Volume - I (Text)

MODIFIED MINING PLAN AND PROGRESSIVE MINE CLOSURE PLAN OF MANIKGARH CEMENT LIMESTONE MINES FOR EXTENDED LEASE PERIOD (AS PER NEW MMDR AMENDMENT ACT, 2015)

(CATEGORY "A" FULLY MAECHANISED MINE)

Under Rule 22 (6) of MCR, 1960 & 23(B)2 of MCDR 1988

PROPOSAL PERIOD: 2016-17 TO 2020-2021
LEASE PERIOD- UPTO 16.08.2031

VILLAGE - NAOKARI-KUSUMBI
TAHSIL - RAJURA
DISTRICT - CHANDRAPUR
STATE - MAHARASHTRA

LEASE AREA-302.58 HECTARES
(FOREST LAND: 238.96 HECT. & REVENUE LAND: 63.62 HECT.)

SUBMITTED TO COMPETENT AUTHORITY
INDIAN BUREAU OF MINES

APPLICANT
MANIKGARH CEMENT
(A Division of Century Textiles & Industries Ltd)
PO : GADCHANDUR
DIST.CHANDRAPUR (MS)
PIN : 442 908

PREPARED BY

A. SAXENA
REG.NO.RQP/NGP/523/2015/A
VALID UPTO 26.10.2025

R. K. UDGE
REG.NO.RQP/JBP/064/96/A
VALID UPTO 24.03.2020

Volume - I (Text)

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PROPOSAL PERIOD: 2016-17 TO 2020-2021
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VILLAGE - NAOKARI-KUSUMBI
TAHSIL - RAJURA
DISTRICT - CHANDRAPUR
STATE - MAHARASHTRA

LEASE AREA-302.58 HECTARES
(FOREST LAND: 238.96 HECT. & REVENUE LAND: 63.62 HECT.)

पत्र संख्या द्वारा
VIDE LATTER No. -CND/LST/MPLN-139/NGP-2016 dated 07.06.2016

SUBMITTED TO COMPETENT AUTHORITY
INDIAN BUREAU OF MINES

APPLICANT
MANIKGARH CEMENT
(A Division of Century Textiles & Industries Ltd)
PO : GADCHANDUR
DIST.CHANDRAPUR (MS)
PIN : 442 908

क्षेत्रीय खान नियंत्रक (ना. क्षे.)
Regional Controller of Mines (N. R.)
भारतीय खान ब्यूरो नागपुर
Indian Bureau of Mines, Nagpur

PREPARED BY

A. SAXENA
REG.NO.RQP/NGP/523/2015/A
VALID UPTO 26.10.2025

R. K. UDGE
REG.NO.RQP/JBP/064/96/A
VALID UPTO 24.03.2020

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(A Saxena)
RQP/NGP/523/2015/A

(R K Udge)
RQP/JBP/064/96/A

VOLUME : II
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(A SAXENA)
RQP/NGP/523/2015/A

(R K UDGE)
RQP/JBP/064/96/A

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RQP/JBP/064/96/A

CONSENT – LETTER

The **Modified Mining Plan and Progressive Mine Closure Plan** in respect of **Manikgarh Cement Limestone Mines**, area **302.58 Hectares** in village **Naokari and Kusumbi**, Tahsil **Rajura**, District **Chandrapur**, State **Maharashtra** has been prepared by the following Recognized Qualified Persons.

I request the Regional Controller of Mines to make further all the correspondence regarding modification in the above Mining Plan and Progressive Mine Closure Plan, with the said recognized persons in the following address :

A SAXENA
RQP/NGP/523/2015/A
Qtr No. C-1/5, Mines Colony
Manikgarh Cement
Gadchandur 442 908
Dist. Chandrapur
Maharashtra State

R K UDGE
RQP/JBP/064/96/A
Bunglow No.1,Mines Colony,
Manikgarh Cement
Gadchandur 442 908
Dist. Chandrapur
Maharashtra State

I hereby undertake that, all the modifications so made in the Mining Plan and Progressive Mine Closure Plan by the recognized persons to be deemed to have been with my consent and knowledge and shall be acceptable to me in all respect.

.....
(B.L.JAIN)
OWNER
Manikgarh Cement Limestone Mines
M/s Manikgarh Cement,
(A Division of Century Textiles & Industries Ltd)
Gadchandur

Place : Gadchandur
Date : 20.11.2015

Address of Works :
M/s Manikgarh Cement
PO : Gadchandur
Distt. : Chandrapur
Maharashtra – 442 908

.....
(A SAXENA)
RQP/NGP/523/2015/A
Designation : Sr Geologist
M/s Manikgarh Cement

.....
(R.K.UDGE)
RQP/JBP/064/96/A
Designation : Agent & Executive President (Mines)
M/s Manikgarh Cement

❄ ❄ ❄ ❄ ❄

CERTIFICATE

1. The Provisions of Mines Act, Rules and Regulations made thereunder have been observed in the **Modified Mining Plan** of **Manikgarh Cement Limestone Mines**, Area :**302.58 Hectares**, belonging to **M/s Manikgarh Cement (A Division of Century Textiles & Industries Ltd)** and wherever specific permissions are required, the applicant will approach the Director General of Mines Safety. Further standards prescribed by DGMS in respect of miners health will be strictly implemented.

2. In case of any violation pointed out in our mines by the Director General of Mines Safety, action will be taken to rectify them within the stipulated time period.

3. I also assure you that, every care will be taken to ensure existence of boundary pillars intact and maintained around the lease area.

.....
(B.L.JAIN)
OWNER
Manikgarh Cement Limestone Mines
M/s Manikgarh Cement,
(A Division of Century Textiles & Industries Ltd)
Gadchandur

Place : Gadchandur
Date : 20.11.2015

Address of Works :
M/s Manikgarh Cement
PO : Gadchandur
Distt. : Chandrapur
Maharashtra – 442 908

.....
(A SAXENA)
RQP/NGP/523/2015/A
Designation : Sr Geologist
M/s Manikgarh Cement

.....
(R.K.UDGE)
RQP/JBP/064/96/A
Designation : Agent & Executive President (Mines)
M/s Manikgarh Cement

❄ ❄ ❄ ❄ ❄

CERTIFICATE

1. Certified that the Modified Mining Plan and Progressive Mine Closure Plan has been prepared in accordance with the guidelines issued by Indian Bureau of Mines. The Modified Mining Plan and Progressive Mine Closure Plan will be subjected to change if necessary depending on the demand pattern of the mineral.

2. Certified that the provisions of Mines Acts, Rules and Regulations made there under have been observed in the Modified Mining Plan and Progressive Mine Closure Plan and wherever specific permissions are required the applicant will approach to the Director General of Mines Safety.

3. Certified that the provisions of Mineral Conservation and Development Rule 1988 have been observed in the Modified Mining Plan and Progressive Mine Closure Plan and wherever specific permissions are required, the applicant will approach to the concerned authorities of Indian Bureau of Mines for granting permission.

Place : Gadchandur
Date : 27.1.2016

(A Saxena)
RQP/NGP/523/2015/A

(R K UDGE)
RQP/JBP/064/96/A

❄ ❄ ❄ ❄ ❄

CERTIFICATE

Certified that the information furnished in the Modified Mining Plan for the extended period 2015-16 to 2021-21 and Progressive Mine Closure Plan are true to the best of my knowledge.

Place : Gadchandur
Date : 27.1.2016

(A Saxena)
RQP/NGP/523/2015/A

(R K UDGE)
RQP/JBP/064/96/A

❄ ❄ ❄ ❄ ❄

ACCEPTANCE LETTER

I, Rajendra K Udge do hereby accept the **Power of Attorney** delegated to me by Century Textiles and Industries Ltd pursuant to the Resolution of the Board of Directors of the Company passed on 26th Oct.2004 as its Attorney and conferring upon me various powers as stipulated in the Power of Attorney related to Manikgarh Cement.

(R K UDGE)
AGENT &
EXECUTIVE PRESIDENT (MINES)
Manikgarh Cement

INTRODUCTION

Manikgarh Cement Limestone Mines is a captive limestone mines of Manikgarh Cement Plant which is operated by M/s Century Textiles & Industries Limited at Gadchandur, dist. Chandrapur. The captive limestone mine is a mechanized opencast mine and is operational since 1986. The mine is located at a distance of about 8 Km from the Cement Plant. The crushed limestone from mines to Plant is transported by a 7.8 Km long parallel stream of bi-cable aerial ropeway & Pipe Conveyor. The limestone is used for its captive consumption for cement manufacturing.

The project site is about 58 kms away from the city of Chandrapur, which is the district head quarter. The site is well approachable by rail and road. The nearest township is Gadchandur (10 km). The nearest railway station is Ballarshah of Central railway, on Delhi-Chennai trunk route.

We have submitted 3rd Scheme of Mining in respect of our Manikgarh Cement Limestone Mines on 26/11/2015 for approval of the competent authority i.e., Indian Bureau of Mines, Nagpur Region, Nagpur, as required under Rule 12 (3) of MCDR,1988 along with Progressive Mine Closure Plan under Rule 23(B) 2 of MCDR; 1988, 120 days prior to expiry of existing mining scheme.

As per new MMDR Amendment Act, 2015 Section 8(A), Now we received a letter no MLV-329/2015/3534 dated 16 December 2015 with an order from Govt. of Maharashtra regarding Grant of Extension for the Mining Lease for Limestone hence we had withdrawn the earlier submitted document i.e., 3rd Scheme of Mining. Now we are hereby submitting Modified Mining Plan for the extended period of lease in respect of our Manikgarh Cement Limestone Mines for the period of next five years i.e. 2016-2017 to 2020-2021.

The detail of mining leases held by the company in various States of India is shown in the table below:-

(A SAXENA)
RQP/NGP/523/2015/A

(R K UDGE)
RQP/JBP/064/96/A

Existing Leases – Chattisgarh State

M/s Century Cement
Dist Raipur

Sl. No	Lease ref. No. & date	Location, village, tehsil,distt.	Area in Ha.	Minerals	Date of execution	Lease period	Remarks Working / non-working
1	5/1998, dt 29.07.1998	Bahesar & Tandwa	237.003	Lime-stone	13.06.2002	04.08.1999 to 03.08.2019	Working
2	8/1998, dt 31.10.1998	Bahesar & Tulsi	74.843	Lime-stone	30.09.2002	30.09.2002 to 29.09.2032	Working

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Existing Leases – Madhya Pradesh State

M/s Maihar Cement
Dist. Satna

Sl. No	Lease ref. No. & dt	Location, village, tehsil,distt.	Area in Ha.	Minerals	Date of execution	Lease period	Remarks Working / non-working
1	F-3-49/ 04/12/1 Dated 24.3.07	Bhadanpur North Patti & Moharwa	296.956	Lime-stone	12.6.2007	23.4.1995 To 22.4.2015	Working
2	F-3-37/ 95/12/2 Dated 03.8.02	Bhadanpur North Patti, Bhadanpur South Patti &Umrour.	217.681	Lime-stone	08.4.2002	22.6.1999 To 21.6.2019	Working
3	F-3-36/ 95/12/2 Dated 21.3.03	Bhadanpur North Patti, Bhadanpur South Patti Umrour, Piprahat	663.0	Lime-stone	15.12.2003	28.3.2002 To 27.3.2022	Working
4	F-3-148/ 99/12/2 Dated 3.1.02	Tiloura, Jurwa. Silouti Sirmilli	193.252	Lime-stone	28.3.2002	23.4.1995 To 22.4.2015	Working

Existing Leases – Maharashtra State

M/s Manikgarh Cement
Dist. Chandrapur

Sl. No	Lease ref. No. & dt	Location, village, tehsil,distt.	Area in Ha.	Minerals	Date of execution	Lease period	Remarks Working / non-working
1	MMR-2201/150 / IND-9 15.11.02	Village Naokari – Kusumbi PO:Gadchandur Dist.Chandrapur	302.58	Lime-stone	12.5.2003	17.8.2001 to 16.8.2021	Working Letter of grant of extension received
2	MMN-2283/52 674 (3444) IND-9 9.2.84	Village Visapur-Belampur PO:Gadchandur Dist.Chandrapur	41.58	Shale	12.5.1984	12.5.1984 to 11.5.2004	Non-Working (Applied for renewal on 28.9.2002)

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RQP/NGP/523/2015/A

(R K UDGE)
RQP/JBP/064/96/A

1.0 : GENERAL

a)	NAME OF APPLICANT	:	**MANIKGARH CEMENT** (A DIVISION OF CENTURY TEXTILE & INDUSTRIES LTD.)
	REGISTRATION NO. (RULE 45)	:	IBM/4952/2011
	ADDRESS	:	**HEAD OFFICE** CENTURY BHAVAN DR. ANNIE BESANT ROAD, WORLI 400030 DISTRICT - MUMBAI STATE - MAHARASHTRA **FOR ITS UNIT**:- **MANIKGARH CEMENT** PO: GADCHANDUR DIST: CHANDRAPUR STATE: MAHARASHTRA
	PHONES	:	HEAD OFFICE (022) 24309491 GADCHANDUR OFFICE (07173)246570,246840,246843 MINES OFFICE (07173)245092, 245039
	FAX	:	07173-246867 / 07173-245089
	E-MAIL NO.	:	udge@manikgarhcement.com
b)	STATUS OF APPLICANT/ LESSEE	:	A PUBLIC LIMITED COMPANY
c)	MINERAL(S) WHICH IS/ARE INCLUDED IN THE PROSPECTING LICENSE (FOR FRESH GRANT)	:	N.A.
d)	MINERAL(S) WHICH IS/ARE INCLUDED IN THE LETTER OF INTENT/LEASE DEED	:	LIMESTONE
e)	MINERAL(S) WHICH IS/ARE OCCURING IN THE AREA AND WHICH THE APPLICANT INTENDS TO MINE	:	LIMESTONE IS OCCURING IN THE AREA AND THE APPLICANT INTENDS TO MINE LIMESTONE FOR MANUFACTURING OF CEMENT FROM OWN CEMENT PLANT.

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RQP/NGP/523/2015/A

(R K UDGE)
RQP/JBP/064/96/A

f) NAME OF RECOGNISED PERSON : 1. R K UDGE

EXECUTIVE PRESIDENT(MINES)
MANIKGARH CEMENT
PO:GADCHANDUR
DIST:CHANDRAPUR
STATE:MAHARASHTRA
PIN:442908

PHONE NO. : *07173-245092(O)*
MOBILE NO. : 09422114562
MAIL ID:udge@manikgarhcement.com

RQP Registration No.

RQP/JBP/064/96/A
Date of Renewal :23.06.2010
Valid up to :24.03.2020

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2. A SAXENA

SR. GEOLOGIST
MANIKGARH CEMENT
PO:GADCHANDUR
DIST:CHANDRAPUR
STATE:MAHARASHTRA
PIN:442908

PHONE NO. : *07173-245092(O)*
MOBILE NO. : 08275748057
MAIL :asaxena@manikgarhcement.com

RQP Registration No.

RQP/NGP/523/2015/A
VALID UPTO 26.10.2025

(A SAXENA)
RQP/NGP/523/2015/A

(R K UDGE)
RQP/JBP/064/96/A

2.0 LOCATION AND ACCESIBILITY

a) Lease Details:-

Name of Mines : MANIKGARH CEMENT LIMESTONE MINES

Latitude/Longitude of any boundary point :

Boundary Pillar No.1

Longitude	79°08'26"
Latitude	19°39'05"

Date of grant of lease : The original grant of Mining lease -17.08.1981 further this lease has been renewed up to 16.08.2021. Now as per new Mines & Mineral (Development & Regulation) Amendment Act effective from 12th Jan., 2015, the lease period extended up to 16.8.2031.The Govt. of Maharashtra lease extension letter No MLV-C-329/2015/3534 dt 16.12.2015 with an order is enclosed as Annexure No 21.

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Name of lease holder MANIKGARH CEMENT
(A DIVISION OF CENTURY TEXTILE & INDUSTRIES LTD)

Postal Address PO: Gadchandur
DIST: Chandrapur
STATE: Maharashtra
442908

PHONES Gadchandur office (07173)246570,246840/43
Mines Office (07173) 245092,

FAX 07173-246867 / 07173-245089

E-MAIL ID. udge@manikgarhcement.com

b) Details of Lease Area:-

Lease Area Total Lease Area 302.58 (Hect.)

Forest (Hect)		Non-Forest (Hect)	
Reserve Forest	238.96	i-Waste land	-
		ii- Grazing land	-
		iii-Agri.Land	63.62
		iv-Other	-

Mine Working Area 264.00(Hect.)

Forest		Non-Forest	
Reserve Forest	238.96 (Hect)	Revenue Land	25.04 (Hect.)

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Toposheet No. 56 M/2

All Corner Boundary Point/Pillars

As per Indian Bureau of Mines Circular No.2/2010 dated 06/04/2010, we have complied and completed DGPS Survey by the agency authorized by Government of Maharashtra and attached as Plate No.3B.

