agro-climatic conditions, source and type of pollutants, and selection of right types of tree species. Planning is to be done in such a way that GB is developed within a short period and remains effective over the years.

The effectiveness of a GB for interception and retention of atmospheric particles depends on several factors viz. shape, size, wetness, surface texture and nature (Solubility and insolubility) of the particles' pollutants as well as intercepting plant parts. Damp surface of the plants enhances pollutant removal rate by 10% because under such conditions stem, branches, twigs and leaves are engaged in absorption process. Light has also got a pronounced effect on foliar removal of pollutants by influencing physiological activities and stomatal opening. Under urban environment, moisture restricts absorption of gaseous pollutants by limiting stomatal opening.

According to Ahmed et al. (1991) the dust trapping ability of plants depends on certain morphological characters viz. branching habit, arrangement of leaves on stem, shape, surface (smooth, striated, presence or absence of trichomes and their frequency, exudates and wax deposition). Beach (1992) and Wedding et al. (1975) observed relationship of leaf surface parameters and dust trapping potential of trees.

ATTRIBUTE IMPORTANT GREENBELT DESIGN

A GB should be so located that its edge coincides with the point from where the zone of maximum ground level concentration of the air pollutant starts.

This zone does not begin immediately from the point at which the pollutants are released from a stack (chimney) but rather occurs some distance away; the distance depending on the temperature of exiting gases, their densities, and the meteorological conditions prevailing at that time. Also, the green belts should be wider in the directions where the wind velocities and frequencies are higher. The greenbelts thus shall rarely have an axially symmetrical geometry but would rather have an irregular shape.

SELECTION OF TREES FOR GREEN BELT

As mentioned earlier the effectiveness of a GB essentially depends on the selection of the tree species an ideal tree for planting in the GB should have following characters :

- Fast growth rate for quick development of canopy
- Strong branches for durable canopy
- Large leaf size for greater retention of pollutants
- Dense foliage for better trapping of pollutants
- Long life span for extended life of the green belt

Plants should be evergreen, large leaved rough bark, indigenous, ecologically compatible, low water requirement, minimum care, high absorption of pollutants, resistant to pollution, agro climatically suitable, height and spread, canopy architecture, growth rate and habit (straight undivided trunk), aesthetic effect (foliage, conspicuous and attractive flower colors), pollution tolerant and dust scavenging capacity.

Trees such as Tamarind (Tamarindus indica) having smaller compound leaves are generally more efficientparticle collectors than larger leaves. Particle deposition is the heaviest at the leaf tip and along leaf margin.

It is necessary to know the pollution tolerance level of the trees before selecting them for planting in green belt. Singh and Rao (1983) have worked out a formula of Air Pollution Tolerance Index (APTI) on the basis of leaf parameters to evaluate the tolerance level of the trees. It is suggested that trees having high APTI value are to be planted in the green belt for minimizing gaseous pollutants. On the other hand, forminimizing dust pollution trees having high dust trapping ability are to be selected.

Further, depending upon the topo-climatological conditions and regional ecological status, selection of appropriate plant species for this purpose should be based upon the following criteria: theplants should be

i. be fast growing
ii. have thick canopy cover
iii. be preferably perennial and evergreen
iv. have large leaf area index
v. be indigenous
vi. be resistant to specific air pollutants
vii. be able to maintain the ecological and hydrological; balance of the region

Tree suitable for the area

Sl.	Botanical name	Common name
1	*Spathodeacampanulata*	African Tulip Tree
2	*Alstoniascholaris*	Alstonia (Chatim)
3	*Cassia fistula spp.*	Amaltas
4	*Punicagranatum*	Anar
5	*Terminaliaarjuna*	Arjuna
6	*Polyalthialongifolia*	Ashok Tree
7	*Acasiaauriculiformis*	Australian Accasia
8	*Emblicaofficinalis*	Anola
9	Acacia nilotica	Babul desi
10	Mimusopselengi	Bakul
11	Aeglemarmelos	Bel
12	Ziziphusjujubai	Bair
13	Meliaazedarach	Bakayan
14	Phyllostachys	Babmboo
15	*Ficus*bengalensis	Bargad (Banyan Tree)
16	*Callistemon citrinus*	Bottel brush (Scarlet)
17	*Cordiamyxa*	Bohar tree
18	*Cassia saimea*	Cassia Saimea (Chakundi)
19	*Casurinaindica*	Casurina
20	*Achraszapota*	Chakotra
21	*Achrassapota*	Chikoo (Sapota)
22	*Michelia champaka*	Champa
23	*Tecomagaudichaudi*	Coral plant
24	*Cocosnucifera*	Coconut
25	*Cassia festula*	Dhanbahar
26	*Terminaliacatappa*	DesiBadam

Sl.	Botanical name	Common name
27	*Psidiumguajava*	Guava
28	*Delonixregia*	GulMohar
29	*Gliricidiamaculata*	Gliricidia
30	*Gardenia*	Gandhraj
31	*Pithecellobiumdulce*	Gangaemli
32	*Ficusracemosa*	Gular (Dumar)
33	*Temrehusindica*	Imli
34	*Ujiniajaimbolana*	Jamun
35	*Bauhinia variegata*	Kachanar
36	*Anthocepholuskadamba*	Kadamba
37	*Senegalia catechu*	Khair
38	*Pongamiaglabra*	Karanj
39	*Carissa carandus*	Karounda
40	*Artocarpusheterophyllus*	Kathal (Jack Fruit)
41	*Theveatiaperuviana*	Kaner (Oleander &Nerium)
42	*Gemelinaarborea*	Khamhar
43	*Mangiferaindica*	Mango
44	*Madhucalongifolia*	Mahua
45	*Ailanthus excelsa*	Maharukh (Mhaneem)
46	*Citrus sinensis*	Musambi
47	*Moringaoleifera*	Munga (Drum Stick)
48	*Mitragynaparvifolia*	Mudhi
49	*Citrus limon Burma*	Neebu
50	*Eucalyptus sp.*	Neel Giri (Safeda)
51	*Azadirachtaindica*	Neem
52	*Peltophorumenerme*	PeltoPhorum
53	*Buteafrandosa*	Palash (Dhak)
54	*Palm tree*	Palm tree (Bottel palm)
55	*Earythrenaindica*	Pangara
56	*Putrangivaroxburghi*	Putranjeeva (Luck Bean Tree)
57	*FicusReligiosa*	Pipal
58	*Bombaxceiba*	Samal tree (Semhra)
59	*Annonacherimola*	Seetaphal
60	*AlbiziaLabeck*	Siris
61	*Morus Alba / Nigra*	Shahtut (Mulberry)
62	*Dalbergiasisoo*	Sisoo
63	*Leucenaleucocehalla*	Subabool
64	*Terminaliatomentosa*	Saja
65	*Tectonagrandis*	Sagon (Teak)
66	*Albizziaprocera, benth*	Safedsiras(Kathi)

Sl.	Botanical name	Common name
67	*Dhobi jeedha*	Tikoma
68	*Prosopis juliflora*	Vilayatikikar
69	*Ceiba pentandra*	White semal (Kpok Tree)
70	*Simaroubaglauca*	Laxmitaru

GREEN BELT DEVELOPMENT PLAN IN MALDI-MOPAR MINE LEASE AREA

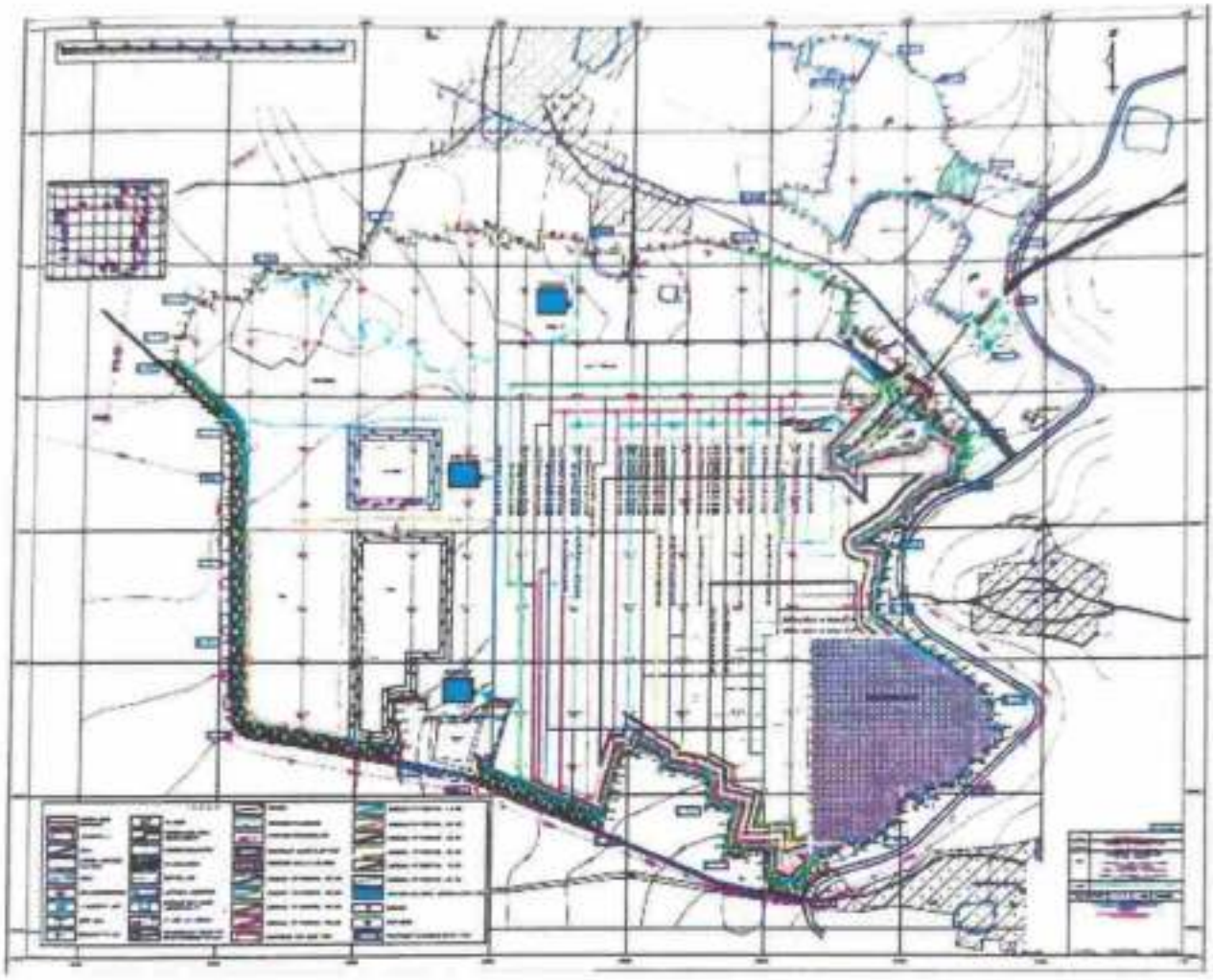
The total Maldi-Mopar mining lease area is 553.656 ha. At conceptual stage, about 219.16ha will be excavated; out of which about 38.25 ha will be backfilled and about 181 ha will be converted into water reservoir.

Green belt area will be developed in 7.5 m periphery of the lease. During the initial five years plantation will be carried out along the 7.5 m of non-mining zone covering 13 ha area.

Thus, total green belt / plantation willbe covered over an area of 70.29 ha. Proposed Green belt &Plantation details till conceptual stage is given in Table-below.

Existing & Proposed Greenbelts and Plantation Details

S.No	Year	7.5 m Safety Barrier Zone at periphery of Mining Lease (Greenbelt)		Plantation on Unworked Area		Backfilled Area		Total	
		Area (Ha)	No. of Plants	Area (Ha)	No. of Plants	Area (Ha)	No. of Plants	Area (Ha)	No. of Plants
1.	Existing	1.68 (1.68+1.92 +2.21=5.81)	3360 (3360 + 4814+5529 =13703)	1.61	3220	0	0	7.42	16923
2.	1st	11.32 (7.19)	22640 (16297)	5.00	10000	0	0	12.19	26297
3.	2nd to 6th	0	0	5.00	10000	0	0	5.00	10000
4.	7th – 11th	0	0	5.00	10000		0	5.00	10000
5.	12th - 16th	0	0	2.43	4860	0	0	2.43	4860
6.	17th - 21st	0	0	0	0	0	0	-	-
7.	22nd - 26th	0	0	0	0	0	0	-	-
8.	27th - 31st	0	0	0	0	16.00	32000	16.00	32000
9.	32nd -36th	0	0	0	0	12.04	24080	12.04	24080
10	36th - 41st	0	0	0	0	10.21	20420	10.21	20420
Total		13	30000	19.04	38080	38.25	76500	70.29	140580



Map Showing Greenbelt developments

EXISTING GREENBELTS & AFFORESTATION

SPECIES SELECTION FOR GREEN BELT DEVELOPMENT

The plants and saplings suitable for the existing soil and site conditions will be considered. Preference will be given for fast growing local plant species, which can adapt to the local climate. Indigenous species will be planted by ACT in consultation with local forest department. The ecological characters of few species proposed to be planted are given below.

List of Plant Species proposed for Green Belt Development

Sl.	Botanical name	Common name
1	*Spathodeacampanulata*	African Tulip Tree
2	*Alstoniascholaris*	Alstonia (Chatim)
3	*Cassia fistula spp.*	Amaltas
4	*Punicagranatum*	Anar
5	*Terminaliaarjuna*	Arjuna
6	*Polyalthialongifolia*	Ashok Tree
7	*Acasiaouriculiformis*	Australian Accasia
8	*Emblicaofficinalis*	Anola
9	Acacia nilotica	Babul desi
10	Mimusopselengi	Bakul
11	Aeglemarmelos	Bel
12	Ziziphusjujubai	Bair
13	Meliaazedarach	Bakayan
14	Phyllostachys	Babmboo
15	*Ficus*bengalensis	Bargad (Banyan Tree)
16	*Callistemon citrinus*	Bottel brush (Scarlet)
17	*Cordiamyxa*	Bohar tree
18	*Cassia saimea*	Cassia Saimea (Chakundi)
19	*Casurinaindica*	Casurina
20	*Achraszapota*	Chakotra
21	*Achrassapota*	Chikoo (Sapota)
22	*Micheliachampaka*	Champa
23	*Tecomaxudichauri*	Coral plant
24	*Cocosnucifera*	Coconut
25	*Cassia festula*	Dhanbalsar
26	*Terminaliacatappa*	DesiBadam
27	*Psidiumguajava*	Guava
28	*Delonixregia*	GulMohar
29	*Gliricidiamasculata*	Gliricidia
30	*Gardenia*	Gamdhraj
31	*Pithecellobiumdulce*	Gangaemli
32	*Ficusracemosa*	Gular (Dumar)

Sl.	Botanical name	Common name
33	*Temredusindica*	Imli
34	*Ujiniajaimbolana*	Jamun
35	*Bauhinia variegata*	Kachanar
36	*Anthocepholuskadamba*	Kadamba
37	*Senegalia catechu*	Khair
38	*Pongamiaglabra*	Karanj
39	*Carissa carandus*	Karounda
40	*Artocarpusheterophyllus*	Kathal (Jack Fruit)
41	*Theveatiaperuviana*	Kaner (Oleander &Nerium)
42	*Gemelinaarborea*	Khamhar
43	*Mangiferaindica*	Mango
44	*Madhucalongifolia*	Mahua
45	*Ailanthus excelsa*	Maharukh (Mhaneem)
46	*Citrus sinensis*	Musambi
47	*Moringaoleifera*	Munga (Drum Stick)
48	*Mitragynaparvifolia*	Mudhi
49	*Citrus limon Burma*	Neebu
50	*Eucalyptus sp.*	Neel Giri (Safeda)
51	*Azadirachtaindica*	Neem
52	*Peltophorumenerme*	PeltoPhorum
53	*Buteafrandosa*	Palash (Dhak)
54	*Palm tree*	Palm tree (Bottel palm)
55	*Earythrenaindica*	Pangara
56	*Putrangivaroxburghi*	Putranjeeva (Luck Bean Tree)
57	*FicusReligiosa*	Pipal
58	*Bombaxceiba*	Samal tree (Semhra)
59	*Annonacherimola*	Seetaphal
60	*AlbiziaLabeck*	Siris
61	*Morus Alba / Nigra*	Shahtut (Mulberry)
62	*Dalbergiasisoo*	Sisoo
63	*Leucenaleucocehalla*	Subabool
64	*Terminaliatomentosa*	Saja
65	*Tectonagrandis*	Sagon (Teak)
66	*Albizziaprocera, benth*	Safedsiras(Karhi)
67	*Dhobi podha*	Tikoma
68	*Prosopisjuliflora*	Vilayatikiker
69	*Ceibapentandra*	White semal (Kpok Tree)
70	*Simaroubaglauca*	Laxmitaru

The above suggested list covers species with thick canopy cover, perennial green nature, native origin and a large leaf area index. The proposed species will help in forming an effective barrier between the mines lease area and the surroundings.

