पंजीकृत रसीदी

भारत सरकार
खान मंत्रालय
भारतीय खान ब्यूरो
क्षेत्रीय खान नियंत्रक का कार्यालय
माखुपुरा ओद्योगिक क्षेत्र अजमेर 305002
ई–मेलः ro.ajmer@ibm.gov.in

Government of India
Ministry of Mines
Indian Bureau of Mines
Office of the Regional Controller of Mines.
Makhupura Industrial Area, Ajmer- 305002
Ph-145-2695165 / 2695476 Fax-2695202

सं. 584(4)(3)(1814)/2019–क्षेखानि–अजम/103

दिनांक : 22/01/2020
23.

प्रेषिति : **मेसर्स एसीसी लिमिटेड,**
लाखेरी सीमेंट वर्क्स,
पो. ऑ- लाखेरी,
बूंदी - 323603 (राज.)
E-mail – sumit.chadha@acclimited.com

Sub : Approval of Review of Mining Plan along-with Progressive Mine Closure Plan in respect of **Lakheri** Mining lease for **Limestone** mineral near village **Lakheri** Tehsil & District **Bundi**, Rajasthan over an area of **1516.88** hect., M.L. No. **04/1972**, submitted under Rule 17(2) of MCR, 2016 in favour of M/s. ACC Ltd.

Ref : 1. Your letters, as received in this office on 03.12.2019 and 10.01.2020
2. This office letter of even no. dated 16.12.2019

Sir,

In exercise of the powers conferred by the clause (b) of sub section (2) of Section 5 of Mines and Minerals (Development & Regulation) Act, 1957 read with Government of India Order number S.O. 445 (E), dated 28.04.87 and Indian Bureau of Mines Gazette Notification S.O. 1872 (E) dated 18th May, 2016, I hereby **APPROVE** the above said Review of Mining Plan. This approval is subject to the following conditions:

(i) This Review of Mining Plan is approved without prejudice to any other laws applicable to the mine area from time to time whether made by the Central Government, State Government or any other authority and without prejudice to any order or direction from any court of competent jurisdiction.

(ii) The proposals shown on the plates and/or given in the document is based on the lease map/sketch submitted by the applicant/lessee and is applicable from the date of approval.

(iii) It is clarified that the approval of your aforesaid Review of Mining Plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development & Regulation) Act, 1957 or the Minerals (Other Than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016 and any other laws including Forest(Conservation) Act, 1980, Environment(Protection) Act, 1986 or the rules made there under, Mines Act, 1952 and Rule & Regulations made there under.

(iv) Indian Bureau of Mines has not undertaken verification of the mining Lease boundary on the ground and does not undertake any responsibility regarding correctness of the boundaries of the precise area as furnished by the applicant/ lessee.

(v) Lease boundary pillars shall be maintained at all times in accordance with the rule 12(1)(v) of Minerals (Other Than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

(vi) At any stage, if it is observed that the information furnished, data incorporated in the document are incorrect or misrepresent facts, the approval of the document shall be revoked with immediate effect.

(vii) The inventory of mineral/ore stock above the limit prescribed in the threshold values of minerals and below the cut off grade shall be maintained in a bound register indicating the quantity and quality of material stacked. The month wise inventory of such materials shall be updated, and the annual summary shall be submitted to Regional Controller of Mines, IBM, Ajmer before 30th June of every year.

(viii) Next Financial Assurance shall be due for submission on 01.04.2025.

(ix) This approval has been given for the proposals given in the documents for the year from 2020-21 to 2024-25.

Encl: One copy of approved Review of Mining Plan.

भवदीय

22.1.20

(बी. एल. कोटड़ीवाला)
क्षेत्रीय खान नियंत्रक
भारतीय खान ब्यूरो

Copy for kind information to:-

1. The Director, Department of Mines & Geology, Govt. of Rajasthan, Shashtri Circle, Udaipur (Raj.) along with a copy of approved Review of Mining Plan by Registered Parcel.
2. Sh. Neerendra Kumar Pandey, Mining Geologist, Lakheri Cement Works, M/s ACC Ltd., Bundi- 323 603, Rajasthan. E-mail – neerendra.pandey@acclimited.com

क्षेत्रीय खान नियंत्रक
भारतीय खान ब्यूरो

This Mining Plan has been approved vide letter No. 564(4)(3)(1814)/2019 RCOM - AJM Dt. 22.01.20 ....under MCDR 2017/MCR 2016

Registration No: IBM/256/2011
Mine Code: 38RAJ08002

CAT – A
Fully Mechanized

Review of Mining Plan with Progressive Mine Closure Plan

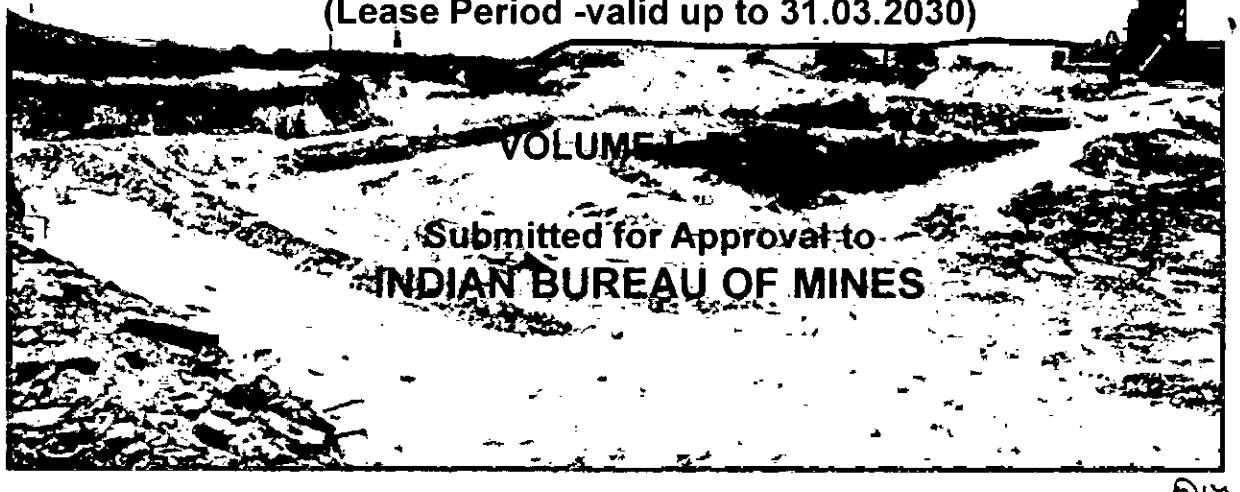
(Submitted under Rule 17 (2) of Minerals (Other than Atomic and Hydro carbons Energy Minerals) MCR 2016
& 23 of MCDR 2017)

Period : 2020-21 to 2024-2025

LAKHERI LIMESTONE MINE
ML No. – 01/92

Village – Lakheri, Chamavali, Uttarana, PO: Lakheri, Distt.: Bundi, Rajasthan

For 1516.88 Hectares
(Forest area -409.88 Ha, Non Forest area – 1107.0 Ha)
(Lease Period -valid up to 31.03.2030)



VOLUME I

Submitted for Approval to
INDIAN BUREAU OF MINES

Govt. of India, Indian Bureau of Mines, सत्यमेव जयते

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क्षेत्रीय खान नियन्त्रक
Regional Controller of M
भारतीय खान ब्यूरो
Indian Bureau of Mi
अजमेर AJMER

Date of grant of lease	:	01/12/1913
Period/ Expiry Date	:	31.03.2030

Submitted by
QP:
Neerendra Kumar Pandey

Deepal Gorasia

Lessee:
M/s ACC Limited,
Lakheri Cement Works
PO- Lakheri, Dist. - Bundi (Raj.)
Pin Code: 323603.
E-mail- sumit.chadha@acclimited.com
Mobile No.- 7024511222

GeoMining Division

ACC Limited
GeoMining Division
ACC Thane Complex
L.B.S. Marg
Thane 400 604, India
CIN: L26940MH1936PLC002515
Phone +91 22 39248384
Fax +91 22 39248483
www.acclimited.com

CONSENT LETTER

01 The **Review of Mining Plan along with Progressive Mine closure Plan** in respect of **Lakheri Limestone Mines** over an area of **1516.88 Ha** in village of **Lakheri, Chamawali, Utrana** etc. PO **Lakheri** Dist. **Bundi, Rajasthan** bearing **ML No-04/1972** submitted under Rule 17(2) of Minerals (Other than Atomic and Hydro carbons Energy Minerals) Concession Rules, 2016/ Rule 23 of MCDR' 2017 has been prepared by Qualified Persos **Mr. Neerendra Kumar Pandey and Mr. Deepal Gorasia**.

This is to request **the Regional Controller of Mines, Indian Bureau of Mines, Ajmer Region**, to make any further correspondence regarding any correction of the Review of Mining Plan with the said qualified persons as his address below:

Mr. Neerendra Kumar Pandey
Qualified Person
Manager-Geology
Lakheri Limestone Mines,
Lakheri Cement Works,
PO- Lakheri, Dist.- Bundi (Raj.)
PIN- 323603
E-mail-neerendra.pandey@acclimited.com

Mr. Deepal Gorasia.
Qualified Person
Manager-Mines
Lakheri Limestone Mines,
Lakheri Cement Works,
PO- Lakheri, Dist.- Bundi (Raj.)
PIN- 323603
E-mail-deepal.gorasia@acclimited.com

We hereby undertake that all information/~~modification~~/ ~~updating~~ as made in the said Review of Mining Plan along with Progressive Mine closure Plan by the said qualified persons be deemed to have been made with our knowledge and consent and shall be acceptable on us and binding in all respect.

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02 It is certified that the **CCOM Circular No.-2/2010** will be implemented and complied with when the recognized agency is approved by the state government.

03 It is certified that the Progressive Mine closure Plan of **Lakheri Limestone Mines** of **M/s ACC Limited** over an area of **1516.88 Ha** complies with all statutory Rules, Regulations, Orders made by the Central or State Government, Statutory organization, Court etc. Which have been taken into consideration and wherever any specific permission is required the lessee will approach the concerned authorities.

04 "The provisions of **Mines Act, Rules and Regulation** made there under have been observed In the **Review of Mining Plan along with Progressive Mine closure Plan** over an area of 1516.88 Ha in Dist. Bundi, Rajasthan State belonging to **Lakheri Limestone Mines**, and where specific permissions are required, the applicant will approach the **DGMS** further, standards prescribed by **DGMS** in respect of **miner's health** will be strictly implemented.

05 The information furnished in the **Review of Mining Plan** along with **Progressive Mine Closure Plan** is true and correct to the best of our knowledge and records.

06 It is to undertake that all the measures proposed in this Progressive Mine Closure Plan will be implemented in a time bound manner as proposed.

Place: Mumbai

Date: 04/07/2019

(Neeraj Akhoury)
Managing Director & CEO
and Nominated Owner
Lakheri Limestone Mines
ACC Limited

CERTIFICATE FROM QUALIFIED PERSON:

The provisions of the Mineral Conservation and Development Rules 2017 have been observed in the preparation of the Review of Mining Plan along with Progressive Mining closure Plan for Lakheri Limestone Mines, Lakheri Cement Works, over an area of 1516.88 Ha, in village of Lakheri, district-Bundi, Rajasthan state and wherever specific permissions are required, the applicant will approach the concerned authorities of Indian Bureau of Mines.

The information furnished in the Review of Mining Plan along with Progressive Mining closure Plan is true and correct to the best of my knowledge.

Date: 20.12.2019

Place: Lakheri

(Neerendra Kumar Pandey)
QUALIFIED PERSON

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(Deepal Gorasia)
QUALIFIED PERSON

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	f)	The surface plan of the lease area may be prepared on a scale of 1: 1000 or 1: 2000 with contour interval of maximum of 10 m depending upon the topography and size of the area duly marked by grid lines showing all features indicated under Rule 28(1)(a) of MCDR 1988.	
	g)	For preparation of geological plan, surface plan prepared on a scale of 1: 1000 or 1: 2000 scale specified under para 1.0 (f) of Part A of the format may be taken as the base plan. The details of exploration already carried out along with supporting data for existence of mineral, locations proposed exploration, various lithounits along with structural features, mineralized/ore zone with grade variation if any may be marked on the geological plan along with other features indicated under Rule 28 (1)(b) of MCDR 1988.	
	h)	Geological sections may be prepared on natural scale of geological plan at suitable interval across the lease area from boundary to boundary.	
	i)	Broadly indicate the future programme of exploration with due justification (duly marking on Geological plan year wise location in different colours) taking into consideration the future tentative excavation program planned in next five years as in table below	
	j)	Reserves and Resources as per UNFC with respect to the threshold value notified by IBM may be furnished in a tabular form as given below: (Area explored under different level of exploration may be marked on the geological plan and UNFC code for area considered for different categories of reserve/ resources estimation may also be marked on geological cross sections). Submit a feasibility/pre-feasibility study report along with financial analysis for economic viability of the deposit as specified under the UNFC field guidelines may be incorporated.	
	k)	Furnish detailed calculation of reserves/resources section wise (When the mine is fully mechanized and deposit is of complex nature with variation of size , shape of mineralized zones, grade due to intrusion within ore zone etc, an attempt may be made to estimate reserves/resources by slice plan method). In case of deposits where underground mining is proposed, reserve/resources may be estimated by level plan method, as applicable, as per the proposed mining parameters.	
	l)	Mineral Reserves/Resources	
2.0	**Mining**		
	A	**Open Cast Mining**	**35-47**
	a)	Briefly describe the existing as well as proposed method for excavation with all Design parameters indicating on plans /sections	
	b)	Indicate year-wise tentative Excavation in Cubic Meters indicating development, ROM, pit wise as in table below	
	c)	Enclose Individual year wise development plans and sections showing pit layouts, dumps, stacks of mineral reject, if any, etc in case of 'A' category mines. Composite development plans showing pit layouts, dumps, stacks of mineral reject, if any, etc. and year wise sections in case of 'B' category mines	
	d)	Description of briefly giving salient features of the proposed	

		method of working indicating Category of mine	
	e)	Describe briefly the layout of mine workings, pit road layout, the layout of faces and sites for disposal of overburden/waste along with ground preparation prior to disposal of waste, reject etc. A reference to the plans and sections may be given. UPL or ultimate size of the pit is to be shown for identification of the suitable dumping site	
	f)	Conceptual Mine planning up to the end of lease period taking into consideration the present available reserves and resources describing the excavation, recovery of ROM, Disposal of waste, backfilling of voids, reclamation and rehabilitation showing on a plan with few relevant sections	
	B	**Underground Mining**	
3.0	**Mine Drainage**		**48-49**
	a)	Minimum and maximum depth of water table based on observations from nearby wells and water bodies	
	b)	Indicate maximum and minimum depth of Workings	
	c)	Quantity and quality of water likely to be encountered, the pumping arrangements and places where the mine water is finally proposed to be discharged.	
	d)	Describe regional and local drainage pattern. Also indicate annual rain fall, catchments area, and likely quantity of rain water to flow through the lease area, arrangement for arresting solid wash off etc	
4.0	**Staking of mineral reject/sub grade mineral and disposal of waste**		**50-53**
	a)	Indicate briefly the nature and quantity of top soil, overburden / waste and Mineral Reject to be disposed off.	
	b)	The proposed dumping ground within the lease area be proved for presence or absence of mineral and be outside the UPL unless simultaneous backfilling is proposed or purely temporary dumping for a short period is proposed in mineralized area with technical constraints & justification	
	c)	Attach a note indicating the manner of disposal of waste, configuration and sequence of year wise build up of dumps along with the proposals for protective measures	
5.0	**Use of Mineral and mineral reject**		**54**
	a)	Describe briefly the requirement of end use industry specifically in terms of physical and chemical composition.	
	b)	Give brief requirement of intermediate industries involved in up gradation of mineral before its end-use.	
	c)	Give detail requirements for other industries, captive consumption, export, associated industrial use etc.	
	d)	Indicate precise physical and chemical specification stipulated by buyers	
	e)	Give details of processes adopted to upgrade the ROM to suit the user requirements.	
6.0	**Processing of ROM and mineral reject**		
	a)	If processing / beneficiation of the ROM or Mineral Reject is planned to beconducted, briefly describe nature of processing / beneficiation. This may indicate size and grade of feed material	**55**