All corner boundary pillars are as follows:-

S.N	BOUNDRY PILLAR NO.	LATITUDE.	LONGITUDE
1	BP NO. 01	19°39'05"	79°08'26"
2	BP NO. 13	19°39'06"	79°09'11"
3	BP NO. 17	19°39'15"	79°09'05"
4	BP NO. 18	19°39'18"	79°09'11"
5	BP NO. 22	19°39'07"	79°09'18"
6	BP NO. 25	19°39'07"	79°09'24"
7	BP NO. 31	19°38'53"	79°09'37"
8	BP NO. 43	19°39'04"	79°09'59"
9	BP NO. 71	19°38'19"	79°09'25"
10	BP NO. 86	19°38'08"	79°08'42"
11	BP NO. 97	19°38'44"	79°08'49"

Existence of Public Road/Railway line

The Mine has good approachability being well connected by road. A 12 km long tar and part Murum feeder road connect the Mines via Cement Plant with Gadchandur village on the Rajura- Adilabad road. Gadchandur is 22 KM from Rajura.Rajura is located on the Nagpur-Chandrapur –Asifabad State Highway. The Mine is located 62KM from chandrapur and 218 KM from Nagpur.

The nearby railway station is Ballarshah, which is located on Delhi – Chennai, Delhi – Trivandrum and Delhi – Hyderabad broad gauge railway.

c) General location map showing area and access route

Attached Survey of India Topographical Map as plate no.2.

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3.0 DETAILS OF APPROVED MINING PLAN/SCHEME OF MINING

3.1 Date and reference of approved Scheme of Mining

MANIKGARH CEMENT
PO: GADCHANDUR 442 908
DIST: CHANDRAPUR
STATE: MAHARASHTRA

The 2nd Scheme of Mining along with Progressive Mine Closure Plan was approved by IBM vide letter no. 314(3)/2010-MCCM (CZ)/MS-59 dated 21.07.2011 for the period 2011-12 to 2015-16 under Rule 12(3) of MCDR, 1988 along with progressive mine closure plan under rule 23 (B) 2 of MCDR 1988.

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3.2 Details of last Modifications

No modification was suggested or done during the period of 2nd Scheme of Mining for the period of 2011-12 to 2015-16.

Earlier modifications in respective Mining Plans/Schemes of Mining are as follows:-

The Mining Plan in respect of captive Limestone Mines of M/s Manikgarh Cement (A Division of Century Textiles & Industries Ltd) for the period 2001-2002 to 2005-2006 was approved by Indian Bureau of Mines vide letter no. 314(3)/99/MCCM(C)/MP-13 Dated 26.05.2000.

However, the aforesaid Mining Plan was modified subject to incorporate mining activity below 303 MSL for rest of the period i.e.2003-2004 to 2005-2006 and the same was approved by Indian Bureau of Mines vide letter no. 314(3)/99/MCCM(C)/MP-13 Dated 21.11.2002.

The first Scheme of Mining submitted for the period 2006-2007 to 2010-2011 was approved by Indian Bureau of Mines vide letter no. 314(3)/2005-MCCM (CZ)/S-17 Dated 05.05.2006.

Meanwhile, consequent upon to incorporate the proposed Cement Plant capacity expansion of our Manikgarh Cement Plant from July 2009 onward, the aforesaid Scheme of Mining was genuinely modified for rest of the period i.e. from 2007-08 to 2010-11 and accordingly, the Modified Scheme of Mining was submitted to Indian Bureau of Mines for approval. The Indian Bureau of Mines had in turn, approved our Modified Scheme of Mining vide letter no. 314(3)/2006-MCCM/ (CZ)/S-16 Dated 02.02.2007.

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The Second modification was approved by Indian Bureau of Mines vide letter no. 314(3)/2008-MCCM/CZ/MS/PMCP-10 Dated 23.09.2008 for a balance period 2008-09 to 2010-11. This Modification was carried out because at the time of submission of first modification overburden handling from F block was not proposed as development. But then it was felt that for systematic development of F block, the overburden has to be removed during the remaining three years period of this Scheme of Mining.

3.3 Review of earlier approved Scheme of Mining for the period of 2011-12 to 2015-16:-

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3.3.1 Exploration:-

As per the previous approved Scheme of Mining, it was proposed to carry out the detail prospecting work in block E & F to prove the limestone reserves below 303 MRL up to the depth of 253 MRL.

The proposal of exploration and actual exploration carried out are as follows:

Proposed exploration	Actual exploration
Total No. of bore holes - 22 Nos	Total 28 bore hole drilled in E & F Block at the spacing of 100x100 Mtrs.
Total 2000 Mtrs of core drilling was proposed in first and second year of Scheme of Mining 2011-12 - 1000 Mtrs 2012-13 – 1000 Mtrs	Total drilling - 2282.6 Mtrs The entire core drilling work completed in the financial year 2011-2012.

The exploration cost incurred for these bore holes was Rs. 25, 81,400.00. While all other expenses like mobilization of team with all drilling equipments, lodging, boarding, shifting of rigs, supply of water and all other ancillary expenses born additionally by the Manikgarh Cement.

The detailed summary of exploration carried out during the Scheme of Mining i.e. 2011-12 to 2015-16 is given in Part A of this Modified Mining Plan.

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3.3.2 Excavation:

3.3.2.1 - Limestone:

As envisaged in the approved Scheme of Mining, exploitation of limestone was carried out by adopting conventional method of drilling and blasting with the combination of hydraulic excavator and dumpers. The table indicates actual production v/s planned production:-

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YEAR	PLANNED TONNAGE (Lac Tone)					ACTUAL TONNAGE(Lac Tone)				
	A Block	B & C Block	E Block	F Block	**Total**	A Block	B & C Block	E Block	F Block	**Total**
2011-12	5.00	9.50	4.50	5.45	**25.05**	0.93	9.45	5.38	2.91	**18.67**
2012-13	6.00	11.45	6.00	6.00	**30.05**	0.74	9.56	4.53	3.41	**18.24**
2013-14	11.00	21.40	11.00	11.00	**55.00**	0.19	10.02	5.56	2.84	**18.61**
2014-15	11.00	21.40	11.00	11.00	**55.00**	2.40	16.19	8.38	2.00	**28.97**
2015-16	11.00	21.40	11.00	11.00	**55.00**	3.51	7.08	7.17	2.49	**20.25**
						*5.0	*10.02	*6.25	*6.24	***27.51**
TOTAL	**44.00**	**85.15**	**43.50**	**44.45**	**220.1**	**12.77**	**62.32**	**37.27**	**19.89**	**132.25**

*The expected block-wise raising of limestone during remaining six month of current scheme of mining since the survey for the new modified mining plan is done on first October onward.

Deviation:-

It can be observed from the above table that during all five years the actual limestone production is less than the planned production.

Justification:-

It is evident from the above table that in all five years the actual production is lesser than the planned production just because of the commissioning delay of Manikgarh Cement unit II, as the unit II started its production from September 2014.This current year the production is lesser than planned because of our 7.8 KM long transporting system, Pipe-Conveyor is running in trial phase and having alignment problem in panels of gantries and rollers.

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3.3.2.2 - Over Burden:-

As planned overburden was handled from B, C, E & F Blocks. Deviation in mine development for the period 2011-12 to 2015-16 is stated below:

Year	Planned Quantity (+MT)	Actual Quantity handled (MT)
2011-12	580000	573345
2012-13	350000	279798
2013-14	0	49719
2014-15	0	0
2015-16	0	0
Total	930000	902862

Deviation:

It is observed that proposed over burden were restricted only in first two years of Scheme of Mining while in actual the handling of over burden was continue in third year.

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Justification:

In year 2012-13 the heavy rainfall was occurred in Chandrapur Region (about 1671mm), because of this the removal of overburden restricted than the planed quantity and it continued partially in third year of the Scheme of Mining.

3.3.2.3 – Handling of Sub grade:

The low grade mineral helps in mineral resource conservation. In the previous Scheme of Mining it was proposed to utilize 3.00 lakh tons of sub grade mineral which were stack in old low grade limestone dumps. The blending of all other excavated low grade limestone during limestone production was also proposed in the previous Scheme of Mining.

All dumped sub grade 3.00 lakh tons were utilize during last five years i.e., 2011-12 to 2015-16. All other low grade limestone which was generated during the limestone production has been 100% blended and no rejects were generated during said period.

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3.3.3 - Reclamation:-

Since none of the mine faces attains maturity limit during the period of pervious Scheme of Mines hence no reclamation activity has been done.

Although no land reclamation work has been done during the period of previous Scheme of Mines while almost all the waste dump has been rehabilitated by massive afforestation work during the last 5 years.

Details of planned and actual position of afforestation for the period of 2011-12 to 2015-16 are as follows:

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Year	No. of trees proposed	No.of trees planted (inside the lease area)
2011-2012	2500	3180
2012-2013	2500	2712
2013-2014	2500	2910
2014-2015	2500	2625
2015-2016	2500	2682

3.4 Status of Compliances of violation pointed out by IBM

No violation pointed out during the last Scheme of Mining (2011-12 to 2015-16)

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

No such order has been issued by any authority or agency.

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

As per new MMDR Amendment Act, 2015 Section 8(A), we received a letter no MLV-329/2015/3534 dated 16 December 2015 with an order from Govt. of Maharashtra regarding Grant of Extension for the Mining Lease for Limestone hence we are hereby submitting Modified Mining Plan for the extended period of lease in respect of our Manikgarh Cement Limestone Mines for approval of the competent authority i.e., the Indian Bureau of Mines, Nagpur Region, Nagpur, as required under Rule 22 of MCR 1960, 23(B) 2 of MCDR, 1988 & the MMDR Amendment Act 2015, covering the production and development for the period of next five years i.e. 2016-2017 to 2020-2021.

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PART -A

1.0 GEOLOGY AND EXPLORATION

a) TOPOGRAPHY, DRAINAGE PATTERN,VEGETATION,CLIMATE AND RAIN FALL DATA :-

The Area is marked by rugged topography conspicuous by a lower undulating limestone scraps and controlled by the Northernly flowing nala (locally known as Amal Nala) passing through the central part. The ground on either side of the nala rises gently for some distance and then abruptly becomes steeper with exposures of Deccan trap ultimately forming plateau, such plateau are seen all sides except to the North.

The area is traversed by the Northerly flowing Amal Nala. It has locally carved gorges with near vertical precipices of limestone. The nala water flow is generally continuous for nearly 6 to 7 months, with some trickle of water during the summer months. The water table in the area is ranges from 4 m. to 10 m. from surface. The highest and lowest R.L. in the Nala is 312.1 m. and 293.3 m. respectively located to the South and North. General drainage pattern of the area is Dendritic pattern.

The over burden is spears and superficial and yet there is a thick forest growth consisting of Bamboo, Khair, Tendu, Palas and numerous varieties of thorny bushes.

The climate of this area is hot and humid. The temperature in summer is very high up to 49°C in winter it is fairly cold up to 10°C. Monsoon season prevails between June to September with an average rainfall of about 1000 mm. The year-wise rainfall data is given in chapter "Mines Drainage".

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b)REGIONAL GEOLOGY:-

The Limestone deposits occurring in Chandrapur and Yavatmal District of Maharashtra and Adilabad District of Andhra Pradesh are known as Penganga beds belonging to the Precambrian Age. Limestone and the underlying Shale extend roughly in North West – South East direction of Wardha River. These beds have not undergone any major structural deformation and have been correlated as unaltered and undisturbed bed equivalents of "Pakhal Series" of the Godavari Valley.

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However the inter-relation between the limestone deposits occurring in Chandrapur and Yavatmal districts namely Bhimkund-Chanakha, Rajur-Sindola, Awarpur-Bakardi, Chandur-Tutra-Sonapur, Naokari-Kusumbi, Chedavi, etc are not clear. Some of the deposits (for example Sindola deposit) have been affected by considerable structural disturbance. While Naokari-Kusumbi shows hardly any structural deformation.

After the deposition of shale and limestone there was a hiatus until Cretaceous–Eocene period. When extrusion of volcanic lava poured out through fissures and vents covering a large tract of land including the area of Manikgarh Cement Limestone Mines. This lava known as Deccan Trap, once occupied vast expanse of land in this region.

Due to erosional activity, the trap is confined to higher altitudes of number of hills, while limestone and shale are exposed at lower elevations. The Deccan Trap has been subjected to extensive lateritation in the recent ages.

The Area forms part of the region covers by limestone and purple shale of Penganga Series of late Pre-Cambrian age and Deccan Basat of Cretaceous age. The Sedimentary shows very low dips and have not undergone any structural deformity. The shale and limestone are unconformably overlain by horizontal basalt flows.

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c) GEOLOGY OF THE LEASE AREA

LOCAL GEOLOGICAL SUCCESSION

The Naokari – Kusumbi area mainly comprises of Deccan Trap belonging to the upper Cretaceous - Eocene age and the limestone is belonging to Precambrian age. The limestone and purple Shale are overlain by Deccan Trap. The stratigraphic sequence found in this area is as follows:-

Age	Formation	Rock Type
Recent to Sub-recent	Alluvial-Black-Cotton soil	Sandy Clay, Silty Soil.
Cretaceous	Deccan Trap	Basalt-Weathered, Vesicular and Massive
Precambrian	Penganga	Flaggy and Massive Limestone of different colour

Two types of limestone have been deciphered in the area based on chemical analysis viz. high silica limestone and cement grade limestone. The siliceous limestone is exposed in the Northern flings of the area. It is light gray to faintly bluish in colour, hard compact rock with distinctive sub-conchoidal fracture.

The cement grade limestone is extremely fine grained, homogenous medium to hard rock showing variety of colours from light gray to dark gray. The limestone strike in a general NW-SE direction with 0 to 5° South Westernly dips. Locally beds are horizontal usually three sets of joints are noticed.

No toxic element is reported in the various rocks present in the area.

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d) Name of Prospecting / exploration Agency

The data of exploration agencies with their name and other details are furnished here under:

S N	Name of prospecting/ Exploration agency	Address	E-mail, Phone no. and other detail
1	M/s G.S.I. Year 1965-68	GSI Complex, Seminary Hills, Nagpur-440006. Maharashtra	0712-2511673 www.portal.gsi.gov.in
2	M/s D.G.M., Maharashtra 1970-71 & 1973-74	"Khanij Bhawan", Plot No.27,Shivaji Nagar, Cement Road Nagpur : - 440 010	0712-2220750 diregeomin@sancharnet.in
3	M/s D.G.M., Maharashtra 1974-76	"Khanij Bhawan", Plot No.27,Shivaji Nagar, Cement Road Nagpur : - 440 010	0712-2220750 diregeomin@sancharnet.in
4	M/s A.C.C. 1981-82	Cement House, 121,Maharshi Karve Road, Mumbai 400 020	022-66654321 022-6637440 (Fax) www.acclimited.com
5	M/s M.B. BHADURI & Co. 1993-94	68,Motilal Nehru Nagar Bhilai (CG)	-
6	M/S Synergy Geo-Tech 2007-08	51,Panchdeep Nagar Wardha Road Nagpur-440025	0712-2289322 cds_gtindia@yahoo.com
7	M/s Tappan Kumar Bid 2011-12	Swami Apartments, Plot no.9,Ramkrishna Nagar, Nagpur-440025	0712-2284030 09422457898

e) Details of Prospecting /Exploration already carried out :

Summary of all exploration work carried out in the past is given hereunder in chronological order.

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SR. NO	AGENCY	PERIOD	INVESTIGATION		RESULTS
1	M/s G.S.I.	1965-68	I-Large scale geological mapping 1:3000 scale	7.55 Sq.KM	Proving of 292 mill. tones of cement grade, 31mill.tonnes of flux grade and 12 mill. tones of argillaceous limestone reserves (above 300 MRL)
2	M/s D.G.M. Maharashtra	1970-71 1973-74	I-Mapping revised II- Drilling (Northern Part) 140x140 Grid	2.4 Sq.KM 27 Bore Holes 2249.82	Demarcation of high Silica (+15%) and low Silica (-15%) limestone 63.68 Mill. tones of cement grade limestone in Northern part of the lease (up to300MRL)
3	M/s D.G.M. Maharashtra	1974-76	I-Mapping II- Drilling (Southern Part) 140x140 M Grid Pattern	1.5 Sq.KM 22 Bore holes 2101M	74.63 Mill. Tones Cement Grade limestone in southern part up to 300 MRL अनुमोदित APPROVED
4	A.C.C. Mumbai Consultant on behalf of leasee	1981-82	I-Mapping II- Drilling A, B & C Blocks of mines	75 Ha 1601M 32 bore hole	60.98 Mill. tones Cement Grade limestone reserves of all categories up to 283 MRL in the area of 62 Ha.
5	M/s M.B. BHADURI & Co., Bhilai	1993-94	Revaluation of previous core drilling date & infilling of DGM & ACC bore holes 'C' block, 'D' block & 'E' Block and complete prospecting of 'F' block	81 Ha. 723 M 24 bore hole	27.81 Mill. Tones of Possible reserve confirm as proved reserve of F, C, & E block.
6	M/S Synergy Geo Tech., Nagpur	2007-08	Grid interval 150*150	44 bore holes	A,B & C Blocks about 2700 mtrs core drilling is performed in order to confirm about 43.80 million tons of limestone reserves below 303 MRL.
7	M/s Tappan Kumar Bid NAGPUR	2011-12	2282.60 M. Grid interval 100*100	28 bore holes	E & F blocks the total cost incurred **Rs.25, 81,400.00**

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i) **Numbers of pits and trenches :**

No pits or tranches excavated for prospecting/ exploration purpose.

ii) **Numbers of boreholes indicating type, diameter, spacing, inclination, Collar level, depth etc with standard borehole logs duly marking on geological plan/section.**

Total 28 Numbers of bore holes drilled during the period i.e., 2011-12 to 2015-16 (previous Scheme of Mining). The drilling was carried out using double tube core barrel with NX size diamond bit. The diameter of core was 56 mm. The total drilling was 2282.60mtrs.

