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   8.2 ESTIMATED PROJECT COST AND ALONG WITH ANALYSIS IN TERMS OF ECONOMIC VIABILITY OF THE PROJECT
9 ANALYSIS OF PROPOSAL
10 ENVIRONMENT MANAGEMENT PLAN
1 EXECUTIVE SUMMARY

The Gypsum permit (Minor Mineral) Project of Smt Lata Joshi w/o Rajendra Kumar Joshi is situated Near Village – 20 SMD, Tehsil - Kolayat, District - Bikaner (Rajasthan) over an area of 2.0 ha. in Khasra No. – 121/18. The letter of intent has been issued in favour of Smt Lata Joshi w/o Rajendra Kumar Joshi vide letter No. M.E/BKN/gypsum permit/2017/5282 dated 15.06.2017. Copy of L.O.I is enclosed.

The Simplified Mining scheme has been approved by Assistant Mining Engineer, Department of Mines and Geology, Rajasthan, vide letter No. M.E/BKN/gypsum permit/2017/5282 dated 15.06.2017.

The mining will be carried out by open-cast semi-mechanized method as per the approved Mining Plan only. The entire mining area is private waste land with no forest land involved. As per RMMCR 2017, validity of mining is 05 years from the date of registration. The proposed production is 34960 MT. The estimated cost of project will be Rs. 3 LAKHS.

Gypsum is in much demand as a raw material in cement industries as a binding material and the gypsum is also using for manufacturing of plaster of paris (P.O.P) for interior decorative work. Gypsum powder is used by farmers as a direct fertilizer for reconditioning of alkali soil for reducing the alkalinity and improving crop productivity. This will also generate plenty of employment opportunity for local people. Economy and socio-economic level of the area will also improve and there will the opportunity for education, health and sanitation, transport and other development. The living standards of the area will also up-lift on the positive side.

Table 1: Salient Features of the project site

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>Particulars</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>Nature of the Project</td>
<td>Gypsum Permit</td>
</tr>
<tr>
<td>B.</td>
<td>Size of the Project</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Gypsum permit Area</td>
<td>2.0 ha</td>
</tr>
<tr>
<td>2.</td>
<td>Proposed Production capacity</td>
<td>34960 MT</td>
</tr>
<tr>
<td>C</td>
<td>Location Details</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Village</td>
<td>20 SMD</td>
</tr>
<tr>
<td>2.</td>
<td>Tehsil</td>
<td>Kolayat</td>
</tr>
</tbody>
</table>
Pre-Feasibility Report

Gypsum Permit, Ref No-201730728, Production Capacity -17480 TPA, Area- 2.0 ha Village -20 SMD, Tehsil - Kolayat, District - Bikaner (Raj.)

3. District Bikaner
4. State Rajasthan
5. Latitude & Longitude
<table>
<thead>
<tr>
<th>Pillars</th>
<th>Latitude (N)</th>
<th>Longitude (E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>28°21'31.41194&quot;</td>
<td>72°22'39.72669&quot;</td>
</tr>
<tr>
<td>B</td>
<td>28°21'31.56059&quot;</td>
<td>72°22'47.45584&quot;</td>
</tr>
<tr>
<td>C</td>
<td>28°21'34.64577&quot;</td>
<td>72°22'47.38004&quot;</td>
</tr>
<tr>
<td>D</td>
<td>28°21'34.49711&quot;</td>
<td>72°22'39.65083&quot;</td>
</tr>
</tbody>
</table>