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		and concentrate (finished marketable product), recovery etc.		
	b)	Give a material balance chart with a flow sheet or schematic diagram of the processing procedure indicating feed, product, recovery, and its grade at each stage of processing		
	c)	Explain the disposal method for tailings or reject from the processing plant		
	d)	Quantity and quality of tailings /reject proposed to be disposed, size and capacity of tailing pond, toxic effect of such tailings, if any, with process adopted to neutralize any such effect before their disposal and dealing of excess water from the tailings dam		
	e)	Specify quantity and type of chemicals if any to be used in the processing plant		
	g)	Indicate quantity (cum per day) of water required for mining and processing and sources of supply of water, disposal of water and extent of recycling Water balance chart may be given		
7.0	**Other**			**56**
	a)	Site Services		
	b)	Employment potential		
8.0	**Progressive mine closure plan under Rule 23 of MCDR'2017**			**57-71**
	8.1	Environment Base line information: Attach a note on the status of baseline information with regard to the following		
	8.2	Impact Assessment: Attach an Environmental Impact Assessment Statement describing the impact of mining and beneficiation on environment on the following		
	8.3	Progressive reclamation Plan		
		8.3.1	Mined-Out Land	
		8.3.2	Top Soil Management	
		8.3.3	Tailings Dam Management: The steps to be taken for protection and stability of tailing dam, stabilization of tailing material and its utilization, periodic desilting measures to prevent water pollution from tailings etc, arrangement for surplus water overflow along with detail design, structural stability studies, the embankment seepage loss into the receiving environment and ground water contaminant if any may be described	
		8.3.4	Acid mine drainage, if any and its mitigative measures	
		8.3.5	Surface subsidence mitigation measures through backfilling of mine voids or by any other means and its monitoring mechanism	
	8.4	Disaster Management and Risk Assessment: This may deal with action plan for high risk accidents like landslides, subsidence flood, inundation in underground mines, fire, seismic activities, tailing dam failure etc. And emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of lessee to meet such eventualities and the assistance to be required from the local authority may also be described		
	8.5	Care and maintenance during temporary discontinuance: An emergency plan for the situation of temporary discontinuance due to court order or due to statutory requirements or any other unforeseen circumstances		

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		may indicate measures of care, maintenance and monitoring of status of discontinued mining operations expected to re-open in near future	
	8.6	Financial Assurance	
PART B			
9.0	Certificates/Undertaking/Consent		

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10. LIST OF PLATES

Sr No.	Type of Plan	Plate No	Scale	No. of Sheets
1	Key Plan	I	1:50000	1
2	Location Plan	IA	1: 2,50,000	1
3	Revenue Plan	II	1:8000	2
4	Lease Plan (Government approved plan on toposheet)	IIA		1
5	Surface Geological Plan	III	1:5000	4
6	Geological Sections – (Sheet 1)	IVA	1:1000	1
7	Geological Sections – (Sheet 2)	IVB	1:1000	1
8	Geological Sections – (Sheet 3)	IVC	1:1000	1
9	Geological Sections - (Sheet 4)	IVD	1:1000	1
10	Geological Sections - (Sheet 5)	IVE	1:1000	1
11	Geological Sections - (Sheet 6)	IVF	1:1000	1
12	Geological Sections - P3 Quarry (Sheet 7)	IVG	1:1000	1
13	Geological Sections - Sakoda (Sheet 8)	IVH	1:1000	1
14	Surface Plan	V	1:5000	4
15	Surface Plan	VA	1:2000	6
16	Production & Development Plan With Working Sections (2020-21)	VIA	1:2000	6
17	Production & Development Plan with Working Sections (2021-22)	VIB	1:2000	6
18	Production & Development Plan with Working Sections (2022-23)	VIC	1:2000	6
19	Production & Development Plan with Working Sections (2023-24)	VID	1:2000	6
20	Production & Development Plan with Working Sections (2024-25)	VIE	1:2000	6
21	Environment Plan	VII	1:5000	5
22	Conceptual Plan	VIII	1:5000	4
23	Financial Area Assurance Plan	IX	1:5000	4
24	Reclamation Plan	X	1:5000	4
	Total			**74**

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11. List of ANNEXURES

ANNEXURES:

Annex No.	Particulars of Annexure	Page No
01	State Govt. certificate for 1516.88 Hect	
02	Boundary pillar co-ordinates	
03	Khasra Details.	
04	Violations pointed out by IBM official during 2018-19.	
05	Details of boreholes, indicating type, depth, collar level etc with borehole log.	
05 A	Bh's drilled during 2018	
06	Chemical analyses of all the samples of the boreholes were given in the borehole log.	
07	Analysis report of check samples from NABL accredited/ government laboratory.	
08	Details of reserve/ resource estimation section wise.	
09	Form D	
10	Qualification and experience certificate of Qualified Person.	
11	Photographs depicting plantation done at mine.	
12	Certificate of registration of the company and memorandum of the association.	
13	List of members of board of directors.	
14	Bank Guarantee.	
15	Lease Held by company& Board resolution	
16	Lease period extension order and Lease deed.	
17	Appointment of Owner	
18	Approval letter of scale change	
19	Environment Clearance	
20	Feasibility Report	
21	Air, Water and Noise report	
22	Vibration Report	
23	Photo Identity of the Lessee with permanent address proof.	
24	NABL Bulk Density Report	
25	Recovery Report	

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LIST OF TABLES

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This Mining Plan has been approved vide letter No. 584(4)(3)(1814)/2019 RCOM - AJM Dt. 22.01.20 ....under MCDR 2017/MCR 2016

ACC Limited, Lakheri Cement Works
Review of Mining Plan along with PMCP (2020-2025)

INTRODUCTORY NOTE:

The Lakheri plant was established in the year 1905 for hydrated lime production. Later it is converted into a cement plant in 1917 with wet process kilns. In 1996-97, Lakheri Plant was converted into modernized dry process kiln with installed capacity of 1200 TPD clinker with the requirement of about 1800 TPD limestone. After first phase of exploration completed in March 2000 the capacity was increased to 1600 TPD clinker with the requirement of 2000 TPD limestone i.e. about 5 lakh tones per annum from Lakheri Limestone Mine. Limestone is supplied mainly from the captive mechanized limestone mine.

The Lakheri Limestone Mine, with initial lease area of 3980 hect (2873 hect forest and 1107 hect non forest area) was started in 1905. The present mining lease area (1516.88 Hect.) comprise of 409.88 hect forest land and 1107 hect non-forest lands. The remaining 2464.12 hect forest land is surrendered to Forest Department. As per MMDR (Amendment) Act, 2015 mining lease has been extended by State Government and valid upto 31.03.2030.

Salient features regarding lease area

- The lease area was granted for 3980 hect on toposheet no. 45O/14 & 54C/2 in year 1913. Out of 3980 hect, 1107 hect. was non-forest land and remaining 2873 ha was forest land. In the year 1999-2000, 2185.54 forest area was offered for surrender and ACC retained only 687.46 hect area. However permission for working in forest area was granted for only for 108 ha.
- Out of balanced 579.46 hect (687.46 -108 hect) forest area, Forest department advised to go for application of diversion of 301.88 hect virgin area. Same was done subsequently and out of 301.88 hect area permission for working was granted by MoEF&CC over 100 hect area. For remaining 201.88 ha. area, application for forest diversion was applied in 2012 and is now pending for approval with forest department.
- Thus the total area after final approval is 1516.88 hect.
- A certificate from State government stating the same is enclosed. (Annexure-1)

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We are submitting this Review of Mining Plan along with Progressive Mining Closure plan for 1516.88 hect area. At present we are conducting our mining operation in non forest area only because of statutory order. Our lease period is extended up to 31.03.2030 by Central Government notification and State Government letter and subsequently FC and EC is also renewed for the same period. We have working permission only in non-forest area and after completion of de-notification process we will work in forest land. As we do not have sufficient reserve (about seven month) in non forest area we planned mining activities in diverted forest area and proposed exploration in non forest area for possible reserve enhancement.

List of other leases held by company is attached as Annexure-15

क्षेत्रीय खान नियन्त्रक 22.1.20
Regional Controller of Mines
भारतीय खान ब्यूरो
Indian Bureau of Mines
अजमेर AJMER

Prepared By: *Neerendra Kumar Pandey (QP)* *Deepal Gorasia (QP)*

1. GENERAL:

a) Name of applicant-	:	ACC Limited, Lakheri Limestone Mines
IBM Registration No. of lessee	:	IBM/256/2011
Address	:	ACC Limited Lakheri Cement Works PO: Lakheri,Dist:Bundi (Raj.) Pin Code: 323603. Phone: 07438 – 261642,261664 Fax: 07438 – 261504 Gram: Lakheri E-mail: neerendra.pandey@acclimited.com
b) Status of applicant/lessee	:	Public Limited Company List of Board of Directors is attached as Annexure 13.
c) Mineral(s) which is /are included in the prospecting license (For fresh grant)	:	NA
d) Mineral(s) which is / are included in the letter of Intent / lease deed	:	Limestone
e) Mineral(s) which is the applicant / lessee intends to mine	:	Limestone
f) Name of Qualified Person under rule 15 of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.	:	**Neerendra K. Pandey** Address-Lakheri Cement Works Dist. - Bundi (Raj.) Pin Code: 323603. Mobile: 8003191391 Email- neerendra.pandey@acclimited.com **Deepal Gorasia** Address-Lakheri Cement Works Dist. - Bundi (Raj.) Pin Code: 323603. Mobile: 8003109994 Email- deepal.gorasia@acclimited.com

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Prepared By: *Neerendra Kumar Pandey (QP)* *Deepal Gorasia (QP)*

2. LOCATION AND ACCESSIBILITY:

a) Lease details

i) Name of mine : Lakheri Limestone Mine (1516.88 Hect)

ii) Lat/Long of any boundary point : Pillar no. F4- Lat 25°40'59.6" N
Long 76°11'12.90"E
Detail list attached in Table 2 & Annexure No.2.

iii) Date of grant of lease : 01/12/1913 (Annexure-16)

iv) Period/ Expiry Date : 31.03.2030 (Annexure-16)

v) Name of Lease holder : ACC Limited

vi) Postal Address : Lakheri Cement Works
PO- Lakheri, Dist. - Bundi (Raj.)
Pin Code: 323603.
Phone: 07438 – 261642,261664
Mobile: 8003191391
Fax: 07438 – 261504
e-mail: neerendra.pandey@acclimited.com

The name & addresses of all the board of Directors is given in Annexure No.-13

b) Details of applied/ lease area with location plan-:

Location plan of the lease area is attached as Plate IA. Land details of applied lease area are given in following table.

Table No.1: Land detail of lease area

Forest	Area (Hect)	Non-Forest	Area (Hect)
Protected Land	201.88 Hect	ACC Land	354.02 Hect
		Government Land (Waste land)	461.13 Hect
Notified Land	208.00 Hect	Private Agricultural Land	291.85 Hect
Total Forest Land	**409.88 Hect**	**Total Non- Forest Area**	**1107.00 Hect**

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Prepared By: *Neerendra Kumar Pandey (QP)* *Deepal Gorasia (QP)*

Non- forest Area (Khasra detail of non-forest area is given in Annexure3)			
Area in Hect	**Type of land**	**Ownership**	**Surface rights**
354.02	Waste Land	ACC Ltd	Surface right obtained
291.85	Agriculture	Private land	Surface right not obtained
461.13	Waste land	Government land	Government

Forest Area			
Area in Hect	**Block name**	**Ownership**	**Surface rights**
33.90	Lakheri Block	Forest	Diverted forest
192.80	Kankara Block	Forest	174.10 Hect diverted, 18.70 Hect applied for diversion
183.18	Gandoli Block	Forest	Applied for diversion

Total Lease Area: 1516.88 Hect. List of Khasra is attached as **Annexure 3.**

District & State: Bundi, Rajasthan,

Taluka: Indergargh & K. Patan

Village: Sakhoda, Lakheri, Chamawali, Kankara, Utarana, Budhel, Danganedi, Mahua ke dev ji, Gendoli, Guntha pholai etc.

Whether the area falls under Coastal Regulation Zone (CRZ): No

Existence of public road /railway line if any nearby and approximate distance:

By Road: Lakheri is well connected through state highway with Bundi, Kota & Sawaimadhopur. Lakheri is about 61 km, 85 km & 55 km distance from Bundi, Kota & Sawaimadhopur respectively.

By Rail: The mine is about 14 km from Lakheri (B.G) Rly station. Lakheri railway station is on the Delhi – Mumbai B.G. line (W.Rly.) & is well connected to Kota, Jaipur, Delhi & Mumbai.

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Toposheet No with latitude & longitude of all corner boundary Point/pillar:

The lease falls on Survey of India toposheet no. 45O/14 & 54C/2. Location plan is enclosed as Plate no IA & Key Plan is enclosed as Plate No. I. Detail list of boundary pillar co-ordinates is given in table 2 & Annexure No.2

Table 2: Coordinates of the boundary pillars

Name Of Boundary Pillars	Latitude (N)			Longitude (E)		
	Deg	Min	Sec	Deg	Min	Sec
FRP	25	42	5.00	76	11	33.80
P	25	39	39.00	76	15	27.20
Q	25	39	54.40	76	15	27.20
R	25	40	19.50	76	12	23.30
S	25	40	40.50	76	11	55.50
F1	25	40	38.40	76	11	53.40
F2	25	40	40.90	76	11	47.60
F3	25	40	52.50	76	11	26.40
F4	25	40	59.60	76	11	[illegible]
F5	25	40	58.20	76	[illegible]	9.70
F6	25	40	53.80	76	[illegible]	1.90
F7	25	40	48.40	76	10	[illegible]
F8	25	40	41.20	76	10	[illegible]
F9	25	40	30.50	76	10	[illegible]
F10	25	40	21.00	76	[illegible]	9.90
F11	25	40	7.60	76	[illegible]	[illegible]
F12	25	40	0.60	76	9	53.20
F13	25	39	51.90	76	9	[illegible]
F14	25	39	48.60	76	9	47.50
F15	25	39	47.10	76	9	45.80
F16	25	39	47.40	76	9	43.50
F17	25	39	45.80	76	9	38.50
F18	25	39	39.90	76	9	35.50
F19	25	39	27.20	76	9	28.70
F20	25	39	16.20	76	9	21.50
F21	25	39	5.80	76	9	13.10
F22	25	38	56.80	76	9	5.60
F23	25	38	46.80	76	8	54.60

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2	25	38	50.20	76	8	51.20
3	25	37	52.70	76	7	42.20
A1	25	37	42.70	76	7	28.20
A2	25	37	35.10	76	7	16.50
A3	25	37	25.60	76	7	6.60
A4	25	37	21.30	76	7	1.60
A5	25	37	7.60	76	6	58.30
A6	25	37	6.90	76	7	3.80
F24	25	37	4.80	76	6	59.70
F25	25	36	58.60	76	6	51.90
F26	25	36	52.30	76	6	47.90
B1	25	36	49.80	76	6	53.50
B2	25	36	42.10	76	6	44.90
B3	25	36	12.60	76	5	57.60
C1	25	36	6.60	76	5	51.60
C2	25	36	3.50	76	5	46.60
C3	25	35	53.30	76	5	26.60
C4	25	35	46.90	76	5	15.80
C5	25	35	40.40	76	5	0.30
C6	25	35	29.90	76	4	39.10
C7	25	35	25.40	76	4	30.80
C8	25	35	17.10	76	4	15.10
C9	25	34	54.70	76	3	2[illegible]
C10	25	34	49.20	76	3	1[illegible]
C11	25	34	48.00	76	3	7[illegible]
C12	25	34	33.30	76	2	44.00
C13	25	34	18.00	76	2	52.30
C14	25	34	1.70	76	2	21.90
F27	25	34	0.40	76	2	13.90
F28	25	33	58.60	76	2	10.40
F29	25	33	53.80	76	2	4.90
F30	25	33	46.40	76	1	53.20
F31	25	33	43.50	76	1	49.20
F32	25	33	38.90	76	1	40.70
F33	25	33	35.00	76	1	33.20
F34	25	33	35.70	76	1	25.50
F35	25	33	34.30	76	1	19.80
F36	25	33	30.20	76	1	18.00

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F37	25	33	27.60	76	1	15.60
F38	25	33	24.80	76	1	8.20
F39	25	33	13.50	76	0	50.50
F40	25	33	9.90	76	0	42.20
F41	25	33	10.10	76	0	28.20
F42	25	33	7.70	76	0	16.00
F43	25	33	4.20	75	59	56.60
F44	25	32	59.30	75	59	35.50
F45	25	32	51.80	75	59	6.80
F46	25	32	47.90	75	58	55.90
F47	25	32	46.40	75	58	47.80
F48	25	32	40.20	75	58	30.20
F49	25	32	32.70	75	58	10.50
F50	25	32	31.30	75	57	58.90
F51	25	32	19.30	75	57	57.20
F52	25	32	13.70	75	57	40.20
F53	25	32	8.90	75	57	24.80
F54	25	32	8.00	75	57	10.70
F55	25	32	7.20	75	56	41.40
E1	25	31	54.60	75	56	46.40
F	25	33	8.90	76	0	46.20
L1	25	34	18.80	76	2	58.00
L2	25	34	51.80	76	3	51.90
L3	25	35	1.50	76	4	11.00
L4	25	35	8.20	76	4	24.50
L5	25	35	14.50	76	4	36.00
L6	25	35	23.30	76	4	55.40
L7	25	35	40.80	76	5	25.70
L8	25	35	48.50	76	5	40.70
B4	25	36	5.50	76	6	4.40
B5	25	36	14.30	76	6	19.40
B6	25	36	18.30	76	6	28.10
B7	25	36	22.20	76	6	34.30
B8	25	36	26.80	76	6	38.50
B9	25	36	34.10	76	6	53.10
B10	25	36	39.20	76	6	59.90
B11	25	36	45.70	76	7	3.00
L9	25	37	10.00	76	7	14.50