These species should be planted in and around the mine site and integrated cement plant site to help absorb fugitive emissions and reduce the noise levels. All the open spaces, where tree plantation may not be possible, should be covered with shrubs and grass to prevent erosion of topsoil.

PLANTING TECHNIQUE AND AFTER-MANAGEMENT:

PREPARATION OF LAND:

1. Cleaning and levelling of area.
2. Stacking of area for digging of pits.
3. Digging of pits- For plantation of tree sapling spacing should be 3m x 3m x 3m and pit size 1m x 1m x 1m. For smaller size of tree and bushes sapling spacing should be 2m x 2m x 2m and pit size should be 45 cm x 45 cm x 45 cm.
4. Excavated soil should be sun dried thoroughly and to be mixed with farm yard manure in the ration of 2:1 along with bio-pesticide for controlling soil borne insects and pests.
5. Filling of pits by treated and manure mixed soils.

PLANTING OF SALPLINGS:

1. Planting od saplings should be done suring the monsoon season.
2. Sapling should be purchased from the local forest department/private nursery.
3. Healthy sapling having more than 1 meter height should be selected.
4. Company should develop irrigation facility prior to the planting of saplings.

MAINTENANCE OF PLANTATION:

1. Soil work, irrigation, weeding etc should be done for five years after plantation.
2. Preferably drip irrigation facility shall be developed by the company.
3. Replanting/casualty replacement should be done without delay.
4. Proper care and maintenance of saplings at the initial stage of 4 to 5 years is essential. It helps in quick development of canopy which provides for better chances of survival.
5. Proper fertilizer application is necessary for healthy and dense green belt development.
6. Close planting with three tier system keeping dwarf trees with round canopy exposed to the source of emission followed by medium and tall trees with cylindrical canopy

is ideal design for the industrial area because all plants are exposed to the pollutants. This helps to divert the emissions upward as plants act as a physical barrier.

7. Close planting also results in taller trees with deeper roots and ultimately yield more bio-mass per unitarea and more efficient absorption of pollutants. Planting of trees in staggering arrangement in multiplerows across the direction of the wind is recommended for better trapping and absorption of thepollutants. Trees of the front rows act as absorptive layer while the core area (rear rows) clean the air. Dwarf trees and shrubs in multiple rows should be planted all along the periphery by medium and tall trees gradually towards center so that all the plants can intercept from different directions.

BUDGETARY PROVISION FOR GREEN BELT DEVELOPMENT PLAN

The average cost of Green Belt development will be Rs 6 Lakhs per Hectare or Rs 600per plant. Thus the total cost of Green Belt Development in:

Maldi Mopar Limestone Mine Provisionary Budgets:

70.29ha x Rs. 600000 = Rs.42, 174,000.00 (Rupees- Four Crore Twenty One Lakh Seventy Four Thousand only).

MAHESH CHANDRA [illegible]
MANAGING PARTNER
ENVIROCREEDS

Divisional Forest Officer

Annexu-6, 9, 18

Ultimate
ENVIROLYTICAL SOLUTIONS

HDD-272, Phase III - Near JP Chowk
Ring Road No.-2, Kabir Nagar, Raipur (C.G.) - 492099
Ph : 0771 - 4027777 I Email : ultimatenviro@gmail.com

Recognized by Ministry of Environment Forest and Climate Change under EP act 1986

Name & Address Of The Customer			
TO, **AMBUJA CEMENT LIMITED** **(UNIT: BHATAPARA)** **P.O. Rawan, Tehsil: Baloda Bazar,** **Dist: Baloda Bazar-Bhatapara-493331**	REPORT NO	UES/TR/22-23/03625	
	LAB REF NO	UES/22-23/AAQM/09047-09054	
	DATE OF SAMPLING	01/09/2022 to 26/09/2022	
	DATE OF RECEIPT	02/09/2022 to 27/09/2022	
	DATE OF REPORT	01/10/2022	
	DATE OF ANALYSIS	START: 03/09/2022	END: 01/10/2022

SAMPLE DETAILS

MONITORING FOR	AMBIENT AIR QUALITY MONITORING	CUSTOMER REF. NO. & DATE	2800900967/NE08 Date: 07/06/2022
SAMPLING LOCATION	CORE ZONE		
DURATION OF SAMPLING	24 HOURS	SAMPLE COLLECTED BY	LABORATORY CHEMIST
SAMPLING PROCEDURE	AS PER METHOD REFERENCE		
SAMPLE QUANTITY/PACKING	FILTER PAPER (PM_{10}) : 1X1 NO., FILTER PAPER ($PM_{2.5}$) : 1X1 NO. SO_2: 30MLX1 NO. PVC BOTTLE, NO_2: 30MLX1 NO. PVC BOTTLE RUBBER BLADDER: 1X1 NO.		

Test Method and NAAQM Standard for Ambient Air Quality Monitoring

Parameter	Method Reference	NAAQM Standard
Particulate Matter size less than 10 microns (PM_{10})	IS 5182 (Part 23): 2006 & CPCB Guidelines Vol.-I	100
Particulate Matter size less than 2.5 microns ($PM_{2.5}$)	IS 5182 (Part 24): 2019, CPCB Guidelines Vol.-I	60
Sulphur Dioxide (SO_2)	IS 5182 (Part 2): 2001, RA 2006 & CPCB Guidelines Vol.-I	80
Nitrogen Dioxide (NO_2)	IS 5182 (Part 6): 2006 & CPCB Guidelines Vol.-I	80
Carbon Monoxide (CO)*	IS 5182(Part 10):1999, RA 2003	4.0

Sampling Location	Date of Sampling	PM_{10} µg/m³	$PM_{2.5}$ µg/m³	SO_2 µg/m³	NO_2 µg/m³	CO* mg/m³
MALDI MINES (ROOF TOP OF THE FIELD OFFICE)	01.09.2022	54.6	20.8	16.8	28.5	0.28
	05.09.2022	62.2	26.6	12.2	22.2	0.22
	08.09.2022	50.6	22.2	14.6	26.8	0.26
	12.09.2022	64.4	22.4	9.8	22.0	0.22
	16.09.2022	46.8	28.8	16.4	28.6	0.10
	19.09.2022	52.2	24.2	10.2	30.2	0.24
	23.09.2022	58.5	22.6	14.6	22.8	0.16
	26.09.2022	60.7	26.8	12.4	24.4	0.22

Terms & conditions

- *The report for publication, arbitration or as legal dispute is forbidden.*
- *Test sample will be retained for 15 days after issue of test report unless otherwise agreed with customer.*
- *This is for information as the party has asked for above test(s) only.*

01/10/22 REVIEWED BY		For ULTIMATE ENVIROLYTICAL SOLUTIONS 01/10/22 AUTHORIZED SIGNATORY

----------*End of the test report*----------

Ultimate
ENVIROLYTICAL SOLUTIONS

HDD-272, Phase III - Near JP Chowk
Ring Road No.-2, Kabir Nagar, Raipur (C.G.) - 492099
Ph : 0771 - 4027777 I Email : ultimatenviro@gmail.com

Recognized by Ministry of Environment Forest and Climate Change under EP act 1986

Name & Address Of The Customer

TO,
AMBUJA CEMENT LIMITED
(UNIT: BHATAPARA)
P.O. Rawan, Tehsil: Baloda Bazar,
Dist: Baloda Bazar-Bhatapara-493331

REPORT NO.	UES/TR/22-23/03639	
LAB REF NO.	UES/22-23/AAQM/09074-09077	
DATE OF SAMPLING	07/09/2022	
DATE OF RECEIPT	08/09/2022	
DATE OF REPORT	12/09/2022	
DATE OF ANALYSIS	START:08/09/2022	END:12/09/2022

SAMPLE DETAILS

Monitoring For	Ambient Air Quality Monitoring
Sampling Location	Buffer Zone
Customer Ref. No. & Date	2800900967/NE08,Date 07/06/2022
Duration Of Sampling	As per CPCB norms
Sample Collected by	Laboratory Chemist
Sampling Procedure	As Per Method Reference
Sample Quantity/Packing	Filter Paper (PM10): 1X1 No., Filter Paper (PM2.5): 1X1 No. 202: 30mlX1 No. PVC Bottle, NO2: 30mlX1 No. PVC BOTTLE, Rubber Bladder: 1X1 No., CSW6: CARCOAL Tube, OZONE: 10MLX1 No. Brown PVC Bottle, NH4:10MLX1 No. Brown PVC Bottle

TEST REPORT

Parameter	Unit	NAAQM Standard	METHOD REFERENCE	Devrani Village	Karmandi Village	Mopar Village	Maldi Village
Particulate Matter size less than 10 microns (PM_{10})	$\mu g/m^3$	100	IS 5182(Part 23):2006 & CPCB Guidelines Vol.-I	58.8	62.8	55.4	64.8
Particulate Matter size less than 2.5 microns ($PM_{2.5}$)	$\mu g/m^3$	60	IS 5182(Part 24):2019 & CPCB Guidelines Vol.-I	26.4	22.2	28.4	20.2
Sulphur Dioxide (SO_2)	$\mu g/m^3$	80	IS 5182(Part 2):2001, RA 2006 &CPCB Guidelines Vol.-I	18.4	12.2	10.8	9.4
Nitrogen Dioxide (NO_2)	$\mu g/m^3$	80	IS 5182(Part 6): 2006 & CPCB Guidelines Vol.-I	26.4	20.4	28.5	26.2
Carbon Monoxide (CO)	mg/m^3	4.0	IS 5182(Part 10):1999, RA 2003	0.16	0.12	0.18	0.11
Ozone (O_3)	$\mu g/m^3$	180	CPCB Guidelines Vol-I	9.6	8.4	12.4	8.2
Ammonia (NH_3)	$\mu g/m^3$	400	CPCB Guidelines Vol-I	26.4	22.8	20.8	22.4
Arsenic (As)	ng/m^3	6.0	CPCB Guidelines Vol-I and AAS Method	N.D.	N.D.	N.D.	N.D.
Nickel (Ni)	ng/m^3	20	CPCB Guidelines Vol-I and AAS Method	N.D.	N.D.	N.D.	N.D.
Lead (Pb)	$\mu g/m^3$	1.0	CPCB Guidelines Vol-I and AAS Method	N.D.	N.D.	N.D.	N.D.
Benzene (C_6H_6)	$\mu g/m^3$	5.0	IS 5182 (Part 11):2006	N.D.	N.D.	N.D.	N.D.
Benzo(a)Pyrene	ng/m^3	1.0	IS 5182 (Part 12):2014	N.D.	N.D.	N.D.	N.D.

Note: N.D.: Not Detected.

REMARKS: RESULTS ARE AS ABOVE

Terms & conditions

- The use of the report for publication, advertise or as the legal dispute is forbidden.
- Test sample will be retained for 15 days after issue of test report unless otherwise agreed upon the customer.
- This is for information to the party you asked for above tested only.

12/09/22
REVIEWED BY

For ULTIMATE ENVIROLYTICAL SOLUTIONS
12/09/22
AUTHORIZED SIGNATORY

End of the test report

Ultimate
ENVIROLYTICAL SOLUTIONS

HDD-272, Phase III - Near JP Chowk
Ring Road No.-2, Kabir Nagar, Raipur (C.G.) - 492099
Ph : 0771 - 4027777 I Email : ultimateenviro@gmail.com

Recognized by Ministry of Environment Forest and Climate Change under EP act 1986

Name & Address Of The Customer			
TO, **AMBUJA CEMENT LIMITED** **(UNIT: BHATAPARA)** **P.O. Rawan, Tehsil: Baloda Bazar,** **Dist: Baloda Bazar-Bhatapara-493331**	REPORT NO.	UES/TR/22-23/03640	
	LAB REF NO.	UES/22-23/AAQM/09078-09081	
	DATE OF SAMPLING	15/09/2022	
	DATE OF RECEIPT	16/09/2022	
	DATE OF REPORT	22/09/2022	
	DATE OF ANALYSIS	START: 16/09/2022	END: 22/09/2022

SAMPLE DETAILS	
Monitoring For	Ambient Air Quality Monitoring
Sampling Location	Buffer Zone
Customer Ref. No. & Date	2800900967/NE08, Date:07/06/2022
Duration Of Sampling	As per CPCB norms
Sample Collected by	Laboratory Chemist
Sampling Procedure	As Per Method Reference
Sample Quantity/Packing	Filter Paper (PM10): 1X1 No., Filter Paper (PM2.5): 1X1 No. SO2: 30mlX1 No. PVC Bottle, NO2: 30mlX1 No. PVC BOTTLE, Rubber Bladder: 1X1 No., CAM: CHARCOAL Tube. OZONE: 10MLX1 No. Brown PVC Bottle, NH4:10MLX1 No. Brown PVC Bottle

TEST REPORT

Parameter	Unit	NAAQM Standard	METHOD REFERENCE	Parsadi Village	Mudhipar Village	Kairatal Village	Bhadrapali Village
Particulate Matter size less than 10 microns (PM_{10})	$\mu g/m^3$	100	IS 5182(Part 23):2006 & CPCB Guidelines Vol.-I	68.2	58.5	50.4	62.8
Particulate Matter size less than 2.5 microns ($PM_{2.5}$)	$\mu g/m^3$	60	IS 5182(Part 24):2019 & CPCB Guidelines Vol.-I	28.4	22.8	26.4	20.8
Sulphur Dioxide (SO_2)	$\mu g/m^3$	80	IS 5182(Part 2):2001, RA 2006 &CPCB Guidelines Vol.-I	10.8	16.4	9.8	14.4
Nitrogen Dioxide (NO_2)	$\mu g/m^3$	80	IS 5182(Part 6): 2006 & CPCB Guidelines Vol.-I	22.4	20.2	28.4	26.4
Carbon Monoxide (CO)	mg/m^3	4.0	IS 5182(Part 10):1999, RA 2003	0.16	0.18	0.22	0.28
Ozone (O_3)	$\mu g/m^3$	180	CPCB Guidelines Vol-I	20.5	16.4	10.8	18.4
Ammonia (NH_3)	$\mu g/m^3$	400	CPCB Guidelines Vol-I	28.6	20.8	26.4	28.2
Arsenic (As)	ng/m^3	6.0	CPCB Guidelines Vol-I and AAS Method	N.D.	N.D.	N.D.	N.D.
Nickel (Ni)	ng/m^3	20	CPCB Guidelines Vol-I and AAS Method	N.D.	N.D.	N.D.	N.D.
Lead (Pb)	$\mu g/m^3$	1.0	CPCB Guidelines Vol-I and AAS Method	N.D.	N.D.	N.D.	N.D.
Benzene (C_6H_6)	$\mu g/m^3$	5.0	IS 5182 (Part 11):2006	N.D.	N.D.	N.D.	N.D.
Benzo(a)Pyrene	ng/m^3	1.0	IS 5182 (Part 12):2014	N.D.	N.D.	N.D.	N.D.