The summary of exploration is given below and the detail exploration report is enclosed as Annexure no.12 (II):-

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SUMMARY EXPLORATION

S.N	Hole ID	X	Y	Z	Depth
1	F1-T	306860	2173510	312.6	109.6
2	F2-T	307011	2173489	321.5	68.5
3	F3-T	306864	2173361	333.0	80.0
4	F4-T	307014	2173364	351.0	98.0
5	F5-T	307164	2173388	342.1	89.1
6	F6-T	307312	2173400	345.0	92.0
7	F7-T	306717	2173208	307.0	54.0
8	F8-T	306866	2173211	324.1	71.1
9	F9-T	307017	2173215	353.0	95.1
10	F10-T	307168	2173220	363.1	110.1
11	F11-T	306722	2173057	310.0	57.0
12	F12-T	306870	2173112	333.1	80.1
13	F13-T	307021	2173065	348.1	95.1
14	E1-T	306726	2172906	325.1	122.1
15	E2-T	306875	2172910	333.1	80.1
16	E3-T	306579	2172756	336.1	83.1
17	E4-T	306730	2172757	333.1	80.1
18	E5-T	306878	2172811	350.0	12.5
19	E5.1-T	306833	2172800	342.0	92.0
20	E6-T	306734	2172607	348.1	95.1
21	A18-T	306243	2173842	322.0	119.0
22	OTC19-T	305761	2173563	322.0	119.0
23	BCS20-T	305814	2172376	316.0	113.0
24	B32.1-T	306178	2173074	306.0	53.0
25	B30.1-T	306376	2173182	305.0	52.0
26	B26.1-T	306471	2173284	304.0	51.0
27	B22.1-T	306482	2173400	303.0	50.0
28	SS1-T	306058	2172871	314.0	61.0

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iii) Total 2250 samples were drawn from all 28 boreholes. These samples were chemically analyzed at Manikgarh Cement's laboratory. The core drilling details and test results are enclosed as an Annexure 12 (II).

iv) The exploration cost incurred for these bore holes was Rs. 25,81,400.00. While all other expenses like mobilization of team with all drilling equipments, lodging, boarding, shifting of rigs, supply of water and all other ancillary expenses born additionally by the Manikgarh Cement.

f) Surface Plan of the lease area

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The Surface Plan is enclosed as Plate No. 4.

g) The geological plan along with the other features indicated under Rule28(1)(a)of MCDR 1988.

The Surface Geological Plan is enclosed as Plate No. 5.

h) The geological section

The Geological Sections are enclosed as Plate No. 6A to 6C.

i) <u>Future program of exploration</u>:-

The entire mining lease area fully explored by the Manikgarh Cement hence no future exploration program is proposed.

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j) Mineral Reserves and resources as per UNFC:-

Category wise update Reserves with grade
Limestone Reserves Up to MRL 253 as on 31.03.2016

Block	Bench RL in Meters above MSL	Reserves			Grade of Reserves	
		Under UNFC Category (331) (A+B)	Under UNFC Category (111) (A)	Under UNFC Category (211) (A+B)	Avg. CaO%	Avg. SiO2%
A	352-342 I	0.11	0.04	0.07	48.6	10.69
	342-332 II	0.41	0.32	0.09	48.4	10.87
	332-322 III	1.07	0.96	0.11	48.0	10.94
	322-312 IV	1.64	1.51	0.13	47.6	11.60
	312-303 V	1.43	1.24	0.19	47.5	11.88
	303-293 VI	1.21	1.12	0.09	47.0	12.49
	293-283 VII	0.49	0.38	0.11	46.8	12.79
	283-273 VIII	0.18	0.05	0.13	46.6	13.10
	273-263 XI	0.16	0.01	0.15	47.9	14.09
	263-253 X	0.17	0.00	0.17	-	-
SubTotal		**6.87**	**5.63**	**1.24**		
B	352-342 I	0.07	0.07	0	46.2	12.21
	342-332 II	0.51	0.51	0	46.4	11.43
	332-322 III	1.46	1.29	0.17	47.7	10.17
	322-312 IV	3.49	2.98	0.51	48.3	10.13
	312-303 V	5.27	4.70	0.57	48.0	10.73
	303-293 VI	8.23	7.15	1.08	47.7	11.37
	293-283 VII	8.98	7.88	1.10	47.4	12.14
	283-273 VIII	7.70	6.57	1.13	47.0	12.77
	273-263 XI	5.25	4.06	1.19	46.7	13.34
	263-253 X	3.55	2.28	1.27	46.5	13.73
SubTotal		**44.51**	**37.49**	**7.02**		
C	352-342 I	0.00	0.00	0.00	-	-
	342-332 II	0.06	0.05	0.01	46.1	
	332-322 III	0.38	0.37	0.01	46.1	
	322-312 IV	1.48	1.37	0.11	46.3-36.0	11.65-17.0
	312-303 V	3.30	3.10	0.20	47.18	11.0
	303-293 VI	4.42	4.19	0.23	47.9	10.55
	293-283 VII	3.63	3.36	0.27	48.2	10.63
	283-273 VIII	2.89	2.58	0.31	47.9	11.24
	273-263 XI	2.49	2.14	0.35	47.5	11.88
	263-253 X	2.00	1.63	0.37	47.3	12.26
SubTotal		**20.65**	**18.79**	**1.86**		

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Block	Bench RL in Meters above MSL	Reserves			Grade of Reserves	
		Under UNFC Category (331) (A+B)	Under UNFC Category (111) (A)	Under UNFC Category (211) (A+B)	Avg. CaO%	Avg. SiO2%
D	352-342 I	-	-	0.00	-	-
	342-332 II	-	-	0.00	-	-
	332-322 III	-	-	0.09	34.0-43.0	16.5-31.0
	322-312 IV	-	-	0.20	44.1	15.6
	312-303 V	-	-	0.90	38.4	24.0
SubTotal		**-**	**-**	**1.19**		
E	352-342 I	0.20	0.15	0.05	46.5	12.68
	342-332 II	0.51	0.44	0.07	47.3	11.25
	332-322 III	1.26	1.17	0.09	48.2	10.10
	322-312 IV	1.67	1.56	0.11	48.4	10.05
	312-303 V	2.27	2.07	0.20	47.7	11.04
	303-293 VI	2.32	2.26	0.06	47.2	11.84
	293-283 VII	2.07	2.01	0.06	46.9	12.09
	283-273 VIII	1.39	1.33	0.06	46.4	12.85
	273-263 XI	0.48	0.43	0.05	46.1	13.52
	263-253 X	0.10	0.05	0.05	46.2	13.74
SubTotal		**12.26**	**11.47**	**0.80**		
F	352-342 I	1.05	1.00	0.05	48.4	10.46
	342-332 II	2.11	2.04	0.07	48.4	10.08
	332-322 III	3.07	2.98	0.09	48.3	10.83
	322-312 IV	4.29	4.16	0.13	47.5	11.72
	312-303 V	5.13	4.94	0.19	47.0	12.15
	303-293 VI	4.51	4.41	0.10	46.7	12.65
	293-283 VII	2.32	2.22	0.10	46.4	13.05
	283-273 VIII	0.83	0.74	0.09	46.1	13.63
	273-263 XI	0.21	0.12	0.09	45.7	14.31
	263-253 X	0.08	0.00	0.08	45.9	1465
SubTotal		**23.60**	**22.61**	**0.99**		
Grand Total		**107.89**	**95.99**	**13.10**		

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Limestone Reserves (Blocked Under Statutory Requirement)

Beside **13.10** Million Tone under UNFC category 211, The Limestone Reserves has been Blocked (either side of nala and other statutory norms) Between MRL 303.00 and MRL 253.00 and UPD under UNFC classification **211- 38.95 Million Ton.** Thus total mineral reserves under UNFC classification **211** is **13.10+38.95=52.05** Million tonnes.

Reserve Assessment

Area assessment has been made for the available reserves of limestone. Based on the core drilling density and the data available with already completed exploration programme, a pit is made considering disposition of lithological contact and lease limit.

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The following methodology has been adopted for re-assessment of the reserves and quality of the limestone:-

- Mine survey as on 01.10.2015 has formed basis of all computation.
- The exploration program has already completed. The exploratory holes are considered along with earlier data. The entire area is covered with 100x100 Mtr spacing.
- Based on the drilling data existing geological plan and sections were updated on 1:2000 scale.
- In this Mining Lease area, mineral reserves are assessed up to 253 MRL considering the mineability of the deposit.
- For limestone the tonnage conversion factor is 2.5 Ton/ M^3.
- Bench wise limestone reserves estimates have been calculated for the entire lease based on the exploration undertaken and configuration for the mineral bodies more or less well established.

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Justification under UNFC Classification

The UNFC (United Nation Framework Classification) system of mineral resources consists of three axis system.

I) Economic viability;

II) Feasibility; and

III) Geological assessment.

I) Economic viability

A detailed exploration has been carried-out in the lease area with systematic approach of topographic survey, geological mapping, core drilling and sampling for quality test. Geological cross sections were drawn across Strike at 100 Mtr intervals over all for proving the reserves. The deposit of this belt falls under simple category with inherent quality variation of limestone. This fact has been experienced in the opened up area of the mining lease

Manikgarh Cement enjoys market credibility in the region and it is meeting the demand of the market segment. As such no threats are envisaged. There is a forest and revenue private land in the mining area and has been procured. The majority of recourses in the area fall under proved categories.

The kind of growth being experienced in the country at present and also projected for near future, cement is going to be much in demand for various infrastructural and industrial housing developments works etc. moreover, the entire infrastructure and other support facilities already exist for ensuring economic mining of limestone from the mines. The feasibility study has been carried out, which has augmented proved reserve (E1) as per UNFC.

Manikgarh Cement is a unit of Century Textiles & Industries Ltd. Its economic viability depends on condition and the financial health of the holding company. The market projections for the Manikgarh Cement are on an increasing trend.

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Taking into consideration, the optimistic market forecast and the financial condition of the company, the mining activities are expected to the economically visible to meet the requirements of the Manikgarh Cement Plant. The cash flow analysis for Manikgarh Cement is described in detail in the Feasibility Study enclosed as annexure no-22.

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II) Feasibility

M/s Manikgargh Cement operates cement plant at Village Gadchandur. All the statuary clearance including pollution and environment has already been obtained for mine and plant capacity. Based on the detailed exploration carried out by different agencies, this Mining Plan has been designed. Keeping in the view of the existing plant requirement, the areas have been selected for the mining with due consideration to various parameters of the deposit for the economic exploration. The equipments selected to match the desired mode of operation through drilling and blasting techniques.

The available infrastructure meets the desire requirement of manufacturing cement unit. The company is already working in this area from last 30 years and the details of operating and capital cost are within the norms of cement manufacture and the cost parameters will be well within the economic reach.

The cement sector is expected to witness production and consumption growth of 7 to 10 % during the coming years for more than the envisaged economic growth. Future drivers of cement demand growth in India would be increased spending on infrastructure projects by the Government and affordable housing by Government and private agencies.

M/s Manikgargh Cement enjoys brand leader status in cement sector and with 100% and more capacity utilization there will be an increase in production over coming years as per the market demand in the region. Hence as per UNFC standards, feasibility cum mining report has already carried out for measured mineral resources.

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III) Geological assessment:-

In order to understand the local geology of the mining blocks and assess the resources, exploration by means of geological mapping, pitting, drilling, sampling and chemical analysis was carried out by various agencies during the time span dating back to nineties. The summery of all exploration work carried out is already given in page no22.

Exploratory drilling was carried was carried out in the form of diamond core drilling at the spacing of 100X100 Mtrs. All the samples generated through various stages of exploration qualify the material in to a particular class. All the exploration work has completed up to 253 MRL and all the limestone reserve is calculated under G1 of geological axis for proven category.

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Summary of Limestone Reserves & Resources Estimation Under UNFC Category as on 31.03.2016

		Code	Qty (Million Tons)
	Total Mineral Resources (A+B)		**148.04**
A	1- Proved Mineral Reserves	111	**95.99**
	2- Probable Mineral Reserves	121 & 122	-
B	Remaining Resources		
	1- Feasibility Mineral Resources	211	**52.05**
	2- Prefeasibility Mineral Resources	221 & 222	-
	3-MeasuredMineral Resources	331	-
	4- Indicated Mineral Resources	332	-
	5- Inferred Mineral Resources	333	-
	6- Reconnaissance Mineral Resources	334	-

ANTICIPATED LIFE OF MINE

The raw material requirement of the cement plant and as per the reserve position as on 31.3.2016, the present lease area will be suffice to supply the limestone to captive Plant for about 17 years

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2.0 MINING

A - OPEN CAST MINING

a) Existing as well as proposed methods of excavation:-

The Manikgarh Cement Plant is situated at village Gadchandur for which the present deposit/ Mine is serving as a captive mines. Presently, the requirement of limestone for cement clinkerization is about 5.55 million tons per annum i.e. about 18500 MT/Day (considering 6 day mining operation in a week). Two crushers are installed for crushing the limestone, old crusher's crushing capacity is 1000 Ton/hr while new one installed with crushing capacity of 1200 Ton/hr.

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Existing Mining method:

Various opencast mining operations are fully mechanized. The mine is provided with adequate number of equipment to efficiently cope up with the production demand.

The blast holes are being drill by hydraulic drills, the drilled holes are then blasted by slurry and site mixed ANFO mixtures. Blasted material is then to be loaded into dumpers by hydraulic excavators for transportation up to crusher. The crushing is to be done with the help of impact type crusher from where it is further be transported to factory site with the help of convenient transport system i.e., Pipe conveyor and ropeway.

(A SAXENA)
RQP/NGP/523/2015/A

(R K UDGE)
RQP/JBP/064/96/A

Proposed Mining Method

There are no changes in the method of Mining over the existing mining method planned during the earlier Scheme of Mines and this Modified Mining Plan (2016-17 to 2020-21).

b) YEAR –WISE TENTATIVE EXCAVATION (IN M^3) :

Year –wise tentative excavation of limestone, overburden, and waste in details are described in the following paragraphs.

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YEAR-WISE DEVELOPMENT PLANNING

In order to merge and exploitation of limestone below 303 MRL in E & F block, it is proposed re-handling of over burden (112000 M^3) dumped in E & F block bifurcating road during this Modified Mining Plan.

Approximately 6000 M^3 of weathered basalt which is available at the contact zone of basalt and limestone will be excavated.

It is also proposed to join A and B Block for better and smooth working. This area is low lying and over the years silt deposited in the area is approximately 10714 M^3 will be cleaned.

Block C is having a huge quantity of interstitial clay i.e., approximately 214257 M^3 will be excavated during regular mining of limestone.

The preserved 19042 M^3 of black cotton soil will be used in next 5 years of the mining operation i.e., year 2016-17 to 2020-21.

(A SAXENA)
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(R K UDGE)
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(Fig. In M^3)

Year	Block	Qty of Over-burden Handling	Qty of waste handling	Qty of Black Cotton Soil from dump	Qty of balance OB from E,F & C hills for road repairs	Dumping Location of OB and IB/ Waste	Area in Hect.
2016-17	B&C E F	- 56000 6000	107143 - -	2857	800	1-Embankment along Nala bank (Behind BC Soil Dump) 2-Near "A" block old dump 3-F hill old dump extension 4-Behind weighbridge	1.51 0.63 0.71 0.48
2017-18	B&C E	- 56000	71429 -	4045	800	1-Behind BC soil dump 2- Embankment along "E" Hill Nala Bank	1.19 0.94
2018-19	B&C	10714	35714	4045	800	1-"A" block Near Crusher 2-Embankment along Nala	0.17 0.73
2019-20	-	-	-	4046	800		
2020-21	-	-	-	4049	800		
Total		**128714**	**214286**	**19042***	**4000**		6.36

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(Black Cotton soil for plantation purpose)*

YEAR-WISE PRODUCTION PLANNING

Mines have to supply consistently following grade limestone to cement plant for its smooth operation:

CaO%: Above 45.5% & SiO2: Below 12.5%

The quality of limestone varies in different benches of A, B, C, E & F blocks. It can observe by the discrepancies given below:-

Block	Avg. CaO% Varies between	Avg. SiO2 % Varies between	Remark
A	45.5 to 47.5	11.8 to 13.8	
B	44.8 to 46.9	11.8 to 13.5	
C	38.0 to 46.7	11.8 to 30.0	The Avg. quality of bench 312-322 is very low
E	46.2 to 48.5	9.2 to 17.5	
F	46.3 to 48.7	9.8 to 17.0	

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As we have seen the limestone quality varies in benches of block A, B, C, E & F and the same is judiciously blended on day to day basis. The most probable portion in which different blocks benches would be utilized are considered while scheduling production for the next 5 years of this Modified Mining Plan.