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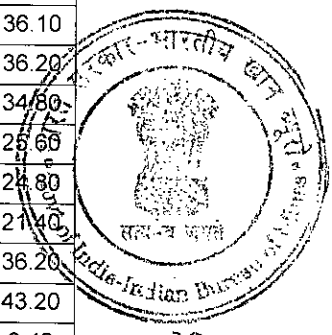
A8	25	37	10.40	76	7	10.40
A9	25	37	12.50	76	7	11.60
A10	25	37	20.00	76	7	20.40
A11	25	37	33.50	76	7	42.40
L9A	25	37	41.00	76	7	54.60
L10	25	38	13.30	76	8	37.20
L11	25	38	46.00	76	9	13.40
L12	25	39	44.70	76	9	54.50
L13	25	40	9.80	76	10	19.20
L14	25	40	12.40	76	10	40.70
L15	25	40	35.30	76	10	48.50
L16	25	40	32.60	76	11	12.20
L17	25	40	27.00	76	11	17.20
L18	25	40	11.80	76	11	12.00
L19	25	40	2.50	76	11	9.50
L20	25	39	55.00	76	11	11.20
L21	25	39	53.20	76	11	16.80
L22	25	39	46.10	76	11	17.40
L23	25	39	26.10	76	11	14.00
L24	25	39	14.80	76	11	16.60
L25	25	39	13.70	76	11	33.10
L26	25	39	20.80	76	11	36.10
L27	25	39	28.50	76	11	36.20
L28	25	39	31.60	76	11	34.80
L29	25	39	39.20	76	11	25.60
L30	25	39	47.40	76	11	24.80
L31	25	39	53.30	76	11	21.40
L32	25	40	12.50	76	11	36.20
L33	25	40	16.60	76	11	43.20
L34	25	40	20.60	76	12	6.40
L35	25	40	18.00	76	12	11.60
L36	25	40	10.60	76	12	16.10
L37	25	39	59.00	76	12	42.30



We have already applied for verification of co-ordinates to Directorate of Mining & Geology Department, Kota with letter no.LK/Mines/DMG/2018/ date 03/12/2018. The copy of letter attached in **annexure no. 2**.

c) Attach general location map showing area and access route:

Location Plan attached **as Plate No. IA**

3.0 DETAILS OF APPROVED MINING PLAN / SCHEME OF MINING

3.1 Date and reference of earlier approved MP/SOM:

S.N	Type of document & rule under which prepared	approval letter no & date	Lease area for which approval given (ha)	Proposal from –to
a)	Submitted under rule 17(3) Of MCR, 2016 & 23 of MCDR,2017	Dt. 20/11/2018/ Letter No. 584(4)(3)(1759)/2018-RCM-AJM/, Valid up to 2020.	**1516.88**	01/07/2018 to 31/03/2020
b)	Submitted under rule 17(3) Of MCR, 2016 & 23 of MCDR,2017	Dt. 21/07/2017/ 26/07/2017 Letter No. 584(4)(3)(1694)/2017-RCM-AJM/980, Valid up to 2020.	1516.88	01/07/2017 to 31/03/2020
c)	Submitted Under Rule(s) 12(3) & 23 B of MCDR,1988	Dt. 18/08/2015, Letter No. 584(6)(3)(607)/2014-RCM-AJM/4193, Valid up to 2020.	1516.88 Ha	01/04/2015 to 31/03/2020
d)	Submitted Under Rule(s) 12(3) & 23 B of MCDR,1988	The mining Scheme of Lakheri Limestone Mine was approved vide letter no. 584(6) (3) (324)/09 – AJMER Dt. 31-05-2010.	1516.88 Ha	01/04/2010 to 31/03/2015
e)	Submitted Under Rule(s) 12(3) & 23 B of MCDR,1988 & Mineral concession rule,1960.	The mining plan of Lakheri Limestone Mine was approved vide letter no. 584(4) (3) (846)/2005 – AJMER Dt. 08-06-2005.	1516.88 Ha	01/04/2005 to 31/03/2010

3.2 Details of last modifications if any (for the previous approved period) of approved MP/SOM, indicating date of approval, reason for modification.

Modified Mining Plan with PMCP for the year 2018-19 to 2019-20 was approved on Dt. 21/11/2018 , Letter No. 584(4)(3)(1759)/2018-RCM-AJM/.

The earlier approved Mining Plan for the period 2018-20 was prepared because of change in area of production from forest to non-forest area.

3.3 Give review of earlier approved proposal (if any) in respect of exploration, excavation, reclamation etc.

a) Exploration:

Year- 2018-19 to 2019-20	Proposals	Actual work done	Remarks
Exploration for Geological axis 1 or 2.	24 Nos. (Core/RC) 1000m	24 Nos. (RC) 762m	Form I will be submitted soon

b) Mining

Year- 2018-19 to 2019-20	Proposals	Actual work done	Remarks
Number of pits proposed for production	4	4	As per the approved plan
Location of Development & ROM	P3 Lower ML-00 to ML-5 (RL 256- RL 220), P3 upper ML-2 to ML-3 (RL (274- RL 256), Utarana- ML 72- ML 74 (RL 253-230) Sakhoda (RL 225- RL 215 mrl.	P3 Lower ML-00 to ML-5 (RL 256- RL 222), P3 upper ML-2 to ML-3 (RL (274- RL 252), Utarana ML 72- ML 74 (RL 253-231), Sakhoda (RL 225- RL 215 mrl	As per the approved plan.
Quantity of topsoil in m^3	Nil	Nil	
Quantity of overburden in tonnes P3 Lower ML-00 to ML-5 (RL 256- RL 238), P3 upper ML-2 to ML-3 (RL 274- RL 265), Utarana- ML 72- ML 74 (RL 253-244), ML 86-88 (RL 259- RL 250) Sakhoda (RL 225- RL 219 mrl.	1821637.1 tonnes	1391054 tonnes	ent due to der maintenance 2.Local issues
Quantity of ROM P3 Lower ML-00 to ML-5 (RL 229- RL 220), P3 upper ML-2 to ML-3 (RL (265-			As per the approved plan

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RL 256), Utarana- ML 72- ML 74 (RL 244-230) and ML 86-88 (RL 231- RL 222) Sakhoda (RL 225- RL 215 mrl.	1158245 tonnes	1157250.7 tonnes	
Quantity of sub-grade mineral	Nil	Nil	No sub grade mineral is generated.
Stripping ratio (ore: waste)	1:1.5	1:1.20	
Height of benches in pits (mts)	6-9	9	As per approved plan

c) Mine development & reclamation

Year- 2018-19 to 2019-20	Proposals	Actual work done	Remarks
Location of topsoil dumps	NIL	NIL	–
Location of OB & mineral reject dumps	P3 quarry- Waste dump- ML-1 to ML-3 & ML6 to ML9, Backfill- ML0 to ML9 Utarana- Waste dump- ML-72, Backfill- ML-72-ML-74 Sakhoda- Waste dump- ML-0-ML-3, Backfill- ML-1-ML-3	P3 quarry- Waste dump- ML1 to ML3 & ML6 to ML9, Backfill- ML0 to ML9 Utarana – Waste dump- ML72, Backfill- ML-72-ML-74 Sakhoda- Waste dump- ML0 to ML3, Backfill- ML1 to ML3	As per approved plan
Length of Retaining wall or garland drain all along dump	Proper maintenance of garland drainage surrounding mine before monsoon – Dewatering of pit as per requirement.	Garland drain made in surrounding the mines and maintained	As per the approved plan
Number of settling ponds	–	–	
Pit wise void filled by Wobbler reject/waste;	P3- 12 Hect Sakoda- 1.3 Hect Utarana- 0.5 Hect	P3- 5.33 Hect Sakoda- 0.3 Hect Utarana- 0.03 Hect	Less development as the plant was under maintenance and local issues.

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d) Afforestation:

Year- 2018-19 to 2019-20	Proposals	Actual work done	Remarks
Plantation /Afforestation	15000	15000	As per the approved plan

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Afforstation on the backfilled area	1 Hect, 3000 plant	1 Hect, 3000 plant	As per the approved plan.

e) Land use pattern

Proposal	Actual	Remarks
In the approved Scheme of Mining, area put in use and area required during the Scheme period was calculated.	The land use of the area as on August'19 given below table:	Minor deviation is present between land use proposal and actual degradation.

Items	Total area considered at the beginning of plan period (hect)
Area under mining	141.9
Waste dump site	40.43
Mineral storage	2.1
Infrastructure	30.2
Roads	13.5
Railways	22.94
Mineral Separation Plant	1
Township area	36.0
Others (Water reservoir)	30.45
Others (Back filling)	18.73
Total	337.25

After considering reclaimed & rehabilitated area we submitted financial assurance for 246.89 hect area.
Financial assurance= 246.89 x 3,00,000/-=
7,40,67,000/- (Rupees seven crore forty lakh & sixty seven thousand)

Items	Existing land use (hect)
Area under mining	145
Waste dump site	42
Mineral storage	2.1
Infrastructure	30.2
Roads	11.5
Railways	22.94
Mineral Separation Plant	1
Township area	36.0
Others (Water reservoir)	30.45
Others (Back filling)	13.77
Total	334.98

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3.4 **Status of compliance of violations pointed out by IBM**

Date of Inspection	Letter no. & date of violation	Rules	Letter no. & date of compliance
10/10/2018	RAJ/BUNDI-1/LST-1-block-III/1528 dt. 01.11.2018	Rule 11(1), 26 (2) & 45(7) of MCDR 2017	LK/IBM/RCOM/2018 dt 10.12.2018

Letters from IBM and reply is attached as **Annexure No. 4**.

3.5 Indicate and give details of any suspension /closure/ prohibitory order issued by any Government agency under any rule or Court of law

Due to absence of MOEF clearances, mine was temporary suspended from 01.08.2013 to 31.12.2013, 17.12.2014 to16.05.2015, 01.10.2016 to 30.11.2016 and 01.04.2017 to 23.01.2018.

3.6 In case the MP/SOM is submitted under rules 9 and 10 of the MCDR'88 or under rule 22(6) of the MCR'1960 for approval of modification, specify reason and justification for modification under these rules.

Not applicable.

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PART – A

1. GEOLOGY AND EXPLORATION:

(a) **Briefly describe the topography, drainage pattern, vegetation, climate, rainfall data of the area applied/mining lease area.**

Topography:

The lease area is bounded in the north by high Bundi hill ranges and in the south by Mej river that runs in SW to NE direction. The Phata Dungar of Bundi hill ranges rises to a height of about 400m above mean sea level. It forms a steep escarpment and acts as a barrier between the plane lands on either side. The mine lease area follows more or less the foot hill ranges and the ground elevation ranges between 300mrl and 237 mrl.

Drainage Pattern:

The Mej River, originated in Bhilwara district runs in SW to NE direction of the mining lease which drains into Chambal river in the NE direction. The small nallas and rivulets emerging from high grounds meet Mej River dissecting the country and giving rise to ravines in the process. The area between high hill and the river is marked by hard and strong shaly formation. Small patches of alluvium can be seen near the river. The flow of the river has given rise to dendritic pattern and the drainage density evaluated varies from 0.3 to 0.5 km/sq.km.

Vegetation:

The lease area is covered with neem, shisham, chirul kaner, etc with babool bushes and other bushes there is no thick forest growth in the area.

Climate & Temperature:

The climate of the district is sub humid. The meterological observatory is available at Kotah but rain gauge stations were set up by irrigation department area is available for the entire tehsil. Mean monthly temperature is highest in the month of May (around 42 degrees) and lowest in January (about 10 degrees). Temperature starts rising from Feb to June and starts showing downtrend with the onset of monsoon and again rises in October.

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Rainfall :

According to Kota meterological observatory the average annual rainfall based on 50 years data is 758.6 mm.

(b) **Brief descriptions of Regional Geology with reference to location of lease/applied area.**

REGIONAL GEOLOGY:

Lakheri and its surrounding area, which formed part of the erstwhile princely Bundi state of Rajasthan, were geologically surveyed by Dr. A.L. Coulson (Record No. LX, part2, Geological Survey of India) in 1927. Previously work was carried out by C.A.Hacket and Kishan Singh in 1881 (GSI record No. XIV, Part 4). The rock formations, exposed in Lakheri and its surrounding areas, belong to the Bhander Series of the Upper Vindhyan System of Indian Geology. The Upper Vindhyan succession as exposed in Lakheri and its surrounding areas is given below:

Recent and sub-recent deposits		Alluvium
UPPER VINDHYAN SYSTEM		
BHANDER SERIES	Upper Bhander	Upper Bhander Shales
		Upper Bhander Limestone
		Upper Bhander Sandstone
	Lower Bhander	Sirbu Shale
		Lower Bhander Sandstone
		Semaria Shale
		Lower Bhander Limestone
		Ganurgarh Shale
REWA SERIES	Upper Rewa	Upper Rewa Sandstone
	Lower Rewa	Panna and Jhiri Shale and Lower Rewa Sandstone
KAIMUR SERIES	Upper Kaimur	Kaimur Sandstone and Conglomerates
GWALIOR SYSTEM(ARAVALLIS)		

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Of the various geological formations mentioned in the stratigraphic sequence given above, the stratigraphy commonly met within our mining lease area is as follows:

Lower Bhander in Lakheri Lease	Lower Bhander Sandstone (Massive sandstone capping the hill range)	
	Semaria Shale (Purple and olive green shale mostly covered with sandstone scree)	
	Lower Bhander Limestone	Upper series limestone Middle series limestone Lower series limestone
	Ganurgarh Shale (Red, Yellowish brown and green shale, locally termed as Red Floor)	
Upper Bhander in Sandal Nalla area	Upper Bhander Shale	
	Upper Bhander Limestone	
	Upper Bhander Sandstone	

(c) GEOLOGY OF THE LEASE AREA:

The litho logical units occurring in Lakheri lease falls under the Lower Bhander series and geological description of these rock formations are given in the following paragraphs.

Ganurgarh Shale (Red floor)

This formation comprises of red shale and reddish brown low-grade shaly limestone & underlying Lower Series Limestone. It is located between Lower Series Limestone and roadside mining lease limit and have variable width. Most part of the lithounit is covered by overburden soil.

Lower Bhander Limestone

Based on lithological and chemical characteristics, this limestone horizon is divided into three bands (Series) - Lower, Middle and Upper Series limestone.

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Lower Series Limestone

The limestone ranges in colour from white, grey, violet to purple and is fine grained and compact in nature. The average thickness of this band is approximately 14 metres, and is intercalated with shale in varying proportions. These shale intercalations determine its quality and are generally uniform in thickness and dips approximately 18 to 25 degrees towards NW. This dip is gentler compared to the dip of the area beyond Uttrana. In general the purple coloured band is better in quality compared to grey,

which is invariably more shaly or argillaceous in nature. The quality of clean limestone ranges from 74% to 80% CaCO3. Lower Series limestone is typically analysed as below:

Table No.3: Typical analysis of Lower series limestone

TC%	$CaCO_3$%	$MgCO_3$%	SiO_2 %	Al_2O3 %	Fe_2O3%	CaO%	MgO%	LOI%
77.20	75.80	1.10	16.30	2.70	1.30	42.60	1.30	34.10

Middle Series Shaly Limestone

Out of the three limestone bands, the outcrops of middle series are widest. Limestone is chocolate brown to purple in colour, fine grained and compact in nature. The thickness of this band varies from 60 to 65 meters. Middle series limestone is predominantly associated with shale bands due to which it is unsuitable for cement manufacture. A typical analysis of Middle Series is as follows:.