Note: N.D.: Not Detected.

REMARKS: RESULTS ARE AS ABOVE

Terms & conditions

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- This is for information of the party has asked for above tests only.

22/09/22
REVIEWED BY

For ULTIMATE ENVIROLYTICAL SOLUTIONS
22/09/22
AUTHORIZED SIGNATORY

----------End of the test report----------

Ambient Air Quality Monitoring Data Taken From NABL Aproved Laboratories APRIL 2022 - SEPTEMBER 2022 Ambuja Cement Plant ,Maldi Mopar Mines

Name Of Location	Month of April 2022									
	PM10		PM2.5		SO2		NO2		CO	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
MALDI MINES OFFICE	57.2	68.1	18.1	26.3	8.4	13.6	18.6	23.8	0.182	0.251
	Month of May 2022									
	PM10		PM2.5		SO2		NO2		CO	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
	63.8	70.3	23.2	27.5	15	17.5	17.5	21	0.448	0.611
	Month of June 2022									
	PM10		PM2.5		SO2		NO2		CO	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
	81.3	89.4	40.3	48.5	8.2	16.4	16.8	32.6	0.12	0.34
	W									
	Month of July 2022									
	PM10		PM2.5		SO2		NO2		CO	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
	72.2	84.7	34.5	44.6	9.2	16.2	18.8	30.2	0.16	0.38
	Month of August 2022									
	PM10		PM2.5		SO2		NO2		CO	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
	62.8	74.8	20	36.4	8.4	16.8	20.5	32.4	0.12	0.34
	Month of September 2022									
	PM10		PM2.5		SO2		NO2		CO	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
	46.8	64.4	20.8	28.8	9.8	16.8	20.2	30.2	0.1	0.28

Annexure 9

Ground Water structure Maldi Mopar

Structure 01

Structure 02

Structure 03

Annexue -8

Typical View of Pipeline conveyor belt from Mine To Plant Project Site .

Annexure-10

LAND OUTSEE STUDY
& SOCIAL SURVEY OF THE CORE ZONE VILLAGES

OF

THE MALDI-MOPAR LIMESTONE MINING PROJECT

AT

Maldi, Mopar, Devrani,
Karmandih and Boirdih Villages, Baloda Bazar & Bhatapara Tehsil,
Baloda Bazar- Bhatapara District, Chhattisgarh

FOR

M/s. Ambuja Cements Limited

P.O-Rawan, Tehsil- Baloda Bazar,
Distt. Baloda Bazar- Bhatapara, Pincode :493331

PREPARED BY

SRUSHTI SEVA PRIVATE LTD.
"Bilvadal" 8, Janta Layout, Deendayal Nagar,
Nagpur (Maharashtra) - 440022
Landline : 0712 2971968
Email- srspl15@gmail.com, srushtisewa@yahoo.com

MARCH 2022

Annexure - 10

ACRONYMS

ARO	:	Assistant Resettlement Officer
AWC	:	Anganwadi Centre
BDO	:	Block Development Officer
BPL	:	Below Poverty Line
BSR	:	Basic Schedule Rates
DGM	:	Deputy General Manager
DP	:	Displaced Person
DF	:	Displaced Family
EA	:	Executing Agency
FGD	:	Focus group discussions
GoI	:	Government of India
GoC	:	Government of Chattisgarh
GP	:	Gram Panchayat
GRC	:	Grievance Redressal Committee
HIV/AIDS	:	Human Immunodeficiency virus / Acquired immunodeficiency syndrome
HH/s		Household/s
ICDS	:	Integrated Child Development Services
KII	:	Key Informant Interview
MTPA	:	Million Tonnes Per Annum
NGO	:	Non-Government Organization
NH	:	National Highway
NTH	:	Non-Title Holder
OBC	:	Other Backward Castes
PIA	:	Project Impact Area
PHC	:	Primary health centre
PMU	:	Project Monitoring Unit
RFCTLARR		Right to Fair Compensation and Transparency in Land Acquisition Resettlement and Rehabilitation
Rs	:	Rupee, Indian currency
R&R	:	Resettlement and Rehabilitation
RP	:	Resettlement Plan
SH	:	State Highway
SC	:	Scheduled Castes
ST	:	Scheduled Tribes
TH	:	Title Holder

INDEX

TABLE

FIGURE

ANNEXURE

EXECUTIVE SUMMARY

Project Description:

Ambuja Cements Limited (ACL) popularly known as 'Ambuja Cement' is a leading manufacturer of various types of cements in India. ACL is one of the largest integrated cement companies in the country. It owns and operates cement manufacturing plants at Six Locations, besides cement grinding units, located in various parts of India, with a total installed capacity of over 31.0 MTPA. The company has operating cement plants at Six Locations Namely Chhattisgarh, Gujarat, Himachal Pradesh, Rajasthan and Maharashtra. Besides, the company has clinker-grinding units at Ropar and Bhatinda in Punjab, Sankrail and Farakka in West Bengal, Roorkee in Uttarakhand and Surat in Gujarat. ACL presently has a total installed capacity of over 31.0 MTPA.

Scope of Land Acquisition and Land Outsee status

The Socio-Economic Survey carried out for 1862 Persons living in 405 household. The Census Survey was carried out for 138 household along with affected 186 private structures and 9 are common property resource. An identification survey of displaced persons was carried out by Consultant to identify the displaced persons and generate an inventory of losses, as well as a socio-economic profile of the project displaced person. The identification was based on detail measurement survey based on final Mine Plan. In addition, their perceptions about the project, rehabilitation and resettlement options were ascertained. The identification was carried out in the month of February 2022 to March 2022.

The Maldi-Mopar limestone mining project covers a lease area of about 553.656-ha of land (>100-ha) and thus it is scheduled under "Category-A" project, as per the EIA Notification dated 14th September 2006. The mining lease area comprises of agricultural fields with partly rocky and barren waste land. The total mining lease area is 553.656 ha which spreads in five villages Boirdih, Karmandih, Maldi, Mopar and Devrani . Out of Total Area, 53.686ha. Govt. waste Land and 499.970 Ha Pvt. Agriculture Land. 439.930 Ha Pvt. Land has already been acquired through direct purchase and only 60.040 Ha land will be acquired on one to one basis with individual farmer.

within stipulated time of issued public notice, then the collectorshall proceed to the purchase of land from land owner/possessor in favour of concerned Department (s) / Undertaking(s) / Institution (s) of State Government.

j. Within a period of one year from the date of receipt of written acceptance from land owner/possessor, the collector shall purchase the said land in favour of concerned Department(s) / undertaking(s) / Institution (s) of State Government and shall make the payment, to land owner(s) / possessor (s) of specified land/ cost of assets existed on it and additional grant amount.

k. Stamp duty Registration fee payable for the Registration of said land and other requisite expenses shall be borne by concerned Department/ undertaking / Institution.

l. The purchase of land under this policy shall be executed in the name of "Collector on behalf of Governor of Chhattisgarh" The Tehsildar Divisional Office Revenue of the concerned Region / area is hereby authorized to signon sale deed.

m. After the registration of purchase deed, the transfer of land shall be endorsed in Revenue records in favour of Govt. of Chhattisgarh. Wherein, the name concerned department/ undertaking / Institution shall also be endorsed. Such as Chhattisgarh Govt. water Resources. Department or Govt. of Chhattisgarh, Public Works Department etc.

n. After the purchase of land as above, if the project is withdrawn or become unsuccess, and because of this, this land becomes no more in need, thenthe land so purchased shall be handed over to revenue Department by concerned department/ undertaking / Institution. The land so handed over to Revenue Department may be allotted in future for any other government purpose or development projects etc.

o. In case of need of any government land given on lease for forming by Govt. for any project, the collector may, under this policy, examine the essentiality of lease and by evaluating the cost as like land of ownership and computing the amount of grant, the equivalent amount may be granted to lesser as grant on handing over of lease willingly by him.

Annexure 3:

Consent Form

Form A

Collector

Sl. No. Date:

Land Purchase Proposal

To
Sub: Proposal for purchasing land of your lien due to land requirement for the project ofPWD Chhattisgarh Road Project.

PWD, Chhattisgarh Government wants to buy your lien land because of the requirement of the land for the project of.....

Description of the Land and Asset

1. Detail of land (Khasra, Plot No., area, village and tehsilwith chouhaddi)	
2. Market value of the land calculated on the basis of the guideline issued by the collector for the year.....	
3. Detail of the real estate situated on the said land, ifany.	
4. Value calculated by the respective department of realestate.	
5. Total value (2+4)	
6. Solatium equivalent to the total value.	
7. Total proposed purchase price.	
8. Resettlement grant as 50% of compensation amount orRs. 5 Lacs whichever is less.	

According to the above details, the total market value of the land / plots held by you and the total assets on it are Rs. ..... .If you agree to sell in favor of the PWD, Chhattisgarh Government then in the form of the consideration, you will be given the value mentioned in the above given amount and the amount of solatium Rs... and resettlement grant Rs. .....total Rs.....is proposed to be given. It is expected that, in accordance with the above details, you submit your consent to sell the land/plot and the real estate located on it, in the "form B" attached with this proposal, in my office by yourself or through authorized representative, within 15 days of the receipt of the proposal, in the favor of PWD Chhattisgarh.
If the proposal is submitted on your behalf in "form B", then your lien land /plots with the real estate located on it will be bought in favour of PWD, Chhattisgarh Government for the subject project.

Upon receipt of your acceptance, a lien will be checked and if the land/plot is found in your clean lien, you have to execute a sales deed within 12 months. Payment will be madeat the time of execution of sale deed

Form B

Consent Letter

I/we..... s/o .....age.....year, permanent address.....tehsil district present address.....district ....., letter no. of Collector..... dated.....the land of my lien whose details are given in the schedule below, according to the proposal received by the Collector to the land for the project of the the compensation mentioned in the proposal with solatium Rs.....(in words.....)and equivalent resettlement grant, give acceptance for the sale.

2. I /we declare that the proposed land is in all my/our clean lien and there is no prevalence of any prejudice related to any court / authority concerning this land and the proposed land is free from all encumbrances.

3. Proposed land is not controversial

(If there is a dispute then its details should be given.)

Schedule

Land Details

.....

.....

Signature

Acceptor Landlord

Place..... Date

Witness:

.....

.....

Annexure- II, 119

LANDUSE LANDCOVER CHANGE DETECTION (2018-19) - (2021-2022)

Based on Geospatial Technology

for

THE MALDI-MOPAR LIMESTONE MINING PROJECT

Maldi, Mopar, Devarani,
Karmandih and Boirdih Villages,
Baloda Bazar-Bhatapara District, Chhattisgarh
Project Area =553.65 Ha

Project Proponent

M/s. Ambuja Cements Limited .

P.O.-Rawan, Tehsil- Baloda Bazar,
Distt. Baloda Bazar- Bhatapara,
Pincode :493331

EIA Consultant

Srushti Seva Pvt. Ltd.

NABET Accredited
EIA Consultant Organization
Certificate No. NABET/EIA/1821/
SA 0107 Valid till 09/06/2022

April 2022

INDEX

TABLE

FIGURE

CHAPTER -1: INTRODUCTION

1.1 The Project & Project Proponent:

Ambuja Cements Ltd is India's foremost cement company known for its hassle-free, home-building solutions. Unique products tailor-made for Indian climatic conditions, sustainable operations and initiatives that advance the company's philosophy of contributing to the larger good of the society, have made it the most trusted cement brand in India.

Ambuja Cements Ltd., a member of Holcim - global leader in innovative and sustainable building solutions, is among the leading cement companies in India. Ambuja Cement has provided hassle-free, home-building solutions with its unique sustainable development projects and environment-friendly practices since it started operations. Currently, Ambuja Cement has a cement capacity of 31 million tonnes with ~~six~~ integrated cement manufacturing Plant at Six Locations and eight cement grinding units across the country.

The company has many firsts to its credit – a captive port with four terminals that has facilitated timely, cost-effective, cleaner shipments of bulk cement to its customers. To further add value to our customers, the company has launched innovative products like Ambuja Roof Special, Ambuja Cool Walls, Ambuja Kawach and Ambuja Cement Compocem. The new products not only fulfil important customer needs but also help in significantly reducing carbon footprints.

Ambuja Cement is the industry leader in responsible use of resources, both natural and man-made. The company has been certified over eight times water positive, a feat achieved through conservation efforts and increasing water efficiency in its plants. It is also plastic negative, by burning as much as over 75,000 tonnes of plastic waste in its kilns, equivalent to 2.5 times of total plastic used. The company also generated 7.1% of its power needs from renewable resources.

Sustainable profitable growth is ingrained in the company's DNA. Ambuja Cement's multi-pronged strategy, including triple bottom line accounting method; True Value; good corporate governance practices; overarching corporate environment policy; and sustainable

supply chain policy have helped cement the company's credentials as a sustainable manufacturer. Ambuja Cement's Sustainable Development Ambition 2030 provides strategic direction to the company's long-term sustainability vision. All Ambuja Cement Plants are ISO 14001 certified.

Ambuja Knowledge Centres (AKCs), a unique initiative by the company, serves as a knowledge sharing platform for construction professionals that includes practical workshops on mix design and quality supervision. Currently, over 30 AKCs are functional across India.

The company also works closely with communities that live around its plants, through its CSR arm, the Ambuja Cement Foundation (ACF). ACF implements need-based and participatory programmes in the thematic areas of water resource development, health and sanitation, women empowerment, rural infrastructure, education and agro-based/skill-based livelihood creation.

The company's most distinctive attribute is its approach to business. Ambuja Cement follows a unique home-grown philosophy I CAN that gives people the authority to set their own targets and the freedom to achieve their goals. Its focus has been consistent on two major building blocks that has resonated through its daily operations – Quality (of products) and Safety (of all those involved in the creation of its products).

The company's quintessential I CAN spirit has ensured a product that embodies Giant Strength.