6. Toposheet No.

D Environmental Settings of the Area

1. Ecological Sensitive Areas
   There is no Protected & Reserved Forests fall within 15 km radius of Permit area.

2. River / water body
   No water bodies and rivers falls within 15 Km radius Buffer zone.

3. Nearest Town / City
   Kolayat at a distance of 80.0 Km in SE direction of the Gypsum Permit area.

4. Nearest Railway Station
   The nearest railway station is Kolayat located on 80.0 km SE From mine site.

5. Nearest Airport
   Nal Airport is located at a distance of 90.0 km in SE direction.

6. State Boundary
   No State boundary passes through the project site.

7. Seismic Zone
   Zone – II [as per IS 1893 (Part-I): 2002]

D Cost Details

1. Project Cost
   Total Project Cost: Rs. 3.00 lakhs

E Requirements of The Project

1. Proposed Water Requirement: 3.0 KLD
2. Fuel requirement: 50 LPD
3. Man Power Requirement: 4 (Skilled and unskilled persons)
2 INTRODUCTION OF THE PROJECT/ BACKGROUND INFORMATION

2.1 IDENTIFICATION OF PROJECT AND PROJECT PROPONENT


2.2 BRIEF DESCRIPTION OF THE NATURE OF PROJECT

This is an Gypsum permit project. As per EIA Notification dated 14th Sep, 2006 and as amended till date, the project falls under, Category “B”. It has been proposed to excavate approximately 17480.0 TPA of Gypsum from Ref No 201730890 by open -cast semi-mechanized method. The permit area is 2.0 ha. Total mineable reserve available is 34960 MT of Gypsum Mineral. The expected life of mine is 4.0 years. Overburden during the two year plan period will be 7666.66 cum respectively. The Gypsum will be transported through trucks/tractor.

At the end of lease period, the total excavated area will be 2.0 ha.which will be backfilled and used for agriculture purpose. Water requirement of 3.0 KLD for the project activity will be met by water tankers supply from nearby village source. The depth of water table is 30 m (Pre-Monsoon) to 35m (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

The importance of the project to the nation, Gypsum is in much demand as a raw material in cement industries as a binding material and the gypsum is also using for manufacturing of plaster of paris (P.O.P) for interior decorative work. Gypsum powder is used by farmers as a direct fertilizer for reconditiong of alkali soil for reducing the alkalinity and improving crop productivity.

The mining and associated activities in the mineral rich areas increase the gains in gross domestic product (Gross Domestic Product). Total 4-5 people will be employed for the mining activity. It will create ample opportunity for employment to local population. For the mineral production applicant will pay royalty, direct and indirect taxes will also paid and it will also contributing to the regional revenue.
The Gypsum mining project will cater the need of requirement for individual and market. Besides this, the project will prove beneficial in terms of socio economic development.

### 2.3 DEMAND – SUPPLY GAP
Gypsum is a constituent for infrastructural development projects like buildings and constructions. It has high demand in region due to increase in industrial and other infrastructural activities.

### 2.4 IMPORTS VS. INDIGENOUS PRODUCTION
In the current Gypsum business scenario, import of gypsum is not envisaged. It is for Captive use only no import is done.

### 2.5 EXPORT POSSIBILITY
Not applicable as proposed mine is for captive use only.

### 2.6 DOMESTIC/EXPORT MARKETS
Domestic demand is one of the chief reasons for the rapid growth of Gypsum business in India. Thus, Gypsum is in much demand as a raw material in cement industries as a binding material and the gypsum is also using for manufacturing of plaster of paris (P.O.P) for interior decorative work. Gypsum powder is used by farmers as a direct fertilizer for reconditioning of alkali soil for reducing the alkalinity and improving crop productivity. No export will be done.

### 2.7 EMPLOYMENT GENERATION (DIRECT AND INDIRECT) DUE TO THE PROJECT
The total number of manpower is required for the mining activity is 3-4 people. Priority for employment will be given to local workers. Following staff & workers are proposed to be employed:-

<table>
<thead>
<tr>
<th>Table 2: Manpower requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Chawkidar</td>
</tr>
<tr>
<td>2. Skilled/ Unskilled Labour</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
3  PROJECT DESCRIPTION

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

The mining of gypsum is carried out by open-cast semi-mechanized method. This is an independent project. No interlinked project is proposed.