Table No.4: Typical analysis of Middle series

TC%	CaCO3%	MgCO%	SiO2 %	Al2O3 %	Fe2O3%	CaO%	MgO%	LOI%
69.30	67.90	1.10	28.90	3.30	2.10	33.00	1.20	30.50

Upper Series Limestone

Limestone belongs to Upper Series overlies the Middle Series and is distinguished from the later by its ash grey colour. The limestone is fine grained and compact in nature, uniform in thickness of about 15 mts and dips approximately 20 to 25 degree in NW. In comparison to Lower Series, limestone is thick bedded and is associated with less shale intercalations. As observed in case of lower series limestone there is no conspicuous pattern of change in dip. The Upper series limestone if further divided into two units- lower grade and high grade based on percentage of TC. A typical analysis of Upper Shaly Limestone is given below:

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Table No.5: Typical analysis of Upper Series Shaly Limestone

TC%	CaCO3%	MgCO%	SiO2 %	Al2O3 %	Fe2O3%	CaO%	MgO%	LOI%
73.90	72.20	1.40	17.20	2.20	1.80	41.50	1.30	34.00

The quality of high grade Upper Series limestone is given below:

Table No.6: Typical analysis of Upper Series limestone

TC%	CaCO3%	MgCO%	SiO2 %	Al2O3 %	Fe2O3%	CaO%	MgO%	LOI%
76.00	74.40	1.30	16.60	2.20	1.30	41.70	1.20	34.80

Semaria Shale

The Semaria shale is fine grained, grey in colour and overlies the Upper Series limestone. The aerial extent in the lease area is approximately 1500 hectares located between Upper Series Limestone and the upper mining lease limit with variable width. The shale is mostly under a scree cover of sandstone and overburden soil. Typical analysis of Semaria Shale is given below:

Table No. 7: Typical analysis of Semaria Shale

TC%	CaCO3%	MgCO%	SiO2 %	Al2O3 %	Fe2O3%	CaO%	MgO%	LOI%
61.40	59.70	1.40	21.30	3.40	2.40	38.10	1.40	31.60

(d) (i) Name of prospecting/ exploration agency: DSS Infra and Geotechno services

ii) Address: CS NO 249 A/I/77 office no 2, Kolhapur 416003

iii) Email: dssigs1@gmail.com

Phone/ Fax 0231-2655434

(e) Details of prospecting/ exploration already carried out:

i) Number of pits and trenches indicating dimensions, spacing etc along and across the strike/ foliation with reference to geological plan.

Nil

ii) Number of boreholes indicating type (Core/RC/DTH), diameter, spacing, inclination, Collar level, depth etc with standard borehole logs.-

As per MEMC Rule2015, Lakheri limestone deposit belongs to Statiform, Stratabound & Tabular deposit of Regular Habit.

The uptodate position of boreholes drilled during various investigations are give below.

Year of Exploration	No of Bhs	Meterage	Type	Location	Expenses
1957	155	3840.78	core		
1966	30	834.5	core	P3, Gharamphura, Gohera	
1969	9	302.36	core		
1971	11	390.44	core	ML 17 - ML 71	
1971	12	231	core	Sakhoda Quarry	
1971	10	215.18	core	ML 30 - ML 47	
1972	16	363.01	core	ML 9 - ML 64	
1971	9	242	Core		
1977	32	709.5	DTH		
1977	11	353.5	DTH	Lakheri, Gharamphura	
1980	27	689	core	Gharamphura	
1988	15	328	DTH	P3 Quarry,Garampura	
1997	222	5208	Core	ML 0 - ML 172	
2018	24	762.1	RC	P3, Utharana, Sakoda	25 Lakhs

The year wise details of boreholes indicating type, depth, collar level etc with borehole log are enclosed as **Annexure 5**. Form J and Form I for Boreholes drilled during 2018 given as **Annexure 5A**.

Details of prospecting/ exploration already carried out					
Lease area explored under various categories					
UNFC axis	Non-forest area (hect)	Forest area (hect)	Grid spacing of exploration	Depth(mRL/ Level)	No of Bore holes(Core/RC/DTH) drilled
G1	66.13	105.89	200*200	Lower Series Upto 220 mRL, Upper Series Upto 245 mRL, and Sakoda 210 mRL	Core: 316, RC: 20
G2	Nil	Nil	Nil	Nil	Nil
G3	Nil	Nil	Nil	Nil	Nil
G4 (Non	1040.87	303.99	Non	Non Mineralized	Non Mineralized

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Mineralized)			Mineralized		
Total	1107	409.88			

iii) Details of samples analysis indicating type of sample (surface/sub-surface from pits/trenches/borehole etc), complete chemical analysis for entire strata for all radicals may be undertaken for selected samples from a NABL accredited Laboratory or Government laboratory or equivalent. Entire mineralized area may be analyzed meter wise with 10% of check samples. (At least for 10% of total samples may be analyzed in accordance to BIS and reports from NABL accredited/other government laboratory).

Chemical analyses of all the samples of the boreholes were given in the borehole log **(Annexure 6).** Analysis report of check samples from NABL accredited/ government laboratory was enclosed as **Annexure 7.**

iv) Expenditure incurred in various prospecting operations.

Drilling was done at various stages within the lease area since the grant of prospecting license. The overall exploration expenses till date will be around 2.20 Cr.

(f) The surface plan of the lease area may be prepared on a scale of 1: 2000 with contour interval of maximum of 10 m depending upon the topography and size of the area duly marked by grid lines showing all features indicated under Rule 32(1)(a) of MCDR 2017.

The Surface Plan, showing all detail surface features, is prepared on a scale of 1:1000 & 1:2000 and enclosed as **Plate- V & Plate VA** respectively in volume II of the Review of Mining Plan.

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(g) For preparation of geological plan, surface plan prepared on a scale of 1: 1000 or 1: 2000 scale specified under para 1.0 (f) of Part A of the format may be taken as the base plan. The details of exploration already carried out along with supporting data for existence of mineral, locations proposed exploration, various litho units along with structural features, mineralized/ore zone with grade variation if any may be marked on the geological plan along with other features indicated under Rule 32 (1)(b) of MCDR 2017.

The Surface Geological plan, showing all details, is prepared on a scale of 1:5000 and is enclosed as **Plate- III** in volume II of the Review of Mining Plan.

(h) Geological sections may be prepared on natural scale of geological plan at suitable interval across the lease area from boundary to boundary.

The Geological sections are prepared at 1:1000 scales and enclosed as **Plate- IV A to IV H (Sheet 1-8)** in volume II of the Review of Mining Plan.

(i) Broadly indicate the future program of exploration with due justification (duly marking on Geological plan year wise location in different colors) taking into consideration the future tentative excavation program planned in next five years.

Exploration program proposed during the plan period is given in the table below:

Table No. 8: Exploration program proposed during the year 2020-21& 2021-22

Year	UNFC	Area covered (Hect)	No of boreholes (Core/ RC/ DTH)	Grid Interval	Depth (mRL/Level)	Total Meterage
2020-2021	G3 (This drilling will prove mineralized area in G1 Category)	250	50 No's (Core/RC)	200*200 mt	To prove existence of mineral or upto depth of mineralization	1900 m
2021-2022	G3 (In filling boreholes to Prove the existence of Mineral in G1 categroy in Forest Area)	303.6	24 No's (Core/RC)	800*800 mt	To prove existence of mineral or upto depth of mineralization	1900 m

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Table No. 9: Proposed Borehole Details:

A- Non forest area (2020-21)

S.No	Proposed BH no	Location	Remarks
1	GOG/01	ML 10 120 mts towards North	Non-Forest Area
2	GOG/02	ML 10, 40 mts towards North	Non-Forest Area
3	GOG/03	ML 9A, 30 mts towards North	Non-Forest Area
4	GOG/04	ML 9A, 150 mts towards north	Non-Forest Area

5	GOG/05	ML 9, 50 mts towards North	Non-Forest Area
6	GOG/06	ML 9, 150 mts towards North	Non-Forest Area
7	GOG/07	ML 8A, 180 mts towards north	Non-Forest Area
8	GAR/01	ML 7	Non-Forest Area
9	GAR/02	ML 7, 100 mts towards North	Non-Forest Area
10	GAR/03	ML 6,40 mts towards North	Non-Forest Area
11	GAR/04	ML 6, 140 mts towards North	Non-Forest Area
12	GAR/05	Between ML5A and ML-6	Non-Forest Area
13	GAR/06	Between ML5A and ML-6	Non-Forest Area
14	GAR/07	ML5A 200mts towards North	Non-Forest Area
15	GAR/08	ML5A 300mts towards North	Non-Forest Area
16	GAR/09	ML5A 400mts towards North	Non-Forest Area
17	P3/1	ML4 300mts towards North	Non-Forest Area
18	P3/2	ML3 260mts towards North	Non-Forest Area
19	P3/3	ML2 190mts towards North	Non-Forest Area
20	SAK/1	ML1 400mts towards North	Non-Forest Area
21	SAK/2	Sakoda Mines	Non-Forest Area
22	SAK/3	Sakoda Mines	Non-Forest Area
23	PB-1	Gandoli Area	Non-Forest Area
24	PB-2	Gandoli Area	Non-Forest Area
25	PB-3	Gandoli Area	Non-Forest Area
26	PB-4	Gandoli Area	Non-Forest Area
27	PB-5	Gandoli Area	Non-Forest Area
28	PB-6	Gandoli Area	Non-Forest Area
29	PB-7	Gandoli Area	Non-Forest Area
30	PB-8	Gandoli Area	Non-Forest Area
31	PB-9	Gandoli Area	Non-Forest Area
32	PB-10	Gandoli Area	Non-Forest Area
33	PB-11	Gandoli Area	Non-Forest Area
34	PB-12	Gandoli Area	Non-Forest Area
35	PB-13	Gandoli Area	Non-Forest Area
36	PB-14	Gandoli Area	Non-Forest Area
37	PB-15	Gandoli Area	Non-Forest Area
38	PB-16	Gandoli Area	Non-Forest Area
39	PB-17	Gandoli Area	Non-Forest Area

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40	PB-18	Gandoli Area	Non-Forest Area
41	PB-19	Gandoli Area	Non-Forest Area
42	PB-20	Gandoli Area	Non-Forest Area
43	PB-21	Gandoli Area	Non-Forest Area
44	PB-22	Gandoli Area	Non-Forest Area
45	PB-23	Gandoli Area	Non-Forest Area
46	PB-24	Gandoli Area	Non-Forest Area
47	PB-25	Gandoli Area	Non-Forest Area
48	PB-26	Gandoli Area	Non-Forest Area
49	UT-1	ML-76 40 mtrs towards north	Non-Forest Area
50	UT-2	Ml-77, 15 mtrs. towards north	Non-Forest Area

B-Forest Area (2021-22)

S.No	Proposed BH no	Location	Remarks
1	C/30/01/07	ML 30 , 120 mts towards North	Forest Area
2	C/36/01/07	ML 36, 80 mts towards North	Forest Area
3	C/40/01/07	ML 40, 40 mts towards North	Forest Area
4	C/44/01/07	ML 44, 45 mts towards North	Forest Area
5	C/48/01/07	ML 48, 100 mts towards North	Forest Area
6	C/51/01/07	ML 51, 160 mts towards North	Forest Area
7	C/54/01/07	ML 54, 10 mts towards North	Forest Area
8	C/56/01/07	ML 56, 110 mts towards North	Forest Area
9	C/60/01/07	ML 60, 160 mts towards North	Forest Area
10	C/64/01/07	ML 64, 220 mts towards North	Forest Area
11	C/67/01/07	ML 67, 150 mts towards North	Forest Area
12	C/70/01/07	ML 70, 170 mts towards North	Forest Area
13	C/84/01/07	ML84, 210 mts towards North	Forest Area
14	C/87/01/07	ML87 200mts towards North	Forest Area
15	C/90/01/07	ML87 200mts towards North	Forest Area
16	C/94/01/07	ML94 250mts towards North	Forest Area
17	PB/102/1	ML 102	Forest Area
18	PB/110/1	ML 110	Forest Area
19	PB/120/1	ML 120	Forest Area
20	PB/128/1	ML 128	Forest Area
21	PB/136/1	ML 136	Forest Area
22	PB/144/1	ML 144	Forest Area
23	PB/152/1	ML 152	Forest Area

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24	PB/160/1\	ML 160	Forest Area

The exploration programe proposed in forest area will be taken up after obtaining statutory forest clearances.

(j) Reserves and Resources as per UNFC with respect to the threshold value notified by IBM may be furnished in a tabular form as given below. Submit feasibility/ pre-feasibility study report along with financial analysis for economic viability of the deposit as specified under the UNFC field guidelines may be incorporated.

As per the Minerals (Evidence of Mineral contents) Rules 2015, limestone bands in Lakheri lease belongs to under ***Bedded Stratiform, Stratabound and Tabular deposit of Regular Habit.*** Upper Series Limestone and Lower Series Limestone bands are the two mineable bands within the lease area. These 2 bands were explored in less than 200x 200m grid intervals, and falls under G1 category. Summary of limestone band within lease area proved under geological axis is given in following table:

Geological Axis	Depth (mRL/ Level)	Area (Hect)	Resource (Lakh T)	Grade
For G1 - Detailed exploration	Lower Series: Upto 220 mRL, Upper Series: Upto 245 mRL, Sakoda: Up to 210 mRL	172.02	114.27	Cement Grade CaO>41%, MgO< 3%
For G2 - General Exploration	Nil	Nil	Nil	Nil
For G3 – Prospecting	Nil	Nil	Nil	Nil
For G4- Reconnaissance	Nil	Nil	Nil	Nil

Out of the total area proved under detailed exploration (G1), a part of the area is considered blocked due to factors like habitation or absence of statutory clearances. Feasibility study of the lease area is attached as **Annexure 20**. Summary of the blocked resources is given as follows:

Feasibility of mining	
Area considered non mineable under various items	33.63 Hect
Mineral Reserves/ Resources under ***Blocked /Non Mineable Category***	
In G1 category in tonnes	1107000
In G2 Category in tonnes	Nil
In G3 category in tonnes	Nil
In G4Category in tonnes	Nil

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Few economic parameters of the limestone reserve/ resource is as follows:

Cost of production per tones of mineral estimated	**Rs/- 290**
Average ex-mine price for last three year period	**Rs/- 289.83**
Comment on economic viability	The mine is economically viable.

Based on study of geological, feasibility and economic axis limestone, the reserve/ resource are classified under 3 UNFC classes: Proved Mineral Reserve (111), Probable Mineral Reserve (121) and Feasibility Mineral Resource (211).

Proved Mineral Reserve (111) is the mineable part of the measured mineral resource that underwent detailed exploration is feasible for mining and is economic.

Probable Mineral Reserve (121) is the mineral reserve which is proved under G1 category and is blocked in forest area which can be converted into 111 after obtaining Forest clearance.

Feasibility Mineral Resource (211) is economically not minable part of measured mineral resource. This part of resource will be economically viable after changes in technological, economic, environmental and other relevant conditions. Within lease, resources in areas those are blocked due to habitations and permanent structures are classified under UNFC 211.

Category wise calculation of reserve/ resource is enclosed as **Annexure 8.**

Compliance of these UNFC classes with respect to the present UNFC guidelines was provided in the table below.

Table No. 10: Reserve and Resource as per UNFC Guideline

Proved Mineral Reserve (UNFC code: 111)-

UNFC GUIDELINES	WORK DONE
G1- Detailed Exploration	अनुमोदित APPROVED
Geological survey: Mapping-For coal, mapping 1:5000;for other minerals 1:1000 Preparation of detailed topographical-cum-geological map including all surface geological features, extent of deposit, structure, location of boreholes, assay plan and sections of exploratory mine	Detailed geological survey has been done. Surface geological map is prepared in 1:2000 scale. Detailed topographical cum geological map including all required features is prepared. Triangulation stations have been linked with spherical coordinates.

development and borehole data; Topogrid/triangulation stations/identified fiducially linking in the maps. 2. Geochemical survey: Detailed grid pattern sampling and analysis. 3. Geophysical survey: Detailed and specific borehole geophysical survey. 4. Technological: Pitting -2 to 5 per sq. km. for simple deposits; Trenching - At spacing of 200-300m; Drilling- closer spaced (with definite grid pattern) than that for G2 category; Sampling- systematic pit and trench sampling, core and sludge sampling for laboratory scale and bulk sample for the pilot plant scale beneficiation studies. 5. Petrographic and mineragraphic study: Refining of data on the petrographic character of rocks of the deposit and its surroundings, alterations (if any), including study of grain size texture gangue and its liberation characteristics for further refining of data. 6. Geo-statistical analyses of borehole data, thickness of ore, waste encountered in holes, assay values.	.2.----NA---- 3. ----NA---- 4. Detailed drilling is done on a grid of 200* 200 m. Detailed sampling has been done. 5. All the exploration data have been refined on the petrographic character of rocks of the deposit and its surrounding. 6. Detailed geo-statistical analysis of borehole data has been done.
F1 (feasibility Study)	
1. Geology: Geology of area and project, detailed exploration, closed space drilling, ore body modeling, bulk samples for beneficiation, geotechnical and ground water and surface water studies. However for coal beneficiation studies to be carried out depending on coal quality.	1. Detailed geological studies have been carried out. Detailed exploration, closed spaced drilling has been carried out.