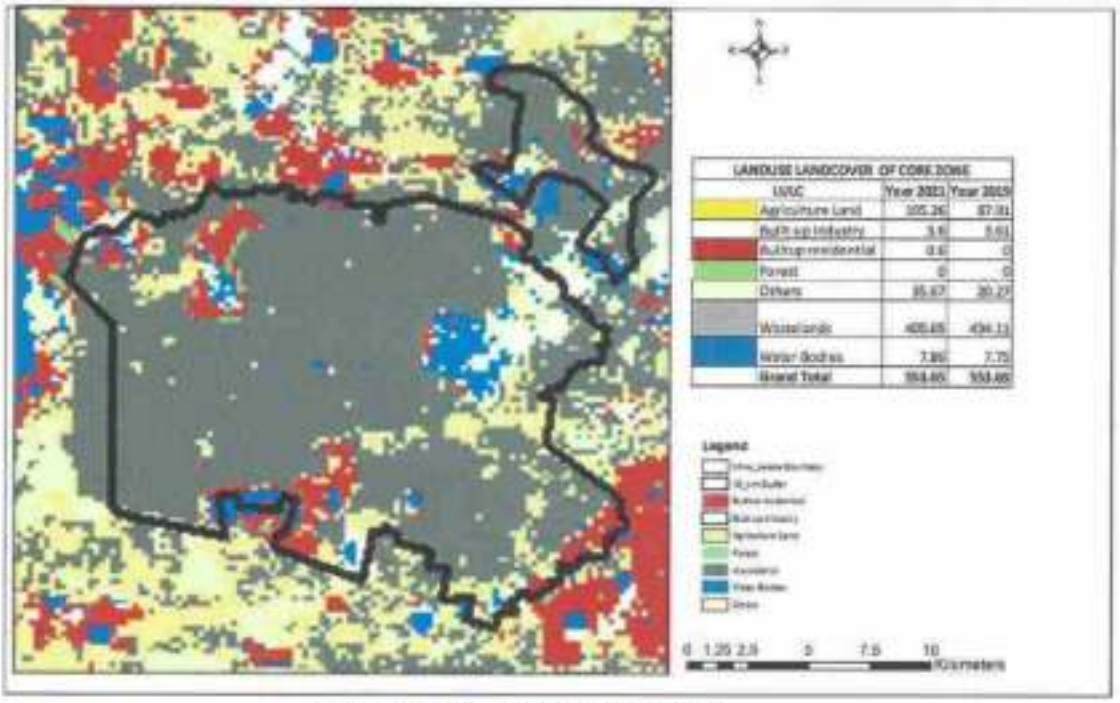

Figure 3.6: Core Zone Landuse/Landcover Image

The Landuse Landcover change for the year 2019-2021 are provided in the table below of core Zone **Table 3.3.**

Table 3.3: Landuse /Landcover Change in Core Zone 2019-2021

LEVEL -I	Level -II	Level -III	% Area (2019)	Area in Ha (2019)	% Area (2021)	Area in Ha (2021)
Built-up	Residential		0	0	0.11	0.6
	Industrial Area		0.65	3.61	0.65	3.61
Agriculture Land	Crop Land	Kharif Land	8.3	45.94	9.10	50.36
		Rabi Crop	0.18	0.97	0.22	1.23
		Kharif+Rabi Crop	1.55	8.61	1.76	9.77
	Fallow Land		5.49	30.37	7.28	40.3
	Afforestation / Plantation		0.36	2.02	0.65	3.6
Forest	Very Dense Forest		0	0	0.00	0
	Dense Forest		0	0	0.00	0
	Open Forest		0	0	0.00	0
	Scrub Forest		0	0	0.00	0
Waste Land	Dense Scrub		1.39	7.71	1.57	8.71
	Open Scrub		77.02	426.41	70.91	392.61
Water Bodies	River/Nala/Canal		0	0	0.00	0
	Lake/Pond/Reservoir		1.28	7.08	1.28	7.08
	Mine Sump		0.12	0.67	0.02	0.11
Others	Excavated Are (Mining, Pits, Stone Quarry)		2.02	11.18	4.64	25.68
	Dump		0.66	3.64	0.66	3.64
	Safety Barrier/ Embankment		0.99	5.46	1.15	6.35
		Total	**100**	**553.65**	100.00	**553.65**

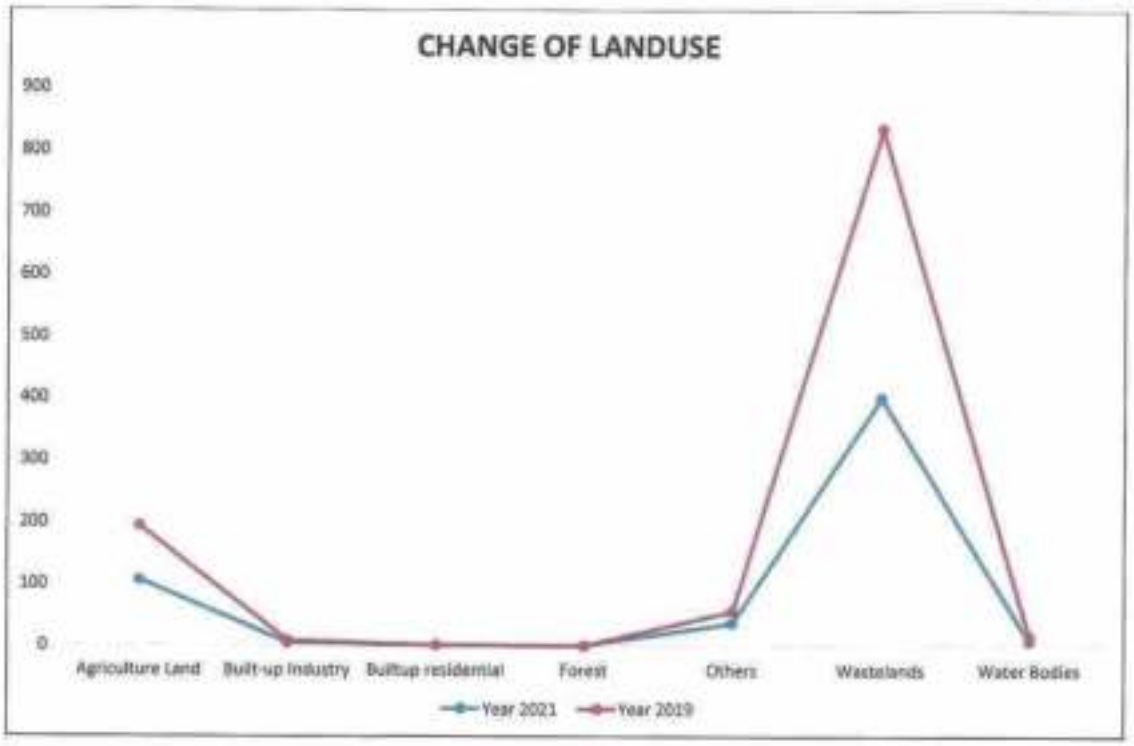

Figure 3.7: Landuse Landcover of 2019-2021

CHAPTER -4: CONCLUSION

The land use/cover assessment using satellite imagery provides reliable and accurate information, which is cost and time effective. It also offers a holistic view of large areas for better monitoring of land use/cover occurrence and distribution. Hence, satellite remote sensing and GIS techniques are useful tools for assessing the land use / land cover which is one of the important components for monitoring, planning and development of an area.

Based on the analysis of the two cycles of landuse landcover mapping for the specified years 2019 and 2021 spanning for a duration of 2 years, it can be concluded that the mining area is not impacting any major change on the surrounding ambient geo environment.

Since both the landuses have been carried out with single season satellite imagery, the cropland and fallow area statistics show certain variations. However, the total agricultural area does not show any remarkable increase or decrease.

The mining area statistics also show alterations in the intermittent categories namely active mine, Mining area and water stored in the excavations.

The plantation surrounding the ML areas are predominantly visible with the bright red tone and texture indicating well-maintained green belt surrounding the mine area.

The other relevant landuse landcover classes like water, canal, built up, etc. mapped in 2021 are in tune with the 2019 stature and do not show any major change.

The Plantation in the Core Zone has increased from 2.02 % to 3.6 % while plantation is also increased from 0.7 % to 0.78 % in buffer zone during the 2019 to 2021Landuse change detection study.

The indicates incremental green belt within core Zone as well as within buffer Zone area. The efforts for development of plantation and its maintenance results in such incremental growth.

##########

Annexure – 12

Maldi Mopar Mines Digital Piezo Meter Monitoring

Annexu-12

Nilawar Laboratories
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ISO 9001:2015
ISO 14001:2015
ISO 45001:2018
NABL ACCREDITED LAB

CIN No. U74140MH112009PTC196108

Report No.: GE-Nilawar/EMS/2022/Feb/45	Report Date: 21/02/2022
Name & Address of the Customer: **M/s. Ambuja Cements Limited [Unit-Bhatapara], Address: Village-Rawan, Tehsil-Baloda Bazar, Dist. Bhatapara (C.G.)**	
Sample Description : Ground Water Sample Sampling Ref Method : IS :3025 Sampled by : GYAN Enviro Representative Sampling Date : 15.02.2022 Sample Receipt Date : 16.02.2022	Sampling Location: **Bore well water at Rawan Village** Sample Reference: GE-NW/Feb/45/GW-1 Date of Analysis started : 17.02.2022 Date of Analysis completed: 21.02.2022 Testing Period : 5 Days

S. N	Parameters	Unit	As per IS 10500:1991		Values
			Desirable	Permissible	GW-1
1	Color	Hazen	5	25	1.1
2	Odour	AG	AG	AG	AG
3	Taste	AG	AG	AG	AG
4	Turbidity	NTU	5	10	0.5
5	Total Dissolved Solids	mg/l	500	2000	210
6	pH at 25 ^{0}C	--	6.5 – 8.5	NR	8.04
7	Dissolved Oxygen (DO)	mg/l	-	-	5.5
8	Biochemical Oxygen Demand	mg/l	-	-	<3.0
9	Chemical Oxygen Demand	mg/l	-	-	8
10	Conductivity	$\mu S/cm^{-1}$	-	-	318
11	Total Alkalinity as $CaCO_3$	mg/l	200	600	145
12	Total Hardness as $CaCO_3$	mg/l	300	600	211
13	Calcium as Ca^{++}	mg/l	75	200	50.6
14	Magnesium as Mg^{++}	mg/l	30	100	20.3
15	Chlorides as Cl	mg/l	250	1000	38.5
16	Sulphates as SO_4	mg/l	200	400	25.8
17	Fluoride as F	mg/l	1	1.5	0.12
18	Nitrates as NO_3	mg/l	45	NR	6.6
19	Iron as Fe	mg/l	0.3	1	0.02
20	Manganese as Mn	mg/l	0.1	0.3	< 0.01
21	Zinc as Zn	mg/l	5	15	<0.01
22	Copper as Cu	mg/l	0.05	1.5	< 0.01
23	Aluminium as Al	mg/l	0.03	0.2	< 0.01
24	Boron as B	mg/l	1	5	< 0.01
25	Total Coliform	MPN/100 ml	Absent	NR	Absent
26	E. Coli	MPN/100 ml	Absent	NR	Absent
B. Toxic Substance					
27	Cadmium & its Compounds as Cd	mg/l	0.01	NR	< 0.005
28	Arsenic & its Compounds as As	mg/l	0.01	NR	< 0.005
29	Lead & its Compounds as Pb	mg/l	0.05	NR	< 0.001
30	Chromium & its compound as Cr	mg/l	0.05	NR	<0.01
31	Mercury as Hg	mg/l	0.001	NR	BDL

Note: NTU – Nephelometric Turbidity Unit, NR – No Relaxation

For M/s Nilawar Laboratories,

Renuka Yadav
(Authorized Signatory)

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CIN No. U74140MH112009PTC196108

Report No.: GE-Nilawar/EMS/2022/Feb/45 | Report Date: 21/02/2022

Name & Address of the Customer: **M/s. Ambuja Cements Limited [Unit-Bhatapara],**
Address: Village-Rawan, Tehsil-Baloda Bazar, Dist. Bhatapara (C.G.)

Sample Description	: Ground Water Sample	Sampling Location: **Bore well water at Maldi Village**	
Sampling Ref Method	: IS :3025	Sample Reference: GE-NW/Feb/46/GW-2	
Sampled by	: GYAN Enviro Representative	Date of Analysis started	: 17.02.2022
Sampling Date	: 15.02.2022	Date of Analysis completed:	21.02.2022
Sample Receipt Date	: 16.02.2022	Testing Period	: 5 Days

S. N	Parameters	Unit	As per IS 10500:1991		Values
			Desirable	Permissible	GW-2
1	Color	Hazen	5	25	1.1
2	Odour	AG	AG	AG	AG
3	Taste	AG	AG	AG	AG
4	Turbidity	NTU	5	10	0.45
5	Total Dissolved Solids	mg/l	500	2000	179
6	pH at 25 °C	--	6.5 – 8.5	NR	7.05
7	Dissolved Oxygen (DO)	mg/l	-	-	5.8
8	Biochemical Oxygen Demand	mg/l	-	-	<3.0
9	Chemical Oxygen Demand	mg/l	-	-	8
10	Conductivity	$\mu S/cm^{-1}$	-	-	271
11	Total Alkalinity as $CaCO_3$	mg/l	200	600	155
12	Total Hardness as $CaCO_3$	mg/l	300	600	208
13	Calcium as Ca^{++}	mg/l	75	200	50
14	Magnesium as Mg^{++}	mg/l	30	100	20
15	Chlorides as Cl	mg/l	250	1000	20.4
16	Sulphates as SO_4	mg/l	200	400	26.7
17	Fluoride as F	mg/l	1	1.5	0.16
18	Nitrates as NO_3	mg/l	45	NR	9.2
19	Iron as Fe	mg/l	0.3	1	0.01
20	Manganese as Mn	mg/l	0.1	0.3	< 0.01
21	Zinc as Zn	mg/l	5	15	<0.01
22	Copper as Cu	mg/l	0.05	1.5	< 0.01
23	Aluminium as Al	mg/l	0.03	0.2	< 0.01
24	Boron as B	mg/l	1	5	< 0.01
25	Total Coliform	MPN/100 ml	Absent	NR	Absent
26	E. Coli	MPN/100 ml	Absent	NR	Absent
B. Toxic Substance					
27	Cadmium & its Compounds as Cd	mg/l	0.01	NR	< 0.005
28	Arsenic & its Compounds as As	mg/l	0.01	NR	< 0.005
29	Lead & its Compounds as Pb	mg/l	0.05	NR	< 0.001
30	Chromium & its compound as Cr	mg/l	0.05	NR	<0.01
31	Mercury as Hg	mg/l	0.001	NR	BDL

Note: NTU – Nephelometric Turbidity Unit, NR – No Relaxation

For **M/s Nilawar Laboratories,**

Renuka Yadav
(Authorized Signatory)

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CIN No. U74140MH112009PTC196108

Report No.: **GE-Nilawar/EMS/2022/Feb/45** | **Report Date: 21/02/2022**

Name & Address of the Customer: **M/s. Ambuja Cements Limited [Unit-Bhatapara], Address: Village-Rawan, Tehsil-Baloda Bazar, Dist. Bhatapara (C.G.)**

Sample Description	: Ground Water Sample	Sampling Location: **Bore well water at Arjuni Village**	
Sampling Ref Method	: IS :3025	Sample Reference: GE-NW/Feb/47/GW-3	
Sampled by	: GYAN Enviro Representative	Date of Analysis started	: 17.02.2022
Sampling Date	: 15.02.2022	Date of Analysis completed	: 21.02.2022
Sample Receipt Date	: 16.02.2022	Testing Period	: 5 Days

S. N	Parameters	Unit	As per IS 10500:1991		Values
			Desirable	Permissible	GW-3
1	Color	Hazen	5	25	1
2	Odour	AG	AG	AG	AG
3	Taste	AG	AG	AG	AG
4	Turbidity	NTU	5	10	0.38
5	Total Dissolved Solids	mg/l	500	2000	188
6	pH at 25 °C	--	6.5 – 8.5	NR	7.23
7	Dissolved Oxygen (DO)	mg/l	-	-	5.8
8	Biochemical Oxygen Demand	mg/l	-	-	<3.0
9	Chemical Oxygen Demand	mg/l	-	-	8
10	Conductivity	$\mu S/cm^{-1}$	-	-	285
11	Total Alkalinity as $CaCO_3$	mg/l	200	600	158
12	Total Hardness as $CaCO_3$	mg/l	300	600	175
13	Calcium as Ca^{++}	mg/l	75	200	42
14	Magnesium as Mg^{++}	mg/l	30	100	17
15	Chlorides as Cl	mg/l	250	1000	18.4
16	Sulphates as SO_4	mg/l	200	400	31.8
17	Fluoride as F	mg/l	1	1.5	0.12
18	Nitrates as NO_3	mg/l	45	NR	8.5
19	Iron as Fe	mg/l	0.3	1	0.02
20	Manganese as Mn	mg/l	0.1	0.3	< 0.01
21	Zinc as Zn	mg/l	5	15	<0.01
22	Copper as Cu	mg/l	0.05	1.5	< 0.01
23	Aluminium as Al	mg/l	0.03	0.2	< 0.01
24	Boron as B	mg/l	1	5	< 0.01
25	Total Coliform	MPN/100 ml	Absent	NR	Absent
26	E. Coli	MPN/100 ml	Absent	NR	Absent
B. Toxic Substance					
27	Cadmium & its Compounds as Cd	mg/l	0.01	NR	< 0.005
28	Arsenic & its Compounds as As	mg/l	0.01	NR	< 0.005
29	Lead & its Compounds as Pb	mg/l	0.05	NR	< 0.001
30	Chromium & its compound as Cr	mg/l	0.05	NR	<0.01
31	Mercury as Hg	mg/l	0.001	NR	BDL

Note: NTU – Nephelometric Turbidity Unit, NR – No Relaxation

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Report No.: GE-Nilawar/EMS/2022/Feb/45 | Report Date: 21/02/2022

Name & Address of the Customer: **M/s. Ambuja Cements Limited [Unit-Bhatapara],**
Address: Village-Rawan, Tehsil-Baloda Bazar, Dist. Bhatapara (C.G.)

