

INDEX

1	EXECUTIVE SUMMARY	4
2	INTRODUCTION OF THE PROJECT/ BACKGROUND INFORMATION.....	6
2.1	IDENTIFICATION OF PROJECT AND PROJECT PROPONENT.....	6
2.2	NEED FOR THE PROJECT & ITS IMPORTANCE TO THE COUNTRY/ REGION	7
2.3	DEMAND – SUPPLY GAP	8
2.4	IMPORTS VS. INDIGENOUS PRODUCTION	8
2.5	EXPORT POSSIBILITY	8
2.6	DOMESTIC/EXPORT MARKETS	9
2.7	EMPLOYMENT GENERATION (DIRECT AND INDIRECT) DUE TO THE PROJECT....	9
3	PROJECT DESCRIPTION	9
3.1	TYPE OF PROJECT INCLUDING INTERLINKED AND INDEPENDENT PROJECTS, IF ANY	9
3.2	LOCATION	9
3.3	DETAILS OF ALTERNATE SITES	4
3.4	SIZE OR MAGNITUDE OF OPERATION	4
3.4.1	REGIONAL GEOLOGY	4
3.5	PROJECT DESCRIPTION WITH PROCESS DETAILS	6
3.5.1	YEARWISE PRODUCTION DETAILS	6
3.5.2	PROPOSED METHOD OF MINING:	7
3.5.3	EXTENT OF MECHANIZATION	8
3.5.4	CONCEPTUAL MINING PLAN	8
3.5.5	DRILLING	9
3.5.6	BLASTING	9
3.6	RAW MATERIAL REQUIRMENT	10
3.7	RESOURCES OPTIMIZATION/ RECYCLING AND REUSE ENVISAGED IN THE PROJECT, IF ANY, SHOULD BE BRIEFLY OUTLINED	10

3.8	AVAILABILITY OF WATER& ITS SOURCE, ENERGY /POWER REQUIREMENT AND SOURCE	10
3.9	QUANTITY OF WASTE TO BE GENERATED (LIQUID AND SOLID) AND SCHEME FOR THEIR MANAGEMENT/DISPOSAL	11
4	SITE ANALYSIS	11
4.1	CONNECTIVITY (Mine Site)	11
4.2	LAND FORM, LAND USE AND LAND OWNERSHIP	12
4.3	TOPOGRAPHY	12
4.4	EXISTING LAND USE PATTERN	13
4.5	EXISTING INFRASTRUCTURE	13
4.5.1	WATER	14
4.6	CLIMATE	14
4.7	SOCIAL INFRASTRUCTURE AVAILABLE	14
5	PLANNING BRIEF	15
5.1	PLANNING CONCEPT	15
5.2	POPULATION PROJECTION	15
5.3	LAND USE PLANNING	16
5.4	ASSESSMENT OF INFRASTRUCTURE DEMAND	16
5.5	AMENITIES/FACILITIES	16
6	PROPOSED INFRASTRUCTURE	17
6.1	INDUSTRIAL AREA (PROCESSING AREA)	17
6.2	RESIDENTIAL AREA (NON PROCESSING AREA)	17
6.3	GREEN BELT	17
6.4	SOCIAL INFRASTRUCTURE	17
6.5	CONNECTIVITY (TRAFFIC AND TRANSPORTATION ROAD / RAIL / METRO /WATER WAYS ETC)	17
6.6	DRINKING WATER MANAGEMENT (SOURCE & SUPPLY OF WATER)	17
6.7	SEWAGE SYSTEM	18

6.8	INDUSTRIAL WASTE MANAGEMENT	18
6.9	SOLID WASTE MANAGEMENT	18
6.10	POWER REQUIREMENT & SUPPLY/SOURCE	18
7	REHABILITATION AND RESETTLEMENT (R & R PLAN)	18
7.1	POLICY TO BE ADOPTED.	18
8	PROJECT SCHEDULE AND COST ESTIMATES	18
8.1	LIKELY DATE OF START OF CONSTRUCTION AND LIKELY DATE OF COMPLETION	18
8.2	ESTIMATED PROJECT COST AND ALONG WITH ANALYSIS IN TERMS OF ECONOMIC VIABILITY OF THE PROJECT	18
9	ANALYSIS OF PROPOSAL	18
10	ENVIRONMENT MANAGEMENT PLAN.....	19

1 EXECUTIVE SUMMARY

The Mandla Limestone Mine of Sh. Rajendra Singh Kachchwaha is situated Near Village Mandla, Tehsil Sojat City, District Pali (Rajasthan) over an area of 1000.0 ha. State Govt. has granted the mining lease over an area of 1000 ha for 10 years w.e.f 01.03.1974 first renewal was sanction by state govt. of further 10 years w.e.f 01/03/1984. The period of first renewal was extended further for 10 years by department of mines & geology in compliance of govt. of Rajasthan order. Second renewal was sanction by state govt. for further 20 years w.e.f 01.03.1994. The period of second renewal was extended further for 20 years by department of mines & geology, in compliance of govt. of Rajasthan order No. F-2(A-6) sojat/minor/94/747 dated 13.08.2002.

The lessee submitted an application for extending the lease period further for 10 years hence lease period was extended further for 10 year by department of mines & geology hence the period of lease is from 01.03.1994 to 30 years. The date of expire of lease is 28.02.2024.

The Mining Scheme with PMCP has been approved by Spudtg. Mining Engineer, Department of Mines & Geology, Jodhpur vide letter No. SME/JO/CC/Sojat/Minor/M.L.04/1994/8650 dated 31/03/2017.

The mining will be carried out by opencast semi-mechanized method as per the approved Mining Plan only. The total mining lease area is 1000 ha out of which 900 ha is Govt. Waste land & 100 ha area is agriculture land. The proposed production is 78, 51,450 Tonne. The estimated cost of project will be Rs. 65.0 Crore

The Project Proponent has produced 20588841 MT of Limestone without Environment Clearance. Therefore it is a violation case

Limestone is probably the most diversely utilized rock in industry; it is relatively easy to quarry and pulverize and in its natural state, is non-toxic. Limestone, quicklime and slaked lime are all used to neutralize excess acidity - which may be caused by acid rain - in lakes and in soils. Limestone has numerous uses as a building material, and to purify iron in blast furnaces. It's also used in the manufacture of glass, and of cement (one of the components of concrete), an essential component of concrete (Portland cement), as aggregate for the base of roads, as white pigment or filler in products such

as toothpaste or paints, as a chemical feedstock for the production of lime, as a soil conditioner, or as a popular decorative addition to rock gardens.