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2. Mining: Mining plan, mine recoveries and efficiencies, equipment selection, manpower requirement.	2. Detail planning is made in Modified Mining Plan.
3. Environment: EIA studies and EMP including socio- economic impact, rehabilitation of project affected persons, waste disposal/ reclamation, detailed land use data.	3. Detailed studies have been done.
4. Processing: Pilot scale/ industrial scale investigation data, list of equipment, manpower and environmental considerations like waste disposal of tailing, etc.	4. Limestone will be delivered to Cement Plant where it will be crushed for size reduction.
5.Infrastructure and services, construction activities: Full details	5. Full details have been incorporated in the Mining Plan.
6. Costing: Detailed break-up of capital cost, operating cost, details of working capital.	6. Detail break up of cost is enclosed in feasibility report.
7. Marketing: Overview, specific market aspects.	7. The mineral is not for sale, entirely consumed by our captive cement plant. However cement has good potential market in this part of country.
8. Economic viability: Cash flow forecast, inflation effects, sensitivity studies.	8. Cash flow forecast and sensitivity studies have been done.
9. Other factors: Statutory provisions relating to labour, land, mining, taxation, etc.	9. All statutory provisions shall be taken care of in the Mining Plan and will be regularly complied with.
E1(Economic)	
1. Detailed exploration.	1. Detailed exploration has been done.
2. Mining report /mining plan / working mines.	2. Mining plan of Lakheri limestone mine is already approved.
3. Specific end-use grades of reserves (above economic cut-off grade).	3. End-use grades of reserves have been defined in modified mining plan.
4. Specific knowledge of forest/non-forest and other land use data.	4. Different land-use data are clearly

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	available and given in mining plan.

Feasibility Mineral Resource (UNFC code: 211)

UNFC GUIDELINES	WORK DONE
G1- Detailed Exploration	
1. Geological survey: (i) Mapping-For coal, mapping 1:5000;for other minerals 1:1000 (ii) Preparation of detailed topographical-cum-geological map including all surface geological features, extent of deposit, structure, location of boreholes, assay plan and sections of exploratory mine development and borehole data; 2. Geochemical survey: Detailed grid pattern sampling and analysis. 3. Geophysical survey: Detailed and specific borehole geophysical survey. 4. Technological: (i) Pitting -3 to 5 per nos. for every mass body or at 100-200 m grid interval. (ii) Trenching - At spacing of 50 to 200 mts. (iii) Drilling- closer spaced (with definite grid pattern) than that for G2 category; (iv) Sampling- Core and sludge, pits samples for grade analysis or beneficiation, bulk sample for laboratory scale/ pilot plant investigation. (v) Collection of abiotic geo-environmental data- its further refining and analysis. 5. Petrographic: Study of petrographic characters of rocks and study of useful minerals.	1. Detailed geological survey has been done. Surface geological map is prepared in 1:2000 scales. Detailed topographical cum geological map including all required features is prepared. Triangulation stations have been linked with spherical coordinates. 2.----------NA-------- 3.----------NA-------- 4. Detailed drilling is done on a grid of 200x 200m. Detailed sampling has been done. 5. All the exploration data have been refined on the petrographic character of rocks of the deposit and its surrounding. 6. Detailed geostatistical analysis of borehole

6. Geostatistical analysis of borehole data, thickness of ore, waste encountered in holes, assay values of samples if considered necessary.	data has been done.
F1 (Feasibility Study)	
1. Geology: Geology of area and project, detailed exploration, closed space drilling, ore body modeling, bulk samples for beneficiation, geotechnical and ground water and surface water studies. However for coal beneficiation studies to be carried out depending upon coal qualities.	1. Detailed geological studies have been carried out. Detailed exploration, closed spaced drilling has been carried out.
2. Mining: Mining plan, mine recoveries and efficiencies, equipment selection, manpower requirement.	2. Detail planning is made in Modified Mining Plan.
3. Environment: EIA studies and EMP including socio-economic impact, rehabilitation of project affected persons, waste disposal/ reclamation, detailed land use data.	3. Detailed studies have been done.
4. Processing: Pilot scale/ industrial scale investigation data, list of equipment, manpower and environmental considerations like waste disposal of tailing, etc.	4. Limestone will be delivered to Cement Plant where it will be crushed for size reduction.
5.Infrastructure and services, construction activities: Full details	5. Full details have been incorporated in the Mining Plan.
6. Costing: Detailed break-up of capital cost, operating cost, working capital.	6. Detail break up of capital cost has been done.
7. Marketing: Overview, specific market aspects.	7. The mineral is not for sale, entirely consumed by our captive cement plant. However cement has good potential market in this part of country.
8.Economic viability: Cash flow forecast, inflation effects, sensitivity studies.	8. Cash flow forecast and sensitivity studies

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9. Other factors: Statutory provisions relating to labour, land, mining, taxation, etc.	have been done. 9. All statutory provisions shall be taken care of in the Mining Plan and will be regularly complied with.
E2 (Potentially Economic)	
1. General and detailed exploration. 2. Specific end-use grades of reserves (above/ marginally below economic cut-off grade). 3. General knowledge of forest/non-forest and other land use data.	1. Detailed exploration has been carried out by ACC. 2. End-use grades of reserves have been defined in the geological report & mining plan. 3. Different land-use data are clearly available and given in mining plan. There is no forest land in ML area.

(k) Furnish detailed calculation of reserves/resources section wise

Methods of Reserves Estimation:

Reserve estimation is done by geological cross sectional area method. For estimation of resources using cross-sectional area method cross-sections were drawn first using borehole logs. Topography of the sections was updated as per detailed topographical survey. Cross sectional area of different litho units are calculated from all the sections. Between two consecutive sections average cross sectional area is calculated for different litho units. The average intersectional area was then multiplied by the distance between two sections to arrive at the volume between the two sections. The volume so determined is then converted into weight (in tones) by applying 'volume to weight' ratio commonly referred to as 'tonnage conversion factor' (TCF).Tonnage conversion factor (TCF) determined for various litho units are as follows:

LITHO UNITS	TCF (TONNES/CU. M.)
Semaria shales	2.4
Upper Shaly limestone	2.4
Upper Series limestone	2.4
Middle Series limestone	1.9
Lower Series limestone	2.5

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NABL certificate is enclosed as –Annexure no.24

Resources proved under geological axis 1, present in non-forest area, is feasible for mining and therefore classified under Proved Mineral Reserve (111) category. Total available reserve in non-forest area is as follows:

Reserve available in non-forest area (as on 30.6.2018)

Area	Reserve (Tonnes)
ML 72 to ML 78	718187
P3 Area	1977863
Sakhoda Area	151312
ML 00 to ML 08	62350
Total	**2909702**

Details of reserve/ resource estimation section wise were given as **Annexure 8**.

Proved mineral reserve (111), present in the Non forest area, as per last Modified Mining Plan (2018-2020) were 29.09 Lakh ton. After depletion of reserves of 9.18 lakh tonnes in last 10 months (from 01.07.2018 to 30.04.19) the balance mineable reserve is available as **on 01.05.2019 is 19.91 Lakh ton.**

Resource present under G1 category, within forest area (i.e. 409.88 hect), as per last approved Modified Mining Plan (2015-20) were 83.29 lakh ton. As the resource present within forest area is not feasible for mining and we are in the process of obtaining Forest Clearance and Wild Life Clearance this part of the reserve was not recalculated as per cross- sectional area method.

The reserve present in forest area was categorized under 121 Category and these reserve will be mineable after receiving necessary clearances from MoEFCC.

Category	Location	Reserves (Lakh tonnes)
Probable Mineral Reserve (121)	Reserves present in entire forest area of 409.88 hec	83.29
Total		83.29

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The summary of the reserves blocked under village were categorized as 211 as per UNFC area given below.

Category	Location	Reserves (Lakh ton)
Feasibility Mineral Resource (211)	Lakheri village, Garampura, Utarana habitation etc	11.07
Total		11.07

(I) Mineral Reserve/ Resources:

Resources and Reserves within the lease were arrived after applying results feasibility/ prefeasibility study and economic evaluation of deposit based on various factors such as:

a) Mining method, Recovery factor, mining losses, processing loss etc.

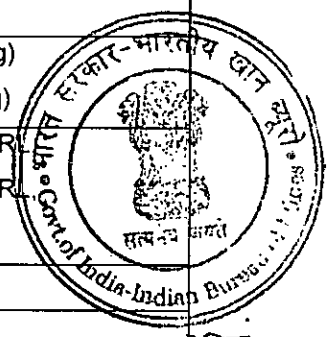
b) Cut off grade, Ultimate pit depth proposed.

c) Mineral/ ore blocked dues to benches, barriers, pillars, road, railway, river, nala, reservoir, electric line and other statutory barriers etc, under forest, sanctuaries etc. where necessary permissions are not available.

Parameters considered for calculation of reserve/ resources are given in following :

Mining parameters

Mining method	Open Cast Fully Mechanized
Strike Length	3400 mts (NE – SW)
Dip, Direction	NW, 18 to 25
Width	Upper Series : 15 mts (avg) Lower Series : 14 mts(Avg)
Depth of Ore body	Lower Series: Upto 220 mRL Upper Series: Upto 245 mRL Sakoda: Up to 210 mRL
Recovery Factor	100%
Mining Losses	0%
Processing Losses	Nil
Cut of grade	CaO%>41 ; MgO%<3
IBM Threshold Value	CaO%>34 ; MgO%<5
Ultimate Pit Depth	Lower Series: Upto 220 mRL, Upper Series: Upto 245 mRL, Sakoda: Up to 210 mRL



Proved Mineral Reserve (111) is the mineable part of the measured mineral resource that underwent detailed exploration is feasible for mining and is economic.

Probable Mineral Reserve (121) is the mineral reserve which is proved under G1 category and is blocked in forest area which can be converted into 111 after obtaining Forest clearance.

Feasibility Mineral Resource (211) is economically not minable part of measured mineral resource. This part of resource will be economically viable after changes in technological, economic, environmental and other relevant conditions. Within lease, resources in areas those are blocked due to habitations and permanent structures are classified under UNFC 211.

There is no material present in Lakheri lease with quality between cut-off grade & threshold value mentioned above.

Table No. 11: Reserve as on 30/06/2018

	UNFC Code	Quantity in Lac tons	Grade
A. Total Mineral Reserve			
Proved Mineral Reserve 111 (Forest & Non-Forest area)	Forest Area Non Forest Total (111)	83.29 29.09 112.38	For Upper Series: Cao: Avg. 41.50%, MgO: Avg. 1.30 %, SiO2: Avg. 17.20% For Lower Series: Cao: Avg. 42.60% MgO: Avg. 1.30 % SiO2: Avg. 17.20%
Probable mineral Reserve 121 and 122	121 & 122	-	-
B. Total Remaining Resources	-	-	-
Feasibility mineral Resource	211	11.07	Cao: Avg. 42.60%, MgO: Avg. 1.30 %, SiO2: Avg. 17.20%
Prefeasibility mineral resource	221 & 222	-	-
Measured mineral resource	331	-	-
Indicated mineral resource	332	-	-
Inferred mineral resource	333	-	-
Reconnaissance mineral resource	334	-	-
Total Reserves + Resources		123.45	

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Depletion of reserve

Table No. 12: Depletion of Reserve

Mineable Reserve in non forest (UNFC class 111) as on 30/06/2018	29.09 lakh ton
Depletion of Reserve in non Forest from 30/06/2018 to 31/03/2019	8.18Lakh tonnes
Remaining mineable reserve in Non Forest after depletion as on 01/04/2019	20.91 lakh ton

Table No. 13: Reserve as on 01/04/2019

Reserves as on 01.04.2019	UNFC Code	Quantity in Lakh tonnes	Grade
A. Total Mineral Reserve			
Proved Mineral Reserve 111 (Non-forest area)	111	20.91	Cement Grade, CaO > 41%, MgO<3%
Probable mineral Reserve (Forest area)	121 and 122	83.29	Cement Grade, CaO > 41%, MgO<3%
B. Total Remaining Resources			
Feasibility mineral Resource	211	11.07	Cement Grade, CaO > 41%, MgO<3%
Prefeasibility mineral resource	221 and 222		
Measured mineral resource	331		
Indicated mineral resource	332		
Inferred mineral resource	333		
Reconnaissance mineral Resource	334		
Total Reserves + Resources		115.27	

Note: It may not be possible to quantify grade wise reserves, as normally there is considerable variation in size and grade distribution within the ore zone, which results variable recovery factor and bulk density. Thus tonnages arrived are tentative.

2.0 MINING

A. OPEN CAST MINING

a) Briefly describe the existing as well as proposed method for excavation with all Design parameters indicating on plans /sections.-

Lakheri Limestone mine is a mechanized open cast mine. Method of mining involve deep hole blasting & deployment of hydraulic excavator – dumper. Mine is having bench with height of 6 -9 m (max) & working width of 15 to 20 m. Holes of 115 mm diameter are drilled with length of bench height + 10 % sub grade length with spacing 4 – 6 m & burden of 3 –4.5 m. The holes are blasted with booster & column charge explosives. The blasted material is loaded with excavator into 40-50 ton quantity dumpers. The limestone is transported to crusher for crushing & OB is either dumped or backfilled for reclamation.

The mine is presently operational in non-forest areas, i.e. in Utarana (between ML72 to ML75), in P3 area and in Sakhoda. The present mining in this non forest area is going on with average 1:1.9 stripping ratio. As mine working is done at the down dip side of the limestone bands, at places, 2 to 3 benches of waste rock need to be removed to obtain 1 bench of limestone. The working in all the benches of lower series & upper series shall be done simultaneously by keeping quality of limestone in mind. After extraction of limestone, open pit in lower series is used for back filling of waste rock material. In proposed 5 years period stripping ratio of mine will vary from 2.3 to 0.2.

In the vicinity of any permanent structures, mining will be carried out with non-conventional method of mining. Mining is planned in forest area in next five year with the expectation that we will get the necessary permission before that.

Waste Dump height: Maximum height of dumps will be 30 Mtrs

Bench Slope- Individual bench slope will be around 80°

Overall pit slope: Considering the stability of rocks the final slope angle or ultimate pit slope is proposed to be 45°.

Bottom MRL proposed during plan period- 210 m

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b) Indicate year-wise tentative Excavation in Cubic Meters/tons indicating development, ROM, pit wise as in table below.

Table No. 14: Year wise Production and Development plan

Year 1	Pit no.	Total Excavation	Top soil	OB/SB/IB		ROM				ROM/ Waste Ratio
		Cu.m	Cu.m	Cu.m	Tonnes	ROM(cu.m)	ROM (Tonnes)	Reject (cu.m)	Reject (Tonnes)	
2020-21	P3 Lower (upto 220 mrl)	648836	Nil	451476	857804	197360	493400	Nil	Nil	1:1.7
	P3 Upper (upto 247 mrl)	39268	Nil	28215	53609	11053	27633	Nil	Nil	1:1.9
	Utarana (upto 226 mrl)	190575	Nil	82197	156174	108378	270945	Nil	Nil	1:0.6
	Sakoda (upto 210 mrl)	98868	Nil	74064	140722	24804	62010	Nil	Nil	1:2.3
	MI-78-ML-82 (upto 238 mrl)	382065	Nil	203656	386946	178409	446022.5	Nil	Nil	1:0.9
Total		**1359622**	**Nil**	**839608**	**1595255**	**520004**	**1300010**	**Nil**	**Nil**	**1:1.2**

Year 2	Pit no.	Total Excavation	Top soil	OB/SB/IB		ROM				ROM/ Waste Ratio
		Cu.m	Cu.m	Cu.m	Tonnes	ROM(cu.m)	ROM (Tonnes)	Mineral Reject (cu.m)	Mineral Reject (Tonnes)	
2021-22	ML84-ML90 (upto 255 mrl)	291303	Nil	119286	226643.4	172017	430042.5	Nil	Nil	1:0.5
	ML78-ML82 (upto 229 mrl)	656487	Nil	308637	586410	347850	869625	Nil	Nil	1:0.7
Total		**947790**	**Nil**	**427923**	**813054**	**519867**	**1299668**	**Nil**	**Nil**	**1:0.6**

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Year 3	Pit no.	Total Excavation	Top soil	OB/SB/IB		ROM				ROM/ Waste Ratio
		Cu.m	Cu.m	Cu.m	Tonnes	ROM(cu.m)	ROM (Tonnes)	Mineral Reject (cu.m)	Mineral Reject (Tonnes)	
2022-23	ML-78-ML94 (upto 220 mrl)	707715	Nil	321633	1018505	386082	965205	Nil	Nil	1:0.6
	ML-90-ML94 (upto 255 mrl)	229941	Nil	97776	185774	132165	330413	Nil	Nil	1:0.6
Total		**937656**	**Nil**	**419409**	**1204279**	**518247**	**1295617.5**	**Nil**	**Nil**	1:0.6

Year 4	Pit no.	Total Excavation	Top soil	OB/SB/IB		ROM				ROM/ Waste Ratio
		Cu.m	Cu.m	Cu.m	Tonnes	ROM(cu.m)	ROM (Tonnes)	Mineral Reject (cu.m)	Mineral Reject (Tonnes)	
2023-24	ML-94-ML100 (upto 255 mrl)	269568	Nil	111537	211920	158031	395078	Nil	Nil	1:0.5
	ML-84-ML94 (upto 229 mrl)	797994	Nil	446202	847784	351792	879480	Nil	Nil	1:1.0
Total		**1067562**	**Nil**	557739	1059704	**509823**	**1274558**	**Nil**	**Nil**	**1:0.83**

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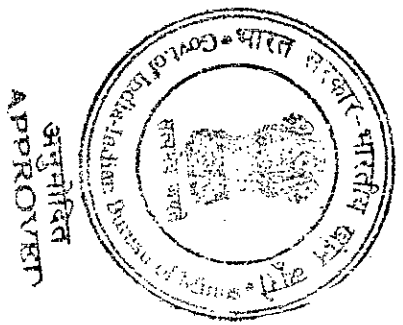
Year 5	Pit no.	Total Excavation	Top soil	OB/SB/IB		ROM				ROM/ Waste Ratio
		Cu.m	Cu.m	Cu.m	Tonnes	ROM(cu.m)	ROM (Tonnes)	Mineral Reject (cu.m)	Mineral Reject (Tonnes)	
2024-25	ML-86-ML94 (upto 220 mrl)	308295	Nil	Nil	Nil	308295	770738	Nil	Nil	Nil
	ML-94-ML98 (upto 238 mrl)	177243	Nil	101457	192768	75786	189465	Nil	Nil	1:0.8
	ML-70-ML72 (upto 256 mrl)	175053	Nil	41115	78119	133938	334845	Nil	Nil	1:0.23
Total		**660591**	**Nil**	**142572**	**270887**	**518019**	**1295048**	**Nil**	**Nil**	**1:0.2**

Note: The Bulk density/TCF is taking for computing above table as follows: OB- 1.9 & Limestone- 2.5.