It may be noted that the production schedule is subject to deviation due to various reasons, which are beyond control such as:

a) Fluctuation in quality of limestone due to presence of intestinal clay pockets,
b) Fluctuations in demand of cement
c) Unwarranted labour problem
d) Any other unforeseen or unexpected reason

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I- INSITU TENTATIVE EXCAVATION:-

Year-wise, block-wise, Bench-wise production schedule is given in following table. Similarly position of production and development i.e., advancement of limestone and development benches at the end of every year from 2016-17 to 2020-21 are shown in the plans.

(Please refer Plate No. 7A to 7E and sections Plate no. 8A to 8E.)

(A SAXENA)
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(R K UDGE)
RQP/JBP/064/96/A

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VIDE LATTER No.

YEARLY PRODUCTION & DEVELOPMENT PLAN (2016-17 TO 2020-21)

Year	Bench	A BLOCK				B & C BLOCK				E BLOCK				F BLOCK				TOTAL			
		Limestone Qty		Waste	OB/IB	Limestone Qty		Waste	OB/IB	Limestone Qty		Waste	OB/IB	Limestone Qty		Waste	OB/IB	Limestone Qty		Waste	OB/IB
		MT	M^3	M^3	M^3	MT	M^3	M^3	M^3	MT	M^3	M^3	M^3	MT	M^3	M^3	M^3	MT	M^3	M^3	M^3
2016-17	5A	-	-	-	-	-	-	-	-	-	-	-	-	291542	116617	-	6000	291542	116617	-	6000
	4A	42275	16910	-	-	-	-	-	-	80554	32222	-	56000	277917	111167	-	-	400746	160298	-	56000
	3A	581652	232661	-	-	391067	156427	-	-	373967	149587	-	-	220092	88037	-	-	1566778	626711	-	-
	2A	191914	76766	-	-	190267	76107	-	-	387817	155127	-	-	350292	140117	-	-	1120290	448116	-	-
	1A	239860	95944	-	-	-	-	-	-	-	-	-	-		-	-	-	239860	95944	-	-
	1B	-	-	-	-	836360	334544	107142	-	-	-	-	-	-	-	-	-	836360	334544	107142	-
	2B I	-	-	-	-	865352	346141		-	-	-	-	-	-	-	-	-	865352	346141	-	-
	2B II	-	-	-	-	229072	91629	-	-	-	-	-	-	-	-	-	-	229072	91629	-	-
	3B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub Total		**1055701**	**422280**	-	-	**2512118**	**1004847**	**107142**	-	**842338**	**336935**	-	**56000**	**1139843**	**455937**	-	**6000**	**5550000**	**2220000**	**107142**	**62000**
2017-18	5A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4A	-	-	-	-	-	-	-	-	-	-	-	-	149252	59701	-	-	149252	59701	-	-
	3A	-	-	-	-	393360	157344	-	-	-	-	-	-	229940	91976	-	-	623300	249320	-	-
	2A	743745	297498	-	-	735265	294106	-	-	325165	130066	-	56000	492390	196956	-	-	2296565	918626	-	56000
	1A	321385	128554	-	-	754020	301608	-	-	549665	219866	-	-	205853	82341	-	-	1830923	732369	-	-
	1B	-	-	-	-	411695	164678	71429	-	-	-	-	-	-	-	-	-	411695	164678	71429	-
	2B I	-	-	-	-	137985	55194	-	--	-	-	-	-	-	-	-	-	137985	55194	-	-
	2B II	-	-	-	-	100280	40112	-	-	-	-	-	-	-	-	-	-	100280	40112	-	-
	3B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub Total		**1065130**	**426052**	-	-	**2532605**	**1013042**	**71429**	-	**874830**	**349932**	-	**56000**	**1077435**	**430974**	-	-	**5550000**	**2220000**	**71429**	**56000**

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(A SAXENA)
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(R K UDGE)
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Regional Controller of Mines (N. R.)
भारतीय खान ब्यूरो नागपुर
Indian Bureau of Mines, Nagpur

पत्र संख्या द्वारा
VIDE LATTER No. -CND/CST/MPD-139/DGP-2016 dt. 09.06.16

YEARLY PRODUCTION & DEVELOPMENT PLAN (2016-17 TO 2020-21)

Year	Bench	A BLOCK				B & C BLOCK				E BLOCK				F BLOCK				TOTAL			
		Limestone Qty		Waste	OB/IB	Limestone Qty		Waste	OB/IB	Limestone Qty		Waste	OB/IB	Limestone Qty		Waste	OB/IB	Limestone Qty		Waste	OB/IB
		MT	M^3	M^3	M^3	MT	M^3	M^3	M^3	MT	M^3	M^3	M^3	MT	M^3	M^3	M^3	MT	M^3	M^3	M^3
2018-19	5A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3A	-	-	-	-	452935	181174	-	-			-	-	336185	134474	-	-	789120	315648	-	-
	2A	580085	232034	-	-	379735	151894	-	-	262685	105074	-	-	537285	214914	-	-	1759790	703916	-	-
	1A	340930	136372	-	10714	552255	220902	-	-	274734	109894	-	-	524800	209920	-	-	1692719	677088	-	10714
	1B	-	-	-	-	207910	83164	35714	-	-	-	-	-	-	-	-	-	207910	83164	35714	-
	2B I	-	-	-	-	323537	129415	-	-	-	-	-	-	-	-	-	-	323537	129415	-	-
	2B II	-	-	-	-	670889	268356	-	-	-	-	-	-	-	-	-	-	670889	268356	-	-
	3B	-	-	-	-	106035	42414	-	-	-	-	-	-	-	-	-	-	106035	42414	-	-
Sub Total		**921015**	**368406**	**-**	**10714**	**2693296**	**1077318**	**35714**	**-**	**537419**	**214968**	**-**	**-**	**1398270**	**559308**	**-**	**-**	**5550000**	**2220000**	**35714**	**10714**
2019-20	5A	-	-	-	-	-	-	-	-	-	-	-	-	68698	27479	-	-	68698	27479	-	-
	4A	-	-	-	-	-	-	-	-	-	-	-	-	324302	129721	-	-	324302	129721	-	-
	3A	-	-	-	-	-	-	-	-	-	-	-	-	308216	123286	-	-	308216	123286	-	-
	2A	401566	160626	-	-	401566	160626	-	-	-	-	-	-	278541	111416	-	-	1081673	432669	-	-
	1A	196891	78756	-	-	520666	208266	-	-	219761	87904	-	-	483416	193366	-	-	1420734	568294	-	-
	1B	-	-	-	-	926031	370412	-	-					239103	95641	-	-	1165134	466054	-	-
	2B I	-	-	-	-	656891	262756	-	-	-	-	-	-	-	-	-	-	656891	262756	-	-
	2B II	-	-	-	-	255316	102126	-	-	-	-	-	-	-	-	-	-	255316	102126	-	-
	3B	-	-	-	-	269036	107614	-	-	-	-	-	-	-	-	-	-	269036	107614	-	-
Sub Total		**598457**	**239383**	**-**	**-**	**3029506**	**1211802**	**-**	**-**	**219761**	**87904**	**-**	**-**	**1702276**	**680910**	**-**	**-**	**5550000**	**2220000**	**-**	**-**

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(A SAXENA)
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(R K UDGE)
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YEARLY PRODUCTION & DEVELOPMENT PLAN (2016-17 TO 2020-21)

पत्र संख्या द्वारा
VIDE LATTER No. – CND/CST/MPLN-139/NGP-2016 dt. 07.06.2016

Year	Bench	A BLOCK				B & C BLOCK				E BLOCK				F BLOCK				TOTAL			
		Limestone Qty		Waste	OB/IB	Limestone Qty		Waste	OB/IB	Limestone Qty		Waste	OB/IB	Limestone Qty		Waste	OB/IB	Limestone Qty		Waste	OB/IB
		MT	M^3	M^3	M^3	MT	M^3	M^3	M^3	MT	M^3	M^3	M^3	MT	M^3	M^3	M^3	MT	M^3	M^3	M^3
2020-21	5A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4A	-	-	-	-	-	-	-	-	-	-	-	-	298050	119220	-	-	298050	119220	-	-
	3A	-	-	-	-	-	-	-	-	-	-	-	-	343875	137550	-	-	343875	137550	-	-
	2A	-	-	-	-	-	-	-	-	-	-	-	-	316350	126540	-	-	316350	126540	-	-
	1A	-	-	-	-	375600	150240	-	-	304582	121833	-	-	297967	119187	-	-	978149	391260	-	-
	1B	520615	208246	-	-	663320	265328	-	-	320125	128050	-	-	-	-	-	-	1504060	601624	-	-
	2B I	-	-	-	-	1098090	439236	-	-	-	-	-	-	-	-	-	-	1098090	439236	-	-
	2B II	-	-	-	-	505025	202010	-	-	-	-	-	-	-	-	-	-	505025	202010	-	-
	3B	-	-	-	-	506401	202560	-	-	-	-	-	-	-	-	-	-	506401	202560	-	-
Sub Total		520615	208246	-	-	3148436	1259374	-	-	624707	249883	-	-	1256242	502497	-	-	5550000	2220000	-	-

5A:-342-352 MRL 1B :-303-293 MRL
4A:-332-342 MRL 2BI :-299-290 MRL
3A:-322-332 MRL 2BII:-290-283 MRL
2A:-312-322 MRL 3B :-283-273 MRL
1A:-303-312 MRL

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(A SAXENA)
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II- DUMPS REHANDLING:-

Generation of waste and sub grade material in mining is inevitable. An effective management of these materials with an aim to maximize their use in regular mining method has been planned. There is only black cotton soil dump which is proposed to be re-handled during the period of Next 5 years i.e., from 2016-17 to 2020-2021.

c) Individual year wise development plans and sections

Development plans and sections enclose as plate no 7A to 7E and section 8A to 8E.

d) Brief salient features of proposed method of working

The Manikgarh Cement Limestone Mines is a fully Mechanized mine and it comes in "A" Category. A brief salient feature of proposed method is given below:-

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MECHANISATION:

Manikgarh Cement Limestone Mine is equipped with numbers of sophisticated equipments to cope up with the production schedule efficiently. The equipments for the existing operating mines have been selected considering the factors like availability, utilization, scale of operations, type of materials, size of deposit, topography, geological features, safety requirements, environmental considerations , capital requirements, availability of equipments and spare from indigenous sources.

A list of mining equipments available with make and capacity is enclosed as Annexure No15.

(A SAXENA)
RQP/NGP/523/2015/A

(R K UDGE)
RQP/JBP/064/96/A

Presently mining operation is being done in two shifts i.e. "A" & "B" shift, which will be continued in future. The sequence of operation is dozing, drilling, blasting, loading, and transportation. All the statuary requirements under MMR 1961, Mines Act 1952 and DGMS circulars are being implemented regularly during the mining operations.

DRILLING:

Large dia-meter blast holes are drilled by 150 mm track mounted DTH Drills. The drills are provided with in-built water injection system ensuring 100% wet drilling.

BLASTING:

Blast holes of 150 mm dia are drilled on following parameters:

i)	Height Of the benches	:	Ore: 9 - 10 mtr- Limestone O/burden:6-7 Mtr-Basalt
ii)	Depth of drill hole	:	10.5 Mtr in Limestone 6.5 Mtr in Overburden
iii)	Size & spacing of Hole	:	150 mm dia drill : 6 to 6.5 mtr 110 mm dia drill : 5 to 5.5 mtr
iv)	Burden	:	150 mm dia drill – 4 to 4.5 mtr. 110 mm dia drill : 3 to 3.5 mtr

(A SAXENA)
RQP/NGP/523/2015/A

(R K UDGE)
RQP/JBP/064/96/A

The drilling and blasting parameters are set up after taking a number of trial blasts to suit the strata conditions. Slurry explosives and ANFO is being used for blasting purposes. Four explosives magazines of 4.5 MT capacity each are provided for storage of maximum 18 MT explosives and 44000 Nos detonators. Two numbers of explosives vans are also provided for safe transportation of explosives material from magazine to blast location. Latest technological development in the field of explosives by using MSDD, Cord Relay, in hole delay initiation system has been adopted so as to maintain ground vibration & fly rock intensity to bare minimum. All licenses are duly granted/ renewed by the licensing authorities from time to time.

LOADING & HAULAGE OF LIMESTONE:

Loading and transportation of blasted limestone is done by combination of hydraulic excavator and dumpers. Sufficient number of shovels and dumpers are deployed on day-to-day basis to cater the production demand.

Haulage distance : (One Side) Limestone

A Block to Crusher	:	500 mtr to 1500 mtr
B Block to Crusher	:	700 mtr to 2000 mtr
C Block to Crusher	:	2000 mtr to 2500 mtr
E Block to Crusher	:	1500 mtr to 2000 mtr
F Block to Crusher	:	1000 mtr to 2000 mtr

(A SAXENA)
RQP/NGP/523/2015/A

(R K UDGE)
RQP/JBP/064/96/A

e) The layout of mine working etc.

The salient features of general mine working and mine layout is described below: -

1. A clear space of 7.5 meter have been left all along the mining lease boundary keeping it free of any mine working as required under Regulation 111 of MMR, 1961.
   Apart from this barriers of 50 Meters also have been left all along the Nala passing through Mining Lease area.

2. Approach to the mines and haulage roads with appropriate gradient of 1 in 20 would make easy access to the new benches.

3. In view of higher rate of ore production, fully mechanized opencast mining operation is adopted. This includes deep hole drilling, blasting, and handling of ore / sub-grade material. The same will be continued.

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4. The limestone beds dips at 3° to 5° due South-West to nearly sub-horizontal in major part of the lease area. It is exposed in a hilly terrain making it ideal for development of benches. The height of the benches will be kept at 9-10 meter with a minimum width of 20 meter for easy operation of shovel, dumper, etc.

5. In present Modified Mining Plan for the Extend Period the Mining activity will be continued in ore benches at 273,283, 293,303,312,322,332, & 342 MRL in A,B,C,E and F Blocks.

(A SAXENA)
RQP/NGP/523/2015/A

(R K UDGE)
RQP/JBP/064/96/A

6. All the benches of A, B & C blocks aligned in North-South direction and the faces would normally make to move west word towards the hill up to pit limit. While E & F blocks are aligned in North-South direction and the faces would be made to move eastward towards the hill slope up to the pit limit.

7. Presently mining operations are confined to A, B, C, E & F blocks. In all the mining blocks the benches will be maintained as the same MRL so as to maintain uniformity in overall bench layout. Bench below 303 MRL (ground level) shall be developed in block B since sufficient width is there to excavate mineral from the benches.

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8. As suggested, the ultimate pit slope will be kept at 53° with bench height of 10 meter and bench width of 7.5 meter in limestone and bench height of 6 meter and bench width of 3 meter in overburden. As per the study already conducted by M/s CMRI the ultimate pit slope will be designed.

9. The disposal and preservation / utilization of top soil would be continued and the same would be used for making ground for plantation as done in the past at waste dump.

10. The waste rock has been dumped systematically in mining area as permitted by IBM. All the dumps have been thoroughly afforested with trees.

(A SAXENA)
RQP/NGP/523/2015/A

(R K UDGE)
RQP/JBP/064/96/A

The active dump of over burden/ inter-burden will be suitably rehabilitated in future after completion of systematic dumping and simultaneous plantation measures adopted in this Modified Mining plan after proper stabilization of dump.

11. As mining activities extended below 303 MRL in block B and there is possibility of seepage of water into mines, proper pumping and de-siltation arrangement have already been made. The drainage channel is joining the Amal nalla after passing through the re-siltation tank so as to ensure setting up of wastes before entering into main nala course.

12. The sub-grade stock has been made away from other waste dumps. The same will be maintained in future.

Please refer Plate No. 7 A to 7 E for complete layout of the mine depicting the present working and position of mining benches of different blocks in the next 5 years have been incorporated in the yearly production plan.