3.2 LOCATION (MAP SHOWING GENERAL LOCATION, SPECIFIC LOCATION, AND PROJECT BOUNDARY & PROJECT SITE LAYOUT) WITH COORDINATES;

The proposed Gypsum permit area falls in Ref No-201730728 of Village – 20 SMD, Tehsil -Kolayat, District - Bikaner, State Rajasthan over an area of 2.0 ha. The project site falls in Survey of India Toposheet No..

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

<table>
<thead>
<tr>
<th>Pillars</th>
<th>Latitude (N)</th>
<th>Longitude (E)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>28°21’31.41194”</td>
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<tr>
<td>C</td>
<td>28°21’34.64577”</td>
<td>72°22’47.38004”</td>
</tr>
<tr>
<td>D</td>
<td>28°21’34.49711”</td>
<td>72°22’39.65083”</td>
</tr>
</tbody>
</table>

The location map is given below:
Figure 1: Location Map
3.3 DETAILS OF ALTERNATE SITES CONSIDERED AND THE BASIS OF SELECTING THE PROPOSED SITE, PARTICULARLY THE ENVIRONMENTAL CONSIDERATIONS GIVEN INTO SHOULD BE HIGHLIGHTED.

No alternative site has been taken into consideration as the mineral (Gypsum) is available at this site.

3.4 SIZE OR MAGNITUDE OF OPERATION

Permit area for the proposed Gypsum is 2.0 ha and production capacity is 17480.0 TPA.

3.4.1 REGIONAL GEOLOGY

The geology of the Bikaner District is obscured by extensive desert sand & Sand Dunes. Western rajasthan is covered mostly by blown sand dunes. There are two main arms of sand hills extending north of raan of kutch. One runs from Umeracot passing around jaisalmer and North-Eastwards to Bikaner, while the other runs north-Eastwards from Barmer to jodhpur and coalesces with the first around Bikaner. The enclosed track of jaisalmer, Bikaner and Pokaran is rocky and contain a few scattered sand hills. The stratigraphy of the area is as follows:

- **Recent**: Windblown sand, alluvium and evaporates gypsum
- **Sub-recent**: Conglomerate
- **Tertiary (mostly Eocene)**: lime stone, marly limestone nummulitic limestone, shales bentonite fuller’s earth Gypsum
- **Mesozoic-Cretaceous**: Habur limestone and sand stones, Barmer sandstone
- **Jurassic**: Parihar sand stone, Bedasar sand stone and grits, Baisakhi sandstone shales, and siltstone, Lathi sandstone shales, and silts.

**UNCONFORMITY**

- **Paleozoic permo**: Bap Boulder bed, Badhura formation as sandstone and shales
- **Early Paleozoic**: Birmania formation limestone and shales
UNCONFORMITY

Cambrian : Vindhyan sandstone and shales
Precambrian : Malani suite of igneous rocks

The gypsum deposit is commercial importance so far discovered in rajasthan are in subsurface of evaporate of recent age. On the surface of depression surrounded by sand dunes in western rajasthan.

In most of the area extensive sand dunes and sand cover obscures the geology. The exposure of compact rock mass are therefore scanty and in patches.

The tertiary rock exposure are best developed around Kolayat about 45 Kms WSW of Bikaner.

The gypsite rich beds are found in shallow elongated through shaped depression surrounded by sand dunes.

3.4.2 LOCAL GEOLOGY

Gypsum in the area has been found to occur near the surface. The overburden is of desertic sand and soil cover with an average thickness of 0.50m. Gypsum is generally found to occur as gypsite which is an earthy whitish to ash gray material with crystal of gypsum in association with sand and clay and occur in almost flat terrain. The gypsum bed is overlain as well as underlain by sand.

Gypsum in the area has been deposited in a small basin lensoid shape & earthy white in color. It occurs in the form of sedimentary bed which is almost horizontal. The bed of gypsum is regularly associated with sand clay materials. The bed of gypsum is locally fractured and cracked. Due to leaching activities along with the fractured plane, quality of gypsum is degraded by intrusion of clay and sand in fractured & cracks.