II. DUMP RE-HANDLING (for the purpose of recovery of mineral):

Waste material is not suitable for cement manufacturing so we are not planning for re-handling of waste material.

Table No. 15: DUMP RE-HANDLING (for the purpose of recovery of mineral)

Dump no	Year wise handling	Estimated recovery of saleable material	Rejects
N/A	N/A	N/A	N/A

c) Enclose Individual year wise development plans and sections showing pit layouts, dumps, stacks of mineral reject, if any, etc in case of 'A' category mines. Composite development plans showing pit layouts, dumps, stacks of mineral reject, if any, etc. and year wise sections in case of 'B' category mines.

Individual year wise production & development plans and working sections for the year 2020-21 to 2024-25 is given in Plate no. VIA to VIE.

d) Describe briefly giving salient features of the proposed method of working indicating category of mine:

i) Salient description of Present Mining Methods

The Lakheri Limestone Mine of Lakheri Cement Works, ACC Limited is being worked by mechanized system of opencast mining method. The Mine is planned to be worked from Lower Series.

Blast holes of 115 mm diameter are drilled up to 6-9 meters with the help of drilling machines with 10% sub grade drilling. The complete drilling operation is carried out by wet drilling method and no dust is allowed to be air borne while drilling. The blast holes are drilled in 'staggered' pattern having burden of 3 to 4.5 m and spacing 4 to 6 m. These blast holes are then charged with explosive (mixture of ANFO). Around 60% of hole depth is charged with explosives and balance 40% is stemmed with loose soil to have effective blast. These blast holes after charging with explosives are then blasted by using Electronic Detonator/ non-electric detonator initiation system (NONEL). This enables the holes to blast from bottom to top, which will eliminate the toe problem and minimize the ground vibration and noise and also each hole is blasted separately by providing delays. The bottom initiation and delay in each hole not only controls the throw of the blast but also reduces the ground vibrations and noise pollution. The blasted

stone is then loaded into 40/50 T dumpers with the help of shovels. In operation 2 Nos. shovels and 5 Nos. dumpers are required. The shovels with bucket capacity of 4.0 cubic meters will load around 2000 tons in a shift. A fleet of 4-5 dumpers depending upon lead will transport all the material to crusher. This is sufficient to support the required clinker production of Plant.

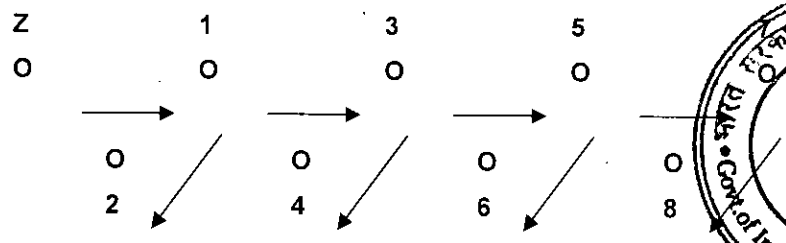
i) Drilling

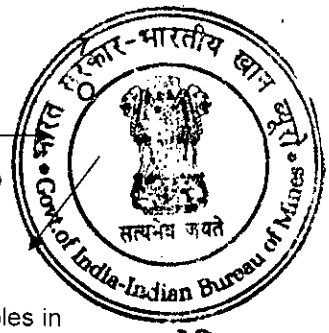
Vertical holes with 115 mm diameter each drilled with Atlas Copco-D50/ ICM 260Drill machine having wet drilling/dust collection facility.

ii) Blasting

The blast holes are drilled in staggered pattern having burden of 3 to 3.5 m and spacing- 4 to 6 m.These blast holes are then charged with explosive (ANFO). Around 60% of hole depth is charged with explosives and balance 40% is stemmed with loose soil to have effective blast. These blast holes after charging with explosives are then blasted by using Electronic detonator/ non-electric detonator initiation system (NONEL). This enables the holes to blast from bottom to top, which will avoid the toe problem and minimize the ground vibration and also each hole is blasted separately by providing delays in each hole. The bottom initiation and delay in each hole not only controls the throw of the blast but also reduces the ground vibrations and noise pollution.

A typical pictorial diagram of Blast holes with charging pattern is given below:





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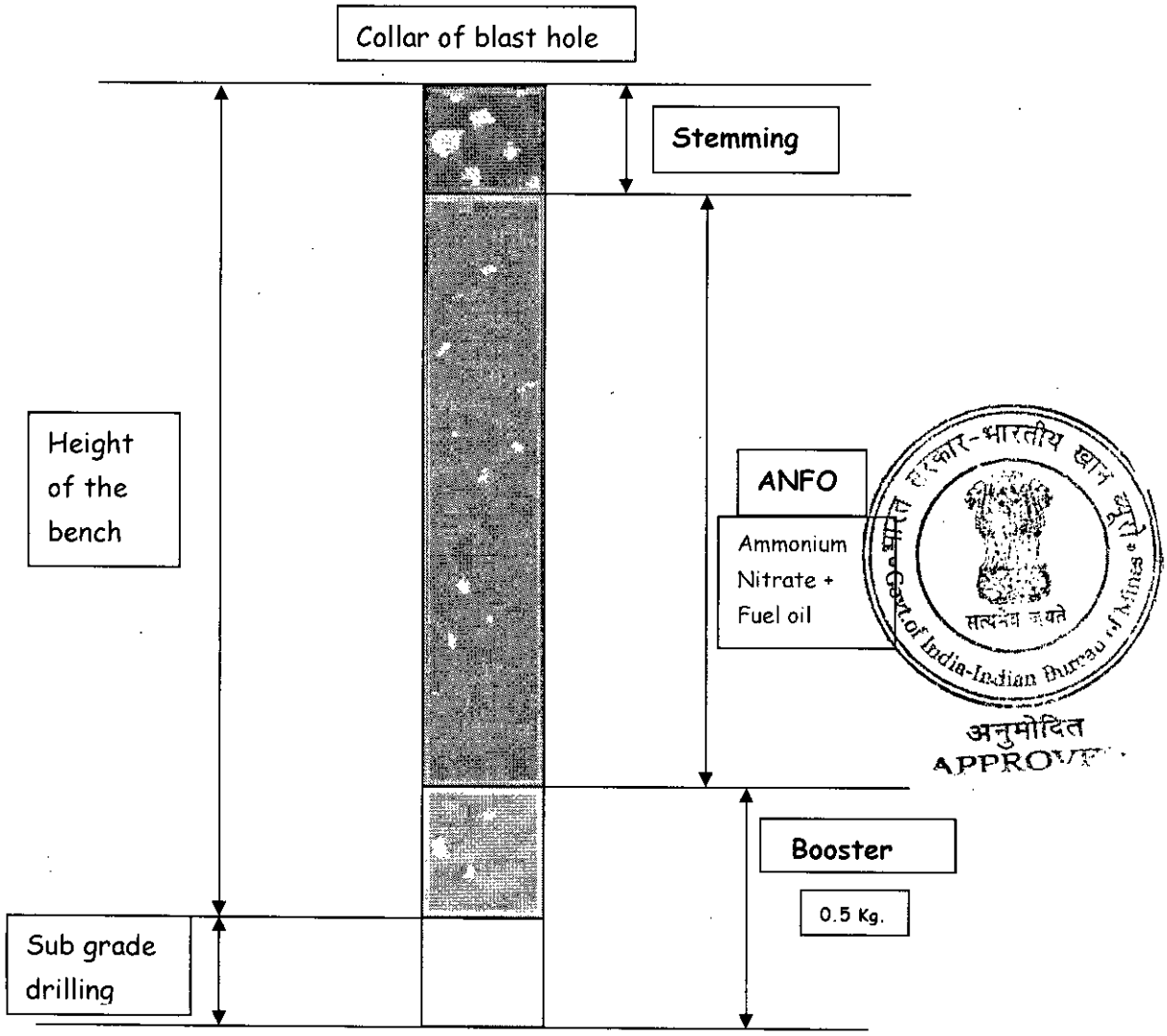
This is a pictorial diagram of a typical blast conducted in mines for 8 drill holes in Two rows with following parameters:

Height of the bench	:	9.0m
Sub grade drilling	:	0.5m
Length of stemming column	:	2.5m
Length of ANFO Column	:	3.5m
Spacing	:	4.0m
Burden	:	3.0 m
Type of Booster	:	PRIMER
Stemming material	:	Drill cuttings

DTH	:	Nonel/ Electronic Detonator
TLD	:	Nonel/ Electronic Detonator
Type of drill holes	:	Vertical holes with 115 mm diameter each.
Type of Drill machines used	:	Atlas Copco-D50/ ICM 260 Drill machine with wet drilling/dust collection facility.

Typical Charging pattern of a blast Hole



Broad blasting parameter: -

Spacing	:	4.0 m
Burden	:	3.0 m.
Depth of hole	:	7.0 m
Charge per hole:		40kg-45Kg
Powder factor	:	8 Tons/kg

Type of explosive to be used:-

1. Booster/Slurry explosive/ANFO
2. NONEL Detonators (Both DTH &TLD)
3. Electronic Detonators

Table No.16: Year wise Explosive consumption and Powder factor (On TMH)

Year	TMH (Tns)	Powder Factor (Tns/Kg)	Explosive Consumption(Kg)
2020-2021	2895265	8	361808
2021-2022	2112721	8	264090
2022-2023	2499896	8	312487
2023-2024	2334262	8	281783
2024-2025	1409240	8	176115

iii) Transportation

The limestone is transported to crusher through 40-50 tons dumpers and waste is dumped in dump yard.

Table No. 17: List of Equipments

Sr No.	TYPE OF MACHINE	PROPOSED UNITS	EXISTING UNIT	CAPACITY/ SIZE	MODEL & MAKE OF M/C	MOTIVE POWER	HP
1	HYD. SHOVEL	--	1	2.8 CU.M. BUCKET	EX-400 HITACHI EX-600HITACHI	DIESEL	280
			1	4.5CU.M. BUCKET	PC—600 KOMATSU	DIESEL	370
		--	1	4.5CU.M. BUCKET		DIESEL	385
2	HYD. BACK HOE	--	2	2.07 CU. M. BUCKET	EX-400 HITACHI	DIESEL	280

3	DUMPER BH 40	--	4	40 TONS PAYLOAD	BH-40 BEML	DIESEL	455
4	DUMPER BH 50	--	4	50 TONS PAYLOAD	BH-50 BEML, CAT 772G	DIESEL	483
6	Drill	--	3	115 MM DIA	D-50 Atlas Copco, ICM	DIESEL	220
7	DOZER	--	1		D-155 BEML	DIESEL	450
8	ROCK BREAKER	--	1	350 TONNES/ SHIFT	EX200Tata Hitachi	DIESEL	220
9	EXPLOSIVE VAN	--	1	10 TONNES	TATA –709	DIESEL	105
10	WATER TANKER	--	1	10 KL	TATA-1613 SE	DIESEL	135
11	DIESEL TANKER	--	1	3 KL	TATA- 709	DIESEL	90
12	MOBILE SERVICE VAN	--	1		TATA 709	DIESEL	130
13	TRUCK	--	1		TATA- CRX DI 3200	DIESEL	51
14	PRIMARY VIBRATING SCREEN / WOBBLER	1	1 --	250 TPH	TRF	ELECTRIC ELECTRIC	60 100
15	CONVEYOR BELTS	4	4	600 MM TO 100 MM WIDE		ELECTRIC	20 –35
16	LOCO FOR WAGON LOADING	--	1	300 TONNES	SAN	DIESEL	335

e) Describe briefly the layout of mine workings, pit road layout, the layout of faces and sites for disposal of overburden/waste along with ground preparation prior to disposal of waste, reject etc. A reference to the plans and sections may be given. UPL or ultimate size of the pit is to be shown for identification of the suitable dumping site.

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Proposed Production Details

Table No. 18: Production and OB Details

Year	Name of the pit	Area (sq.m)	Depth/Bench RL	ROM (Tonnes)	Section Line Location
2020-21	P3 Lower	24670	6-9/229- 220 mrl	493400	ML -00 to ML-5
	P3 Upper	1579	6-9/256 -247mrl	27633	MI-02-ML-3
	Utarana	12042	6-9/244 - 235 mrl; 6-9/235 – 226 mrl	270945	MI-72-ML-75
	Sakoda	6201	6-9/219 -210 mrl	62010	SL-00- SL 04
	Utarana	25487	6-9/247 – 238 mrl	446022.5	ML-78-ML-82

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2021-22	Utarana	19113	6-9/238-229 mrl	430042.5	ML -84 to ML90
		38650	6-9/264 -255 mrl	869625	ML -78 to ML82
2022-23	Utarana-Budhel	42898	6-9/229- 220 mrl	965205	ML -78 to ML-94
		14685	6-9/264 -255 mrl	330413	ML -90 to ML-94
2023-24	Utarana-Budhel	17559	6-9/264- 255 mrl	395078	ML 94 to ML100
		39088	6-9/238 -229 mrl	879480	ML 84 to ML94
2024-25	Utarana-Budhel	34255	6-9/229- 220 mrl	770738	ML 86 to ML94
		12631	6-9/247 -238 mrl	189465	ML 94 to ML98
		14882	6-9/265 – 256 mrl	334845	ML 72 to ML70

Proposed Development Details

Year	Location	Area (sq.m)	Depth (m)/ Bench mRL	OB (Tonnes)	Section Line Location
2020-21	P3 Lower	50164	6-9/256 -247 6-9/247- 238 6-9/238- 229	857804	ML -00 to ML-5
	P3 Upper	5643	6-9/265 -256	53609	ML-00 ML-3
	Utarana	9133	6-9/253-244	156174	ML-72 ML-75
	Sakoda	9258	6-9/228-219 & 219-214	140720	ML-00- ML 03
	Utarana	25457	6-9/247-238	386947	ML-78 ML-82
2021-22	Utarana	13254	6-9/273-264	226643	ML -84 to ML-90
		34293	6-9/255-246	586410	ML-78 ML-82
2022-23	Utarana-Budhel	35737	6-9/247- 238 6-9/238- 229	611103	ML-88 to ML-94
		10864	6-9/273 -264	185774	ML -90 to ML-94
2023-24	Utarana-Budhel	12393	6-9/273 -264	211920	ML 94 to ML-100
		49578	6-9/247 -238 6-9/238 -229	847784	ML -84 to ML-94
2024-25	Utarana-Budhel	11273	6-9/255 -247	192768	ML -94 to ML-98
		8223	6-9/274-265	78119	ML -72 to ML-70

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All the Plans & section showing layout of mine workings, pit road layout, layout of faces & dumping sites enclosed in with Volume II of Review of Mining Plan **(Plate no VI A & VI E)**

f) Conceptual mine planning upto the end of lease period taking into consideration the present available reserve and resource describing the excavation, recovery of ROM, disposal of waste, backfilling of voids, reclamation and rehabilitation showing on plan with few relevant sections:

Conceptual mine plan has been prepared after considering the depth persistence of limestone, mineability & economic viability of limestone. Lakheri lease is valid upto 31.03.2030. Therefore Conceptual Plan is prepared for remaining years of life of mine considering the balance reserve available within the lease, average rate of excavation, recovery of ROM, disposal of waste, backfilling of voids, reclamation of mining pit. Conceptual Plan is attached as Plate no: VIII.