Sample Description	: Ground Water Sample	Sampling Location:	Bore well water at Bhadrapalli Village
Sampling Ref Method	: IS :3025	Sample Reference:	GE-NW/Feb/48/GW-4
Sampled by	: GYAN Enviro Representative	Date of Analysis started	: 17.02.2022
Sampling Date	: 15.02.2022	Date of Analysis completed:	21.02.2022
Sample Receipt Date	: 16.02.2022	Testing Period	: 5 Days

S. N	Parameters	Unit	As per IS 10500:1991		Values
			Desirable	Permisible	GW-4
1	Color	Hazen	5	25	1
2	Odour	AG	AG	AG	AG
3	Taste	AG	AG	AG	AG
4	Turbidity	NTU	5	10	0.28
5	Total Dissolved Solids	mg/l	500	2000	192
6	pH at 25 ^{0}C	--	6.5 – 8.5	NR	6.99
7	Dissolved Oxygen (DO)	mg/l	-	-	5.2
8	Biochemical Oxygen Demand	mg/l	-	-	<3.0
9	Chemical Oxygen Demand	mg/l	-	-	8
10	Conductivity	$\mu S/cm^{-1}$	-	-	291
11	Total Alkalinity as $CaCO_3$	mg/l	200	600	160
12	Total Hardness as $CaCO_3$	mg/l	300	600	182
13	Calcium as Ca^{++}	mg/l	75	200	44
14	Magnesium as Mg^{++}	mg/l	30	100	17.5
15	Chlorides as Cl	mg/l	250	1000	30.1
16	Sulphates as SO_4	mg/l	200	400	19.6
17	Fluoride as F	mg/l	1	1.5	0.14
18	Nitrates as NO_3	mg/l	45	NR	9.9
19	Iron as Fe	mg/l	0.3	1	0.04
20	Manganese as Mn	mg/l	0.1	0.3	< 0.01
21	Zinc as Zn	mg/l	5	15	<0.01
22	Copper as Cu	mg/l	0.05	1.5	< 0.01
23	Aluminium as Al	mg/l	0.03	0.2	< 0.01
24	Boron as B	mg/l	1	5	< 0.01
25	Total Coliform	MPN/100 ml	Absent	NR	Absent
26	E. Coli	MPN/100 ml	Absent	NR	Absent
B. Toxic Substance					
27	Cadmium & its Compounds as Cd	mg/l	0.01	NR	< 0.005
28	Arsenic & its Compounds as As	mg/l	0.01	NR	< 0.005
29	Lead & its Compounds as Pb	mg/l	0.05	NR	< 0.001
30	Chromium & its compound as Cr	mg/l	0.05	NR	<0.01
31	Mercury as Hg	mg/l	0.001	NR	BDL

Note: NTU – Nephelometric Turbidity Unit, NR – No Relaxation

For **M/s Nilawar Laboratories,**

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CIN No. U74140MH112009PTC196108

Report No.: GE-Nilawar/EMS/2022/Feb/45		Report Date: 21/02/2022
Name & Address of the Customer: **M/s. Ambuja Cements Limited [Unit-Bhatpara], Address: Village-Rawan, Tehsil-Baloda Bazar, Dist. Bhatapara (C.G.)**		
Sample Description	: Ground Water Sample	Sampling Location: **Bore well water at Khairtal Village**
Sampling Ref Method	: IS :3025	Sample Reference: GE-NW/Feb/49/GW-5
Sampled by	: GYAN Enviro Representative	Date of Analysis started : 17.02.2022
Sampling Date	: 15.02.2022	Date of Analysis completed: 21.02.2022
Sample Receipt Date	: 16.02.2022	Testing Period : 5 Days

S. N	Parameters	Unit	As per IS 10500:1991		Values
			Desirable	Permissible	GW-5
1	Color	Hazen	5	25	1
2	Odour	AG	AG	AG	AG
3	Taste	AG	AG	AG	AG
4	Turbidity	NTU	5	10	0.34
5	Total Dissolved Solids	mg/l	500	2000	204
6	pH at 25 °C	–	6.5 – 8.5	NR	7.8
7	Dissolved Oxygen (DO)	mg/l	-	-	5.1
8	Biochemical Oxygen Demand	mg/l	-	-	<3.0
9	Chemical Oxygen Demand	mg/l	-	-	8
10	Conductivity	$\mu S/cm^{-1}$	-	-	309
11	Total Alkalinity as $CaCO_3$	mg/l	200	600	137
12	Total Hardness as $CaCO_3$	mg/l	300	600	181
13	Calcium as Ca^{++}	mg/l	75	200	43
14	Magnesium as Mg^{++}	mg/l	30	100	17
15	Chlorides as Cl	mg/l	250	1000	37.8
16	Sulphates as SO_4	mg/l	200	400	29.1
17	Fluoride as F	mg/l	1	1.5	0.11
18	Nitrates as NO_3	mg/l	45	NR	6.8
19	Iron as Fe	mg/l	0.3	1	0.01
20	Manganese as Mn	mg/l	0.1	0.3	< 0.01
21	Zinc as Zn	mg/l	5	15	<0.01
22	Copper as Cu	mg/l	0.05	1.5	< 0.01
23	Aluminium as Al	mg/l	0.03	0.2	< 0.01
24	Boron as B	mg/l	1	5	< 0.01
25	Total Coliform	MPN/100 ml	Absent	NR	Absent
26	E. Coli	MPN/100 ml	Absent	NR	Absent
B. Toxic Substance					
27	Cadmium & its Compounds as Cd	mg/l	0.01	NR	< 0.005
28	Arsenic & its Compounds as As	mg/l	0.01	NR	< 0.005
29	Lead & its Compounds as Pb	mg/l	0.05	NR	< 0.001
30	Chromium & its compound as Cr	mg/l	0.05	NR	<0.01
31	Mercury as Hg	mg/l	0.001	NR	BDL

Note: NTU – Nephelometric Turbidity Unit, NR – No Relaxation

For **M/s Nilawar Laboratories,**

Renuka Yadav
(Authorized Signatory)

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2.3 OBSERVATIONS

The characteristics of ground water samples and surface water sample are presented in Table – 2.1, 2.2, 2.3, 2.4 and 2.5.

Table 2.1: GW-1 Ground Water Quality – Date of sampling – 19.05.2022

S. N	Parameters	Unit	As per IS 10500:1991		Values
			Desirable	Permissible	GW-1
1	Color	Hazen	5	25	1.5
2	Odour	AG	AG	AG	AG
3	Taste	AG	AG	AG	AG
4	Turbidity	NTU	5	10	2.4
5	Total Dissolved Solids	mg/l	500	2000	579
6	pH at 25 °C	--	6.5 – 8.5	NR	7.35
7	Dissolved Oxygen (DO)	mg/l	-	-	4.4
8	Biochemical Oxygen Demand	mg/l	-	-	<3.0
9	Chemical Oxygen Demand	mg/l	-	-	12.0
10	Conductivity	$\mu S/cm^{-1}$	-	-	877
11	Total Alkalinity as $CaCO_3$	mg/l	200	600	160
12	Total Hardness as $CaCO_3$	mg/l	300	600	480
13	Calcium as Ca^{++}	mg/l	75	200	115
14	Magnesium as Mg^{++}	mg/l	30	100	46
15	Chlorides as Cl	mg/l	250	1000	152
16	Sulphates as SO_4	mg/l	200	400	42.3
17	Fluoride as F	mg/l	1	1.5	BDL
18	Nitrates as NO_3	mg/l	45	NR	BDL
19	Iron as Fe	mg/l	0.3	1	0.097
20	Manganese as Mn	mg/l	0.1	0.3	0.043
21	Zinc as Zn	mg/l	5	15	0.214
22	Copper as Cu	mg/l	0.05	1.5	0.078
23	Aluminum as Al	mg/l	0.03	0.2	< 0.01
24	Boron as B	mg/l	1	5	< 0.01
25	Total Coliform	MPN/100 ml	Absent	NR	<3.0
26	E. Coli	MPN/100 ml	Absent	NR	Absent
B. Toxic Substance					
27	Cadmium & its Compounds as Cd	mg/l	0.01	NR	< 0.005
28	Arsenic & its Compounds as As	mg/l	0.01	NR	< 0.005
29	Lead & its Compounds as Pb	mg/l	0.05	NR	< 0.001
30	Chromium & its compound as Cr	mg/l	0.05	NR	<0.01
31	Mercury as Hg	mg/l	0.001	NR	BDL

GW-1 : Bore well at Karmada Village

Notes: UO – unobjectionable; AG – agreeable; NR – no relaxation; BDL – below detectable limit; MPN – most probable number

Table 2.2: GW-2- Ground Water Quality – Date of sampling – 19.05.2022

S. N	Parameters	Unit	As per IS 10500:1991		Values
			Desirable	Permissible	GW-2
1	Color	Hazen	5	25	1.0
2	Odour	AG	AG	AG	AG
3	Taste	AG	AG	AG	AG
4	Turbidity	NTU	5	10	1.4
5	Total Dissolved Solids	mg/l	500	2000	564
6	pH at 25 °C	--	6.5 – 8.5	NR	7.28
7	Dissolved Oxygen (DO)	mg/l	-	-	4.6
8	Biochemical Oxygen Demand	mg/l	-	-	<3.0
9	Chemical Oxygen Demand	mg/l	-	-	12.0
10	Conductivity	$\mu S/cm^{-1}$	-	-	855
11	Total Alkalinity as $CaCO_3$	mg/l	200	600	195
12	Total Hardness as $CaCO_3$	mg/l	300	600	328
13	Calcium as Ca^{++}	mg/l	75	200	79
14	Magnesium as Mg^{--}	mg/l	30	100	31.5
15	Chlorides as Cl	mg/l	250	1000	157
16	Sulphates as SO_4	mg/l	200	400	75
17	Fluoride as F	mg/l	1	1.5	0.098
18	Nitrates as NO_3	mg/l	45	NR	4.5
19	Iron as Fe	mg/l	0.3	1	0.107
20	Manganese as Mn	mg/l	0.1	0.3	0.034
21	Zinc as Zn	mg/l	5	15	0.213
22	Copper as Cu	mg/l	0.05	1.5	0.053
23	Aluminum as Al	mg/l	0.03	0.2	< 0.01
24	Boron as B	mg/l	1	5	< 0.01
25	Total Coliform	MPN/100 ml	Absent	NR	Absent
26	E. Coli	MPN/100 ml	Absent	NR	Absent
B. Toxic Substance					
27	Cadmium & its Compounds as Cd	mg/l	0.01	NR	< 0.005
28	Arsenic & its Compounds as As	mg/l	0.01	NR	< 0.005
29	Lead & its Compounds as Pb	mg/l	0.05	NR	< 0.001
30	Chromium & its compound as Cr	mg/l	0.05	NR	<0.01
31	Mercury as Hg	mg/l	0.001	NR	BDL

GW-2 : Bore well water at Pausari Village

Note: UO – unobjectionable; AG – agreeable; NR – no relaxation; BDL - below detectible limit; MPN – most probable number

Table 2.3: GW-3- Ground Water Quality – Date of sampling – 19.05.2022

S. N	Parameters	Unit	As per IS 10500:1991		Values
			Desirable	Permissible	GW-3
1	Color	Hazen	5	25	1.3
2	Odour	AG	AG	AG	AG
3	Taste	AG	AG	AG	AG
4	Turbidity	NTU	5	10	4.1
5	Total Dissolved Solids	mg/l	500	2000	265
6	pH at 25 °C	--	6.5 – 8.5	NR	7.42
7	Dissolved Oxygen (DO)	mg/l	-	-	3.9
8	Biochemical Oxygen Demand	mg/l	-	-	<3.0
9	Chemical Oxygen Demand	mg/l	-	-	16.0
10	Conductivity	$\mu S/cm^{-1}$	-	-	401
11	Total Alkalinity as $CaCO_3$	mg/l	200	600	65
12	Total Hardness as $CaCO_3$	mg/l	300	600	240
13	Calcium as Ca^{++}	mg/l	75	200	58
14	Magnesium as Mg^{--}	mg/l	30	100	23
15	Chlorides as Cl	mg/l	250	1000	29
16	Sulphates as SO_4	mg/l	200	400	22
17	Fluoride as F	mg/l	1	1.5	BDL
18	Nitrates as NO_3	mg/l	45	NR	BDL
19	Iron as Fe	mg/l	0.3	1	0.064
20	Manganese as Mn	mg/l	0.1	0.3	<0.01
21	Zinc as Zn	mg/l	5	15	0.036
22	Copper as Cu	mg/l	0.05	1.5	0.066
23	Aluminum as Al	mg/l	0.03	0.2	< 0.01
24	Boron as B	mg/l	1	5	< 0.01
25	Total Coliform	MPN/100 ml	Absent	NR	Absent
26	E. Coli	MPN/100 ml	Absent	NR	Absent
B. Toxic Substance					
27	Cadmium & its Compounds as Cd	mg/l	0.01	NR	< 0.005
28	Arsenic & its Compounds as As	mg/l	0.01	NR	< 0.005
29	Lead & its Compounds as Pb	mg/l	0.05	NR	< 0.001
30	Chromium & its compound as Cr	mg/l	0.05	NR	<0.01
31	Mercury as Hg	mg/l	0.001	NR	BDL

GW-3: Bore Well at Baloda bazar

Note: UO – unobjectionable; AG – agreeable; NR – no relaxation; BDL – below detectable limit; MPN – most probable number

Table 2.3: GW 4- Ground Water Quality – Date of sampling – 19.05.2022

S. N	Parameters	Unit	As per IS 10500:1991		Values
			Desirable	Permissible	GW-4
1	Color	Hazen	5	25	1.2
2	Odour	AG	AG	AG	AG
3	Taste	AG	AG	AG	AG
4	Turbidity	NTU	5	10	3.8
5	Total Dissolved Solids	mg/l	500	2000	279
6	pH at 25 °C	–	6.5 – 8.5	NR	7.25
7	Dissolved Oxygen (DO)	mg/l	-	-	4.1
8	Biochemical Oxygen Demand	mg/l	-	-	<3.0
9	Chemical Oxygen Demand	mg/l	-	-	12.0
10	Conductivity	$\mu S/cm^{-1}$	-	-	423
11	Total Alkalinity as $CaCO_3$	mg/l	200	600	90
12	Total Hardness as $CaCO_3$	mg/l	300	600	264
13	Calcium as Ca^{++}	mg/l	75	200	64
14	Magnesium as Mg^{++}	mg/l	30	100	25
15	Chlorides as Cl	mg/l	250	1000	39
16	Sulphates as SO_4	mg/l	200	400	27
17	Fluoride as F	mg/l	1	1.5	BDL
18	Nitrates as NO_3	mg/l	45	NR	1.04
19	Iron as Fe	mg/l	0.3	1	0.065
20	Manganese as Mn	mg/l	0.1	0.3	<0.01
21	Zinc as Zn	mg/l	5	15	0.322
22	Copper as Cu	mg/l	0.05	1.5	0.039
23	Aluminum as Al	mg/l	0.03	0.2	< 0.01
24	Boron as B	mg/l	1	5	< 0.01
25	Total Coliform	MPN/100 ml	Absent	NR	Absent
26	E. Coli	MPN/100 ml	Absent	NR	Absent
B. Toxic Substance					
27	Cadmium & its Compounds as Cd	mg/l	0.01	NR	< 0.005
28	Arsenic & its Compounds as As	mg/l	0.01	NR	< 0.005
29	Lead & its Compounds as Pb	mg/l	0.05	NR	< 0.001
30	Chromium & its compound as Cr	mg/l	0.05	NR	<0.01
31	Mercury as Hg	mg/l	0.001	NR	BDL