Besides this, the project will prove beneficial in terms of socio-economic development as it will provide employment to locals. Further, the average income level, which is the indicator of socio – economic status of households is expected to increase, which will ultimately result in better standard of living of the local people.

Table1: Salient Features of the project site

S. No.	Particulars	Details		
A.	Nature of the Project	Mandla Limestone Mine		
B.	Size of the Project			
1.	Mine Area	1000.0 ha		
2.	Production Capacity	78,51,450 MT		
C	Location Details			
1.	Village	Mandla		
2.	Tehsil	Sojat City		
3.	District	Pali		
4.	State	Rajasthan		
5.	Latitude & Longitude	Pillars	Latitude (N)	Longitude (E)
		X	26°00'08.28"	73°43'35.84"
		Y	26°00'46.47"	73°43'51.70"
		K	26°00'46.26"	73°44'21.32"
		J	26°00'4.24"	73°44'21.22"
		I	26°00'4.23"	73°44'10.57"
		A	26°0'09.20"	73°44'10.68"
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		M	25°57'49.67"	73°43'57.84"
		N	25°57'48.90"	73°42'5.00"
		O	26°0'8.63"	73°42'7.29"
		1	26°0'8.41"	73°42'49.32"
		2	25°58'31.16"	73°42'49.06"
		3	25°58'30.62"	73°43'50.10"
		4	25°59'35.31"	73°43'50.76"
		5	25°59'36.03"	73°43'24.91"

S. No.	Particulars	Details																				
		<table border="1"> <tr> <td>6</td> <td>26°0'8.07"</td> <td>73°43'25.52"</td> </tr> </table>	6	26°0'8.07"	73°43'25.52"																	
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6.	Toposheet No.	45 F/12, 45 F/14, 45 G/9																				
D	Environmental Settings of the Area																					
1.	Ecological Sensitive Areas	One Reserved Forests fall within 15 km radius of Buffer zone: <table border="1"> <thead> <tr> <th>S. No.</th> <th>P.F./R.F.</th> <th>Distance</th> <th>Direction</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>R.F</td> <td>10.0</td> <td>WWN</td> </tr> </tbody> </table>	S. No.	P.F./R.F.	Distance	Direction	1.	R.F	10.0	WWN												
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1.	R.F	10.0	WWN																			
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3.	Liri Nadi	1.15 Km	South																			
4.	Pond	11.80 Km	South East																			
3.	Nearest Town / City	Mandla ~ 2.40 km in NNW direction.																				
4.	Nearest Railway Station	Sojat Railway Station at 7.30 km in SW Direction from mine site.																				
5.	Nearest Airport	Jodhpur Airport at 71.0 km in NW Direction																				
6.	State Boundary	No																				
7.	Seismic Zone	Zone – III [as per IS 1893 (Part-I): 2002]																				
D	Cost Details																					
1.	Total Project Cost	Rs. 65.0 Crore																				
E	Requirements of The Project																					
1.	Proposed Water Requirement	100 KLD																				
2.	Fuel requirement	500 LPD																				
3.	Man Power Requirement	70 (Skilled and unskilled persons)																				

2 INTRODUCTION OF THE PROJECT/ BACKGROUND INFORMATION

2.1 IDENTIFICATION OF PROJECT AND PROJECT PROPONENT

The Mandla Limestone Mine of Sh. Rajendra Singh Kachchhwaha is situated Near Village Mandla, Tehsil Sojat City, District Pali (Rajasthan) over an area of 1000.0 ha. State Govt. has granted the mining lease over an area of 1000 ha for 10 years w.e.f

01.03.1974 first renewal was sanction by state govt. of further 10 years w.e.f 01/03/1984. The period of first renewal was extended further for 10 years by department of mines & geology in compliance of govt. of Rajasthan order. Second renewal was sanction by state govt. for further 20 years w.e.f 01.03.1994. The period of second renewal was extended further for 20 years by department of mines & geology, in compliance of govt. of Rajasthan order No. F-2(A-6) sojat/minor/94/747 dated 13.08.2002.

The lessee submitted an application for extending the lease period further for 10 years hence lease period was extended further for 10 year by department of mines & geology hence the period of lease is from 01.03.1994 to 30 years. The date of expire of lease is 28.02.2024.

2.2 BRIEF DESCRIPTION OF THE NATURE OF PROJECT

The violation of the EIA Notification, 2006 and the provisions of the notification No. S. O. 804 (E) Dated 14/03/2017, the project falls under, Category “A”.

The Project Proponent has produced 20588841 MT of Limestone without Environment Clearance. Therefore it is a violation case

It has been proposed to excavate approximately 78, 51,450 TPA of Limestone by opencast semi-mechanized method. The lease area is 1000.0 ha. Total mineable reserve available is 65443646.7 MT of Limestone Mineral. The expected life of mine is 19 years. Waste generated during the five year plan period will be 39, 25,725 m³ respectively. The Limestone will be transported through trucks/dumper.

At the end of lease period (1000.0 ha), the total excavated area will be 402.92 ha out of which 218.45 hect area will be converted into water reservoir & 184.47 hect will be backfilled & reclaimed by plantation. Water reservoir will ultimately help in recharging the ground water table and also used for irrigation purpose. The depth of water table is 80 m (Pre-Monsoon) to 60 m (Post-Monsoon) below the general ground level. Thus ground water table will not be encountered during working in the mine.

2.2 NEED FOR THE PROJECT & ITS IMPORTANCE TO THE COUNTRY/ REGION

Limestone is probably the most diversely utilized rock in industry; it is relatively easy to quarry and pulverize and in its natural state, is non-toxic. Limestone, quicklime and slaked lime are all used to neutralize excess acidity - which may be caused by acid

rain - in lakes and in soils. Limestone has numerous uses as a building material, and to purify iron in blast furnaces. It's also used in the manufacture of glass, and of cement (one of the components of concrete), an essential component of concrete (Portland cement), as aggregate for the base of roads, as white pigment or filler in products such as toothpaste or paints, as a chemical feedstock for the production of lime, as a soil conditioner, or as a popular decorative addition to rock gardens.