The overburden in leasehold area consists of fine sand aeolin origin consisting mainly of quartz grains ranging in thickness of 0.3m to 0.5m. Gypsum bed is underlain by sand,

The gypsum bed occurs as a horizontal bed having thickness ranging from 1.50m to 2.0m. The grade of mineral gypsum is 79-80% CaSO4.2H2O.

The General lithological succession observed is as follows:

i) Desert sand/Alluvium
ii) Amorphous/crystalline gypsum with intercalation of argillaceous material.

iii) Sand

3.4.3 MINERAL RESERVES

<table>
<thead>
<tr>
<th>Reserve</th>
<th>UNFC</th>
<th>Rec. Mineral 100%(MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proved</td>
<td>111</td>
<td>34960 MT</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>34960 MT</td>
</tr>
</tbody>
</table>

The total minable reserves will be

\[
\text{Total reserves} = \frac{34960}{17480} \times \text{Permit} = 2.0 \text{ Years}
\]

3.5 PROJECT DESCRIPTION WITH PROCESS DETAILS (A SCHEMATIC DIAGRAM / FLOW CHART SHOWING THE PROJECT LAYOUT, COMPONENTS OF THE PROJECT ETC. SHOULD BE GIVEN)

3.5.1 YEAR WISE PRODUCTION DETAILS.

The Applicant has proposed to produce Gypsum working for a period of 2 years with a production of 17480.0 TPA as per the mining scheme. The details of year wise production for the two years period are given below.

<table>
<thead>
<tr>
<th>Year</th>
<th>Mineable Mineral in Tonnes</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>17480</td>
</tr>
<tr>
<td>II</td>
<td>17480</td>
</tr>
<tr>
<td>Total</td>
<td>34960</td>
</tr>
</tbody>
</table>

3.5.2 PROPOSED METHOD OF MINING:

The proposed Gypsum permit shall be developed by Semi – mechanized open –cast mining which include cutting, loading, transport and dispatch of mineral to and users.
3.5.2.1 OPEN CAST MINING

The gypsum mining is done by single bench opencast method. Initially the top soil is scrapped by tractor with scrapper and stacked separately than after exposing of gypsum bed the mineral gypsum is mined out and directly loaded in to the truck-tractors for final dispatch to customers.

There is no requirement of drilling and blasting.

There is no change in land use since after excavation of gypsum from land scrapped overburden is being simultaneous backfilled and leveled in mined out area to restore original topography of the area.

Land after removal of hard pan i.e gypsum will become more fertile with a corresponding increase in productivity.

3.5.2.2 SALIENT FEATURES OF MINING METHOD

The salient features of proposed mining method are:-

1. The mining is done by single bench method.
2. The mining will be done top to bottom.
3. Transportation of the mineral from mine to end users will be done by trucks and tractors.

3.5.3 EXTENT OF MECHANIZATION

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

Table-4: List of Machineries

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Machine Type</th>
<th>No. of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>JCB</td>
<td>1(on hire basis)</td>
</tr>
<tr>
<td>2.</td>
<td>Dumper</td>
<td>1(on hire basis)</td>
</tr>
<tr>
<td>3.</td>
<td>Tractors</td>
<td>1(on hire basis)</td>
</tr>
</tbody>
</table>

3.5.4 CONCEPTUAL MINING PLAN

The Gypsum is occurring throughout the area. The mineable reserves are estimated to be 34960.0 MT. The annual Production is proposed to be 17480.0 TPA. Life of the mine is 2.0 Years.

3.5.4.1 LAND USE PATTERN

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

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Dates</th>
<th>Present Land - Use (ha.)</th>
<th>After 5th year land- Use (ha.)</th>
<th>At the end of life of mine land- Use (ha.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 5: Conceptual Land Use Plan

The conceptual plan is enclosed as Plate No. II.