(A SAXENA)
RQP/NGP/523/2015/A

(R K UDGE)
RQP/JBP/064/96/A

f) CONCEPTUAL MINING PLAN

In the existing Modified Mining Plan i.e. 2016-17 to 2020-2021, Conceptual Mining Plan is enclosed indicating the position of Lease boundary, important surface features, the extent of mine working, waste rock dumping sites, their rehabilitation by plantation, sites of soil and sub grade stock position up to the life of the deposit and now we are planning to work on the same line so that the final conceptual plan position can be achieved.
(Please refer Plate no.11)

Exploration:

Since all the mining lease area is prospected in detail, no further exploration program has been planned. All the details used for calculating resources and the reserves of the deposit and outcome of them are utilized during preparation of this Modified Mining Plan.

RESERVE AND RESOURCES

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The total mineral resources are given below:-

The total mineral resources	148.04 Million Tons
Proved mineral reserve	95.99 Million Tons
Feasibility mineral resources	52.05 Million Tons

The details have already discussed in Part A, Chapter No. 1.0 of this Modified Mining Plan.

(A SAXENA)
RQP/NGP/523/2015/A

(R K UDGE)
RQP/JBP/064/96/A

FACTOR CONSIDERED FOR LONG TERM DESIGN:

Requirement of Limestone for Clinker Production from captive Mines

At present, the limestone requirement for cement plant is 5.5 Million Tons/ Annum.

The 5.55 Million Tons Limestone raising will be done from A, B, C, E and F blocks of the lease area in systematic and scientific way.

LONG TERM DESIGN:

Mining and working in entire deposit of Limestone in the Mining lease area has been conceptualized keeping in view: -

i) Development of all blocks is already competed and benches are formed in such a way so that it can cater the need of limestone for Cement Plant during period of this Modified Mining Plan and in future.

ii) Judicious blending of all low-grade limestone so as to achieve 100% utilization of mineral resources.

iii) Proper floor levels ensuring good mine drainage and safe haul roads are the essential considerations.

iv) Maintain green environment in and around Mines so that area can be rehabilitated without much disturbances.

v) Systematic development of limestone benches beneath 303 MRL. At present continuity of limestone established up to 253 MRL.

(A SAXENA)
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(R K UDGE)
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vi) As per the Design of Open–Pit Slopes Study by M/s Central Mining Research Institute, Regional Centre, Nagpur in the year October 2005. The overall slope angels for ultimate slope heights / pit depths of 100 Mtr and 130 Mtr are suggested at 53^0 & 50^0 (from horizontal) respectively considering a factor of safety of about 1.20. The bench height in limestone may be kept at a maximum of 11 Mtr. The above angles may be achieved during final operations by the progressive reduction of bench widths up 7.5 Mtr.

Block-wise Development Plan:-

Based on long term design parameters in block-wise position of working benches at the final stage of mine along with position of waste dump, mined out area rehabilitation is shown in Plate No. 11 All the blocks are fully developed hence development is not proposed.

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Recovery of ROM:-

The quality of limestone varies from bench to bench in different blocks. These are to be judiciously blended on day to day basis with the feedback received from mines as well as plant laboratories. Based on the inputs from these laboratories, the most probable quality of different blocks portions would be utilized.

To ensure gainful and optimum utilization of mineral, working limits of different benches are so extended in lateral direction that even sub grade material can be utilized fully. Use of sub-grade mineral which are available between clay in forms of boulders in C block with the available good quality limestone has ensured the optimum utilization of mineral and maximum conservation.

(A SAXENA)
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Waste and Sub-grade Mineral Management:

Generation of waste and sub-grade material in mining is inevitable. Hence an effective management of this material with a view to maximize their use has been planned. During the period of this Modified Mining Plan, waste will be handled and to be dumped at specified locations with utmost care.

The sub grade material available in D block is 5.0 Lac MT which will be utilized in future. The present generation of sub grade and low grade limestone which will be sorted out from interstitial clay/waste from C block is already planned to blend and utilize during this planned period.

Reclamation and Rehabilitation

The description of reclamation and rehabilitation measures taken for the entire life of the deposit is discussed in detail in chapter 8.3 of this Modified Mining Plan.

After mining all the minable limestone up to depth of 253 MRL, the mined-out land will be converted in to water reservoir, and the left over benches above 303 MRL up to ultimate pit limit will be properly dressed and planted in consultation with local forest department authorities.

In future two reservoirs will be created on right and left side of downstream of Amal Nala.

I) Block A, B, & C which will be contiguous and converted in to water reservoir on the Western side of Amal Nala, and

II) Block E & F also will be contiguous and converted in to water reservoir on the Eastern side of Amal Nala.

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Environment Aspect

All such activities connected with mining which may have some bearing on the environment such as removal, storage and utilization of top soil, disposal of waste, air & water quality management, noise and ground water management and most importantly afforestation are well planned. Monitoring of all environmental parameters with frequency of monitoring and way of environmental management is described in detail in Chapter 8.2 of this Modified Mining Plan.

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[Area in Hect.]

Sr.No	Head	Area put on use at start of Plan	Additional Require-ment during Plan period	Total Area Broken after this Mining Plan period	Area already Rehabili-tated at the start of this Mining Plan	Total area broken at the end of Reserves (after mines life)	Way of Reha-bilitation
(a)	(b)	(c)	(d)	(e)			
				e=(c+d)			
1	Area broken by the pit	143.37	5.40	148.77	-	207.20	Above 303 plantation, below 303 water reservoir
2	Area under Waste dump	41.40	6.36	47.76	32.00	40.76	Through afforestation
3	Road	2.63	-	2.63		1.00	PWD Road
4	Office Bldg., Crusher, Ropeway, pipe conveyor Infrastructure Ropeway & Pipe Conveyor Corridor	4.54	-	4.54	-	0.08	Plantation after dismentle
5	Laterite shed and surrounding area	1.50	-	1.5	-		Temporary stock
6	Sub-grade dumps	3.16	-	3.16	-	-	Temporary stock
7	Black Cotton Soil Dump	1.42	-	1.42	-	-	Temporary stock
8	Unbroken area along nala , non minera-lized area, 7.5 mt barrier etc.		-	-	-	14.96	
	TOTAL:-	**198.02**	**11.76**	**209.78**		**264**	

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B UNDERGROUND MINING

Not Applicable.

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3.0) MINE DRAINAGE:-

The drainage of the area is controlled by the Northernly flowing Amal Nala which flows through the central part of the lease area.

3.a) Minimum and maximum depth of water table based on observation from nearby wells and water bodies :-

Minimum and maximum depths of ground water in nearby five village wells are regularly monitored at least four times in a year. The observed water table ranged between 4 to 10 Mtrs below the ground levels.

The location details of the wells are as follows:-

Villages	Reduced Level
Bombezari	320.695
Nokari	280.910
Gowariguda	286.185
Ligando	321.770
Manoli	256.935

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Apart from depth the quality test also perform by Manikgarh Cement. Latest quarter report of October 2015 enclosed as Annexure 16.

3.b) Indicate maximum and minimum depths of working :-

As the mine is located in hilly terrain the maximum height of working is MRL 352 and as per the Modification of Environment Clearance for Extended mining activities below 303m MSL to 253m MSL by The Ministry of Environment, Forest, New Delhi, Government of India vide letter no. J-11015/55/82-IA.II(M) dated 22nd March 2004.

Hence the maximum height of working is MRL 352 while minimum working will be MRL 253.

(A SAXENA)
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At present our mining activity is reached at MRL283.In future this will be extended up to MRL263 during the course of next five years i.e., 2016-17 to 2020-21.

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

Surface water Management

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In order to avoid effect of mining on quality and quantity of nala water during monsoon, following steps have been taken to manage surface runoff water:-

1- A barrier of about 50 Mtr. width have been left all along the nala length where forest trees fully grown. This barrier control and check surface run off the water either directly entering in the mine or coming from the mine.

2- Strom drains have been made along the western lease limit in block 'C' northern boundary in block 'A' South- Western boundary to the West of block 'B' and South- Western side of block 'F' garland drains have been provided in 'B' block. All these drains have been apparently joined with the natural drainage at suitable point after proper de-siltation.

Following steps have been taken for it:-

i) Siltation tank have been provided at B block & C block so as to de-silt the surface runoff water before entering into main water course.

(A SAXENA)
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ii) 4 sieved culverts have been provided to restrict silt entering in the natural water course.

iii) For easy flow of surface runoff water on the main bench floor, a gradient of 1 in 200 have been maintained and this floor are finally jointed with siltation tank.

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iv) Water quality at 2 location

I- The point where the nala joint the mine area

II- The point where nala leave the active mine area are regularly sampled even during monsoon also and it is found that there is no effect on quality of water due to mining. The report is enclosed as Annexure 16.

All these measures to maintain the surface water will be continued in future also.

Sub-Surface water Management (ground water):-

The sub surface water encounter below the ground is approximately 20 Mtr below the original ground level i.e, below MRL 303. Sump is created during the mining activity in such a way that all the ground water seepage may accumulate in it. This accumulated water is utilized for industrial purpose like plantation, dust suppression in crusher, road, drilling etc and in domestic purposes.

Pumping Arrangements:-

Total 4 nos of electrical pumps are installed for pumping of seepage/ surface water accumulated during the rainy season, the details of the same are as follows :

(A SAXENA)
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(R K UDGE)
RQP/JBP/064/96/A

a	Type of structure	Sump of mine pit
b	No of pumps installed	4 Nos electrical
c	HP of the pumps	Electrical Pumps 40 HP - 3 Nos Electrical Pumps 60 HP - 1 Nos

3.d) Regional and local drainage pattern

Regional and local drainage pattern

The lease area represents hilly and undulating intermountain valley with average elevation ranging between 300 to 400 MRL with few local mound of low height. The mine lease area, occupy upper reaches of Amal vague watershed. The stream cuts across the lease hold. The regional slope of the lease hold is towards North.

The limestone belt on regional scale represents undulating terrain with local mounds of 15 to 20 m in height. The regional land slope is towards North that is toward river Wardha located about 15 Km. to the North of the lease area. The maximum observed land elevation around the lease area is 516 MRL and the lowest elevation is 177 MRL in the North East the lease area. The hills present in upland zone are low hills around 450 to 520 MRL. The prominent hill of the area is Garhpandervari located in South West of lease area.

Climate and Annual Rain Fall

The climate of the area is characterized by hot summer and general dryness throughout the year except for rainy season that is June to September every year. Well distributed rainfall through South-West monsoon observed during June to September every year and mild winter season from Oct to February.

(A SAXENA)
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The rain fall data for the last ten years recorded by the Manikgarh Cement Limestone mines summarized in the table given below:-

year	Rain fall (in mm)
2006	1236
2007	894
2008	871
2009	683
2010	1489
2011	886
2012	1252
2013	1671
2014	876
2015	1236

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The largest share of annual rainfall is contributed by South-West monsoon during the period June to September. The heaviest rainfall is received during the month of July.

Catchment area

The area is cut across by several seasonal streams flowing towards North and emanating from the hills in the Southern parts of the area and draining the storm water generated during monsoon season. These rivers, finally dissipates into river Wardha.

The major stream cutting across the lease is Amal nala which originates upland zone located South West of lease hold. The drainage of the area represents dendrite pattern.

(A SAXENA)
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(R K UDGE)
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Arrangement for arresting solid wash off

In order to minimize adverse effect on water regime of the area all arrangements such as proper drainage system for surface runoff water, preparation of arresting wall of big basalt boulder at the toe of waste dumps, construction of sieved culverts and siltation tank at inappropriate location have been made during the mining operation of last 20 years of mine working. Arrangement for cleaning of settling tank periodically has also been done. Due to all these preventive work we could be able to restrict any siltation of nala water while carrying out mining activity since last two decades.

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The mining activity will be extended up to263 MRL in block A, B and C of mining lease area within next five years of this mining plan. Since the limestone is of insoluble nature (physical origin) there will not any effect on water quality. However, in order to avoid de-siltation of water through suspended solid the water will only be allowed to go in to main water course after passing through de-siltation tank.

(A SAXENA)
RQP/NGP/523/2015/A

(R K UDGE)
RQP/JBP/064/96/A

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

The handling of sub- grade material and its proper utilization has already discussed in Mining chapter. The reject material and disposal of waste has discussed in following paragraphs:-

4.a) Nature and quantity of top soil, overburden / waste and Mineral reject to be disposed off:-

Top Soil

The top soil found in lease area is a black cotton soil and it is available as a very thin layer in C Block area. The thickness of the soil may vary from 0.30 Mtr to 0.50 Mtr. This thin layer of black cotton soil will be properly dozed and directly shifted to the place of use by means of dumper and excavator combination in future. The approximate quantity to be handled from this location will be 12000 M^3.

From last 1 decade of mining, the generated black cotton soil directly utilized for plantation purpose. The preserved quantity of 19042M^3 black cotton soil will be used in next 5 years of the mining operation i.e. year 2016-17 to 2020-21 for rehabilitation by means of afforestation. This preserved quantity of black cotton soil will be judiciously used for the plantation in mines area as well as in the colony area.

(A SAXENA)
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(R K UDGE)
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Overburden

In Manikgarh Cement Limestone Mines basalt is available as an overburden capping. Basalt is black coloured volcanic igneous rock. The overlying strata of basalt is fresh to moderately weathered found in big to medium boulder form, while underlying basalt which is in the contact of limestone is moderately to highly weathered form.

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In previous Scheme of Mining the overburden was proposed to excavate from C, E & F block. Approximately 10855 M^3 of overburden is still balance in said blocks and this quantity of weathered basalt is precious for us. As we are working in hilly terrain as well as in plain area, after a rainy season all the haul roads condition gets deteriorated by which the tyres condition gets affected and needs immediate repair of roads to increase the life of tyres and equipments. This basalt is suitable for maintenance of roads condition from time to time. This balance quantity can be utilized at the rate of 800 M^3 /year.

Apart from this, approximately 6000 M^3 of weathered basalt which is available at the contact zone of basalt and limestone and it will be excavated during the limestone loading from F block and directly used for road repairs.

In order to merge and deepen the working in E & F block, we propose to remove the existing road which bifurcates E and F block having sizable quantity of 112000 M^3 basalt and will be removed during next two years i.e.,2016-17 to 2017-18. This removed quantity will be utilized for making embankment within 45 Mtr of nala bank, near A hill old dump and behind weigh bridge in F block.

(A SAXENA)
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It is proposed to join A and B Block for better and smooth working. This area is low lying, over the years silt deposited which is approximately 10714 M^3. This silt is good for plantation because of its deposition over the long period and contains organic matters. From this amalgamation, the benches will be in proper shape and the quantity in respect of quality requirement will be met out.

Sub grade

The sub-grade material generated during the mining activity will be judiciously blended and consumed. It has been planned to directly use this material for cement manufacturing by judicious blending with higher-grade material. Hence no sub-grade material is expected to be generated for dumping/ stacking during the period of this Modified Mining Plan covering the Period i.e. 2016-17 to 2020-21.

Waste

In block C MRL 322-312,312-303,303-293 and 293-283 benches are having a huge quantity of interstitial clay where there is fluctuation in quality of limestone due to presence of this material. This clay is whitish-red to grayish-red in colour and having low percentage of CaO and very high percentage of silica hence this material is not consumable at all. Out of 600000 MT of the total quantity 50% i.e. 300000 MT is usable because of the availability of limestone boulders. Thus, the recoverable limestone will be sorted out and consumed while the 50% i.e. 214286 M^3 generated waste will be kept at suitable dump/ embankment all along nala bank and near A hill old dump shown in plate No 7A to 7E.

(A SAXENA)
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(R K UDGE)
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Mineral reject

No mineral rejects will be generating during this period of Modified Mining Plan.

Summarized quantity

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Top soil

- From Storage		=	19042 M³
- From Excavation		=	12000 M³
	Total	=	31042 M³
Overburden		=	139569 M³
Waste		=	214286 M³
Mineral reject		=	Nil
	Total	=	353855 M³
Sub Grade		=	Judiciously blended

The above available quantity will be handled and details of which is furnished as follows:-

Year	Top Soil (cum)		Mineral Rejects(cum)			
	Re-use/ Spreading	Storage	Backfilling	Storage	Blending	Benefi-ciation
2016-17	2857	-	-	-	-	-
2017-18	4045	-	-	-	-	-
2018-19	4045	-	-	-	-	-
2019-20	4046	-	-	-	-	-
2020-21	4049	-	-	-	-	-

(A SAXENA)
RQP/NGP/523/2015/A

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4.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 for a short period is proposed in mineralized area with technical constrained & justification:-

During this planned period the removed overburden will be dumped within 45 mtrs from nala bank on both sides. In mines area, a barrier of 45m width all along the nala will be kept in order to prevent/avoid any danger against surface water inundation into the mine during mining activity. Hence in existing safety barrier overburden is proposed to dump. This area is also outside the UPL. The area is shown in Plate No7A to 7E.