Besides this, the project will prove beneficial in terms of socio-economic development as it will provide employment to locals. Further, the average income level, which is the indicator of socio – economic status of households is expected to increase, which will ultimately result in better standard of living of the local people.

2.3 DEMAND – SUPPLY GAP

Limestone is the main raw material for cement production; the demand is always there with that of cement. Moreover, the mine produces good grade limestone leading to conservation of mineral resources. The cement market has growth due to the central government liberalization policies and new scheme for housing, road projects. Cement demand growth is anticipated to be about 11% increase mainly through road projects & housing projects.

With respect to the importance of the project to the nation, it can be well said that in a developing nation like India, cement makes a backbone for infrastructural development. Thus, keeping in mind this requirement, mining of limestone is essential for the nation`s growth.

Continuous demand for exports along with the increased requirement of the domestic sector has been lead all the cement manufacture in the country to plan for increased capacities.

2.4 IMPORTS VS. INDIGENOUS PRODUCTION

Limestone produced from the Mandla Limestone mine will be used in cement manufacturing in the cement plant.

2.5 EXPORT POSSIBILITY

Not applicable as the Limestone production from the mine will be for domestic use.

2.6 DOMESTIC/EXPORT MARKETS

Domestic demand is one of the chief reasons for the rapid growth of Limestone business in India. Limestone produced will be used as building material, and to purify iron in blast furnaces. It's also used in the manufacture of glass, and of cement (one of the components of concrete), an essential component of concrete (Portland cement), as aggregate for the base of roads, as white pigment or filler in products such as toothpaste or paints, as a chemical feedstock for the production of lime, as a soil conditioner, or as a popular decorative addition to rock gardens.

2.7 EMPLOYMENT GENERATION (DIRECT AND INDIRECT) DUE TO THE PROJECT

The total number of manpower is required for the mining activity is 70 people. Priority for employment will be given to local workers. Following staff & workers are proposed to be employed:-

Table 2: Manpower requirement

1.	Mines Manager	1
2.	Mining Engineer	1
3.	Geologist	1
4.	Mining foreman	2
5.	Mining Mate	3
6.	Watchman & Time Keeper/	1
7.	Labour	61
Total		70

3 PROJECT DESCRIPTION

3.1 TYPE OF PROJECT INCLUDING INTERLINKED AND INDEPENDENT PROJECTS, IF ANY

The mining of Limestone Mine is carried out by opencast semi-mechanized method. This is an independent project. No interlinked project is proposed.

3.2 LOCATION

The total mining lease area is 1000 ha out of which 900 ha is Govt. Waste land & 100 ha area is agriculture land is situated Near Village Mandla, Tehsil Sojat City, District Pali (Rajasthan). The project site falls in Survey of India Toposheet No. 45 F/12, 45 F/14, 45 G/9.

The geographical location with respect to boundary pillars of the proposed Limestone area are:-

Table 3: The geographical location with respect to boundary pillars

Pillars	Latitude (N)	Longitude (E)
X	26°00'08.28"	73°43'35.84"
Y	26°00'46.47"	73°43'51.70"
K	26°00'46.26"	73°44'21.32"
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The location map is given below: -

Mandla Limestone Mine, Production Capacity – 78,51,450 TPA, M.L. Area-1000.0 ha., M.L No. 04/94 Near Village- Mandla, Tehsil – Sojat City, District - Pali (Rajasthan)