3.5.5 DRILLING
In gypsum mining no drilling is required.

3.5.6 BLASTING
In Gypsum mining blasting is not required.

3.6 RAW MATERIAL REQUIRED ALONG WITH ESTIMATED QUANTITY, LIKELY SOURCE, MARKETING AREA OF FINAL PRODUCTS, MODE OF TRANSPORT OF RAW MATERIAL AND FINISHED PRODUCT

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 will be used for transportation of gypsum.
3.7 RESOURCES OPTIMIZATION/ RECYCLING AND REUSE ENVISAGED IN THE PROJECT, IF ANY, SHOULD BE BRIEFLY OUTLINED

The gypsum will be mined in the raw form so there will be no recycling and reuse envisaged.

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

WATER:

The daily water demand for the proposed project is 3.0 KLD. total requirement 3.0 KLD will be brought from the nearby canal Village- Maganwala. The detailed breakup of the water requirement is given below.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Particulars</th>
<th>Quantity (KLD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Domestic Purpose</td>
<td>1.0</td>
</tr>
<tr>
<td>2.</td>
<td>Dust Suppression / Water Sprinkling</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>3.0</strong></td>
</tr>
</tbody>
</table>

Power Supply: There is no electric line passing through the mine area. But the proposed mining and mineralized area is about 2.0 Km. away from village Maganwala where electric line/pole are available. Electricity required for mining supplied by JDVVNL.

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

About 7666.66 cum. of overburden will be generated at the end of two years period. This will be initially dumped in the lease area and later on filled back in the excavated zone. At the conceptual phase no dump will be left and all waste material will be utilized for backfilling and used for plantation.

<table>
<thead>
<tr>
<th>PARTICULARS</th>
<th>MANAGEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overburden/Top soil</td>
<td>About 7666.66 cu. m. of top soil &amp; OB, top soil will be generated at the end of The two year’s period. At the end, OB, top soil and mineral reject will utilize to back fill the part of the excavated area and used for agriculture purpose.</td>
</tr>
</tbody>
</table>
4 SITE ANALYSIS

4.1 CONNECTIVITY (Mine Site)

Table No.7: Connectivity

<table>
<thead>
<tr>
<th>PARTICULARS</th>
<th>DISTANCE &amp; DIRECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearest Railway Station</td>
<td>Kolayat Railway Station – 80.0 Km, SE</td>
</tr>
<tr>
<td>Nearest Airport</td>
<td>Nal Airport – 90 Km, SE</td>
</tr>
<tr>
<td>Nearest Highway</td>
<td>MDR-103 7.0 Km in SE</td>
</tr>
</tbody>
</table>

4.2 LAND FORM, LAND USE AND LAND OWNERSHIP

LAND FORM
The Permit area is very small flat land area.

LAND USE
The present land use pattern is as below:

Table 8: Land Use Pattern

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Particulars</th>
<th>Present Land-use (ha.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Excavation Pit (Voids Only)</td>
<td>--</td>
</tr>
<tr>
<td>2.</td>
<td>Waste Dump (External)</td>
<td>--</td>
</tr>
<tr>
<td>3.</td>
<td>Infrastructure including office Road</td>
<td>--</td>
</tr>
<tr>
<td>4.</td>
<td>Afforestation</td>
<td>--</td>
</tr>
<tr>
<td>5.</td>
<td>Undisturbed Area</td>
<td>2.0</td>
</tr>
<tr>
<td>6.</td>
<td>Green Belt Development</td>
<td>--</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>2.0</td>
</tr>
</tbody>
</table>

LAND OWNERSHIP
The land as per revenue records is Private Waste Land of 2.0 hectare. The Surface Plan is enclosed as Plate No.-II

4.3 TOPOGRAPHY
Topographically, the Mining area is flat having highest elevation of 102 mRL (assumed) and lowest elevation of 100 mRL.