Excavation: In the conceptual stage mine will be operated in the forest area (subjected to the Forest Clearance). Part of the worked out pit will be partially back filled with overburden/ waste and remaining part will be converted into water reservoir. Completely exhausted Lower Series working will be back filled first as no limestone will be present below lower series limestone. Overall pit slope will be maintained 45^0.

Mineral reserve & anticipated life of mine:

Table No. 19: Reserve as on 01/04/2019

Reserves as on 01.05.2019	UNFC Code	Quantity in Lakh tonnes	Grade
A. Total Mineral Reserve			
Proved Mineral Reserve 111 (Non-forest area)	111	20.91	Cement Grade, CaO > 41%, MgO<3%
Probable mineral Reserve (Forest area)	121 and 122	83.29	Cement Grade, CaO > 41%, MgO<3%
B. Total Remaining Resources			
Feasibility mineral Resource	211	11.07	Cement Grade, CaO > 41%, MgO<3%
Prefeasibility mineral resource	221 and 222		
Measured mineral resource	331		
Indicated mineral resource	332		
Inferred mineral resource	333		
Reconnaissance mineral Resource	334		
Total Reserves + Resources		115.27	

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Total resource of Lakheri lease as on 01.04.2019 is 115.27 Lakh ton. Proposed production in the plan period is 13 Lakh tons. At average rate of production of 13 lakh ton per annum (1.3 mtpa) the life of mine will be approximately 9 years. Life of mine may be increased after detailed exploration.

Ultimate pit limit:

Ultimate pit limit is demarcated on the Surface Geological Plan & Conceptual Plan. Ultimate pit depth, at conceptual stage, will be up to 220mRL in lower series & 245mRL in upper series. Ultimate pit depth at Sakoda will be 210mRL.

Generation & disposal of waste: Backfill depth

In conceptual stage, from 2025 to 2030, at average stripping ratio of 1:1, waste generation will be 9 MioT (approximate). Among the total quantity around 7 MioT waste will be backfilled & 2 MioT waste will be dumped during this period.

Recovery of ROM-

During the 5 year plan period as well as at the conceptual stage there will be 100% recovery of ROM.

Post-mining reclamation and land use pattern as on 31.3.2030 is given below and also shown in Conceptual Plan (**Plate No. VIII).**

At conceptual stage (by 31.3.2030) following would be the approximate position of mine as per present planning assuming that we will get necessary forest clearances to work in forest area.

Excavated area	176 hect
Ultimate Pit Depth	Upto 220mRL in lower series & 245mRL in upper series. Ultimate pit depth at Sakoda will be 210mRL.
Pit size	There will be multiple numbers of small sized pits with various dimension of length & width. Maximum depth of the pits will be 40m (approximate).
Quantity of waste	Approximately 45 lakh ton (from April 2020- March 2030)
Dump area	60.4 hect
Dump Size	Dumps of various lengths will be present. Maximum width of the dumps will be 150m (approximate). Maximum height of dump will be 30m with terracing at 10m intervals.
Reclamation measures	
Backfilled area	After complete excavation of limestone till ultimate pit depth backfilling will be taken up at few mined out pit. Later these backfilled

	areas will be reclaimed and rehabilitated with plantation.
Dump area	Slope of the dump will be maintained considering angle of repose of the waste materials. Terracing at 10m height intervals will be made in all dumps to stabilize the dumps.
Fencing Proposal	Left out pits will be used to store rain water. Fencing will be done around all the open pits.

Post Mining land use pattern at conceptual stage:

Table No. 20: Post Mining land use pattern at conceptual stage

Particulars	Area (hect) put to use at the start of Review of Mining Plan	Area (hect) put to use at the end of Plan period (31.3.2025)	At end of life of lease (31.03.2030)
Area under mining	145	163	176
Storage for top soil	0	0	0
Waste dump sites	42	52.4	60.4
Back filling	13.77	16.37	36.37
Water reservoir	30.45	30.45	40
Green Belt & Afforestation	11.5	35.5	85
Build up area (Infrastructure, road, rail etc.)	101.64	101.64	101.64
Mineral storage	2.1	2.1	2.1
Tailing pond	0	0	0
Effluent treatment plant	0	0	0
Undisturbed Area	1181.92	1115.42	1015.37
Total	1516.88	1516.88	1516.88

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B. UNDERGROUND MINING: NOT APPLICABLE

3.0. MINE DRAINAGE

a) Minimum and maximum depth of water table based on observations from nearby wells and water bodies

In the nearby village wells, it is observed that the permanent water table of 25m below the general ground level, i.e. 235-240 mRL. We had also observed while working of lower series which is 18m deeper to the general ground level that dries during summer and there is no inrush of ground water.

b) Indicate maximum and minimum depth of Workings

The maximum working level is about 210 MRL in Sakhoda area and the minimum depth of working is 273 MRL in Utarana upper series.

c) Quantity and quality of water likely to be encountered, the pumping arrangements and places where the mine water is finally proposed to be discharged

The deposit is present at the foot hill area so the water flows into the workings. To avoid inundation of the working pit, a garland drain with bund is provided on the uphill side of the working. During rainy season work is carried out on Upper Series Limestone and during dry season work is carried out on Lower Series limestone after dewatering the collected rain water. The garland drains diverts the down flow of water to old worked out pit of lower series. Simultaneously dewatering pumps are installed that also collect the water that is accumulated through seepage. The maximum and minimum RL of the lease area are 309 mrl & 237 mrl respectively. Old worked out pits are used for collecting rain water and also with its settling tanks.

d) Describe regional and local drainage pattern. Also indicate annual rainfall, catchments area, and likely quantity of rain water to flow through the lease area, arrangement for arresting solid wash off etc

Mine Drainage & Catchment area: The Mining lease area lies entirely in Chambal sub basin of Yamuna basin. River Chambal, the main drainage channel in the region, form the boundary line between Bundi and Kota district. The general slope of river is towards SE. Dendritic pattern of drainage is present in the area. Density of drainage varies from 0.3 to 0.5 km/sq km. River Mej is the main channel which flows from the SW to NE running parallel to the mining lease area at a distance of 5-8 km. A garland drain with bund

will be provided on the uphill side of working to avoid inundation of worked out pit. The drain will divert the flow of water to old worked out pit of lower series.

Annual Rainfall: According to Kota meteorological observatory the normal annual rainfall bases on 50 years data is 758.6 mm.

Quantity of rain water: Rain water is collected in existing mine pit during the rainy season. This increases the recharge rate at surrounding area. It is very useful for nearby villagers & livelihood for agriculture and domestic purpose.

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4.0 STACKING OF MINERAL REJECT /SUB GRADE MATERIAL AND DISPOSAL OF WASTE

a) Indicate briefly the nature and quantity of top soil, overburden / waste and Mineral Reject to be disposed off.

The waste material is comprises of overburden (Mixture of Red Clay, Sand, Sandstone etc.), shaly limestone, Red shale, wobbler rejects & overburden rejects. No top soil is available within lease area.

Table No. 21: Yearwise quantity of rejects to dispose

Year	Top soil (cum)	Mineral Rejects (cum)	Waste (cum) OB/SB/IB		Beneficiation
	Reuse/ Spreading/ Storage	Back filling/ Storage/ Blending	Dump/ Backfilling	Blending	
2020-21	Nil	Nil	839608	Nil	NA
2021-22	Nil	Nil	427923	Nil	NA
2022-23	Nil	Nil	419409	Nil	NA
2023-24	Nil	Nil	557739	Nil	NA
2024-25	Nil	Nil	142572	Nil	NA

b) **The proposed dumping ground within the lease area be proved for presence or absence of mineral and be outside the UPL unless simultaneous backfilling is proposed or purely temporary dumping for a short period is proposed in mineralized area with technical constraints & justification**.

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Proposed dumping ground within the lease area is selected over the non-mineralized part of the deposit (i.e Shale). Area for backfilling is selected on the up dip direction of the deposit, mostly within the worked out pit of Lower Series Limestone as there is no limestone band present below it.

The proposed area for backfilling and dumps are shown on 5 yearly production & development plan (Plate VIA to VIE). Area & quantity of the same is summarised below:

Table No. 22: Backfilled and Dump quantity

Year	Backfilled Area		Dump	
	Volume (cu.m)	Quantity (Tonnes)	Volume (cu.m)	Quantity (Tonnes)
2020-21	203133	385953	636475	1209302
2021-22	0	0	427923	813054
2022-23	0	0	419409	796877
2023-24	0	0	557739	1059704
2024-25	46820	88958	95752	270887

Note: The Bulk density/TCF is taking for computing above table as follows: OB- 1.9 P3 & Utarana & 1.6 (Sakhoda).

In first year (2020-21) production is proposed in P3 quarry. Waste generated this year will be used to partly backfilled the P3 pit and remaining waste will be dumped in the nearby site. From second year to fourth year limestone production is proposed in Uttarana and adjoining forest area. These areas are not yet fully excavated and therefore no proposal of backfilling has given. In fifth year after complete excavation of Uttarana pit, backfilling was proposed in part of the area.

c) **Attach a note indicating the manner of disposal of waste, configuration and sequence of year wise build up of dumps along with the proposals for protective measures.**

Nature of waste -

The waste material comprises of overburden (Mixture of Red Clay, Sand, and Sandstone), Shaly Limestone, Red shale etc. There is no toxic and hazardous elements present in the waste material hence no treatment is required. No top soil is available within the mining lease area.

Selection of dumping site:

The waste material is dumped into the non mineralized part of the deposit & backfilled in worked out pits of Lower Series limestone. The waste material will be backfilled into worked out pits of lower series after exploitation of limestone from those areas.

Table No. 23: Year wise proposal of disposal of waste

Year 1	Particulars	Area (Hect)	Location
2020-21	Dump	1.47	Sakhoda
	Dump	4.57	ML 1 to ML 7
	Backfill	2.29	ML0 to ML5
	Dump	1.2	ML 72 to ML 75
	Dump	2.8	ML 88 to ML 94
	Total area	9.53	

Year 2	Particulars	Area (Hect)	Location
2021-22	Dump	4.27	ML88 to ML98
	Total	4.27	

Year 3	Particulars	Area (Hect)	Location
2022-23	Dump	4.19	ML88 to ML98
	Total area	4.19	

Year 4	Particulars	Area (Hect)	Location
2023-24	Dump	5.0	ML94 to ML100
	Total area	5.0	

Year 5	Particulars	Area (Hect)	Location
2024-25	Dump	1.7	ML94 to ML100
	Backfill	0.5	ML72 to ML75
	Total area	2.2	

The site of worked out Lower Series pit is selected because of better stability of dumps, gravity flow of dumped waste & utilization of the excavated area of mining. No limestone band is present below lower series. The spread of backfill is same as excavated area. Height of the dumps will be 5 to 30 m.

Following measures are taken for stabilization of dumps:

- Regular compaction of dumps by dozing.
- Regular plantation on dead dumps for stability of dump.
- Steps on dumps to reduce the height of the dump.

- Proper slope of top surface for drainage.

if required, for stabilization of the existing dumps, the possibility of using GeoTextiles approach may be considered during the Review of Mining Plan period. The GeoTextiles will be laid on dump slopes before onset of the monsoon, which reduces impacts of the rain on dump surfaces thus preventing erosion. For further stabilization of the dump slope, grass seeds are sown on the dump which is later follower by fully fledged plantation consisting of native species.

5.0 USE OF MINERAL AND MINERAL REJECT

a) Describe briefly the requirement of end-use industry specifically in terms of physical and chemical composition.

Total run of mines production shall be consumed in manufacturing of cement.

Quantity and grade of sub grade material available at the mine

There is no sub grade mineral generated and hence none is being stacked. Entire limestone present in lease area is usable

b) Give brief requirement of intermediate industries involved in up gradation of mineral before its end-use.

There are no intermediate industries involved for upgradation of mineral

c) Give detail requirements for other industries, captive consumption, export, associated industrial use etc.

We used for our own captive consumption only & not to sale to any other industries.

d) Indicate precise physical and chemical specification stipulated by buyers

We used for our own captive consumption only & not to sale to any other industries.

e) Give details of processes adopted to upgrade the ROM to suit the user requirements

The ROM stone loaded into wagons are transported to plant by broad gauge line.

6.0 PROCESSING OF ROM AND MINERAL REJECT:

a) If processing / beneficiation of the ROM or Mineral Reject is planned to be conducted, briefly describe nature of processing / beneficiation. This may indicate size and grade of feed material and concentrate (finished marketable product), recovery etc.

Not applicable.

b) Give a material balance chart with a flow sheet or schematic diagram of the processing procedure indicating feed, product, recovery, and its grade at each stage of processing.

Not applicable-

c) Explain the disposal method for tailings or reject from the processing plant-

Not applicable

d) Quantity and quality of tailings /reject proposed to be disposed, size and capacity of tailing pond, toxic effect of such tailings, if any, with process adopted to neutralize any such effect before their disposal and dealing of excess water from the tailings dam.

Not Applicable

e) Specify quantity and type of chemicals if any to be used in the processing plant.

Not Applicable.

f) Specify quantity and type of chemicals to be stored on site/plant.

Not Applicable.

g) Indicate quantity (cum per day) of water required for mining and processing and sources of supply of water, disposal of water and extent of recycling Water balance chart may be given.

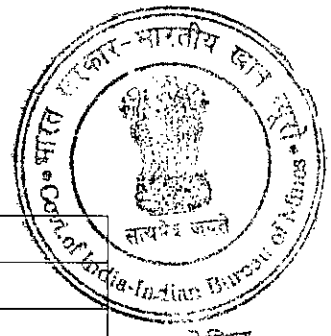
Total water requirement for mining is 94 kLD. Water required for Green Belt Development is 30 KLD, Dust Suppression 40 KLD, Mine operation (HEMM washing, workshops) 10 kLD and Domestic Purpose is 14 KLD which is sourced from the excavated harvested rain water in the mine pit.

7.0 OTHERS

a) Site services

The following site services are provided to mine workers.

- Portable Rest Shelter at all working pit.
- First aid station & first aid kits.
- Cool & wholesome drinking water in insulated Thermoplast Can for field employees & water cooler for garage area along with RO facility.
- Urinals & latrines,
- Furnished office building etc.
- Mines garage (mine work shop),
- Ambulance for emergency transport to hospital,
- Mobile maintenance van,
- Bus transport for the miners in all shifts timing from colony to mines (distance 13 km).
- Time office
- Canteen for supply of refreshment to miners.
- Mobile diesel tank
- Water tanker



b)	**Employment potential**	
	Manager	1
	Mining Engineer	1
	Geologist	1
	Mechanical Engineer	3
	Assistant Manager Mines	3
	Foreman Mines	4
	Electrical Supervisor	1
	Mining Mate	2
	Blaster	1
	Semi-skilled/UnSkilled staff	41
	TOAL MANPOWER	**58**

The OMS of mines as per the existing production is 148.1

8.0 PROGRESSIVE MINE CLOSURE PLAN UNDER RULE 23 OF MCDR 2017

8.1 Environment Base line information: Attach a note on the status of baseline information with regard to the following

(i) Existing Land use pattern indicating the area already degraded due to mining roads, processing plant, workshop, township etc in tabular form:

Table No. 24: Existing land use pattern

Sr No	Items	Area put to use at start of Modified Mining Plan (Hect.)
1	**Area under mining**	145
2	**Storage for top soil**	0
3	**Waste dump site**	42
4	**Mineral storage**	2.1
5	**Infrastructure –workshop, administrative building etc.**	30.2
6	**Roads**	11.5
7	**Railways**	22.94
8	**Tailing pond**	0
9	**Effluent Treatment Plant**	0
10	**Mineral Separation Plant**	1
11	**Township area**	36.0
12	**Others (Water reservoir)**	30.45
	Others (Back filling)	13.77
	Others (Green belt)	11.5
	Grand Total	346.46

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(ii)Water regime, quality of air, ambient noise level, flora, climatic condition:

Post monsoon and pre monsoon water table---

1. Pre monsoon – 25 meter from below ground level
2. Post Monsoon – 10 meter from below ground level

As the deposit is on the downhill side, the rainwater drains into the worked out pit & accumulated there. Mej River is the main source for supply of water in the colony & cement plant.

In working mine accumulated rain water in pit is used for watering plantation, for dust suppression on haulage road etc. At conceptual stage we will do fencing surrounding exhausted pit area. The accumulated rain water from worked out pits help to recharge the ground water table in the area. There is no generation & disposal of effluent from the mine. Hence there is no ill impact of mining on ground water. The mine working will not be extended below the water table.

The river water is utilized to meet the water demand of township and factory. There is no discharge of surface water into the river. The river is about 3 km from the mine workings. No lake or pond inside or nearby the lease is present & hence there is no impact of mining on quality of surface water.

Water Quality:

As the deposit is present at the foot hill side, the worked out pits act as a reservoir and these reservoirs help to settle the suspended solids generated from mine..