Pre-Feasibility Report

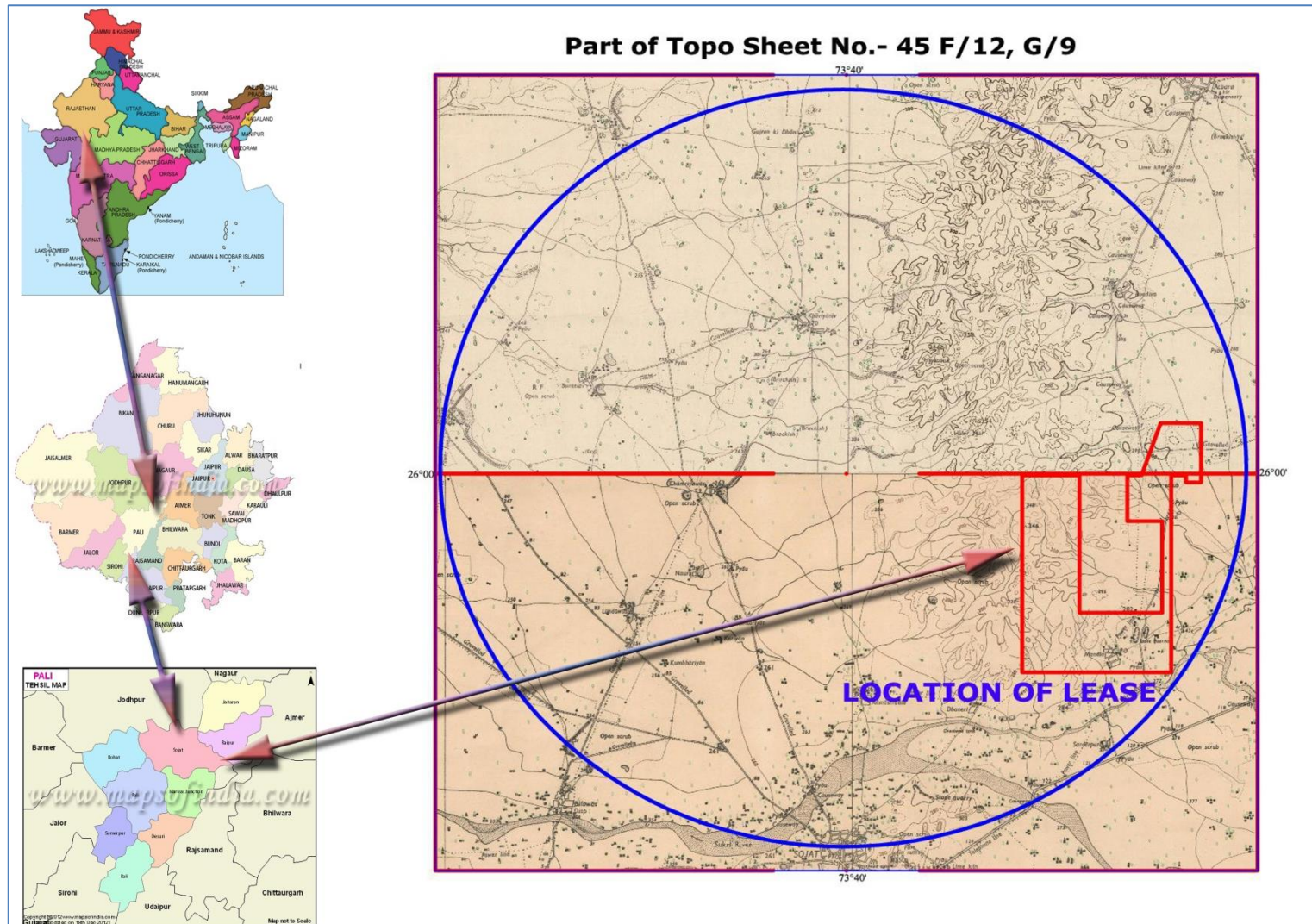


Figure-1: Location Map

3.3 DETAILS OF ALTERNATE SITES

Mining activity is site specific hence no alternative sites examined.

3.4 SIZE OR MAGNITUDE OF OPERATION

Mine area for the Mandla Limestone mine is 1000.0 ha and production capacity is 78, 51,450 TPA.

3.4.1 REGIONAL GEOLOGY

The rock formation of mandla and its surrounding areas belong to the Bilara group super groups, which is an essentially unfossiliferous – ferrous and marine sedimentary sequence of rock of Cambrian age. The rock sequence has been classified into Jodhpur, Bilara & Nagaur groups representing arenaceous, calcareous and arenaceous-argillaceous facies of sediments respectively. Regional stratigraphic succession of the area is given below.

Table 4: Geological Succession of the area

GROUP	FORMATIN	ROCK TYPE
Nagaur Group	Tunklian Sand Stone	Sand stone, gritty sand stone & pebbly sand stone
	Nagaur Sand stone	Brick red sand stone, siltstone, shale and evaporates
Bilara Group	Pondlo Dolomite	Dolomite, dolomite limestone cherty dolomite, stromatolitic limestone, dolomite etc.
	Gotan Limestone	Limestone with bands of chert and dolomite
	Dhanappa Dolomite	Stromatolitic Limestone, dolomite limestone chert and cherty dolomite
Jodhpur stone	Gribhakar sand stone	Bricked siltstone, shale & sand stone
	Sonia sand stone	Maroon silt stone, shale & sand stone
	Pokhran Boulder bedunconformity..... Bed comprising pebbles, cobbles, boulders and erratic of malani granite and rhyolite in sand/ silt / clay matrixunconformity..... Basement rocks

The marwar super group has been deposited un-conformably over post –delhi intrusive known as Erinpura and jalore – siwana granites in jalore and pali district and malani volcanics in jodhpur District. A thick sequence of sandstone, shales and boulder beds is deposited over the granitic and volcanic basement, which is followed by limestone and dolomite known as Bilara group. It is again followed by Nagaur group, which is mainly represented by sandstones, gypsum and silty clays; keria limestone is a central part of limestone and dolomites belonging to Bilara group. All the three groups have yielded important mineral deposits. Jodhpur group is famous for the sand stones, while Bilara

group is providing high grade of limestone for metallurgical, cement and chemical purpose and Nagaur group has a very thick bed of gypsum which is yet to be exploited. Marwar super group covers very large area in western Rajasthan and is exposed in the districts of pali, jodhpur, Nagaur and Bikaner. Mesozoic group represented by cretaceous system comprising loosely consolidated sand. Clay and lignite again follow the marwar super group. These are overlain by quaternary system with alluvium, blown sand belonging to Pleistocene and recent age no fault / fold or any geological disturbance is observed in the lease area. The general strike is in NE to SW direction and dip is 5° in westerly direction.

LOCAL GEOLOGY

The limestone deposit of Mandla-Atbara, Rundla in pali district is the part of the main limestone belt stretching over a length of 160 kms and 0.80 kms to 12 kms wide belonging to Marwar supergroup trending ENE. The limestone of this belt comprises mainly SMS/Chemical/Cement grade having intercalations of cherty and siliceous limestone in the form of intermittent bands. Many mining leases are in operation. In Rundia area 14.40 million tonne reserves containing 45% CaO & 0.5 to 2.89% MgO have been estimated by the department.

The limestone formations vary widely in nature within the mining area and consequently there are number of varieties of limestone which are founded exposed in the area as under:-

S. No.	Lithology	Thickness (mts)
1	Alluvium	1.0
2	Dolomitic Limestone	2.0
3	Cherty Limestone	1.0
4	Limestone	6.0
5	Dolomitic Limestone	1.5
6	Limestone	2.0

MINERAL RESERVES

Table 5: Mineral Reserve

Mineralized Zone Area (m²)	Depth (m)	Mineral Vol. (m³)	Bulk Density MT/m³	Mineral (tones)	Recovery of mineral bench wise	Rec. Mineral (tones)	Waste
Limestone							
9297091	6	55782546	2.5	139456365	50%	69728183	69728183
Total				139456365		69728183	69728183

Total Reserve: - Non Utilities Mineral + Bench wise = Total Reserve

Total Reserve = 69728183 + 2986980 MT = 72715163 MT

Nature of Reserve	Rec. Mineral (in tonnes)
Mineable Mineral	72715163
Total	72715163

Mineable Mineral = Mineral – Mining Losses & Mineral Block in Benches (10%)

= 72715163 – 7271516.3 = 65443646 MT

LIFE OF MINE

Table 6: Life of Mine

Life of mine	Mineable reserve/ Average annual production
	65443646.7/3461825 =19 years

3.5 PROJECT DESCRIPTION WITH PROCESS DETAILS

3.5.1 YEARWISE PRODUCTION DETAILS

Detail of production since inception:-

Year	Production (MT)
1991-92	28731.300
1992-93	18849.900
1993-94	20357.100
1994-95	1764.200
1995-96	16792.600
1996-97	20749.400
1997-98	25963.400
1998-99	17604.500
1999-2000	18643.400
2000-01	27859.400
2001-02	28090.200
2002-03	190043.200
2003-04	181347.100
2004-05	33771.300
2005-06	71203.300
2006-07	104724.100
2007-08	126613.900
2008-09	121028.700
2009-10	136084.00
2010-11	153513.00

2011-12	161218.0
2012-13	184178.0
2013-14	185114.1
2014-15	168750.0
Total	20588841

In this area the mining of Limestone involves blasting. The O.B. will be removed with the help of JCB/ excavator. The Applicant has to produce Limestone working for a period of 4 years with a production of 78, 51,450 TPA as per the mine plan. The details of year wise production for the four years period are given below.