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4.c) The manner of disposal of waste , configuration and sequence of year wise build up of dumps along with the proposal for protective measures:-

As it was stated earlier, the limestone deposit at Manikgarh Cement Limestone Mines is in a hilly terrain and the top of the hills are occupied by overburden of basalt. The overburden capping was initially present at A, B, C, E and F blocks, and was removed while partial quantity of basalt 10855 M3 is balanced, hence overburden excavation is proposed yearly 800 M3 for road repairing purpose. Re-handling of basalt from road in between block E & F and interstitial clay from block C will be done during this planned period. In order to stabilize waste dumps, following measures have been adopted and it will be continued in future also:

(A SAXENA)
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(R K UDGE)
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i) Location of dumps is so chosen that water, air and land is not polluted and the natural surface flow of water during monsoon is not polluted and obstructed.

ii) Angle of waste dump slope has been kept below angle of repose of basalt i.e. 37.5° to ensure stability of dump slope. The same will be maintained.

iii) Dumping has been done in form of terraces so as to reduce the height of dumps and to maintain better stability. The height of each terrace has been kept at 10 meter. This will also maintained in future.

iv) Sufficient width has been provided to each terrace so as to ensure easy dumping. Generally 12 to 15m width have been maintained in all dumps.

v) All the terraces of dumps have been compacted by proper dozing and grading so as to make the dumps compact.

vi) Further efforts have been made to consolidate their slope and dumps stability by proper plantation on matured portion of dumps. About 32 Hectares of waste dumps area have already been rehabilitate by massive afforestation work.

vii) All the terraces of dumps have been provided with garland drains.

viii) The main drains have been provided with sieved culvert and siltation tank so as to arrest siltation.

(A SAXENA)
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(R K UDGE)
RQP/JBP/064/96/A

5.0 USE OF MINERAL AND MINERAL REJECT

The mines is captive to the Cement Plant hence total quantity of limestone produce will be used at own cement plant of Manikgarh Cement for manufacturing of cement and not sold or disposed off otherwise.

5.a) The requirement of end-use industry specifically in term of physical and chemical composition:-

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The specification of the limestone required by the own cement plant are as follows:-

Physical properties of limestone		Chemical properties of limestone
Colour	Dark grey limestone, Grey to light grey limestone, Whitish grey limestone	CaO : 45.5 % and above SiO_2 : 8 to 12.5% MgO : 0.5 to 1.0 % Al_2O_3 : 0.75 to 1.8% Fe_2O_3 : 0.50 to 2.0%
Texture	Fine grain, compact and massive	
structure	Joints and fractures are very common Joints constitute 2-3 sets – both horizontal and vertical	
Mineral compo-sition	Thin veins of encrustations of coarse granular aggregates of calcite are frequently present, pyrite granules and nodules of rounded chert are also common in this limestone.	
Sp. Gravity	2.5	

(A SAXENA)
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(R K UDGE)
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The aspect of mineral conservation through use of sub-grade limestone to manufacture cement has been given the prime importance since beginning. This could be made possible by judiciously extensive blending of low grade limestone with good quality limestone available in the mines.

Sub-grade material is directly used from mines by blending in crusher hopper. This way all the low grade/sub grade material encountered during mining from C and all others blocks of the lease area have been used since inception of mining operation.

Old stacked 3.00 lakh tons of sub grade limestone from C block was handled and judiciously blended with high grade limestone during last five years i.e., 2011-12 to 2015-16.

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The above figure clearly explains the high quantity of sub-grade limestone being consumed by careful blending efforts. This process of mineral conservation will be continued in the period of this Modified Mining Plan also.

5.b) Intermediate industries involved in up gradation of mineral before its use:-

Not Applicable

5.c) Other industries, captive consumption, export, associated industrial use etc:-

As explained earlier the Manikgarh Cement Limestone Mines is captive mines of Manikgarh Cement hence all excavated limestone is consumed for manufacturing of cement. No other industry like export or any associated industries are involved.

5.d) Physical and chemical specification stipulated from buyers

Not Applicable

(A SAXENA)
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(R K UDGE)
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5.e) Processes adopted to upgrade the ROM to suit the user requirements:-

Not Applicable.

The limestone raised from mines is used for captive consumption to Manufacture of cement.

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6.0 PROCESSING OF ROM AND MINERAL REJECT

6.a) Processing /beneficiation of ROM or mineral reject is planned to be conducted, briefly describe nature of processing/ beneficiation. Indicate size and grade of feed material and concentrate (finished marketable product), recovery etc:-

No mineral beneficiation is being undertaken and the limestone is used in cement manufacturing. Cement plant requires limestone of following size and chemical specification for smooth running:-

Size	:	below 80mm
CaO%	:	+45.5
SiO2	:	-12.5

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In order to feed specified size limestone to Cement Plant, crushing of blasted limestone boulder vary in size from 250mm to 1500 mm is done at our Crusher. (Single stage crushing at this crusher is performed.)

The mechanical crushing of limestone is undertaken where in the size of limestone is reduced to -80 mm to make it amenable for use as raw meal. Two numbers of rotary impact crusher of L&T make has been installed with a rated capacity of 1000 & 1200 TPH. The quality of limestone of different benches of various blocks varies bench to bench; the short term planning is done based on the quality of blasted material available at different benches of various blocks. To achieve specified quality limestone supply to Plant judicious blending of low grade, high grade and average grade limestone is done at Mines crusher hopper and at stacker-reclaimer at Plant. This way, we achieve specified size and chemical composition of limestone supply to Plant.

(A SAXENA)
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(R K UDGE)
RQP/JBP/064/96/A

The justification for using relatively high lime (CaO%) & high Silica (SiO2) limestone for manufacturing Cement :-

Limestone at Manikgarh Cement Mines is high lime and high silica nature with alumina, iron and alkali deficient. Hence to prepare raw mill feed certain additives are being used viz. laterite, shale and fly ash. These additives along with limestone also help in burning and in pyro- processing unit to produce clinker of desired quality. Mixing of these additives increases SiO2% and reduces CaO% in raw mill feed. Hence to maintain the lime & silica in raw mill slightly higher CaO & SiO_2 limestone is used.

In spite of the above, judicious blending of low grade limestone from "C" Block is being continued in limestone dispatched to plant.

6.b)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

6.c)The disposal method for tailings or reject from the processing plant:-

No tailing or rejection is generating. There is no need to process limestone before making cement.

6.d)Quantity and type of tailing/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 tailing dam :-

Not Applicable

6.e)Quantity and type of chemicals to be stored on site / plant

Not Applicable

(A SAXENA)
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(R K UDGE)
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6.f)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:-

Mines seepage water and rain water collected in the mine pit is utilized for industrial purpose like plantation, dust suppression in crusher, road, drilling etc.

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Water consumption

M^3/day

Dust suppression in crusher, haul road and other areas of mines	:	80
Gardening etc	:	100
From dug wells for domestic purpose in colony	:	120
Total consumption /day	:	300

There is no processing unit involved hence no water is required.

(A SAXENA)
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(R K UDGE)
RQP/JBP/064/96/A

7.0 OTHER

7. a) Site Services

The mine site has been provided with a well equipped workshop with lathes, welding sets, shapers, drills, cranes etc. capable of undertaking all necessary maintenance and repairs of equipments, vehicles, heavy earth moving machineries etc. in addition, requisite power and water supply, office, stores, time office, explosive magazines, workers rest room have been provided along with first aid centre and canteen as per statutory norms of mines act, rules and regulation. The other utility services include 30000 Ltr capacity diesel supply pump and one laboratory equipped with X- ray Analyzer and all other ancillary equipments. The locations of above structures have shown in the surface plan plate no 4.

7. b) Employment potential

Technical/ Supervisory

	Personnel Category		Existing Strength
1	Executive President (Mines) / Agent	:	1
2	Chief Gen.Manager(Mines Manager)	:	1
3	Asst. Mines Manager	:	3
4	Safety Officer	:	1
5	Mines Foremen	:	5
6	Blasting Incharge	:	1
7	Geologist	:	1
8	Surveyor	:	1
9	Magazine In-Charge	:	1
10	Mechanical Engineers	:	7
11	Security Inspector	:	1
12	Environmental Supervisor	:	1
13	Labour Welfare / Liaison Officer	:	1
14	Time office In-Charge	:	1
15	Store Officer	:	1
16	Laboratory	:	1
17	Compounders	:	2
18	Electrical Foremen	:	1
	Total	:	**31**

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(R K UDGE)
RQP/JBP/064/96/A

Operational Staff

	Personnel Category		Existing Strength
1	Drillers	:	05
2	Blasters	:	02
3	H.E.O. & Drivers	:	22
4	Fitters	:	10
5	Welders	:	02
6	Auto Electrician	:	01
7	Electrician	:	03
8	Machinery Attendant & Patroller	:	11
9	Khalasi	:	01
10	M.T.O.	:	01
11	Mazdoor	:	17
12	Security	:	01
13	Sweeper	:	01
	Total	**:**	**77**

Skilled & Un-skilled workers

Besides the above strength, we have in all deployed 75 casual workmen on contractual roll and engaged them in misc. activities such as stone picking, road maintenance, gardening, landscaping.etc.etc.

	Personnel Category		Existing Strength
1	Skilled	:	03
2	Un-Skilled	:	50
3	Garden Maint. (Colony & Mines)	:	22
	Total	**:**	**75**

The organization chart is given on the next Page.

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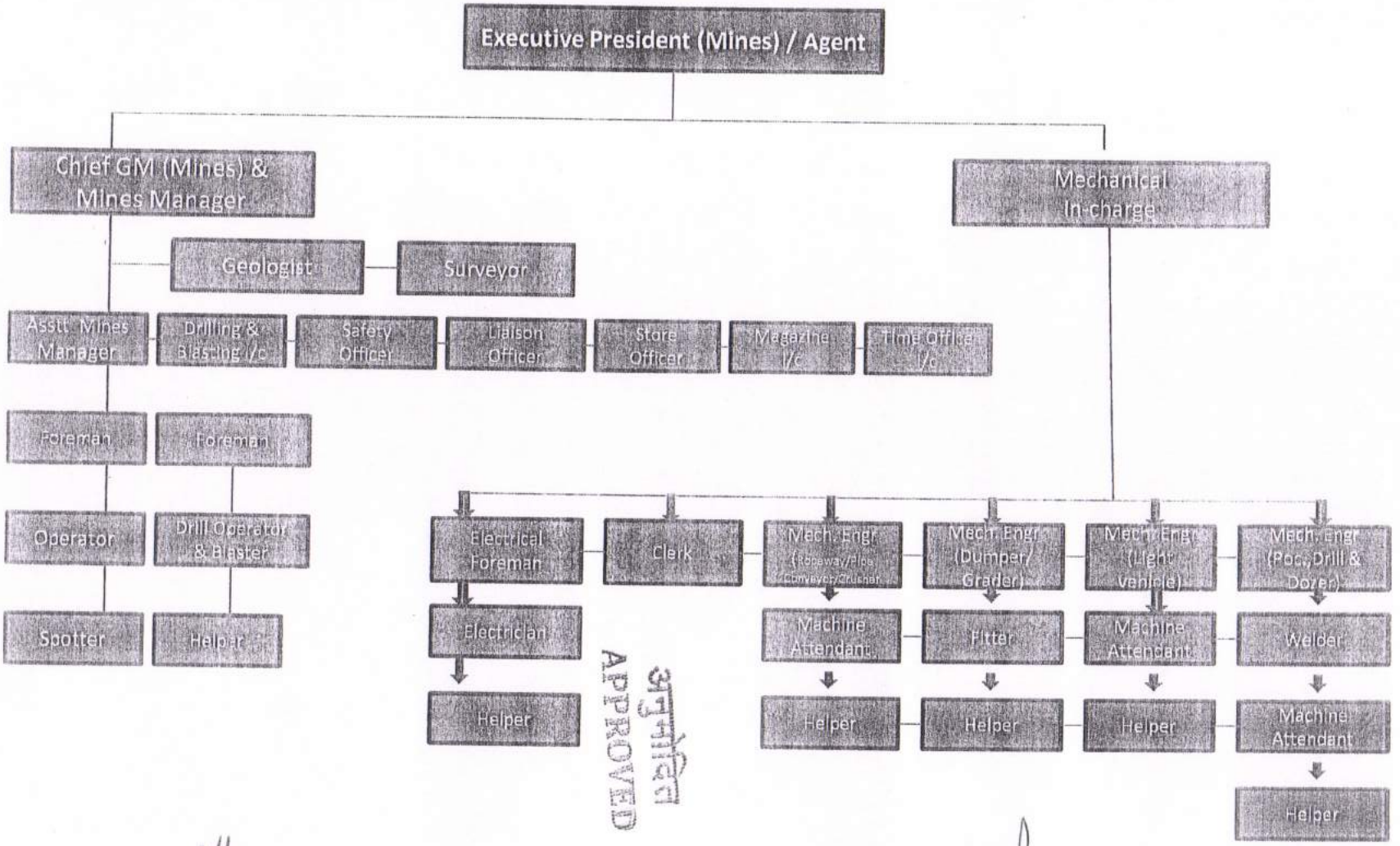
ORGANIZATION CHART



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8.0 PROGRESSIVE MINE CLOSURE PLAN
(UNDER RULE 23 OF MCDR'1988)

Resources exploitation such as minerals, water, forest etc. of any area is required to improve the economic status of the region. Each one of these activities would release the waste product in gaseous, liquid and solid phase causing environmental pollution. In case of mineral extraction the removal of the mineral/ rocks and unwanted overburden materials would create aesthetically unpleasant conditions changing the environmental scenario. It is, therefore, essential to take appropriate steps to see that the impact of environmental quality is minimal during the development of any mineral project.

This progressive mine closure plan has been prepared as a part of Modified Mining Plan for the extended period i.e.,2016-17 to 2020-21.

8.1 ENVIRONMENTAL BASE LINE INFORMATION

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8.1.1 Existing land use pattern

In the existing mine lease area limestone occurs in the Amal nala valley and is cordoned on all sides except to the North by the Deccan basalt flow on the higher reaches especially above 352 MRL. The entire mine lease falls under the Manikgarh Reserve Forest block of Wansadi Range of Central Chandrapur Forest Division.

The mine and surroundings areas, the topography is rugged comprising narrow to broad valleys exposing limestone flanked by flat topped basalt plateau with steep scarps. The area occupied by various mining activities and facilities at present and future during the remaining part of lease area given below:-

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S.N	Activity		Area (Ha.)
1	Area broke by the pit	:	143.37
2	Area under Waste dump	:	41.40
3	Road	:	02.63
4	Infrastructure office building, crusher, ropeway corridor, MCC Room Weigh bridge, Water Tank, pipe conveyor.	:	04.54
5	Laterite shade	:	01.50
6	Tailing pond	:	00.00
7	Sub-grade dumps	:	03.16
8	Black cotton soil	:	01.42
	Total :	**:**	**198.02**

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8.1.2 Water Regime

The hydrology of any region is controlled by the amount of precipitation and geological factors such as lithology, structure, aquifer character of the rocks etc. The lease area is dominantly covered by consolidated rocks like limestone in the valley. The limestone beds are nearly horizontal and have very little joints. The limestone is apparently non cavernous. The characters of the rocks are such that the movement of water is limited. The recharging capacity of the rocks is therefore extremely limited. As such there is limited scope for retention of the rain water and recharging of ground water. With these limitations the replenishment of surface and ground water is obviously poor.

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The drainage of the area is controlled by the Northernly flowing Amal Nala, passing through the central part and its tributaries draining in to main stream from West & East. The water flow is continuous till January. During dry summer months in the Amal nala water trickles through from few hidden springs and gets accumulated in patches of pool. The HFL of Amal nala is recorded at 304.50 MRL located between the nala and the road near the crusher. Maximum & minimum water table in the area is 10 Mtr and 4 Mtr respectively.

The water requirement of the mine and the mines colony about 1 km to downstream is met from dug wells, close to Amal nala.

8.1.2.1 Ambient Air Quality

The ambient air quality survey of air born dust is monthly done on 5 parameters i.e., SPM, Respirable SPM, NOX, SO2, and CO. The air quality data observed during the period of 2nd Scheme of Mining (2011-12 to 2015-16) reveals that concentrations of SPM, NOX, SO2, Respirable SPM and CO are well within permissible limit. Please refer Annexure No 15. This data generation is done by Environment Agency M/s Anacon Laboratory, Nagpur.

8.1.2.2 Ambient Noise level

The ambient noise level is monitored by Environment Agency M/s Anacon Laboratory, Nagpur. The Noise level monitoring is done at three locations of the mines i.e., quarry edge, near to limestone crusher and near mines haulage road. This monitoring is performed on quarterly basis. During the last Scheme of Mining (2011-12 to 2015-16) the noise levels are well within the permissible limit

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8.1.2.3 Flora & Fauna

As mentioned earlier, the lease area covers reserved forest, 238.96 Hect included in this plan was deforested by the Forest Department before handing over the lease for mining purpose. The deforested vegetation were mainly comprises Sal, Mowai, Bhawand, Khair, Bija, Ruhandi Gardi, Cheena, Dudi, Amla, and bamboo etc. The tree density in forest area surrounding mining lease is below 0.4 including numerous variety of thorny bushes.