GW-4: Bore well water at Mopar Village

Note: UO – unobjectionable; AG – agreeable; NR – no relaxation; BDL – below detectable limit; MPN – most probable number

Table 2.5: GW-5- Ground Water Quality – Date of sampling – 19.05.2022

S. N	Parameters	Unit	As per IS 10500:1991		Values
			Desirable	Permissible	GW-5
1	Color	Hazen	5	25	1.6
2	Odour	AG	AG	AG	AG
3	Taste	AG	AG	AG	AG
4	Turbidity	NTU	5	10	2.7
5	Total Dissolved Solids	mg/l	500	2000	430
6	pH at 25 °C	--	6.5 – 8.5	NR	7.38
7	Dissolved Oxygen (DO)	mg/l	-	-	4.6
8	Biochemical Oxygen Demand	mg/l	-	-	<3.0
9	Chemical Oxygen Demand	mg/l	-	-	12.0
10	Conductivity	$\mu S/cm^{-1}$	-	-	652
11	Total Alkalinity as $CaCO_3$	mg/l	200	600	145
12	Total Hardness as $CaCO_3$	mg/l	300	600	346
13	Calcium as Ca^{++}	mg/l	75	200	83
14	Magnesium as Mg^{++}	mg/l	30	100	33
15	Chlorides as Cl	mg/l	250	1000	95
16	Sulphates as SO_3	mg/l	200	400	40
17	Fluoride as F	mg/l	1	1.5	0.145
18	Nitrates as NO_3	mg/l	45	NR	0.74
19	Iron as Fe	mg/l	0.3	1	0.109
20	Manganese as Mn	mg/l	0.1	0.3	0.023
21	Zinc as Zn	mg/l	5	15	0.175
22	Copper as Cu	mg/l	0.05	1.5	0.056
23	Aluminum as Al	mg/l	0.03	0.2	< 0.01
24	Boron as B	mg/l	1	5	< 0.01
25	Total Coliform	MPN/100 ml	Absent	NR	Absent
26	E. Coli	MPN/100 ml	Absent	NR	Absent
B. Toxic Substance					
27	Cadmium & its Compounds as Cd	mg/l	0.01	NR	< 0.005
28	Arsenic & its Compounds as As	mg/l	0.01	NR	< 0.005
29	Lead & its Compounds as Pb	mg/l	0.05	NR	< 0.001
30	Chromium & its compound as Cr	mg/l	0.05	NR	<0.01
31	Mercury as Hg	mg/l	0.001	NR	BDL

GW-5: Bore well water at Devrani Village

Note: UO – unobjectionable; AG – agreeable; NR – no relaxation; BDL – below detectable limit; MPN – most probable number

2.0 GROUND WATER QUALITY

2.1 GENERAL

A routine analysis of Water Quality is required to find out any contamination of natural water source. The Lime stone mines are maintaining the **'Zero Discharge' condition** and Ponds are lined. There is no chance of ground water contamination. However, as per stipulated condition, ground water quality have monitored for routine parameters.

2.2 LOCATION OF WATER QUALITY SAMPLING

The water quality monitoring was selected with a view to check out the impact on ground water sources **in & around core zone and buffer zone of Rawan Mines and Maidi Mines** at Unit-Bhatapara. A total number of 05 (Five) ground water samples) were collected and analyzed.

Location of sampling stations is given in **Table – 2.1**

TABLE – 2.1: DESCRIPTIVE LISTING OF GROUND WATER SAMPLING STATIONS

S.N.	Sampling Stations	Station Code	Latitude	Longitude
1	Bore well at Rawan Village	GW – 1	21° 68' 17.03" N	82° 08' 98.35" E
82	Bore well water at Maidi Village	GW – 2	21° 67' 28.42" N	82° 05' 11.15" E
3	Bore Well at Arjuni Village	GW – 3	21° 69' 12.67" N	82° 06' 40.96" E
4	Bore Well water at Bhadrapali Village	GW – 4	21° 67' 95.72" N	82° 07' 52.71" E
5	Bore Well water at Khairtal village	GW – 5	21° 68' 20.54" N	82° 06' 89.60" E

2.6 GROUND WATER LEVELS:

Ground water level is not static. It is always under the influence of time- dependent recharge and discharge factors. As a result, the water level in the aquifer system fluctuates and the range depends on the period of influence. The recharge is due to many factors such as rainfall, seepage from reservoirs, lakes, ponds, rivers and irrigation, etc. The discharge includes ground water withdrawal through manual and pumping systems, natural seepage to rivers and sea, evaporation from shallow water table and transpiration through vegetation. The monitoring database on water levels and chemical parameters helps to simulate models of forecasting, planning and management of ground water resources.

M/s Ambuja Cement Ltd, Bhatapara
Hydrological Data for the Quarter ending Feb -2022

S.N	Name of Village	Sample Code	Date of Measurement	Internal Diameter in MTR	Total dupth from measuring Point inMtr (mpmp)	Static water level from measuring point in mtr (Level in mbmp)	Measuring point i.e. MP distance above ground level (magl)	Water level below ground level in Mtr mbgl = mbmp-magl
1	Rawan Vilalge	GWL-1	15-02-2022	0.152	184.34	6.70	0.45	6.25
2	Maldi Village	GWL-2	15-02-2022	0.152	176.2	8.79	0.47	8.32
3	Arjuni Village	GWL-3	15-02-2022	0.152	85.3	8.40	0.71	7.69
4	Bhadrapalli Village	GWL-4	15-02-2022	0.152	45.72	6.60	0.58	6.02
5	Khairtal Village	GWL-5	15-02-2022	0.152	78.02	8.89	0.67	8.22
6	Dhandani Village	GWL-6	15-02-2022	0.152	91.44	8.91	0.72	8.19
7	Kurkurdi Village	GWL-7	15-02-2022	0.152	128.02	9.02	0.48	8.54
8	Chhuiha Village	GWL-8	15-02-2022	0.152	71.63	6.80	0.75	6.05
9	Bharseli Village	GWL-9	15-02-2022	0.152	77.7	7.40	0.66	6.74
10	Karmandi Village	GWL-10	15-02-2022	0.152	121.92	7.20	0.5	6.70

2.6 GROUND WATER LEVELS:

Ground water level is not static. It is always under the influence of time- dependent recharge and discharge factors. As a result, the water level in the aquifer system fluctuates and the range depends on the period of influence. The recharge is due to many factors such as rainfall, seepage from reservoirs, lakes, ponds, rivers and irrigation, etc. The discharge includes ground water withdrawal through manual and pumping systems, natural seepage to rivers and sea, evaporation from shallow water table and transpiration through vegetation. The monitoring database on water levels and chemical parameters helps to simulate models of forecasting, planning and management of ground water resources.

M/s Ambuja Cement Ltd,
Bhatapara
Hydrological Data for the Quarter ending

S. N	Name of Village	Sample Code	Date of Measurement	Internal Diameter in MTR	Total depth from measuring Point in Mtr (mpmp)	Static water level from measuring point in mtr (Level in mbmp)	Measuring point i.e. MP distance above ground level (magl)	Water level below ground level in Mtr mbgl = mbmp-magl
1	Rawan Vilalge	GWL-1	18-05-2022	0.152	76.2	6.34	0.45	5.89
2	Maldi Village	GWL-2	18-05-2022	0.152	121.9	8.45	0.47	7.98
3	Arjuni Village	GWL-3	18-05-2022	0.152	85.3	7.12	0.71	6.41
4	Latua Village	GWL-4	18-05-2022	0.152	91.4	5.67	0.58	5.09
5	Dhabadih Village	GWL-5	18-05-2022	0.152	65.2	7.34	0.67	6.67
6	Magarchaba Village	GWL-6	18-05-2022	0.152	91.4	9.10	0.72	8.38
7	Kuckurdi Village	GWL-7	18-05-2022	0.152	73.2	7.05	0.48	6.57
8	Chhuiha Village	GWL-8	18-05-2022	0.152	66.7	5.86	0.75	5.11
9	Amera Village	GWL-9	18-05-2022	0.152	76.2	5.23	0.66	4.57
10	Risda Vilalge	GWL-10	18-05-2022	0.152	97.5	6.72	0.47	6.25
11	Champa Village	GWL-11	18-05-2022	0.152	67.1	5.26	0.55	4.71
12	Semradih Village	GWL-12	18-05-2022	0.152	85.3	6.90	0.51	6.39
13	Chandih Village	GWL-13	19-05-2022	0.152	112.8	7.58	0.45	7.13
14	Khelwari Village	GWL-14	19-05-2022	0.152	125.0	5.75	0.48	5.27
15	Khumariya Village	GWL-15	19-05-2022	0.152	57.9	6.07	0.55	5.52
16	Tepa Village	GWL-16	19-05-2022	0.152	73.2	6.88	0.59	6.29
17	Devrani Village	GWL-17	19-05-2022	0.152	128.0	6.01	0.6	5.41
18	Karmada Village	GWL-18	19-05-2022	0.152	115.8	6.45	0.62	5.83
19	Mopar Village	GWL-19	19-05-2022	0.152	91.4	5.96	0.47	5.49
20	Pansari Village	GWL-20	19-05-2022	0.152	97.5	6.25	0.52	5.73
21	Baloda bazar	GWL-21	19-05-2022	0.152	57.9	6.42	0.54	5.88

2.6 GROUND WATER LEVELS:

Ground water level is not static. It is always under the influence of time- dependent recharge and discharge factors. As a result, the water level in the aquifer system fluctuates and the range depends on the period of influence. The recharge is due to many factors such as rainfall, seepage from reservoirs, lakes, ponds, rivers and irrigation, etc. The discharge includes ground water withdrawal through manual and pumping systems, natural seepage to rivers and sea, evaporation from shallow water table and transpiration through vegetation. The monitoring database on water levels and chemical parameters helps to simulate models of forecasting, planning and management of ground water resources.

M/s Ambuja Cement Ltd, Bhatapara
Hydrological Data for the Quarter ending

S.N	Name of Village	Sample Code	Date of Measurement	Internal Diameter in MTR	Total depth from measuring Point in Mtr (mpmp)	Static water level from measuring point in mtr (Level in mbmp)	Measuring point i.e MP distance above ground level (magl)	Water level below ground level in Mtr mbgl = mbmp-magl
1	Rawan Village	GWL-1	03-09-2022	0.152	78.4	1.98	0.48	1.50
2	Maldi Village	GWL-2	03-09-2022	0.152	119.4	1.95	0.45	1.50
3	Arjuni Village	GWL-3	03-09-2022	0.152	82.4	2.36	0.66	1.70
4	Latua Village	GWL-4	03-09-2022	0.152	88.5	1.55	0.55	1.00
5	Dhabadih Village	GWL-5	03-09-2022	0.152	66.8	2.51	0.61	1.90
6	Magarchaba Village	GWL-6	03-09-2022	0.152	90.5	1.19	0.69	0.50
7	Kurkurdi Village	GWL-7	03-09-2022	0.152	75.6	2.50	0.50	2.00
8	Chhoiha Village	GWL-8	03-09-2022	0.152	68.4	2.19	0.69	1.50
9	Amera Village	GWL-9	03-09-2022	0.152	74.4	2.22	0.72	1.50
10	Rjada Village	GWL-10	03-09-2022	0.152	90.1	1.22	0.52	0.70
11	Champa Village	GWL-11	03-09-2022	0.152	62.4	1.64	0.64	1.00
12	Semradih Village	GWL-12	03-09-2022	0.152	80.4	3.16	0.56	2.60
13	Chandih Village	GWL-13	03-09-2022	0.152	115.1	3.89	0.59	3.30
14	Khelwari Village	GWL-14	03-09-2022	0.152	119.0	1.93	0.53	1.40
15	Khamariya Village	GWL-15	03-09-2022	0.152	60.4	2.01	0.51	1.50
16	Topa Village	GWL-16	03-09-2022	0.152	70.4	1.17	0.47	0.70
17	Devrmni Village	GWL-17	03-09-2022	0.152	120.4	2.85	0.55	2.30
18	Karmada Village	GWL-18	03-09-2022	0.152	112.1	3.28	0.58	2.70
19	Mopar Village	GWL-19	03-09-2022	0.152	89.7	1.85	0.45	1.40
20	Pansari Village	GWL-20	03-09-2022	0.152	95.4	2.52	0.56	1.96
21	Baloda bazar	GWL-21	03-09-2022	0.152	59.6	2.50	0.60	1.90

For M/s Nilawar Laboratories,

Renuka Yadav
(Authorized Signatory)

Annexu-13

भारत सरकार
जल शक्ति मंत्रालय
जल संसाधन, नदी विकास
और गंगा संरक्षण विभाग
केन्द्रीय भूमि जल प्राधिकरण
Government of India
Ministry of Jal Shakti
Department of Water Resources,
River Development & Ganga Rejuvenation
Central Ground Water Authority

(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)
NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:	Maldi Mopar Limestone Mine		
Project Address:	M/s Ambuja Cements Limited, Unit Bhatapara, Po- Rawan, District – Balodabazar ; Bhatapara, Pin ; 493331.		
Village:	Maldi	Block:	Bhatapara
District:	Baloda Bazar	State:	Chhattisgarh
Pin Code:			
Communication Address:	Shri Rajoo Joshi,(avp), M/s Ambuja Cements Limited, Unit Bhatapara, Po-Rawan, Tahsil Bhatapara, District - Balodabazar :, Bhatapara, Baloda Bazar, Chhattisgarh - 493331		
Address of CGWB Regional Office :	Central Ground Water Board North Central Chhattisgarh, 2nd Floor, Lk Corporate And Logistic Park, Dhamtari Road, Nh-30, Dumartarai, Raipur, Chhattisgarh - 492015		

1. **NOC No.:**	CGWA/NOC/MIN/REN/1/2021/6607		
2. Application No.:	21-4/427/CT/MIN/2017	3. Category: (GWRE 2020)	Safe
4. Project Status:	Existing With Additional Ground Water Requirment	5. NOC Type:	Renewal
6. **Valid from:**	26/10/2021	7. **Valid up to:**	25/10/2023

8. Ground Water Abstraction Permitted:

Fresh Water		Saline Water		Dewatering		Total	
m³/day	m³/year	m³/day	m³/year	m³/day	m³/year	m³/day	m³/year
100.00	36500.00			174.00	63510.00		

9. Details of ground water abstraction /Dewatering structures

	Total Existing No.:3						Total Proposed No.:0					
	DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu
Abstraction Structure*	0	0	2	0	0	0	0	0	0	0	0	0
Dewatering Structure*	0	0	0	0	1	0	0	0	0	0	0	0

*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps

10. Ground Water Abstraction/Restoration Charges paid (Rs.): 208514.00

11. Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.

	No. of Piezometers	Monitoring Mechanism		
		Manual	DWLR**	DWLR With Telemetry
**DWLR - Digital Water Level Recorder	1	0	1	0

(Compliance Conditions given overleaf)

This is an auto generated document & need not to be signed.

CENTRAL GROUND WATER AUTHORITY

18/11, जामनगर हाउस, मानसिंह रोड, नई दिल्ली - 110011 / 18/11, Jamnagar House, Mansingh Road, New Delhi-110011
Phone: (011) 23383561 Fax: 23382051, 23386743
Website: cgwa-noc.gov.in

Validity of this NOC shall be subject to compliance of the following conditions:

Mandatory conditions:

1) Installation of tamper proof digital water flow meter with telemetry on all the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate.

2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.

3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II of the guidelines.

4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.

5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.

6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.

7) The firm shall report compliance of the NOC conditions online in the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.

8) Industries abstracting ground water in excess of 100 m 3 /d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to CGWA. All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.

9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.

10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

General conditions:

11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).

12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).

13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.

14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.

15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.

16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.

17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.

18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.

19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 10 of Guidelines.

20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.

21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of this NOC.

22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.

23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.

24) Proponents, who have installed/constructed artificial recharge structures in compliance of the NOC granted to them previously and have availed rebate of upto 50% (fifty percent) in the ground water abstraction charges/ground water restoration charges, shall continue to regularly maintain artificial recharge structures.