Table7: Year wise Production of Limestone Mine for the four years period

Year	Section	R.L	Total Mineral	Rec. Mineral	Dump	Rec. Dump
I	22'	295 to above	5199435	2599718	0	2599718
II	11' 22'	294 to above	7056008	3528004	0	3528004
III	22'	295 to above	7587705	3793853	0	3793853
IV	33'	275 to above	7851450	3925725	0	3925725

3.5.2 PROPOSED METHOD OF MINING:

The Limestone Mine shall be developed by opencast semi-mechanized mining which include excavating, manual sorting, loading, transport and dispatch of mineral to end users.

3.5.2.1 OPEN CAST MINING

The mining will be done by opencast semi-mechanized method of mining. In mineral the bench height will be maintained 6 m and the width will be maintained more than bench height. The ultimate depth of the workings will not intersect ground water table.

3.5.2.2 SALIENT FEATURES OF MINING METHOD

The salient features of proposed mining method are:-

1. Bench or Bank or high wall height 6 meter.
2. Bench width not less than the bench height.
3. Bench slope angle from horizontal, about $77^{\circ} - 80^{\circ}$ from horizontal.
4. Ultimate Pit slope 45° .
5. All benches to be equipped with road edge barrier.
6. Transportation of the mineral from mine to end users will be done by trucks/dumpers.

3.5.3 EXTENT OF MECHANIZATION

The mining machineries to be used in proposed mining operation are as below:-

Table-8: List of Machineries

S. No.	Machine Type	Making Company	Capacity	No. of Items
1.	Shovel	Hitachi	1.5 cum	5
		Volvo	1.5 cum	3
2.	Dumper	Tata	20 T	30
3.	Tipper	Tata	10 T	20
4	Compressor	ELGI		6
5	Drill Machine	Atlas Copco	4.6” Dia	10
6	Jack Hammer – Tractor mount	Atlas Copco		10
7	JCB	JCB		10
8	JCB Rock Breaker	JCB		9
9	Waste Tanker	Tractor mounted	5 KL	6

3.5.4 CONCEPTUAL MINING PLAN

The Limestone is occurring throughout the area. The mineable reserves are estimated to 6, 54, 43,646 MT. The annual Production is proposed to be 78, 51, 450 TPA. Life of the mine is 19 Years.

3.5.4.1 LAND USE PATTERN

The land use for mining and allied purposes is given below:-

Table 9: STAGE WISE LAND USE AND RECLAMATION AREA (Ha.)

S. No.	Land use Category	Present	4 th Year	End of life of mine
		Agriculture Land + Gov. Land	Agriculture Land + Gov. Land	Agriculture Land + Gov. Land
1	Top Soil Dump	-	50.08	-
2	O.B / Dump	20.00	50.29	3.83
3	Excavation (Voids Only)	65.0	Total excavated 332.04 (50.4 ha will be converted into water reservoir & 100.13 ha area will be backfilled & reclaimed by planation)	402.92 (218.45 ha will be converted into water reservoir & 184.47 ha will be backfilled & reclaimed by plantation)
4	Road		5.5	5.5
5	Infrastructure	5.0	5.0	5.0

6	Afforestation		258.54 + 18.16 (Statutory barrier)	258.54 + 18.16 (Statutory barrier)
7	Subgrade Mineral	-	78.91	-
8	Processing (Crushing)	-		
9	Undisturbed Area	910.0	201.48	306.05
Total		100 (Agri.) + 900(Govt. Land) = 1000	1000	1000

Table 10: POST MINING LAND USE OF CORE ZONE WITH ENVIRONMENT MANAGEMENT

S. No.	Description	Land Use (In Ha)				
		Plantation	Water Body	Public Use	Undisturbed	Total
1	Top Soil Dump	Nil	Nil	Nil	Nil	Nil
2	Dump/Stacks of Mineral	3.83	Nil	Nil	Nil	3.83
3	(a)Excavation (Voids)	Nil	218.45	Nil	Nil	218.45
	(b)Excavation (backfilled)	184.47	Nil	Nil	Nil	184.47
4	Road	Nil	Nil	5.5	Nil	5.5
5	Infrastructure	Nil	Nil	5.0	Nil	5.0
6	Afforestation	258.54 + 18.16 (Statutory barrier)	Nil	Nil		258.54 + 18.16 (Statutory barrier)
7	Mineral Storage	Nil	Nil	Nil	Nil	Nil
8	Processing (Crushing)	Nil	Nil	Nil	Nil	Nil
9	Tailing Ponds/Dam	Nil	Nil	Nil	Nil	Nil
10	Others Toe Wall etc.	Nil	Nil	Nil	Nil	Nil
11	Undisturbed Area	Nil	Nil	Nil	306.05	306.05
Total		465	218.45	10.5	306.05	1000

3.5.5 DRILLING

The deposit is proposed to be mined by Opencast semi-mechanized mining by adopting a system of small hole/deep hole blasting and /or working with the help of machinery for digging, excavation and removal of ore, overburden etc. Drilling of the blast holes is proposed to be done by compressed air fed jack hammers and wagon drills. Height of the bench is proposed to be kept at 6 m where drill will make 1.5 m deep bore hole. Wet drilling is to be done in hand holes as well as jack hammer drilling/ wagon drill.

3.5.6 BLASTING

Blasting is required only for removing OB, waste rock and mineral. The controlled blasting technique is to be adopted, so that it does not damage the Limestone. Secondary Blasting

shall be avoided big size boulder shall be fragmented by means of hammer attachment with small capacity excavator. V- shaped blasting pattern shall be adopted.