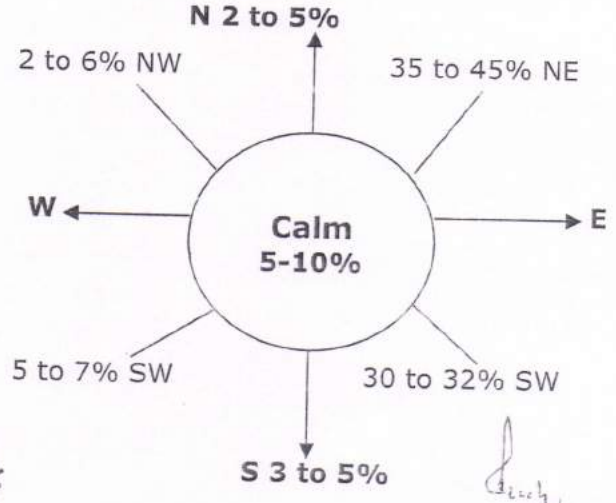
The common birds, rabbit, monkeys and the general wild life in the area are poor.

8.1.2.4 Climate Conditions

The region experience's extreme of temperature in summer months with dry heat. The maximum temperature shoots up as high as 48°C. Winter is mild and pleasant continuing from November to February when the temperature goes down up to 4°C. The average rainfall of the area is about 1000mm. The maximum precipitation is received between June to September.

The year wise rainfall data for last ten years is already given in chapter "Mine Drainage".

The annual wind data shows predominant wind direction is North-East. The percentage wise wind direction in a year is depicted in the figure given below:-



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Wind speed ranges between 0 and 8 Kms/Hr. Wind velocity is generally less than 5 Km/Hr except during pre-monsoon period when at times the speed reaches up to 10Km/Hr.

8.1.3 Human Settlement

There is no human settlement with in 1 KM radius of the mine lease area. The details of the villages within 5 KM radius are given below:-

Name of village	Distance (KM) from mines	Population
Mines Colony	1.0	450
Naokari	3.5	575
Bambezari	1.5	225
Kamatguda	4.5	110
Warjadi	5.0	850
Chikhlikhurd	5.0	115
Labhanguda	5.0	210
Garpathan	5.0	135
Pallejhari	5.0	730
Kolemguda	5.0	115
Shengaon	5.0	1700
NanakPathar	3.5	180
Kakband	3.5	350
Lingandoh	1.5	375
Lendiguda	2.5	190
Nagrala	3.5	216
Raipur	4.0	85

The total population of these villages does not exceed 7000. This mainly belongs to Gond & Kolam tribes/ Community. The people are mainly dependent on agriculture while some are engaged in various jobs at the mines and the cement plant.

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8.1.4 Public buildings Places of Worship and Monuments

Except the ruins of old Manikgarh Fort located on high pleatau about 3.5 KM to the North – West, there is no other public buildings, monuments or place of worship within 5 KM radius. Please refer Environmental Plan Plate No.10.

8.1.5 Wild life Sanctuary

No wild life sanctuary is in the vicinity of lease hold area.

8.2 ENVIRONMENT IMPACT ASSESSMENT STATEMENT:-

8.2 (i) IMPACT OF MINING ON LAND USE OF AREA

The mining operations in the area are entirely mechanized. The mining is being carried out by opencast method in the hill slope portions of various blocks. In addition, on the higher slope of the hill towards western side of lease boundary, the lands have been utilized for dumping of the basalt (waste rock). Thus as a result of mining existing topography would have undergone certain modifications in the form of lowering of levels and in the slope of the higher hill area in the West of the B Block. The ultimate block wise changes are expected as follows:-

a) In Block A

The central part of the Easternly spar, exposing limestone would get knocked off in central part up to a level of 303 MRL and leaving about 200 M long and 130 M wide where present crushers are located. To the West, the ground would rise from 303 MRL to nearly 352 MRL with step like slope ultimately merging with the natural slope of basalt hill.

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b) In Block B

In B block, the limestone spar with Deccan Trap capping would be entirely removed. The South- Western part of block would thus, result in to a flat ground except the area of two dumps which were covered an area of about 700 Mtr lengths and 200 Mtr widths by dumping of overburden. Further to the West, the hill slope would be in the form of steps as a result of left over bench portions up to about 352 MRL beyond which the natural slope will remain.

c) In Block C

The sloping ground in C block would give rise to a flat ground at about 303 MRL. Further to the west the hill slope would get modified up to 332 MRL by left over benches, beyond 332 MRL up to the top the slope have been terraced as a result of basalt dumping. This dump has already been rehabilitated by extensive plantation.

d) In Block D

There will not be any change in block D.

e) In Block E & F Block

The slopping ground of E & F block would give rise to a flat ground at about 303 MRL up to 386 MRL.

Major part of the mine area would thus result in the formation of near flat ground, whereas to the East and West the hill slope would give steps like appearance. The hill slope would however, be closed to the natural land form, considering the overall landscape of the region governed by flat to low dipping limestone and basalt flows.

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8.2 (ii) AIR QUALITY

The ambient air quality in the mining area appears satisfactory with all parameters within the prescribe limit as mentioned in IBM guide lines and CPCB norms due to the following efforts:-

At drills

In all blast hole drills inbuilt water injection system is provided to ensure 100% dust free wet drilling.

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On mine haul roads

Dust suppression on mine haul roads are done by water sprinkling through truck mounted water tanker of 9000 Ltr and one dumper modified in to water tanker capacity 15000 Ltr throughout the working shifts. In order to minimize the dust on crusher hopper area, major portion have been concreted and a dense green belt developed around the said area.

At Crusher

i) At crusher & crushed limestone storage silo have been provided with dust collector.

ii) At crusher hopper an effective air mix water sprinkling arrangement is installed which intern suppress the crushing dust at its generation point itself.

iii) All the transfer points of crushed limestone i.e., conveyer belt have been provided with shed along with water sprinkling arrangement.

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iv) Crusher hopper side area has been thoroughly planted with trees during period of mining of last more than two decades. These trees are now well grown and are working as a dust arrestor plants.

Monitoring of Air Quality

Ambient air quality monitoring have been done for 5 component i.e., SPM, Respirable SPM, NOX, SO_2 and CO as per IBM guideline. The samples are collected from following stations:-

- At quarry edge
- Drilling site
- Loading site
- Close to crusher
- Near mine haul road

Please refer Annexure No15 for analysis report. Also refer Plate no 10 for location of sampling.

Proposal for the next 5 years

During the period of this Modified Mining Plan for and future also various dust control measures as already being adopted will be continued as they have been found very effective. Ambient air monitoring location as shown in Plate No 10 for total SPM, respirable SPM, NOX, SO2 and CO relevant to mining operations will be continued to be surveyed as per IBM guidelines.

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8.2 (iii) WATER QUALITY

In order to minimize adverse effect of mining on water quality all arrangements such as proper drainage arrangement for surface runoff water, preparation of arresting wall of big size basalt boulder at the toe of dump, construction of sieved culvert and settling tanks have been done in mines. Arrangement for cleaning of settling tank periodically has also been done. Due to all this protective and preventative work the quality of water remain same.

Monitoring of water quality

In spite of all such measure quality of water of following points as stipulated in M/s IBM Guideline has been monitored once in a every quarter regularly for Physical, Chemical and Bacteriological properties-

- Nala entrance point at mines
- Nala exit point at mines

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For quality analysis please refer Annexure No16 and for location please refer Plate No10. It can be clearly seen from the reports that there is no effect of mining on the quality of water.

Proposal for the next 5 years

Water management as described above will continue in the future also. Water quality at mines on nala entrance and exit point will be closely monitored. All physical, chemical and bacteriological tests as per IBM guideline will be carried out regularly in the period of this Modified Mining Plan and future also.

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8.2 (iv) NOISE LEVEL

Monitoring of noise levels at crusher and various earth moving machine were done and it is found that noise levels are within permissible safe limits as notified by Director General of Mine Safety vide DGMS Circular No. 18(Tech) of 1975 and 5 (Tech) of 1990. (Please refer Annexure 17)

Even then protective devices such as Ear Plugs, Ear Muffs have been provided to the operators of loading, drilling, dozing, hauling and crushing equipment. Further in order to minimize noise levels of the various mining machinery and crushers, scheduled maintenance have been regularly carried out by efficient maintenance staff.

Proposal for the next Five years

Monitoring of noise levels of the mining machinery & crushers and adopting protective measures as and when required are proposed to be continued in future also.

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8.2 (v) VIBRATION LEVEL DUE TO BLASTING

To check the noise level and ground vibration during the blasting, latest technological development in the field of explosive and blasting have been adopted such as use of cord relay, in-hole initiation system due to this ground vibration are found very much within permissible limit. By using above blasting instrument ground vibration, noise and fly rocks have been reduced to bare minimum. For the regular monitoring of ground vibration the instrument "Blast Met" is also provided. Please refer Annexure no 18 for ground vibration survey report. The monitoring was performed regularly at sensitive locations.

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Proposal for the next Five years

All precautionary measures to control ground vibrations due to blasting will be continued in future also. Similarly the ground vibration will be regularly monitored.

8.2 (vi) WATER REGIME

In order to minimize adverse effect on water regime of the area all arrangements such as proper drainage system for surface runoff water, construction of sieved culvert and siltation tank at an appropriate location have been made during the mining operation of last 25 years of working. Arrangement for cleaning of settling tank periodically has also been done. Moreover an arresting wall of big basalt boulders have also been made at the toe of all waste dumps in order to arrest any washout of dump during rainy season.

In the mines overall water quality is portable and harvested mine sump water would also create positive impact on surrounding ground water environment. The following measures shall be adopted for prevention of water pollution:-

- Seepage in mine pit will be collected in a sump formed at current bottom most bench.

- Suitable drainage system will be provided to prevent surface water from entering into the mine so as to reduce the soil wash.

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- The domestic sewage generated will be treated in Sewage Treatment Plant at colony.

- Slopes will be stabilizing by planting appropriate plant on the slopes. This will prevent wash-off material from the slopes.

- Regular monitoring of ground water levels of all 5 surrounding wells and surface water quality of Nala on two locations i.e., Nala Entrance, and nal Exit point on regular basis.

8.2 (vii) ACID MINE DRAINAGE

Not Applicable.

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8.2 (viii) SURFACE SUBSIDENCE

There is no underground mining operation, hence not applicable.

8.2 (ix) SOCIO – ECONOMICS

Agriculture and to some extent forest has been the chief source of income for the local populations. The opening of the mine and cement plant has improved the economic condition of the neighboring populations to a great deal. This new avenue has beneficial effects on the socio- economic conditions of the community as compared to the impact on environment.

To uplift the socio-economic condition of the neighbouring villagers Manikgarh Cement has been generous to perform following activities as mentioned below:

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- Constructions of temples and its regular maintenance.
- Constructions of concrete roads.
- Constructions of play ground for schools.
- Distribution of free school uniforms, bags and books.
- Constructions of toilets in school as well as at nearby villages.
- Free medical checkup and free supply of medicine on regular basis.
- Providing ambulance on need basis.
- Free drinking water supply to all nearby villages on need basis.
- Free 250 nos LPG connections provided to the nearby villagers in order to minimize the wood cutting from the forest. This activity done with association with Forest Department, Govt. of Maharashtra, Chandrapur.

Apart from these said points the Manikgarh Cement also provided direct and indirect job opportunities to the nearby villagers from which the Socio-economic status has been considerably improved.

8.2 (x) HISTORICAL MONUMENTS ETC.

No historical monuments are present in or around 3 KM radius of mining lease boundary.

(A SAXENA)
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(R K UDGE)
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8.3 PROGRESSIVE RECLAMATION PLAN:-

Mining project is to be developed, operated and closed in an environment and user-friendly manner so as to make it convenient for future use. Progressive reclamation is continues process along with mining and dumping operations. It is envisaged to reclaim the exiting mine by simultaneous plantation of dumps & non mineralized area and creation of water reservoir once the available reserves are exhausted for the welfare of the society.

8.3.1 MINED-OUT LAND:-

The limestone deposit at Manikgarh Cement Limestone mines is a hilly deposit where top of the hill is occupied by overburden capping, in order to win limestone lying beneath. We have to remove the overburden for the exploitation of limestone to manufacture cement and dumped it to suitable locations i.e. none mineralized and area blocked by statutory restrictions.

The limestone thickness of the deposit is varying from 70 to 100 Mtr and mining below 303 MRL i.e. ground level is permitted by Ministry of Environment & Forest, New Delhi in the year 2005. The mining operation below this level started from December 2005, hence the delay in mining operation.

Looking to the above none of the mine faces attains maturity limit during this Modified Mining Plan period i.e., 2016-17 to 2020-21 hence no reclamation/backfilling activity has been proposed.

Since inception our mining activities were restricted upto 303 MRL by the Ministry of Environment & Forests (MoEF) and therefore, waste dumps were made on mineralized ground. Now since MoEF waived the above condition, we have been permitted to work below the ground i.e. upto 253 MRL and therefore, we are treating these dumps as temporary storage yard of waste material which will be handled in future. By shifting these waste dumps, the mineral will be wined.

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After mining all the minable limestone up to depth of 253 MRL, the mined-out land will be converted in to water reservoir, and the left over benches above 303 MRL up to ultimate pit limit will be properly dressed and planted in consultation with local forest department authorities.

In future two reservoirs will be created on right and left side of downstream of Amal Nala.

III) Block A, B, & C which will be contiguous and converted in to water reservoir on the Western side of Amal Nala, and

IV) Block E & F also will be contiguous and converted in to water reservoir on the Eastern side of Amal Nala.

8.3.1.1 Proposal in last Scheme of Mining

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No land reclamation work has been carried out during the period of Scheme of Mining due to non-availability of matured land for reclamation and rehabilitation. However, almost all the waste dumps have been rehabilitated by massive afforestation work during last 2 decades of mining.

As per the proposals of Reclamation Plan in the Earlier Scheme of Mines (2011-12 to 2015-16) about 5 hect area has been thoroughly afforested by tree plantation.

The details of plantation proposed & carried out are as given below:-

Year	Afforestation Target as per approved Scheme of Mining	Actual Afforestation carried out		
		Waste dump (Rehabi-litation area)	Other area in ML	Total Plants
2011-12	2500	3180	100	3280
2012-13	2500	2712	100	2812
2013-14	2500	2910	215	3125
2014-15	2500	2625	280	2905
2015-16	2500	2682	338	3020
Total :	**12500**	**14109**	**1033**	**15142**

(A SAXENA)
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(R K UDGE)
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8.3.1.2 Proposal for the next 5 years of Modified Mining Plan:-

Over the years lot of plantation work has been systematically carried out. In due course of time numbers of trees have been gained optimum growth and some of them have fallen and dried-out because of age and climate changes. Other than that subabul species are tall and having weak stem, in the course of high wind they get broken, resulting in loss of lots of trees. Hence it created lot of space necessitating for further plantation as a gap filling.

During the period of this Modified Mining Plan Initially first year i.e., 2016-17, it is proposed to carryout plantation for gap filling in already stabilized and rehabilitated dumps in addition to area proposed. For next year onwards i.e., from 2017-18 to 2020-21, systematic plantation will be carried out as proposed (please refers plate No7A to 7E & 9.

The area wise dump rehabilitation is given below:-

(Area in Hect.)

Year	Area under dump	Location	Area under bench	Location	Total
2016-17	0.28	Extreme end of C block dump and gap filling at C hill view point area.	0.51	E &F Overburden faces	0.79
2017-18	1.47 0.63	F Block old dump extension, behind weigh bridge and C Block Nalla Bank Near A hill old dump	0.36	E &F Overburden faces	2.46
2018-19	1.55	C & E Block Nalla bank	0.40	E &F Over - burden faces	1.95
2019-20	0.87	Near new crusher and C block nalla bank	0.50	A Block over - burden faces	1.37
2020-21	1.20	C Block Nalla Bank	0.41	A Block over-burden faces	1.61
	6.00		2.18		8.18

8.3.1.3 OLD DUMP MANAGEMENT

The details of the management of dumps have already discussed in chapter no.4.0. Regarding old dumps status is as under:-

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(A) N-S BELT IN BLOCK 'C' (MAIN DUMP)

Dumping operation in this dump was completed in the year, 1992. After completion of dumping operation, all the area were initially topped with black cotton soil and then thorough plantation work were carried out till the end of first Mining Plan period (i.e. 1991-92 to 1995-96). Nearly, 15500 trees of various species like Gulmohar, Saubabul, Sisam, Bougainvillea and some decorative plants have been planted.

(B) NW-SE BELT IN 'B' BLOCK

Dumping operation in this dump has been completed in the year, 1994-95. Proper afforestation work in this dump is already carried out. Nearly 12900 trees of Saubabul, Gulmohar, Prosopis & Acacia species have been planted after topping of black cotton soil. This dump has also been rehabilitated completely.