4.4 EXISTING LAND USE PATTERN (AGRICULTURE, NON-AGRICULTURE, FOREST, WATER BODIES (INCLUDING AREA UNDER CRZ)), SHORTEST DISTANCES FROM THE PERIPHERY OF THE PROJECT TO PERIPHERY OF THE FORESTS, NATIONAL PARK, WILD LIFE SANCTUARY, ECO SENSITIVE AREAS, WATER BODIES (DISTANCE FROM THE HFL OF
THE RIVER. CRZ. IN CASE OF NOTIFIED INDUSTRIAL AREA, A COPY OF THE GAZETTE NOTIFICATION SHOULD BE GIVEN.

Table 9: Existing Land Use Pattern (In Ha.)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Particulars</th>
<th>Forest Land</th>
<th>Govt. Grazing Land</th>
<th>Govt. waste land</th>
<th>Private land</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Ag.</td>
<td>Non Ag.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Excavation Pit (Voids Only)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>2.</td>
<td>Waste Dump (External)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>3.</td>
<td>Infrastructure including office Road</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>4.</td>
<td>Afforestation</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>5.</td>
<td>Undisturbed Area</td>
<td>--</td>
<td>--</td>
<td>2.0</td>
<td>--</td>
<td>2.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>--</td>
<td>--</td>
<td>2.0</td>
<td>--</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Table No.- 10: ENVIRONMENTAL SETTINGS

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Particulars</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>National Park, Wild Life Sanctuary, Biosphere Reserve, Tiger Reserve, Wildlife Corridor, Reserved Forest</td>
<td>There is no Protected &amp; Reserved Forests fall within 15 km radius of Buffer zone.</td>
</tr>
<tr>
<td>2.</td>
<td>River / water body</td>
<td>There is no water bodies and rivers falls within 15 Km radius Buffer zone.</td>
</tr>
</tbody>
</table>

4.5 EXISTING INFRASTRUCTURE
Refer the para no. 4.2 of section 4.0

4.5.1 WATER
The total water demand will be as follows:
4.5.2 BASIC AMENITIES

a) **School:** The Primary and Middle school facility is available at village – Maganwala (2.0 km, NE)

b) **Hospital:** Hospital Facility Available at Kolayat 80.0 km SE from permit Area.

4.6 **SOIL CLASSIFICATION**

Soils of the district are classified as:

- Loose desertic sand
- Sandy clay

4.7 **CLIMATE**

The climate is arid to semi-arid with a cool dry winter from November to March. During this period north-easterly prevail and there is often a little rain. April to July the weather is very hot and dry (avg tempreature $42^\circ$ to $45^\circ$C) With strong southwesterly winds causing frequent sand and dust storms. From July to September there are scattered rains followed by a second of hot dry weather from September to November. The bulk of the precipitation is from SW monsoon and occurs during the months of July to September. The average rainfall is 250 mm. The rainfall during the period from June-September constitutes about 95 percent of the annual rainfall. Normal annual rainfall in the district is 250 mm.

4.8 **SOCIAL INFRASTRUCTURE AVAILABLE**

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Name</th>
<th>Distance (Km)</th>
<th>Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily Water Demand</td>
<td>3.0 KLD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic</td>
<td>1.0 KLD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dust Suppression</td>
<td>2.0 KLD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5 PLANNING BRIEF

5.1 PLANNING CONCEPT (TYPE OF INDUSTRIES, FACILITIES, AND TRANSPORTATION ETC.) TOWN AND COUNTRY PLANNING/DEVELOPMENT AUTHORITY CLASSIFICATION

It is a mining Industry open cast semi-mechanized method will be adopted. The proposed mine will produce Gypsum with capacity of 17480.0 TPA. It will be used for different purposes and will be transported by trucks to end users.