TYPE OF EXPLOSIVE TO BE USED

Detonating chord will be used as per requirement.

ANFO

Ordinary Detonators with safety fuse. (If required)

STORAGE OF EXPLOSIVE

The blasting shall be done as per requirement. The licensed blasting contractor shall handle the explosive himself and the blasting contractor will do the blasting by authorized as per the present practice. Hence, no storage of explosive is required at the site.

MINERAL TRANSPORTATION

Loading of mineral will be done by excavator & dumper/trucks of 20-30 T will be used for transportation of mineral & waste.

3.6 RAW MATERIAL REQUIRMENT

No raw material will be required. The final product will be sent to consumer industries based on their demand. The mode of transportation of raw material will be road. Trucks/Dumpers will be used for transportation of Limestone.

3.7 RESOURCES OPTIMIZATION/ RECYCLING AND REUSE ENVISAGED IN THE PROJECT, IF ANY, SHOULD BE BRIEFLY OUTLINED

- No waste water will be generated from limestone mine.
- Top soil will be utilized for development of green belt and afforestation.

3.8 AVAILABILITY OF WATER& ITS SOURCE, ENERGY /POWER REQUIREMENT AND SOURCE

WATER:

The daily water demand for the project is 100.0 KLD which will be procured from near Villages and rain harvested water stored in tank after and during monsoon. The pond desiltation and impoundment will be done by the project proponent. The detailed breakup of the water requirement is given below.

Table 12: Water Demand

S. No.	Particulars	Quantity (KLD)
1.	Domestic Purpose	5.0
2.	Dust Suppression / Water Sprinkling	60
3.	Green belt / Plantation	35
Total		100.0

Power Supply: There is no electricity proposed as the mining will be done during the day time and the machinery proposed will be operated by the use of diesel.

3.9 QUANTITY OF WASTE TO BE GENERATED (LIQUID AND SOLID) AND SCHEME FOR THEIR MANAGEMENT/DISPOSAL

Waste contains small pieces of limestone mixed with soil, dust of dolomitic limestone. About 43, 01,227 Tonne OB will be generated at the end of first four year's period. Waste/O.B material generated during course of mining will be stacked inside the lease area the working pit, top soil and OB generated during the scheme period will be stacked separately in an area of 6.7 ha with height of 5.5 m and 4.6 ha with height of 3.5 respectively. Dolomitic limestone and limestone during the scheme period will be stacked separately in an area of 7.8 ha with height of 8.5 m and 2.5 ha respectively. In present condition no economic use of such dump proposed however this dump shall be established by making terraces and putting plantation on this retaining wall shall me made around the waste dump.

PARTICULARS	MANAGEMENT
O.B./Mineral Waste	About 43, 01,227 Tonne OB & 21, 54,226 Tonne Top soil will be generated at the end of first four year's period. Dump shall be established by making terraces and putting plantation on this retaining wall shall me made around the waste dump. Top soil generated will be spread over the backfilled area and plantation will be done over backfilled area.

4 SITE ANALYSIS

4.1 CONNECTIVITY (Mine Site)

Table No.13: Connectivity

PARTICULARS	DISTANCE & DIRECTION
Nearest Railway Station	Sojat Railway Station at 7.30 km in SW Direction

Nearest Airport	Jodhpur Airport at 71.0 km in NW Direction.
Nearest Highway	SH-62 (Passing through the lease area)

4.2 LAND FORM, LAND USE AND LAND OWNERSHIP

LAND FORM

The Mining area is partly flat land with gentle undulating and partly undulating topography.

LAND USE

The present land use pattern is as below:-

Table 14: Land Use Pattern

S. No.	Land use Category	Present
		Agriculture Land + Gov. Land
1	Top Soil Dump	-
2	O.B / Dump	20.00
3	Excavation (Voids Only)	65.0
4	Road	
5	Infrastructure	5.0
6	Afforestation	
7	Subgrade Mineral	-
8	Processing (Crushing)	-
9	Undisturbed Area	910.0
Total		100 (Agri.) + 900(Govt. Land) = 1000

LAND OWNERSHIP

The total mining lease area is 1000 ha out of which 900 ha is Govt. Waste land & 100 ha area is agriculture land is situated Near Village Mandla, Tehsil Sojat City, District Pali (Rajasthan). Map for the same is enclosed as **Plate No.-II of mining plan.**

4.3 TOPOGRAPHY

Topographically, the Mining area is having partly flat land with gentle undulating and partly undulating topography. The highest contour in the area is 320.0 m & the lowest contour is 275.0 m

4.4 EXISTING LAND USE PATTERN

Table 15: Existing Land Use Pattern (In Ha.)

S. No.	Description	Land Use (In Ha)				Total
		Plantation	Water Body	Public Use	Undisturbed	
1	Top Soil Dump	Nil	Nil	Nil	Nil	Nil
2	Dump/Stacks of Mineral	3.83	Nil	Nil	Nil	3.83
3	(a)Excavation (Voids)	Nil	218.45	Nil	Nil	218.45
	(b)Excavation (backfilled)	184.47	Nil	Nil	Nil	184.47
4	Road	Nil	Nil	5.5	Nil	5.5
5	Infrastructure	Nil	Nil	5.0	Nil	5.0
6	Afforestation	258.54 + 18.16 (Statutory barrier)	Nil	Nil		258.54 + 18.16 (Statutory barrier)
7	Mineral Storage	Nil	Nil	Nil	Nil	Nil
8	Processing (Crushing)	Nil	Nil	Nil	Nil	Nil
9	Tailing Ponds/Dam	Nil	Nil	Nil	Nil	Nil
10	Others Toe Wall etc.	Nil	Nil	Nil	Nil	Nil
11	Undisturbed Area	Nil	Nil	Nil	306.05	306.05
Total		465	218.45	10.5	306.05	1000