Quality of ambient air & noise:

To monitor the ambient air quality, the monitoring station were fixed and samples were collected & analyzed for five parameters viz. Suspended Particulate Matter (SPM) , Repairable Particulate Matter(RPM), oxides of Sulphur (SO2) , Oxides of Nitrogen (NoX) and Carbon Monoxide (CO).

The locations of sampling stations are shown on Environment plan (**Plate No. VII**) given in Volume-II of the Modified Mining Plan described as under:

Sampling Station	Location
A-1	ACC Lakheri Mines Office
A-2	Wobbler at Mining area
A-3	Mining working pit
A-4	Transport roads in Mining area

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Flora-

The forest area falls under subsidiary edaphic type of tropical dry deciduous forest according to Champion's Classification. The principal species are Dhokra (Arogeissus Pendula) and Kher (Acacia

Catchu) Other species found are Babul (Acacia Arabica), Beri (Zizyphusjujuha), Salar (Boswilliaserrata), Khirni (Weightiato mentosa),) and Khijra (Prosopisspecigera).

The vegetation in the non- –forest area is Dhokra, Babool, Neem, Pipal, Beri & Vilayati Babool.

According to the forest guidelines forest presents within our lease area is ecoclass III forest. It is a moderately dense forest and does not belong to core zone or buffer zone.

Climatic condition:

The winter season from November - February, summer season from March - June & rainy season from July - October. The mining operations are no significance with respect to causing any change in climatic condition. There will not be any impact on climatic condition of the area

(ii) Human Settlements:

The nearest human settlement is Lakheri, Chamavoli & Kankra, which has a population of about 75000. There is neither acquisition of land of any villagers nor displacement or rehabilitation of local population involved. The local population has subsistence economy largely based on mono cropping agriculture. The Mining operation and Cement Plant generates about 1500 direct employments and about 60000 as indirect employment, hence the social profile will rise in the area.

(iii) Public building, Places of worship and monuments:

The monuments like Chamavali Mataji Temple and Bhumiaji Templewill be protected by leaving 50 m safety zone and presently no mining activity is planned in these areas. Over and above the limestone will be excavated by non - conventional technique i.e. by use of Rock breaker/Terminator, hence no impact on such structures.

(iv) Is any Sanctuary located in the vicinity of leasehold?

Mining Lease falls within 10 KM of Ramgarh Wild Life sanctuary and National Ghariyal sanctuary.

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8.2 Impact Assessment: Attach an Environmental Impact Assessment Statement describing the impact of mining and beneficiation on environment on the following:

i) Land area indicating the area likely to be degraded due to quarrying, dumping roads, workshop, processing plan, tailing ponds/dam, township etc.

Land use pattern:

Table No. 25: Post Mining land use pattern at conceptual stage

Particulars	Area (hect) put to use at the start of Review of Mining Plan	Area (hect) put to use at the end of Plan period (31.3.2025)	At end of life of lease (31.03.2030)
Area under mining	145	163	176
Storage for top soil	0	0	0
Waste dump sites	42	52.4	60.4
Back filling	13.77	16.37	36.37
Water reservoir	30.45	30.45	40
Green Belt & Afforestation	11.5	35.5	85
Build up area	101.64	101.64	101.64
Mineral storage	2.1	2.1	2.1
Tailing pond	0	0	0
Effluent treatment plant	0	0	0
Undisturbed Area	1181.92	1115.42	1015.37
Total	1516.88	1516.88	1516.88

ii) Air quality

To monitor the ambient air quality, the monitoring station were fixed and samples were collected & analyzed for five parameters viz. Suspended Particulate Matter (SPM) , Repairable Particulate Matter (RPM), oxides of Sulphur (SO2) , Oxides of Nitrogen (NoX) and Carbon Monoxide (CO). The locations of sampling stations are shown on Environment Plan (**Plate no VII)** given in Volume II of the Modified Mining Plan described as under:

Sampling Station	Location
A-1	ACC Lakheri Mines Office
A-2	Wobbler at Mining area
A-3	Mining working pit
A-4	Transport roads in Mining area

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iii) Water quality:

As the deposit is present at the foot hill side, the worked out pits act as a reservoir and these reservoirs help to settle the suspended solids generated from mine.

iv) Noise Levels

The result of base line data indicates that noise levels are well below the permissible limit except near machinery while operating. The noise generating sources are scattered within the whole mining area. All the sources will not generate the noise simultaneously hence, the noise level would not alter the noise environment significantly. The noise level reduces with increase in distance from the source.

v) Ground Vibration (Due to blasting)

Blasting is carried out by using Electronic Detonators/ NONEL detonators, which controls air blast and ground vibration effectively. Ground vibration monitoring is to be done regularly by using Instantel Blastmate, a ground vibration monitoring machine for each and every blast. Ground Vibration is well within the prescribed limit.

vi) Water regime:

The winter season from November - February, summer season from March - June & rainy season from July - October. The mining operations are no significance with respect to causing any change in climatic condition. There will not be any impact on climatic condition of the area.

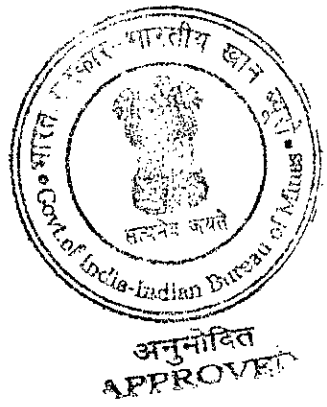
Acid Mine Drainage:

Not applicable

vii) Surface Subsidence

Not applicable

viii) Socio Economic Environment:



Social & Demographic profile:

The nearest human settlement is Lakheri, Chamavoli & Kankra, which has a population of about 75000. There is neither acquisition of land of any villagers nor displacement or rehabilitation of local population involved. The local population has subsistence economy largely based on mono cropping agriculture. The Mining operation and Cement Plant generates about 1500 direct employments and about 60000 as indirect employment, hence the social profile will rise in the area.

ACC has earmarked certain funds towards the socio-economic development of the local population. ACC has a proven track record of its concern and commitment towards the better environment in every sense.

It has fulfilled its social obligation and responsibilities to its fullest extent by adopting villages and providing various facilities like education, health care, drinking water etc. to the people in the region. This will also raise the social environment of the area.

Occupational Health & Safety:

All the precautions are taken as per mining laws for health & hygiene of the employees & dependents in our well-equipped and staffed Hospital.

Recreational facilities:

The company maintains a well-equipped club, library, and play ground facilities with indoors &outdoor games. Cultural programs are also organized on regular interval.

Historical monuments

There is no Historical monument inside lease area. Few old structure like Chamavali Mataji Temple and Bhumiaji Templewill be protected by leaving a 50 m safety zone and presently no mining activity is planned in these areas. Moreover the limestone will be excavated by non - conventional techniques i.e. by use of Rock breaker/ Terminator hence there will be no impact on such monuments.

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8.3 Progressive Reclamation Plan:

8.3.1. Mined-Out Land:

We are having 17 Pits in our lease area. Presently we are working in non forest area so we are taking up the program of reclamation and rehabilitation in this area only. Parts of old working pits are left for accumulation of rainwater to charge the water table of the local area. Reclamation plan is attached as Plate X.

8.3.2 Top Soil Management

There is no topsoil in the area as the deposit is on slope of hill.

8.3.3 Tailings Dam Management: The steps to be taken for protection and stability of tailing dam, stabilization of tailing material and its utilization, periodic desilting measures to prevent water pollution from tailings etc, arrangement for surplus water overflow along with detail

design, structural stability studies, the embankment seepage loss into the receiving environment and ground water contaminant if any may be described:

Not Applicable

8.3.4 Acid mine drainage, if any and its mitigative measures:

Not Applicable

8.3.5 Surface subsidence mitigation measures through backfilling of mine voids or by any other means and its monitoring mechanism. The information on protective measures for reclamation and rehabilitation works year wise may be provided as per the following table:

Table No. 26: The year wise information on protective measures for reclamation and rehabilitation works.

Items	Details	Proposed					Remarks
		2020-21	2021-22	2022-23	2023-24	2024-25	All passive dumps are reclaimed by plantation. Wherever density of plantation is less than 2500plant/ hect we will do further plantation on those dumps. Hence additional approximately 2 hect. area was proposed for complete reclamation & rehabilitation of dump area.
Dump management	Area afforested (ha)	2	2	2	2	2	
	No of saplings planted	5000	5000	5000	5000	5000	
	Cumulative no of plants	----------	----------	----------	----------	---------	
	Cost including watch and care during the year	-	---------	----------	----------	----------	
Management of worked out benches	Area available for rehabilitation (hect)	The mined out pits of lower series will be		-	-	The mined out pits of lower series will be partially	-

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		partially backfilled in P3.				backfilled in Utarana.	
	Afforestation done(ha)	Nil	Nil	Nil	Nil	Nil	
	No of saplings planted in the year	Nil	Nil	Nil	Nil	Nil	
	Cumulative no of plants	Nil	Nil	Nil	Nil	Nil	
	Any other method of rehabilitation (specify)	Nil	Nil	Nil	Nil	Nil	
	Cost including watch and care during the year	Nil	Nil	Nil	Nil	Nil	
Reclamation and Rehabilitation by backfilling	Void available for Backfilling pit wise	2.29 hect in P3 quarry				0.5 hect in Utarana	
	Void filled by waste/tailing	2.29 hect in P3 quarry	Nil	Nil	Nil	0.5 hect in Utarana	
	Afforestation on the backfilled area & nos. of plant	Nil	Nil	6 hect	Nil	Nil	
	Rehabilitation by making water reservoir	Nil	Nil	Nil	Nil	Nil	
	Any other means	Nil	Nil	Nil	Nil	Nil	

	(specify)						
Rehabilitation of waste land within lease	Area available (ha)						
	Area rehabilitated	8 hect	8 hect	8 hect	8 hect	8 hect	
	Method of rehabilitation & nos. of plant	Plantation 20000	Plantation 20000	Plantation 20000	Plantation 20000	Plantation 20000	
Others (specify)							

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8.4 Disaster Management and Risk Assessment: This may deal with action plan for high risk accidents like landslides, subsidence flood, inundation in underground mines, fire, seismic activities, tailing dam failure etc. And emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of lessee to meet such eventualities and the assistance to be required from the local authority may also be described:

Risk assessment exercise has been done to identify different hazards and associated risks in different activities. Both on-site and off–site emergency plans have been prepared for effective management of any unforeseen disaster. Fire-fighting equipment are regularly checked and kept in sound condition. The same practice will be followed in the plan period. Moreover the Risk assessment will be regularly reviewed and modified as per the requirement.

The top level of the lowest portion of excavation is above the HFL. Moreover garland drains are made all around the pit so as to avoid any inrush of water into the pit. Hence there is no chance of any flooding.

Table No. 27: Potential Hazards, Preventive and Emergency Measures.

Possible Emergency	Preventive measures	Emergency measures
Possibility of fire & explosion at the Mine Magazine	Storage and handling of explosive at the magazine is done in accordance with the provisions made under the Indian Explosives Act and Mines Act. No persons shall smoke and no fires, lights or articles or substances of flammable nature or liable to spontaneous ignition or to cause or communicate fire or explosion shall be allowed at any time within 15 m from magazine. A distance of 15 m surrounding the magazine shall be kept cleared of dried glass or bush or flammable materials. Fire extinguisher and sand buckets are provided near the mine magazine. Magazine has efficient lightening conductor	Inform immediately to control room Mines Manager. In case of fire and Explosive, evacuate personnel to a safe distance and no try should be made to extinguish the fire. The details regarding the accident should be communicated to the DGMS DMS and District authorities Debris will be removed and buried by digging a ditch.

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	whose resistance is tested quarterly by a qualified Electrical Engineer.	
Toppling of oil Tanker	Daily check up of condition of tyres and air pressure before starting Restricting the movement of tankers in the leveled area only Limiting the speed to 20 KM/Hr Suitable locking arrangements of the covers of the tanks.	Cordoned off the area to avoid any flammable material. Immediate communications of Mines Manager, HOD (security) safety in charge and Works Manager. Erecting tanker right in place by applying crane as early as possible to avoid diesel flow. Diesel soaked material will be scrapped properly and buried in a ditch
Collapse of benches inside mine.	Avoiding back break during blasting. Dozing out any back break before lifting of material. Providing suitable drainage to avoid water accumulation near the edge of benches. Visual monitoring and no deployment of men and machinery where any likelihood of collapse of benches are observed.	Withdrawal of men and machinery. Fencing the area to avoid any inadvertent entry. Immediate communication to Manager (Mines) and safety I/C. Removal of debris after collapse of benches
Flooding of Mines and neighboring villages	Proper maintenance of garland drainage surrounding mine before monsoon – Installation and maintenance of water pumps – Everyday monitoring of level of sumps and pump operation in: Construction of bund around active mining area	Stoppage of work in the mine – withdrawal of man and machinery from area suspected to be affected to a safe place – Round the clock working of all

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	Excavating sump of pit bottom Dewatering of pit as per requirement.	installed 2 pumps.150 HP Information to the district Authorities.
Possibility of catching fire at the mine & plant garage Maintenance – Lubricants storage and petrol / Diesel Dispensing Pump.	Fire extinguishers and sand buckets are provided at Lubricant storage and Petrol / Diesel Dispensing Pump.	
Derailment of Loco / rail wagons	A dedicated gang of 4 persons have been deployed for checking and maintenance of track. A separate gang for maintenance of loco and wagons at intermediate station (near bhumiaji) has been exclusively dedicated to avoid any untoward incidents	

Safety Officer : 1 No.

Safety Inspector: 1 No.

Emergency contact person name & nos.-

Mr. Baldev Singh- Head Security-8003195606

Dr. Ravindra Soni- Head OH&S-8003195594

8.5 Care and maintenance during temporary discontinuance: An emergency plan for implementation of temporary discontinuance due to court order or due to statutory requirements or any other unforeseen circumstances may indicate measures of care, maintenance and monitoring of status of discontinued mining operations expected to re-open in near future

We don't have any plan for temporary discontinuance. It may happen due to unforeseen circumstance which is beyond the control of the lessee. In the event of temporary discontinuance due to any unforeseen circumstances the following care would be taken:

1. All the approaches to the mine would be maintained in good working condition.
2. Any dangerous opening will be securely fenced.
3. Daily inspection of the temporarily discontinued by competent persons & officials would be carried out.

8.6 Financial Assurance:-

The amount calculated for the purpose of Financial Assurance is based on CCOM's Circular no. 4 dated 2006 as below.

Table No. 28: Financial assurance (Plate No.-IX)

Sr No	Items	Area put to use at start of Review of Mining Plan (hect)	Additional requirement during plan period (ha)	Total area (ha)	Area considered as fully reclaimed & rehabilitated (ha)	Net area considered for calculation (hect)
1	**Area under mining**	145	18	163	0	163
2	**Storage for top soil**	0	0	0	0	0
3	**Waste dump site**	42	10.4	52.4	0	52.4
4	**Mineral storage**	2.1	0	2.1	0	2.1
5	**Infrastructure – workshop, administrative building etc.**	30.2	0	30.2	0	30.2
6	**Roads**	11.5	0	11.5	0	11.5
7	**Railways**	22.94	0	22.94	0	22.94
8	**Tailing pond**	0	0	0	0	0
9	**Effluent Treatment Plant**	0	0	0	0	0
10	**Mineral Separation Plant**	1	0	1	0	1
11	**Township area**	36.0	0	36.0	0	36.0
12	**Others (Water reservoir)**	30.45	0.00	30.45	-	0
	Others (Back filling)	13.77	2.6	16.37	0	16.37
	Others (Green belt and plantation	11.5	24	35.5	-	0
	Grand Total	346.46	55	401.46	0	335.51

भारत सरकार-भारतीय खान ब्यूरो Govt.of India-Indian Bureau of Mines सत्यमेव जयते
अनुमोदित APPROVED

This Mining Plan has been approved vide
letter No. 564(4)(3)(1814)/2019 RCOM - AJM
Dt. 22.01.20 under MCDR 2017/MCR 2016

Calculation of Financial assurance to be paid for the area that shall be under use at the end of the Period is as follows:

Area put to use = 335.51 Hect

Financial assurance =335.51 x 3,00,000 =10,06,53,000 /-

Financial assurance =Rs.10,06,53,000/- (In words: Rupees Ten crores six lakhs and fifty three thousands only)

Bank guaranty deposited is attached as Annexure-14.

The details of BG is as follows:

1. Bank Guarantee No. 560GT01200030001, dt.03.01.2020, HDFC Kota branch HDFC Bank Ltd., Kotai-324005
   Amount of Bank Guarantee-Rs. 10,06,53,000/-
   Validity of Bank Guarantee- 01.04.2020 to 31.03.2025

22.1.20
क्षेत्रीय खान नियन्त्रक
Regional Controller of Mines
भारतीय खान ब्यूरो
Indian Bureau of Mines
अजमेर AJMER

अनुमोदित
APPROVED