5.2 POPULATION PROJECTION

In the Buffer zone, total population is 2271. The total literate person in the surrounding area is 796. The detailed demographic profile of villages located in the study area is given below:

Table No. 11: DEMOGRAPHIC PROFILE

<table>
<thead>
<tr>
<th>NAME</th>
<th>No. HH</th>
<th>TOT_P</th>
<th>TOT_M</th>
<th>TOT_F</th>
<th>P_LIT</th>
<th>P_ILL</th>
<th>TOT_WORK_P</th>
<th>NON_WORK_P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kabarwala</td>
<td>64</td>
<td>375</td>
<td>213</td>
<td>162</td>
<td>178</td>
<td>197</td>
<td>218</td>
<td>157</td>
</tr>
<tr>
<td>Musewala</td>
<td>38</td>
<td>246</td>
<td>143</td>
<td>103</td>
<td>108</td>
<td>138</td>
<td>113</td>
<td>133</td>
</tr>
<tr>
<td>Kayamwala</td>
<td>46</td>
<td>277</td>
<td>152</td>
<td>125</td>
<td>146</td>
<td>131</td>
<td>85</td>
<td>192</td>
</tr>
<tr>
<td>Miranwala</td>
<td>33</td>
<td>162</td>
<td>82</td>
<td>80</td>
<td>64</td>
<td>98</td>
<td>69</td>
<td>93</td>
</tr>
<tr>
<td>Maganwala</td>
<td>87</td>
<td>605</td>
<td>304</td>
<td>301</td>
<td>124</td>
<td>481</td>
<td>217</td>
<td>388</td>
</tr>
<tr>
<td>Karnisar</td>
<td>97</td>
<td>606</td>
<td>339</td>
<td>267</td>
<td>176</td>
<td>430</td>
<td>323</td>
<td>283</td>
</tr>
<tr>
<td>TOTAL</td>
<td>462</td>
<td>2271</td>
<td>1233</td>
<td>1038</td>
<td>796</td>
<td>1475</td>
<td>1025</td>
<td>1246</td>
</tr>
</tbody>
</table>

(Source: Census Data, 2011)

5.3 LAND USE PLANNING (BREAKUP ALONG WITH GREEN BELT ETC.)

The land will be used for agriculture purpose after reclamation.
5.4 ASSESSMENT OF INFRASTRUCTURE DEMAND (PHYSICAL AND SOCIAL)

The permit area is easily accessible from the Main district road by barsalpur raowala road & will be helpful to approach workers to the mine site as well as transportation of mineral to the nearby areas and end user. Kolayat Railway station is 80.0 km far towards SE 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

The first aid Station & rest shelter will be established in the mine lease area. The temporary construction activities like rest shelter will be carried out during the construction phase and will be sustained up to the conceptual Phase.

1) Site office: A Site office is proposed for technical & clerical staff and keeping the records
2) Conservancy: The toilets will be provided separately for males and females.
3) Water Hut: Potable water in water - hut will be provided for workers at mine site.
4) Rest shelters: A rest - shelter is proposed at the mine site for the workers.
5) First Aid Facility: A First aid kit will be provided in the office for giving first aid to the injured persons, if any.

BREAK-UP OF BUGETARY PROVISION FOR THE FACILITIES PROVIDED FOR THE LABOURS

<table>
<thead>
<tr>
<th>S.No.</th>
<th>PARTICULARS</th>
<th>CAPITAL COST</th>
<th>RECURRING COST (P.A.)</th>
<th>COST IN RS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Shelter, Safe Drinking water, Sanitation Facility</td>
<td>5,000 (One Time) Sanitation 1,000 (One Time)</td>
<td>Drinking water, 5,000</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Safety shoes, goggles, helmet etc.</td>
<td>--</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>6,000.00</td>
<td>6,000</td>
<td></td>
</tr>
</tbody>
</table>
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 -20 SMD, Tehsil - Kolayat, District - Bikaner (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 activity is 3.0 KLD. The drinking and other water demand will be met from the nearby village canal.

6.7 SEWAGE SYSTEM
Not applicable.

6.8 INDUSTRIAL WASTE MANAGEMENT
No industrial waste will be generated.

6.9 SOLID WASTE MANAGEMENT
About 7666.66 cum. of overburden will be generated at the end of two years period. This will be initially dumped in the lease area and later on filled back in the excavated zone. At the conceptual phase no dump will be left and all waste material will be utilized for backfilling and used for plantation.
6.10  **POWER REQUIREMENT & SUPPLY/SOURCE**
No power requirement for the mining activity.