Table No.-16: Environmental Settings

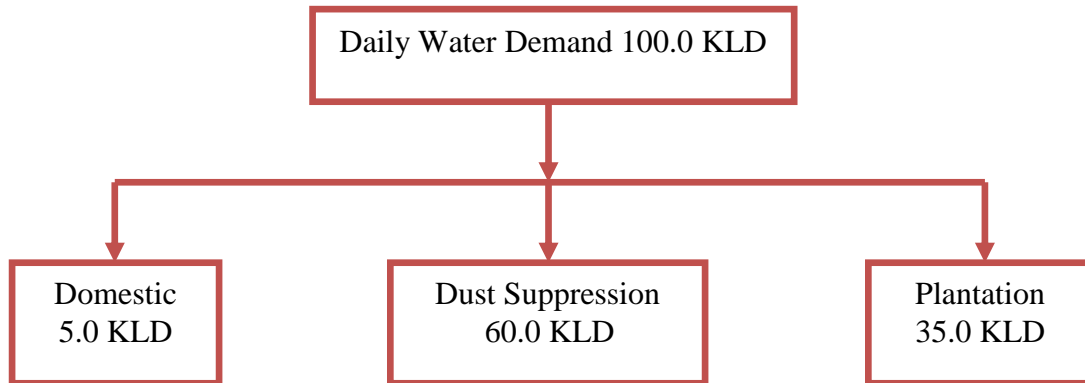
S. No.	Particulars	Details			
1.	National Park, Wild Life Sanctuary, Biosphere Reserve, Tiger Reserve, Wildlife Corridor, Reserved Forest	One Reserved Forests fall within 15 km radius of Buffer zone:			
		S. No.	Name	Distance	Direction
		1.	R.F	10.0	WWN
2.	River / water body	Available water bodies and rivers falls within 15 Km radius Buffer zone as follows: -			
		Water bodies/River	Distance	Direction	
		Guriya Nadi	4.40 Km	East	
		Sukri River	3.19 Km	South West	
		Liri Nadi	1.15 Km	South	
		Pond	11.80 Km	South East	

4.5 EXISTING INFRASTRUCTURE

Refer the Para no. 4.1 of section 4.0

4.5.1 WATER

The total water demand will be as follows:



4.6 CLIMATE

The area witnesses subtropical climate and receives an average rainfall of 362.9 mm annually. They are – i) Winter ranging from November to February ii) Summer ranging from March to mid- June iii) South west monsoon ranging from mid – June to mid- September iv) Post monsoon ranging from mid – September to October in the cold weather, The variation in temperature is from 29⁰ C to 44⁰ C in summers and 5.4⁰ C to 23.1⁰ C during winter. From November to February the area experiences winter, while April to June the region experiences summer. The monsoon sets in by June and retreats by September. Relative humidity averages from 19% to 79% in a year.

4.7 SOCIAL INFRASTRUCTURE AVAILABLE

Table 17: Infrastructure in the Study Area

Particulars	Name	Distance (Km)	Direction
		(From Mine Area)	
Nearest Habitation	Mandla	2.40 km	NNW
Nearest Towns	Sojat	7.30 km	SW
Nearest Airport	Jodhpur airport	71.0 km	NW
Nearest Highway	SH-62	(Passing through the lease area)	
Nearest Railway Station	Sojat Railway Station	7.30 km	SW
Nearest Hospital	Sojat	7.30 km	SW
Educational Facility	Sojat	7.30 km	SW

5 PLANNING BRIEF

5.1 PLANNING CONCEPT

It is a mining Industry using Opencast Semi-mechanized method will be adopted. The mine will produce limestone with capacity of 78, 51,450 TPA. It will be used in Cement industry and will be transported by trucks to end users.

5.2 POPULATION PROJECTION

In the Buffer zone, total household is 25974. Total population is 122580 out of which, 61517 are males and 61063 are females. The total literate person in the surrounding area is 72494 and total worker's population is 49355. The detailed demographic profile of villages located in the study area is given below:-

Table No. -18: DEMOGRAPHIC PROFILE

S. No	Name	No_H H	TOT _P	TOT_ M	TOT_ F	P_LI T	P_ILL	TOT_WO RK_P	NON_WO RK_P
1.	Khariya Neev	653	2943	1445	1498	1406	1537	1591	1352
2.	Khokhara	543	2561	1249	1312	1328	1233	1025	1536
3.	Sardarpura	154	819	407	412	480	339	253	566
4.	Dhandheri	316	1429	720	709	815	614	669	760
5.	Ramasanibaa	365	1559	777	782	764	795	801	758
6.	Mandla	480	2134	1081	1053	1009	1125	876	1258
7.	Roondiya	271	1358	697	661	699	659	682	676
8.	Boyal	234	942	453	489	378	564	496	446
9.	Nathal Kundi	85	356	154	202	183	173	221	135
10.	Sandiya	905	4136	1993	2143	2189	1947	1708	2428
11.	Kharchiya	238	1231	652	579	508	723	696	535
12.	Sojat	11157	55495	28646	26849	36653	18842	19262	36233
13.	Butelao	330	1436	716	720	663	773	742	694
14.	Lundawas	190	910	458	452	522	388	448	462
15.	Bilawas	861	3667	1777	1890	2007	1660	1594	2073
16.	Basni Tilwadiyan	68	356	189	167	216	140	163	193
17.	Alawas	283	1723	847	876	1030	693	614	1109
18.	Siyat	784	3239	1578	1661	1730	1509	1571	1668
19.	Pachunda Kalan	367	1719	855	864	945	774	715	1004
20.	Pachunda Khurd	216	909	422	487	450	459	236	673
21.	Bagri	2374	10509	5115	5394	5989	4520	4779	5730
22.	Atpara	1340	5938	2899	3039	3351	2587	2907	3031
23.	Chheetariya	244	1107	536	571	567	540	588	519

24.	Gurha Bachhraj	137	653	329	324	346	307	195	458
25.	Chandawal	1460	7019	3442	3577	4122	2897	2632	4387
26.	Murdawa	201	883	448	435	492	391	403	480
	Total	25974	122580	61517	61063	72494	50086	49355	73225

(Source: Census Data, 2011)

5.3 LAND USE PLANNING

Table 19: Green belt Programme

Year	Area in (ha)	No. of Saplings	Species	Place of Plantation
I	66.0	1,18,800	Neem, Aam, Babul,	Boundary of the lease, both side of the road, schools and some medicinal herbaceous plant
II	66.0	1,18,800	Sahatut, Pipal,	
III	66.0	1,18,800	Gulmohar, Rohida	
IV	66.0	1,18,800	and some medicinal	
V	66.0	1,18,800	herbaceous plant	
At the end of Lease period	330	5,94,000		

5.4 ASSESSMENT OF INFRASTRUCTURE DEMAND

The mine area is easily accessible from the State highway by SH-62 (passing through the lease area) will be helpful to approach workers to the mine site as well as transportation of mineral to the nearby areas and end user. Sojat Railway Station is 7.30 Km far towards SW form the mine site. The infrastructure demand in the villages will be evaluate on the basis of necessity and priority. Job opportunities are inadequate and new possibility for income generation is required.