25) Industries which are likely to cause ground water pollution e.g. Tanning, Slaughter Houses, Dye, Chemical/ Petrochemical, Coal washeries, pharmaceutical, other hazardous units etc. (as per CPCB list) need to undertake necessary well head protection measures to ensure prevention of ground water pollution as per Annexure III of the guidelines.

26) In case of new infrastructure projects having ground water abstraction of more than 20 m3/day, the firm/entity shall ensure implementation of dual water supply system in the projects.

27) In case of infrastructure projects, paved/parking area must be covered with interlocking/perforated tiles or other suitable measures to ensure groundwater infiltration/harvesting.

28) In case of coal and other base metal mining projects, the project proponent shall use the advance dewatering technology (by construction of series of dewatering abstraction structures) to avoid contamination of surface water.

29) The NOC issued is conditional subject to the conditions mentioned in the Public notice dated 27.01.2021 failing which penalty/EC/cancellation of NOC shall be imposed as the case may be.
30) This NOC is issued subject to the clearance of Expert Appraisal Committee (EAC) (if applicable).

(Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)

Annexure 14

Typical View of Drill with Dust Extractor system equipped with water injection system

Annexure-15

REPORT ON
NEED BASED ASSESSMENT

for

MALDI-MOPAR LIMESTONE MINING PROJECT

of

Maldi, Mopar, Devarani,
Karmandih and Boirdih Villages, Baloda Bazar/Bhatapara Tehsils,
Raipur District, Chhattisgarh

for

M/s. Ambuja Cements Limited

Rawan,Tehsil Baloda Bazar, Dist Raipur
Bhatapara , PIN :493331

Prepared by

SRUSHTI SEVA PRIVATE LTD.

"Bilvadal" 8, Janta Layout, Deendayal Nagar,
Nagpur (Maharashtra) - 440022
Landline : 0712 2971968
Email- srspl15@gmail.com, srushtisewa@yahoo.com

APRIL 2022

ACRONYMS

AWC	:	Anganwadi Centre
BDO	:	Block Development Officer
BPL	:	below poverty line
BSR	:	Basic Schedule Rates
DGM	:	Deputy General Manager
FGD	:	focus group discussion
GoI	:	government of India
GRC	:	grievance redress committee
GRM	:	grievance redress mechanism
HIV/AIDS	:	Human Immunodeficiency virus / Acquired immunodeficiency syndrome
ICDS	:	Integrated Child Development Services
KII	:	Key Informant Interview
NGO	:	Non-Government Organization
OBC	:	Other Backward Castes
NTFP		non timber forest produces
PIA	:	Project Impact Area
PHC	:	Primary health center

INDEX

Sr. No.	Village Name	Tehsil	No of Households	Population			SC		ST		Literates	
				Total	M	F	M	F	M	F	M	F
40	Hasda	Bhatapara	159	734	364	370	130	146	60	48	256	175
41	Chichpoi	Bhatapara	273	1530	755	775	20	11	335	349	461	310
42	Pausari	Bhatapara	171	941	486	455	182	155	130	124	343	222
43	Topa	Bhatapara	151	816	396	420	0	0	151	168	301	204
44	Tonatar	Bhatapara	528	2562	1266	1296	209	210	396	395	815	589
45	Parsadih	Bhatapara	115	557	269	288	0	0	242	267	183	123
46	Turma	Bhatapara	266	1292	656	636	162	158	80	74	375	237
47	Dhawai	Baloda Bazar	166	939	453	486	135	156	153	163	329	282
48	Purena	Baloda Bazar	90	524	267	257	0	0	209	206	170	121
49	Saloni	Baloda Bazar	387	1736	868	868	317	308	295	294	581	368
50	Deori	Baloda Bazar	339	1704	855	849	100	96	501	486	570	327
51	Mohtara	Baloda Bazar	450	2287	1154	1133	93	74	79	96	776	569
52	Chhuiha	Baloda Bazar	93	447	219	228	201	216	7	5	147	102
53	Parsabhadar	Baloda Bazar	174	921	450	471	1	1	172	193	303	242
54	Khairghata	Baloda Bazar	126	643	321	322	37	30	95	84	237	177
55	Suklabhata	Baloda Bazar	189	857	422	435	35	32	95	119	323	217
56	Latuwa	Baloda Bazar	1079	5363	2669	2694	371	391	401	427	1808	1243
57	Pausari	Baloda Bazar	323	1626	804	822	145	150	127	139	612	483
58	Bharseli Malgujari	Baloda Bazar	171	933	462	471	92	95	200	209	323	246
59	Karmada	Baloda Bazar	674	3548	1743	1805	162	143	364	353	1173	896

Sr. No.	Village Name	Tehsil	No of Households	Population			SC		ST		Literates	
				Total	M	F	M	F	M	F	M	F
60	Bhathagaon	Baloda Bazar	173	863	432	431	37	34	48	49	294	197
61	Gaitara	Baloda Bazar	323	1681	832	849	96	94	183	169	597	447
62	Khamhariya	Baloda Bazar	222	1067	542	525	376	355	106	106	391	260
63	Risda	Baloda Bazar	844	4293	2174	2119	851	783	167	165	1505	1056
64	Puran	Baloda Bazar	94	480	227	253	4	5	74	90	158	140
65	Bharuwadih	Baloda Bazar	176	915	476	439	163	158	49	54	302	212
66	Nawapara	Baloda Bazar	418	2634	1287	1347	135	151	30	45	735	498
67	Rawan (CT)	Baloda Bazar	1074	5100	2614	2486	180	186	186	183	2020	1543
68	Nawagaon	Bhatapara	190	899	425	474	71	71	0	0	290	241
69	Godkhapri	Baloda Bazar	108	574	288	286	10	9	248	256	237	179
70	Dasharma	Baloda Bazar	389	1896	949	947	305	285	304	319	643	426
71	Magarchaba	Baloda Bazar	158	721	364	357	12	19	181	170	245	165
72	Jhonka	Baloda Bazar	186	767	381	386	147	134	103	110	242	189
73	Budgahan	Baloda Bazar	153	786	388	398	91	91	114	115	285	212
74	Khamhriya (Khamriya)	Bhatapara	295	1417	702	715	360	379	47	45	482	353
75	Kesla	Bhatapara	279	1293	649	644	18	19	222	246	368	225
76	Ameri	Simga	162	866	434	432	146	113	6	2	310	224
77	Rawali	Simga	203	971	500	471	189	168	11	11	388	253
78	Diggi	Simga	251	1045	511	534	508	529	0	1	341	232
79	Khapri	Simga	80	338	170	168	164	162	0	0	121	98

Sr. No.	Village Name	Tehsil	No of Households	Population			SC		ST		Literates	
				Total	M	F	M	F	M	F	M	F
80	Chandi	Simga	281	1480	737	743	11	11	243	258	570	438
81	Jhipan	Simga	402	1772	923	849	179	149	69	62	661	498
82	Suhela	Simga	574	2935	1430	1505	163	188	26	32	1104	936
83	Tekari	Simga	223	1063	541	522	0	0	135	130	392	298
84	Amakoni	Simga	221	1322	655	667	126	127	76	91	450	329
85	Sinodha	Simga	527	2272	1150	1122	498	486	98	99	766	550
86	Sarseni	Palari	302	1431	717	714	96	83	92	110	543	386
87	Chuchrungpur	Palari	301	1440	718	722	374	368	49	61	501	378
88	Guma	Palari	342	1693	842	851	16	11	186	193	624	442
89	Saiha	Palari	300	1425	687	738	42	50	27	37	490	390
90	Beiha	Palari	179	849	441	408	234	238	0	0	316	209
91	Parsadih	Palari	64	378	194	184	88	80	0	0	116	91
92	Achholi	Palari	438	2012	1025	987	542	530	91	103	696	498
93	Lohari	Simga	246	1101	538	563	108	112	4	3	410	342
94	Bhanwargarh(Bhawargarh)	Simga	115	609	305	304	44	38	34	50	230	177
	Total		**33369**	**166178**	**83193**	**82985**	**17543**	**17448**	**13309**	**13815**	**59028**	**43713**

Annexure - 8: Focus Group Discussion/ Community consultation Survey Format

Areas	Observations
Health	
Public Health	
Veterinary Clinic	
Education	
Schools/Anganwadis	
Anganwadi Kitchen Shed	
Livelihood	
Handloom/Weaving, etc.	
Agriculture & Allied	
Forest/NTFP/Local Species	
SHGs	
Animal Husb.	
Dairy	
Sericulture	
Social/Agro Forestry	
Horticulture	
Water Resources, Irrigation source (River/Well/Tubewell)	
Enterprise Development	
Local Skills	
Soil and water conservation	
Others	
Infrastructure	
Road/Connectivity	
Electricity/Solar Power	
Drinking Water/Dug-well/tap water	
Sanitation/Water **SLWM** (Solid/liquid waste management)	
Playground/Public Park, etc.	
General Utility, Community Infrastructure/Gotul/Waiting Room, etc.	
Markets/Haats/Bazaars/Pashu Bazaars, etc.	
Water Bodies (lake, pond etc)	
Entrance Gate	
Computers/Internet, etc.	
Haudis (Drinking water arrangement for animal, cattle)	

Sl.No.	THEMATIC WISE ACF BUDGET EXPENDITURE FOR FOUR FINANCIAL YEARS					
	Program/Activity	Amount In Rs.	Amount In Rs.	Amount In Rs.	Amount In Rs.	Total
		F.Y.18-19	F.Y. 19-20	F.Y. 20-21	F.Y.21-22	
1	water Resource Development /Portable water facilities and drinking water	70,51,021	34,02,340	19,35,604	41,18,822	1,65,07,787
2	Education Development	10,77,402	18,92,266	8,29,219	19,47,288	57,46,175
3	Integrated Rural development Expenses	1,12,81,428	1,33,42,865	90,32,943	1,00,20,503	4,36,77,739
4	Health & Sanitation Development	17,54,908	38,75,718	52,13,775	87,45,743	1,95,90,144
5	Vocational Training Expenses	36,52,621	48,45,082	41,19,771	57,26,950	1,83,44,424
6	Agriculture development	33,51,396	36,79,360	40,09,319	53,37,507	1,63,77,582
7	Non conventional energy	7,70,000		6,26,500		13,96,500
8	Women Development	13,43,957	11,64,310	14,19,954	15,99,904	55,28,135
	Total	3,02,82,743	3,22,01,941	2,71,87,085	3,74,96,717	12,71,68,486

Annexure-16

Format No. : UES/FORM/09

Ultimate
ENVIROLYTICAL SOLUTIONS

HDD-272, Phase III - Near JP Chowk
Ring Road No.-2, Kabir Nagar, Raipur (C.G.) - 492099
Ph : 0771 - 4027777 | Email : ultimatenviro@gmail.com

Recognized by Ministry of Environment Forest and Climate Change under EP act 1986

Name & Address Of The Customer			
TO, **AMBUJA CEMENT LIMITED** **(UNIT: BHATAPARA)** **P.O. Rawan, Tehsil: Baloda Bazar,** **Dist: Baloda Bazar-Bhatapara-493331**	Report No	UES/TR/22-23/03631	
	Lab Ref No	UES/22-23/W/09061-09062	
	Date of Sampling	29/09/2022	
	Date of Receipt	29/09/2022	
	Date of Report	03/10/2022	
	Date of Analysis	Start:29/09/2022	End: 03/10/2022

SAMPLE DETAILS

Sample Type	Effluent Water	Customer Ref. No. & Date	2910600867/8608 Date 07/06/2022
Customer Sample Id	Haldi Mines Stp Inlet /Outlet	Sample Condition At Receipt	Ok
Packing Of Sample	Jerry Cane (2 X 1ltr.*1) Glass bottle (300ml*1)	Sample Collected By	Laboratory Chemist
Other Details	Sealed	Quantity Received	Approx. 5.0 ltr.

TEST REPORT

SR. NO.	PARAMETER	UNIT	METHOD OF TEST	LIMITS AS PER TREATED WATER	ETP INLET (UNTREATED)	ETP OUTLET (TREATED)
1	pH Value at 25.0°C	-	IS:3025:(Part-11):1983, RA 2012	5.5 To 9.0	7.22	7.16
2	Total Suspended Solid	mg/L	IS:3025:(Part-17):1984, RA 2017	100	242	62.0
3	Total Dissolved Solids	mg/L	IS:3025:(Part-16)	-	194.0	120
4	Chemical Oxygen Demand	mg/L	IS:3025:(Part-58):2006, RA 2012	250	182.0	42.0
5	Bio-chemical Oxygen Demand at 27°C for three day	mg/L	IS:3025:(Part-44):1993 RA 2014	30	64.8	16.8
6	Oil & Grease	mg/L	IS:3025:(Part-39):1986	10	Absent	Absent

Note:mg/lit.: milligram per liter; N.D.: Not Detected.

REMARKS: RESULTS ARE AS ABOVE

Terms & conditions

- *This report for publication, arbitration or as legal dispute is forbidden.*
- *Test sample will be retained for 15 days after issue of test report unless otherwise agreed with customer.*
- *This is for information of the party has asked for above test(s) only.*

For ULTIMATE ENVIROLYTICAL SOLUTIONS

03/10/22

REVIEWED BY

AUTHORIZED SIGNATORY

End of the test report

Ultimate
ENVIROLYTICAL SOLUTIONS

HDD-272, Phase III - Near JP Chowk
Ring Road No.-2, Kabir Nagar, Raipur (C.G.) - 492099
Ph : 0771 - 4027777 I Email : ultimateenviro@gmail.com

Recognized by Ministry of Environment Forest and Climate Change under EP act 1986

TO, **AMBUJA CEMENT LIMITED** **(UNIT: BHATAPARA)** **P.O. Rawan, Tehsil: Baloda Bazar,** **Dist: Baloda Bazar-Bhatapara-493331**	REPORT NO.	UES/TR/22-23/03637
	LAB REF NO.	UES/22-23/R/09068-9071
	DATE OF REPORT	25/09/2022
	DATE OF SAMPLING	22/09/2022 to 23/09/2022

SAMPLE DETAILS

MONITORING FOR	NOISE LEVEL MONITORING
CUSTOMER REF. NO. & DATE	2800900947/NEDS, Date 07/06/2022
SAMPLING LOCATION	MINES (CORE ZONE)
SAMPLE COLLECTED BY	LABORATORY CHEMIST
SAMPLING PROCEDURE	IS 9989:1981:RA 2001

TEST REPORT

LOCATION	UNIT	RESULT		LIMIT (INDUSTRIAL ZONE)	
		DAY TIME	NIGHT TIME	DAY TIME	NIGHT TIME
Industrial Area					
MALUD LIMESTONE FIELD OFFICE	dB(A)	64.2	48.2	75	70
MALUD LIMESTONE SAUSADE ROAD	dB(A)	62.9	52.6		
RAWAN LIME STONE NORTH BLOCK AREA	dB(A)	66.4	55.4		
RAWAN LIME STONE SOUTH BLOCK AREA	dB(A)	54.8	46.8		