7  **REHABILITATION AND RESETTLEMENT (R & R PLAN)**
7.1 **POLICY TO BE ADOPTED (CENTRAL/STATE) IN RESPECT OF THE PROJECT AFFECTED PERSONS INCLUDING HOME OUSTEES, LAND OUSTEES AND LANDLESS LABOUR (A BRIEF OUTLINE TO BE GIVEN).**
No Rehabilitation and Resettlement plan is required because there is no infrastructure to affect the persons or to any landless labour.

8  **PROJECT SCHEDULE AND COST ESTIMATES**
8.1 **LIKELY DATE OF START OF CONSTRUCTION AND LIKELY DATE OF COMPLETION (TIME SCHEDULE FOR THE PROJECT WILL BE GIVEN).**
This is a running project and Environmental Clearance is required as per norms.

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

**Project cost**
The project cost will be Rs 3.0 lacks.

**Expenditure Proposed for Environmental protection activities:**
It is proposed to invest an amount of Rs. 0.10 Lac towards environmental action plan.

The details of the same are given below: -

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Description of Item</th>
<th>Recurring Cost (Rs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Air Pollution Control - Water Sprinkling</td>
<td>3,000</td>
</tr>
<tr>
<td>2</td>
<td>Environmental Monitoring and Management</td>
<td>5,000</td>
</tr>
<tr>
<td>4</td>
<td>Water Pollution control</td>
<td>1500</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>9,500 /-</strong></td>
</tr>
</tbody>
</table>

**CSR (Corporate Social Responsibility)**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>CSR Activity</th>
<th>Proposed Budget( in Thousand )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mobile Medical camps</td>
<td>5,000</td>
</tr>
<tr>
<td>2</td>
<td>Occupation health Surveillance program for worker and habitants</td>
<td>8,000</td>
</tr>
</tbody>
</table>
9  ANALYSIS OF PROPOSAL

The proposed Gypsum permit project will result in growth of the surrounding areas. Direct and indirect employment will be created in nearby villages. 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

<table>
<thead>
<tr>
<th>ARTICULARS</th>
<th>MANAGEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Quality</td>
<td>➢ Dust generated due to excavation and vehicular movements will be suppressed by water spraying on haul road.</td>
</tr>
<tr>
<td></td>
<td>➢ Dust mask will be provided to the workers.</td>
</tr>
<tr>
<td></td>
<td>➢ Proper maintenance of vehicles &amp; machineries will be done.</td>
</tr>
<tr>
<td></td>
<td>➢ Water sprinkling on the haul road and other road at regular intervals will be done.</td>
</tr>
<tr>
<td></td>
<td>➢ Speed of the vehicles will be kept within the prescribed limits.</td>
</tr>
<tr>
<td></td>
<td>➢ Trucks will not be overloaded.</td>
</tr>
<tr>
<td>Water Quality</td>
<td>➢ No waste water or any effluent as solid or gas will be generated from mining operation</td>
</tr>
<tr>
<td></td>
<td>➢ Mining operations will be at higher levels; therefore there will be no effect on ground water condition due to mining.</td>
</tr>
</tbody>
</table>
## Pre-Feasibility Report

**Gypsum Permit, Ref No-201730728, Production Capacity -17480 TPA, Area - 2.0 ha Village - 20 SMD, Tehsil - Kolayat, District - Bikaner (Raj.)**

### Noise Quality
- Loading and unloading of Mineral and movement of Trucks.
- Adequate silencers in all the diesel engines for water pumps 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
- Mineral reject/waste generated during mining operation will be backfilled in the mined out area.

### Land Reclamation
- The area is almost flat. At the end of life of mine, excavated pit of 2.0 ha. Which will be back filled used for agriculture.

Environmental Management plan is enclosed.