5.5 AMENITIES/FACILITIES

- **Mine Office:** It is proposed to have a temporary mine office with First Aid Facility.
- **Rest Shelter:** Temporary Rest Shelter will be made available.
- **Drinking Water Facility:** The drinking water will be made available from the nearby pond and rain harvested water stored in tank after and during monsoon. The quality of water is reportedly potable.

- **Adequate lighting arrangements:** Single shift working during day time is proposed, yet adequate lighting arrangements will be made at quarry face and haulage roads as per statutory norms.
- **Toilets:** The toilet facility is proposed for the better sanitary condition of the workers employed in Mining area.

6 PROPOSED INFRASTRUCTURE

6.1 INDUSTRIAL AREA (PROCESSING AREA)

The area is well connected by road network to the mines, District headquarter etc. The area is self-sufficient to supply the needs of the project. Hence no, infrastructure is proposed.

6.2 RESIDENTIAL AREA (NON PROCESSING AREA)

The local people will be employed, hence no residential area/ housing is proposed.

6.3 GREEN BELT

Refer point no. 5.3.

6.4 SOCIAL INFRASTRUCTURE

The project is situated at Village Mandla, Tehsil Sojat City, District Pali (Rajasthan). As local people will be employed for excavation activities, no permanent infrastructure is required. The workers will come to the site by company's vehicle. By this project, indirect means of earnings in the area will be developed, which will bring a positive impact on the adjacent habitation.

6.5 CONNECTIVITY (TRAFFIC AND TRANSPORTATION ROAD / RAIL / METRO /WATER WAYS ETC)

Given in Para No. 4.0.

6.6 DRINKING WATER MANAGEMENT (SOURCE & SUPPLY OF WATER)

The total water requirement for the proposed activity is 100.0 KLD. The drinking water (5.0 KLD) will be met from the nearby village water source through mobile tanker supply while other water requirement for mining activities will be made available from the pond desiltation and impounded by the project proponent. The proposed indigenous water source created by the project proponent will fulfill the water demand of local habitants.

6.7 SEWAGE SYSTEM

Not applicable.

6.8 INDUSTRIAL WASTE MANAGEMENT

No industrial waste will be generated.

6.9 SOLID WASTE MANAGEMENT

Given in point no. 3.9

6.10 POWER REQUIREMENT & SUPPLY/SOURCE

No Power requirement is proposed for Mandla Limestone mine as the diesel operated machineries are proposed and mining will be done during the day time only.

7 REHABILITATION AND RESETTLEMENT (R & R PLAN)

7.1 POLICY TO BE ADOPTED.

The entire M.L. Area i.e. 1000.0 ha out of which 900 ha is Govt. Waste land & 100 ha area is agriculture land and R & R is applicable as per requirement.

8 PROJECT SCHEDULE AND COST ESTIMATES

8.1 LIKELY DATE OF START OF CONSTRUCTION AND LIKELY DATE OF COMPLETION

The project will be started immediately after Environmental Clearance and other necessary approvals from concerning authorities of State Government.

8.2 ESTIMATED PROJECT COST AND ALONG WITH ANALYSIS IN TERMS OF ECONOMIC VIABILITY OF THE PROJECT

Project cost: Rs. 65.0 Crore

9 ANALYSIS OF PROPOSAL

Mandla Limestone mine project will result in growth of the surrounding areas. Direct and indirect employment will be created in nearby village. Special emphasis on Financial and Social benefits will be given to the local People. No major adverse effect on environment is envisaged as the required mitigation measures are inbuilt in

the project.

10 ENVIRONMENT MANAGEMENT PLAN

PARTICULARS		MANAGEMENT
Air Quality	Excavation, Loading and Transportation	<ul style="list-style-type: none"> ➤ Dust generated due to excavation and vehicular movements will be suppressed by water spraying on haul road. ➤ To avoid the dust generation from the drilling operations Wet drilling method will be practiced. ➤ Drill machines will be fitted with dust collectors. ➤ Use of appropriate explosives for blasting. ➤ Controlled blasting techniques will be practiced. ➤ Dust mask will be provided to the workers. ➤ Proper maintenance of vehicles & machineries will be done. ➤ Water sprinkling on the haul road and other road at regular intervals will be done. ➤ Speed of the vehicles will be kept within the prescribed limits. ➤ Trucks will not be over loaded.

Water Quality		<ul style="list-style-type: none"> ➤ No waste water or any effluence as solid or gas there will be generated from mining operation ➤ Garland drains will be made around the mining area to channelize surface run off into natural drainage pit so that it can be utilized for dust suppression. ➤ Mining operations will be at higher levels; therefore there will be no effect on ground water condition due to mining.
Noise Quality	Drilling, Blasting, Loading and unloading of Mineral and movement of Trucks.	<ul style="list-style-type: none"> ➤ Adequate silencers in all the diesel engines will be used. ➤ Personal protective equipment will be provided to the workers. ➤ Proper maintenance of machines at regular intervals will be done. ➤ Green belt development and plantation.
Solid Waste		<ul style="list-style-type: none"> ➤ Top soil generated will be spread over the backfilled area and plantation will be done over backfilled area. ➤ The generated OB Dump will be established by making terraces and putting plantation on this retaining wall shall be made around the waste dump.
Land Reclamation		<p>The Mining area is partly flat land with gentle undulating and partly undulating topography. At the conceptual stage, (1000.0 ha), the total excavated area will be 402.92 ha out of which 218.45 hect area will be converted into water reservoir & 184.47 hect will be backfilled & reclaimed by plantation.</p>