REMARKS: RESULTS ARE AS ABOVE

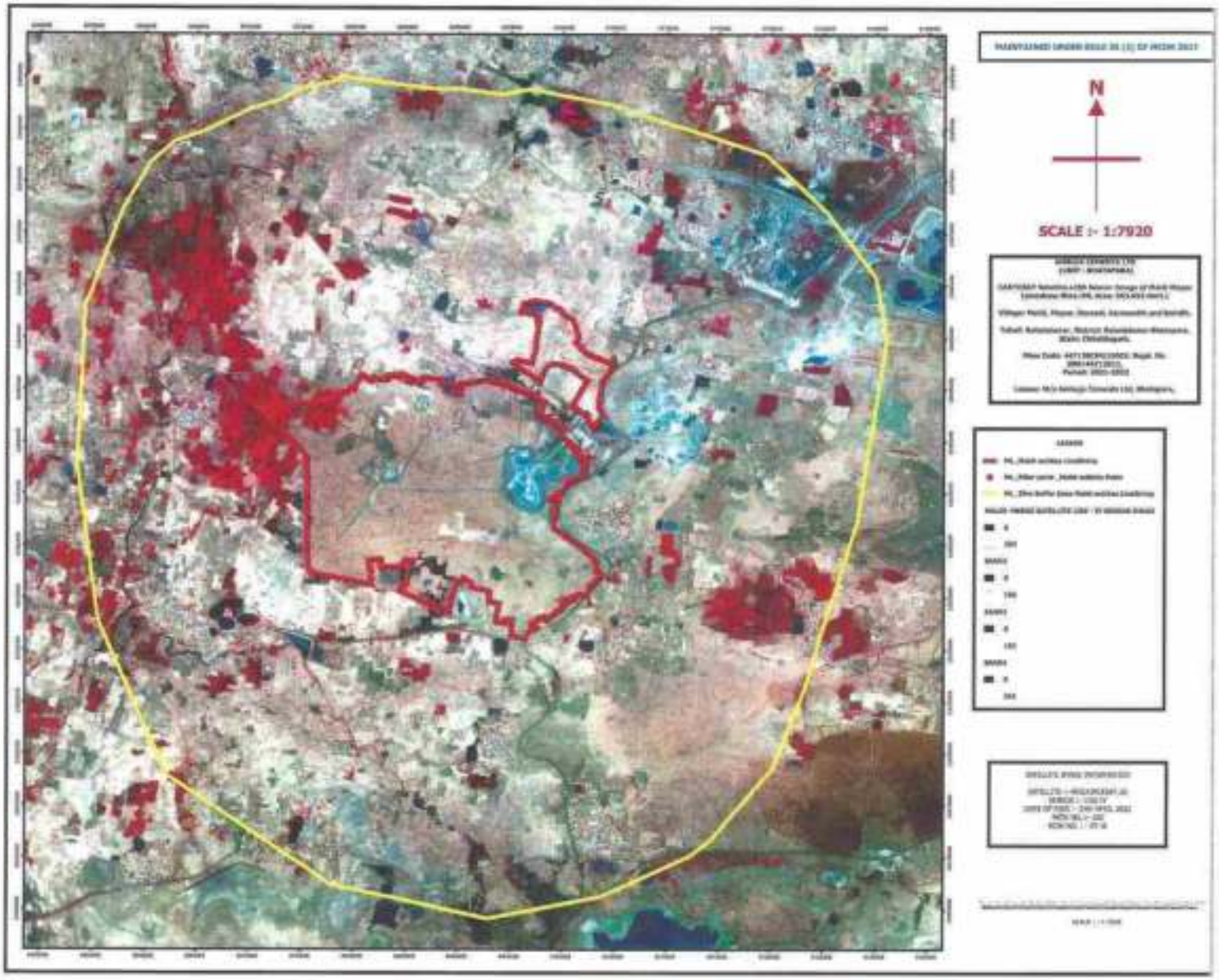
Terms & conditions

- *The report for publication, arbitration or as legal evidence is forbidden.*
- *Test sample will be retained for 15 days after issue of test report unless otherwise agreed with customer.*
- *This is for information as the party has asked for above test(s) only.*

25/9/22 REVIEWED BY		For ULTIMATE ENVIROLYTICAL SOLUTIONS 25/09/22 AUTHORIZED SIGNATORY

End of the test report

Annexure - 17



Annexure-20

Format No.: UES/FORMAT/05

Ultimate
ENVIROLYTICAL SOLUTIONS

HDD-272, Phase III - Near JP Chowk
Ring Road No.-2, Kabir Nagar, Raipur (C.G.) - 492099
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Recognized by Ministry of Environment Forest and Climate Change under EP act 1986

Name & Address of the Customer		
TO, **AMBUJA CEMENT LIMITED (UNIT: BHATAPARA) P.O. Rawan, Tehsil: Baloda Bazar, Dist: Baloda Bazar-Bhatapara-493331**	REPORT NO.	UES/TR/22-23/03637
	LAB REF NO.	UES/22-23/N/09068-9071
	DATE OF REPORT	25/09/2022
	DATE OF SAMPLING	22/09/2022 to 23/09/2022

SAMPLE DETAILS

MONITORING FOR	NOISE LEVEL MONITORING
CUSTOMER REF. NO. & DATE	[illegible]
SAMPLING LOCATION	MINES (CORE ZONE)
SAMPLE COLLECTED BY	LABORATORY CHEMIST
SAMPLING PROCEDURE	IS 9989:1981,RA 2003

TEST REPORT

LOCATION	UNIT	RESULT		LIMIT (INDUSTRIAL ZONE)	
		DAY TIME	NIGHT TIME	DAY TIME	NIGHT TIME
Industrial Area					
MALDI LIMESTONE FIELD OFFICE	dB(A)	64.2	48.2	75	70
MALDI LIMESTONE HAULAGE ROAD	dB(A)	62.9	52.6		
RAWAN LIME STONE NORTH BLOCK AREA	dB(A)	66.4	55.4		
RAWAN LIME STONE SOUTH BLOCK AREA	dB(A)	54.8	46.8		

REMARKS: RESULTS ARE AS ABOVE

Terms & conditions

- The report for publication, advertisement or in legal dispute is forbidden.
- Test sample will be retained for 15 days after issue of test report unless otherwise agreed with customer.
- [illegible]

25/09/22 REVIEWED BY		For ULTIMATE ENVIROLYTICAL SOLUTIONS 25/09/22 AUTHORIZED SIGNATORY

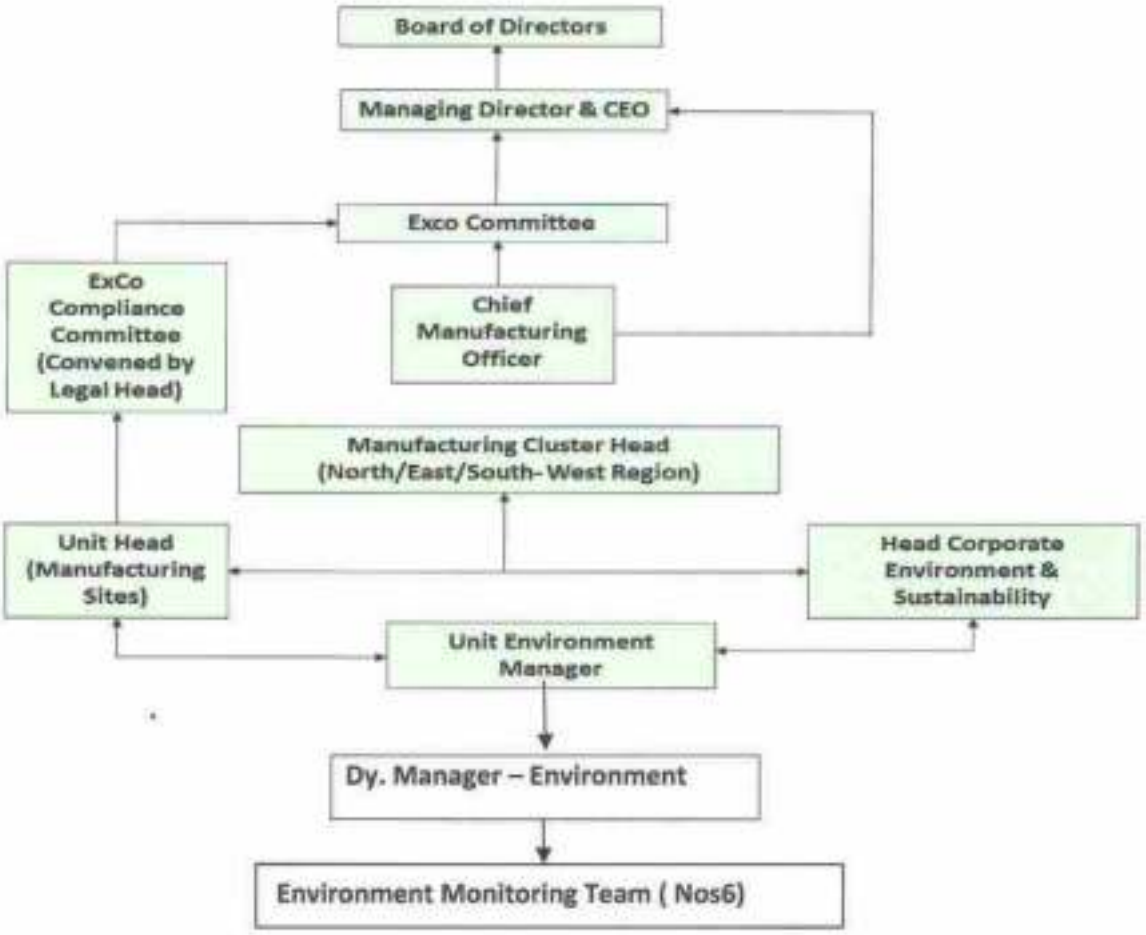
End of the test report

ENVIRONMENTAL MANAGEMENT CELL (EMC)

In order to maintain the environmental quality within the standards, regular monitoring of various environmental components is necessary. M/s.Ambuja Cements Ltd. is maintaining/ will maintain a full-fledged Environmental Management Cell (EMC) for environmental monitoring and management. The EMC team is responsible for pollution monitoring aspects and implementation of control measures in the plant .A group of qualified and efficient engineers with technicians has been deputed for maintenance, up keeping and monitoring of the pollution control equipment, to keep them in working at the best of their efficiencies.

Structure of EMC

Structure of Environment Management Cell at M/s. Ambuja Cements Ltd.



Structure of EMC at M/s. Ambuja Cements Ltd.

Responsibilities of EMC

The EMC looks after and implement the various functions to ensure that environmental status of the area remains within the statutory standard of MOEFCC and SPCB. The responsibilities of the EMC include the following:

- Procurement and commissioning of Pollution Control/Monitoring Equipment.
- Environmental monitoring of the core and buffer zone and evaluation of results. Keeping of records to track the surrounding environment quality status.
- Timely Calibration of Pollution Control Equipment and facilities.
- Specification and regulation of maintenance schedules for Pollution Control Equipment.
- Ensuring that prescribed standards are maintained.
- Implementation of the mitigation measures as suggested in EIA/EMP Report.
- Ensuring greenbelt development/plantation & its maintenance.
- Compliance with guidelines and statutory requirements.
- Coordination with statutory bodies, functional groups of the unit, Corporate Project / Environment & Engineering department etc.
- Organizing meetings of the Environmental Management Committee.
- Interaction with engineering & operation team for implementation of any modification programmes intended to improve the availability / efficiency of pollution control devices / systems.
- Carry out proactive environmental studies and observe all precautions necessary to avert disasters and emergencies in the mining observations as well as nearby areas.
- Regular environmental review and performance appraisal (Internal) and organizing Environmental / Energy and Water Audits by independent agencies/ 3rd party agencies.
- Coordination with the vendors dealing in waste supplies and disposal.
- Ensuring that the waste handling and disposal is carried out as per prescribed conditions.
- Conducting regular training programmes on various environmental requirements especially sustainable development, climate change, environmental monitoring etc.
- Reporting of compliances and non-compliances (if any) to management and other stakeholders.

Annexure - 22

List of Environmental Expenditure incurred existing and proposed for the Environmental Protection for Maldi Mopar Mine (Cost in Lacs.)

Sr. No	Particulars	2019-2020	2020-2021	2021-2022	2022-2023
1	Water Sprinkling on Haul road- 28 KL Water Tanker	200			
2	Bag filter Installation		50		
3	Dust Suppression and Sprinkler System on Limestone hopper and Conveyor			20	40
4	Sewerage Treatment Plant (STP) Cost	-	30		
5	Effluent Treatment Plant (ETP) Cost			30	
6	Rain water Harvesting Structures with Garland Drains - 1.7 Crores		100	70	
7	Green Belt Development			38	
8	CAAQMS Installation at Maldi Mopar Mine			159	
9	Environmental Monitoring			6	7
Total		**200**	**150**	**323**	**47**

Annexure - 23

क्षेत्रीय अधिकारी
छ.ग. पर्यावरण संरक्षण मण्डल

सर्वसंबंधितों को सूचना

[illegible]

क्षेत्रीय अधिकारी
छ.ग. पर्यावरण संरक्षण मंडल
न्यू एच.आई.जी.- 9-10-11 टाटीबंध रायपुर

Hindustan Times Date - 04-07-2009

सर्वसंबंधितों को सूचना

भारत सरकार पर्यावरण एवं वन मंत्रालय की अधिसूचना दिनांक 14.09.2006 के तहत सर्व संबंधितों को सूचित किया जाता है कि मे. अंबुजा सीमेंट लिमिटेड द्वारा लाईम स्टोन माईन (माईनिंग लीज क्षेत्र 553.656 हेक्टेयर) क्षमता 2.0 एम.टी.पी.ए. ग्राम मल्दी, मोपर, देवरानी, कामराडीह एवं बोईरडीह, तहसील बलौदाबाजार/भाटापारा, जिला रायपुर (छ.ग.) में प्रस्तावित है। जिसके लिये छत्तीसगढ़ पर्यावरण संरक्षण मंडल में लोक सुनवाई हेतु आवेदन किया गया है। उक्त परियोजना से संबंधित ड्राफ्ट ई.आई.ए. रिपोर्ट एवं सार (सॉफ्ट कापी सहित), कार्यालय कलेक्टर जिला रायपुर, कार्यालय जिला पंचायत जिला रायपुर, जिला व्यापार एवं उद्योग केन्द्र जिला रायपुर, कार्यालय ग्राम पंचायत मल्दी, कार्यालय ग्राम पंचायत, मोपर कार्यालय, ग्राम पंचायत देवरानी, कार्यालय ग्राम पंचायत कामराडीह एवं कार्यालय ग्राम पंचायत बोईरडीह, निदेशक पर्यावरण एवं वन मंत्रालय भारत सरकार पर्यावरण भवन सी.जी.ओ. कॉम्पलेक्स लोधी रोड नई दिल्ली, निदेशक पर्यावरण एवं वन मंत्रालय भारत सरकार क्षेत्रीय कार्यालय अक्षय हॉस्पिटल के पास लिंक रोड नं.-3, रविशंकर नगर पोस्ट ऑफिस भोपाल, सदस्य सचिव छत्तीसगढ़ पर्यावरण संरक्षण मंडल 1- तिलक नगर शिव मंदिर चौक मेन रोड अवंति विहार रायपुर एवं क्षेत्रीय अधिकारी क्षेत्रीय कार्यालय छत्तीसगढ़ पर्यावरण संरक्षण मंडल न्यू एच.आई.जी.-9, 10, 11 टाटीबंध रायपुर स्थित कार्यालयों में अवलोकन हेतु उपलब्ध है। जिसका अवलोकन कार्यालयीन समय में किया जा सकता है।

प्रस्तावित परियोजना के संबंध में सुझाव, विचार, टीका-टिप्पणी एवं आपत्ति इस सूचना के जारी होने के दिनांक से 30 दिवस के भीतर क्षेत्रीय अधिकारी, छत्तीसगढ़ पर्यावरण संरक्षण मंडल, न्यू एच.आई.जी.-9, 10, 11, टाटीबंध, रायपुर (छ.ग.) के कार्यालय में मौखिक अथवा लिखित रूप से कार्यालयीन समय में प्रस्तुत की जा सकती है। इस परियोजना के लिए लोक सुनवाई दिनांक 06.08.2009 दिन गुरुवार को दोपहर 12.00 बजे ग्राम पंचायत कार्यालय भवन मोपर, जिला रायपुर में आयोजित है, जिसमें भी सुझाव, विचार, टीका-टिप्पणी एवं आपत्ति दर्ज कराई जा सकती है।

क्षेत्रीय अधिकारी
छ.ग. पर्यावरण संरक्षण मंडल
न्यू एच.आई.जी. 9-10-11, टाटीबंध, रायपुर (छ.ग.)

Dainik Bhaskar Date - 04-07-2009