(C) WESTERN PART OF BLOCK 'A'

Dumping operation in this area started in the year,1994 and completed in the year,1996. About 6000 plants of Sisam, Saubabul & Acacia have been planted at this dump. This dump has been rehabilitated completely. A beautiful landscape "Buddha Vihar" has also been developed at the top of this dump.

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(D) N-E PART OF BLOCK 'F'

Dumping of overburden in this area have been started in the year,1996-97 and completed in 1999-2000. Nearly 8000 plants have been planted in this block dump which is now grown properly.

(E) 303 MRL DUMP

Dumping in this area started in the year,1995. Inactive portion of this dump have been afforested with suitable species of about 6500 trees and planted in this portion.

8.3.1.4 Afforestation programme

As indicated in earlier Scheme of Mining it was proposed to plant 12500 trees during 5 yearly period at the rate of 2500 trees/year at waste dump of Block A.

The detail of plantation proposed is given below:-

Year	No. of trees proposed
2016-17	2580
2017-18	4920
2018-19	3900
2019-20	2740
2020-21	3220
TOTAL:	**17360**

Method of Rehabilitation:-

In all the dead faces of overburden, and on dead dump pits will be made at a spacing of 5 meter then top soil will be filled on those pits along with organic manure. Thereafter plantation of suitable species plants will be carried out during monsoon period. Proper care of saplings will be the prime priority by deploying sufficient manpower to ensure maintenance and watering.

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(a) **Manuring treatment**:

For timely manuring as suggested by topsoil sample analysis, weeding and treatment with pesticides of the plants are carried out by labourers regularly placed at various plantation sites.

(b) **Watering arrangement**:

Although the plantation areas of dumps are far away from any source of water, even after proper watering arrangements have been provided. Watering of plants in those areas have been done with the help of well laid out irrigation system through the network of closed water pipe line. Sufficient quantity of water from Mines dug well is pumped for watering of plantation sites. To conserve the water, chemical Jalshakti has been applied to waste dump area plantation. This chemical reduces the evaporation rate of water thereby reducing the water requirement of plants. In case of emergency the water tankers are also deployed for watering the trees. This system also helps to conserve precious water.

(c) **Protection Arrangement**:

Barbed wire fencing is provided around the plantation area wherever necessary. For better protection tree guards also provided.

(d) **Nursery**:

There is a small Nursery developed in the Mines itself to cater the need of Mines plantation. Required species/ plants are developed in the Nursery because in the similar environment the chances of survival of trees are more.

Due to all such care and the measures opted we could be able to achieve higher survival rate of plants in Mines and in Colony area.

(A SAXENA)
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(R K UDGE)
RQP/JBP/064/96/A

8.3.2 TOP SOIL MANAGMENT:

The top soil occurs in mining lease area is black cotton soil. This soil is fertile in nature and it supports vegetation, hence it is properly excavated, preserved and spreaded wherever it is required.

8.3.2.1 Proposal as per the approved Scheme of Mining

In the approved Scheme of Mining for the period of 2011-12 to 2015-16, it was proposed to handle about 10000 MT i.e., 6250 Cu. Mtr/ Annum from C block.

Excavation and utilization of top soil during this period is given below;-

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Year	Proposed excavation of top soil		Actual excavation of top soil		Utilization of top soil	
	MT	M^3	MT	M^3	MT	M^3
2011-12	10000	6250	9958	6224	9958	6224
2012-13	10000	6250	10220	6388	10220	6388
2013-14	10000	6250	9576	5985	9576	5985
2014-15	10000	6250	9632	6020	9632	6020
2015-16	10000	6250	9016	5635	9016	5635
Total	**50000**	**31250**	**48402**	**30252**	**48402**	**30252**

From the above it can be seen that top soil excavation itself is done conservatively so as to keep it for future use. For better utilization of top soil, analysis of soil samples from block C has been carried-out regularly. Please refer Plate No 10 for location of soil samples and Annexure No.19 for latest analysis result of soil sample.

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8.3.2.2 Proposal for the next five years

The preserved 19042M³ of black cotton soil will be used in next 5 years of the mining operation i.e., year 2016-17 to 2020-21. The approximate quantity to be handled from Block C will be 12000 M³ and will be used in future.

Year wise top soil utilization is given below:-

Year	From top soil dump ($M^{3)}$	From proposed excavation ($M^{3)}$
2016-17	2857	--
2017-18	4045	--
2018-19	4045	अनुमोदित APPROVED
2019-20	4046	
2020-21	4049	--
Total	19042	--

8.3.3 TAILING DAM MANAGEMENT:

In our case it is not applicable since there is no generation of tailing material and the excavated limestone is judiciously blended and dispatched to factory site for cement manufacturing.

8.3.4 ACID MINE DRAINAGE

Not Applicable.

8.3.4 SURFACE SUBSIDENCE

There is no underground mine working, hence it is not applicable.

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The information on protective measure for reclamation and rehabilitation works year wise is provided as in the table below:-

SUMMARY OF YEAR WISE PROPOSAL FOR ITAM NO 8.3

Item	Details	Proposed 2016-17 to 2020-21						Actual	Remark
	Period	1	2	3	4	5	Total		
Dump Management	Area afforested (Hact.)	0.28	2.10	1.55	0.87	1.20	6.00	**Actual Fig will be submitted every year to IBM**	
	No. of Sapling Planted	560	4200	3100	1740	2400	12000		
	Cumulative no. of plants	560	4760	7860	9600	12000	12000		
	Cost included watch and care during the year(Rs.in Lac)	15	15	15	15	15	75.00		
Management of worked out benches	Area Available for rehabilitation (Hact.)	0.51	0.36	0.40	0.50	0.41	2.18		
	Afforestation done (Hact.)	0.51	0.36	0.40	0.50	0.41	2.18		
	No. of Sapling Planted in the year	1020	720	800	1000	820	4360		
	Cumulative no. of plants	1020	1740	2540	3540	4360	4360		
	Any other method of rehabilitation (Specify) (Rs.in Lac)	10	10	10	10	10	50.00		Spreading of BC Soil, preparation of burms.
	Cost including watch and care during the year (Rs.in Lac)	3.0	3.0	3.0	3.0	3.0	15.00		Preparation of pits for plantation, Provision of Water tanks, etc
Reclamation and Rehabilitation by backfilling	Voids available for backfilling (L x B x D) pit wise / slope wise	**None of the Mining Area Attain Maturity so far**							
	Void filled with waste/ tailing								
	Afforestation on backfilling area								
	Rehabilitation by making water reservoir								
	Any other means (specify)								

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Rehabilitation of waste land within lease	Area available (Hect.)	Area occupied by the nala, both side of nala bank & D Block already covered with thick naturally grown trees.						Actual Fig will be submitted every year to IBM	
	Area rehabilitate								
	Method of rehabilitation								
Other (specify)	(I) Ambient air quality (Rs.in Lac)	5.6	5.8	6.0	6.2	6.4	30.00		
	(II) Water Quality (Rs.in Lac)	3.80	4.0	4.22	4.42	4.6	21.04		
	(III) Noise level survey (Rs.in Lac)	1.50	1.70	1.90	2.10	2.30	9.50		
	(IV) Ground Vibration (Rs.in Lac)	0.50	.60	0.70	0.90	1.10	3.80		
	(V) Picnic Spot(Rs.in Lac)	11.0	11.25	11.50	11.75	12.0	57.50		A & C Hill View points
	(VI)Terracing(Rs.in Lac)	16	17.7	9.5	0	0	43.20		
	(VII)Pitching(Rs.in Lac)	2.0	2.0	2.0	2.0	2.0	10.00		Maint & Repairing of barriers ,walls etc
	(VIII)Construction of parapet walls/retaining wall at toe of dumps (Rs.in Lac)	1.0	1.2	1.2	1.2	1.2	5.80		Maintenance cost
	(IX)Construction of check dams along slope valley etc. (Rs.in Lac)	1.0	1.2	1.2	1.2	1.2	5.80		Cleaning maintenance & repairing cost
	(X) Construction of settling ponds (garland drains) etc(Rs.in Lac)	2.0	2.0	2.0	2.0	2.0	10.00		
	(XI)Avenue plantation & maintenance(Rs.in Lac)	1.0	1.0	1.0	1.0	1.0	5.00		Colony Area Plantation
	Total (Rs.in Lac)	73.4	76.45	69.22	60.77	61.8	341.64		

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8.4 DISASTER MANAGEMENT & RISK ASSESSMENT:-

Emergency / Disaster Management Plan is an integral part of the overall loss control program and is essential for any well run organization. This is important for effective management of all accident / incidents to minimize the environmental impacts and losses to people and property, both in and around the mines. Emergency planning also demonstrates the organization's commitments to the safety of employees and increases the organizations safety awareness. The objectives of DMP are to describe the installations emergency preparedness / response organization. The resources available and response actions applicable to deal with various types of emergencies that could occur at the mines with the response organization structure being deployed in the shortest time possible during an emergency. Thus, the objectives of Disaster Management Plan can be summarized as:-

Rapid control of the hazardous situation,

Minimize the risk and impact of event / accident,

Effective rehabilitation of the affected persons and prevention of damage to property,

In order to effectively achieve the objectives of emergency planning, the criteria elements that form the back bone of the DMP are:

(i) Reliable and early detection of an emergency and careful planning;

(ii) The command, co-ordination and response organization structure along with efficient trained personnel;

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(iii) The availability of resources for handling emergencies

(iv) Appropriate emergency response actions

(v) Effective notification and communication facilities,

(vi) Regular review and updating of the DMP

(vii) Proper training of the concerned personnel,

(viii) Periodical Mock-drill exercise is being done to check the preparedness and capabilities of the concern persons at the time any untoward incidents

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8.4.1 RESPONSIBILITY:

Responsibility for establishing and maintaining state of disaster management belongs to HOD Mines. He is responsible for maintaining distribution control of the plan and for ensuring that the plan and applicable implementing procedures are reviewed and revised when required. HOD Mines is also responsible for training of personnel to ensure that adequate emergency response capabilities are maintained in accordance with plan for ensuring the adequacy of the conduct of the drills. More specifically, the elements that will form the back bone of Disaster Management Plan are:

(i) The availability, organization and utilization of resources for handling emergencies,

(ii) Accident evaluation procedures,

(iii) The command, co-ordination and response organization structure,

(iv) Emergency response action,

(v) Training exercises and planned maintenance.

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8.4.2 EMERGENCY PLANNING:

The Emergency Planning describes the facility, equipment, organization, services and communication necessary to respond to emergency condition at the Company. This plan is designed for facility response to a variety of emergency conditions such as landslides, subsidence, flood, fire, seismic activity, etc. that might cause public concern, health & safety consequence to segments of the nearby population.

An industrial disaster can be defined as an "occurrence of such magnitude so as to create a situation in which normal pattern of life within industry / installation is suddenly disrupted adversely affecting not only the environment, personnel and property within the installation but also in the vicinity."

Such an occurrence may result in on site implications like:

Fire and / or explosion
Leakage of flammable / combustible material

Incidents having off site implication can be:
Natural calamities like earthquake, landslide, subsidence & flood.

An important aspect of the disaster is its unforeseen nature. Thus by definition itself, a disaster is impossible to control completely. However, occurrence of events which lead to disaster may be minimized through proper technology and engineering practices.

The emergency situation wise description is described as under:-

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(A) LAND SLIDE, EARTHQUAKE:

The area of mining is geologically stable. It does not fall under seismological active or land slide prone zone. However, to counter disaster conditions arises due to the activity we have following arrangements:-

i. For quick evacuation, warning siren have been provided,

ii. To handle rebels and debris during earthquake & land slide excavators along with hauling equipment's are kept ready.

iii. Well maintained Hospital along with Ambulance is available for medical care and for shifting the victim to district / taluka hospitals, if required.

iv. Proper training has been given to employees to fight out the emergency situations.

(B) FLOOD

There is no River in the vicinity. However, a Nala (known as Amal Nala) passes though the central portion of our mining lease area. A barrier of 50 mtr on both sides of nala has been left. Proper garland drains have been made at Mines so as to ensure proper flow of water to nala course.

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(C) FIRE & OTHER

In Mines, almost all the mining equipment's, crusher building, Workshop building, etc has been provided with Fire Extinguishers to meet out any eventuality. Similarly one Water Tanker is always kept ready for handling fire like situation. In addition, proper alarming siren has also been provided in Mines so that in case of fire any person can switch on the siren to alert other employees to control the fire. Two numbers of fire tenders owned by Manikgarh Cement are also available at plant security main gate.

In case of emergency situation arise out; medical help is also sought from local authorities if the emergency is of high magnitude.

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8.5 CARE & MAINTENANCE DURING TEMPORARY DISCONTINUANCE:-

In case of temporary discontinuance due to statutory requirement or any other unforeseen circumstances, following measures will be adopted to take care of maintenance and monitoring of unplanned discontinuation of mining operation :-

(A) Safety & Security:

In order to prevent unauthorized entries in mines area during temporary discontinuance, all the security and safety arrangements will be continued so as to avoid unauthorized entry in Mines.

(B) Care & Maintenance of Green Belts Developed:

In order to protect Green Belts already developed during course of rehabilitation of waste dumps and in other areas of mines, their proper care by providing labours for maintenance of plants, weeding and treatment, watering arrangement will be continued even in case of temporary discontinuance so as to protect the already developed green belts.

(C) Monitoring of Environmental Parameters:

In case of temporary discontinuance also, all the environmental parameters such as air, water, noise will be monitored at same frequency as is being done during normal working. All the protective work shall be carried forward so as to avoid environmental pollution.

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(D) Infrastructures, rope way, pipe conveyor and Workshop: Will be maintained even in case of temporary discontinuance.

(E) All other important structures like office complex, workshop building, HEMM will also be maintained as is being maintained during normal mining operation.

(F) In order to prevent the waste dumps from any natural calamities, all precautionary measures such as proper draining of rain water, sieved culvert, etc. shall be taken care of in case of temporary discontinuance

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8.6 FINANCIAL ASSURANCE:

For calculation of the Financial Assurance, the area put to use has been calculated as under:-

[Area in Hect.]

Sr. No	Head	Area put on use at start of Plan	Additional Require-ment during Plan period	Total	Area considered as fully reclaimed and rehabilitated	Net area considered for calculation
(a)	(b)	(c)	(d)	(e)	(f)	(g)
				e=(c+d)		g= (e-f)
1	Area broken Mining	143.37	5.40	148.77	-	148.77
2	Storage of Top soil	1.42	-	1.42	1.42	-
3	Waste dump site	41.40	6.36	47.76	32.00	15.76
4	Mineral Storage	-	-	-	-	-
5	Infrastructure Office Bldg., Crusher, Ropeway Corridor,MCC Room, Weigh Bridge & Water Tank, Pipe conveyor	4.54	-	4.54	अनुमोदित APPROVED	4.54
6	Road	2.63	-	2.63	-	2.63
7	Railways	-	-	-	-	-
8	Effluent Treatment Plant	-	-	-	-	-
9	Mineral Separation Plant	-	-	-	-	-
10	Township area	-	-	-	-	-
11	Sub grade Dump	3.16	-	3.16	-	3.16
12	Tailing Pond	-	-	-	-	-
13	Laterite shed and surrounding area	1.50	-	1.50	-	1.50
	TOTAL:-	**198.02**	**11.76**	**209.78**	**33.42**	**176.36**

(Please refer plate no. 14)

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The total Financial Assurance will be :

Area put to use (Hect.)	Rates / Ha.	Total Amount
176.36	25000/-	44,09,000/-

BANK GUARANTEE DETAILS

Fresh Bank Guarantee as per the proposals and land use, given in above table for Rs 44, 09,000/-(Rupees forty four lakh nine thousand only) is submitting with this Modified Mining Plan for the period 2016-17 to 2020-21.

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पत्र संख्या द्वारा
VIDE LATTER No. -CPD(LST/MPLD-139/DGP-2016 dt. 07.06.16

क्षेत्रीय खान नियंत्रक (ना. क्षे.)
Regional Controller of Mines (N. R.)
भारतीय खान ब्यूरो नागपुर
Indian Bureau of Mines, Nagpur

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CERTIFICATE

Certified that:

This Modified Mining Plan and Progressive Mine Closure Plan complies all statutory rules, regulations and orders made by the Central or State Governments, statutory organizations, honourable Courts, etc. and in case if specific permission is required, we will approach the concerned authorities.

It is also certified that all the proposed activities under this proposed Modified Mining Plan shall be implemented in time bound manner.

Place : Gadchandur
Date : 27.1.2016

.....
(Signature of Applicant)
Name : **R K Udge**
Designation : **Agent** & **Executive President (Mines)**
M/s MANIKGARH CEMENT

.....
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RQP REG.NO. RQP/NGP/523/2015/A
VALID UP TO 26.10.2025

.....
(R K UDGE)
RQP REG.NO. RQP/JBP/064/96/A
VALID UP TO 24.03.2020