INTRODUCTION

Mining Lease was granted in the name of Shri Surendra Singh S/o Sh. Jai Singh Parihar R/o Juni Bangar Gali No. 6 Paota C Road, Jodhpur Vide letter No. ME/JOD/CC III/ML/98/2004/1106 Date- 09/07/2004 and registration on dt. 21/07/2006 to 20/07/2026. After than same above lease was transferred in the name of Shri Bagaram S/o Sh. Girdhari Ram Vide letter No. ME/JOD/CC IV/MINOR/ M.L 98/04/383 date 10/06/2010. Now Lease has been extend for further 10years i.e. 21/07/2006 to 20/7/2036.

Photocopy of Rider Agreement is enclosed as an **Annexure No. I**

First the Simplified Mining Scheme was approved Vide Letter No. SME /JO/CC/Jodh/Minor/ML 98/2004/12679-12683 Dt. 11/03/2015. Approval letter is enclosed as **Annexure No. II**.

Mine owner is willing to expand trading of mineral hence production enhancement is required from said mining lease area which is estimated at about 80,000TPA. The required production is higher side than the earlier simplified mining scheme therefore modification is being done for the year 2018-2019 to 2019-2020 due to enhancement of market demand & Meanwhile inclusion of mineral sandstone with addition to earlier sanction mineral Masonary stone has been taken place vide DMG Letter No. DIR/P.2(H.4) JOD/ M.L No. 98/2004/2017/710 Date 16/05/2018. Photocopy of Inclusion letter is enclosed as **Annexure No. III**

Now the Modified Mining Scheme with PMCP for next two years is being prepared and is being submitted for kind approval. (2018-19 & 2019-20)

PART-I

REVIEW OF MINING PLAN/SCHEME

0.1 NAME OF MINE:

Masonary Stone mine

Lease Area- 1.0Hect.

M.L. No. 98/2004

Near Village: Bhujawad

Tehsil – Luni & District: Jodhpur

State: Rajasthan

0.2 PARTICULARS OF APPROVAL OF MINING PLAN/SCHEME:

First the Simplified Mining Scheme was approved Vide Letter No. SME /JO/CC/Jodh/Minor/ML 98/2004/12679-12683 Dt. 11/03/2015. Approval Letter is enclosed as **Annexure No. II**

0.3 DATE OF COMMENCEMENT OF MINING OPERATIONS:

Mining operations were started from 21-07-2006

0.4(a) DEFICIENCIES, IF ANY THAT EXISTED IN THE APPROVED SIMPLIFIED MINING SCHEME FOR THE PERIOD NEXT FIVE YEAR:

NIL

(b) REVIEW OF COMPLIANCE POSITION OF SALIENT FEATURES OF THE SIMPLIFIED MINING SCHEME APPROVED ON 11/03/2015:

(I) EXPLORATION:-

Proposed: -

The entire lease area is having exposed Masonary stone which is sufficient. Hence no more exploration was proposed.

Position at the end of 2017-18: -

No exploration carried out.

(II) MINE DEVELOPMENT:-

The mining was proposed to be done through making benches in mineral bearing rock of 6.0mts height.

(III) EXPLOITATION: The exploitation was described as in approved simplified mining scheme of mining and actual achievement of production at the end of the 2017-18 of simplified mining scheme is given as below: -

Year	Proposed production (MT)	Actual production (MT)
2015-16	50000	5300
2016-17	50000	19875
2017-18	50000	11039

The reason for the deviation is mentioned as under: -

Actual production achieved is less as compared to proposals due to market demand but now as the demand has increased hence modified scheme of mining is being submitted for enhancement in production.

(IV) WASTE MANAGEMENT:

Waste generated was proposed to be stacked near boundary pillar C.

Position at the end of 2017-18: -

No waste was generated during last year.

(V) AFFORESTATION:

In the approved simplified mining scheme, it was proposed to plant 20trees per year inside the lease area.

Position at the end of 2017-18: -

Lessee has already been planted 33% trees i.e. Jamun, Gundha, Sisam etc at outside the lease area in Samshan Bhoomi. But now in next two year of Modified simplified scheme period lessee deside to plantation at inside the lease area.

(VI) RECLAMATION & REHABILITATION:

(a) In the simplified mining scheme, there was no proposal for reclamation of the land affected by mining.

(VII) CONTROL OF DUST:-

No measure was given in the approved simplified scheme of mining as it was prepared for very small scale mine.

(VIII) NOISE & GROUND VIBRATION:-

Since the mining was proposed to be done by semi mechanized method so there was wire saw sound of the compressors and Jackhammers other then this there was be some sound during the operation of the machines. To avoid this proper maintenance of the m/c was done and the earplugs were provided to the drillers & operator while operating the machines. It was done as per Rules.

(c) COMPLIANCE POSITION OF CONDITION IMPOSED IN THE APPROVED SIMPLIFIED SCHEME OF MINING:

Nil

(d) THE VIOLATION POINTED OUT DURING THE INSPECTIONS BY DMG AUTHORITIES AND THEIR COMPLIANCES/JUSTIFICATION FOR NON-COMPLIANCE IS GIVEN HERE UNDER:

NIL

1.0 GENERAL INFORMATION ABOUT LESSEE

(a) Name & Address of the Lessee:

Shri Baga Ram S/o Shri Girdhari Ram

R/o – Village- Bujawad,Gangana

Tehsil- Luni, District- Jodhpur (Raj.)

(b) Status of the Lessee: -

Private Individual

(c) Name & address of authorized person who preparing the Modified Mining Scheme with PMCP:-

Rakesh Purohit

BE Mining

Address - 17E/777, Chopasani Housing Board, Jodhpur.

Phone (0291) 2706098 (Tele. Fax), 98290-21098 (M)

Photocopy of Experience Certificate is enclosed as **Annexure-IV**

2.0 DETAILS OF MINING LEASE

(a) M. L. No. : - M.L No. 98/04

(b) Name of Mineral:- Masonary Stone & Sand Stone (Minor Mineral)

(c) Description report of mining lease with plan (Enclosed applied deed/ sanction order)

Photocopy of Demarcation report is enclosed as **Annexure- V**

Location plan of the area

The area for mining lease falls in Survey of India Topo Sheet No. 45 B/15 & 45B/16. Key plan enclosed as **Plate No.2**

(d) Location map of mining applied, showing the details of the approach road upto the mine

The Lease area is situated near village Bujawad. The village Bujawad is about 0.7 Kms from lease area. The Nearest Railway Station is Jodhpur which is about 20.0Kms from the Jodhpur

School, Hospital, Telephone facilities are available at Bujawad.

(e) Details of the Mining Lease

NEAR VILLAGE	TEHSIL	DISTRICT & STATE	STATUS OF LAND	AREA	PERIOD
Bujawad	Luni	Jodhpur (Raj.)	Govt. Waste Land Khasra No. 1	1.00 Hect	30 years From date of Registration 21-07-06 to 20-07-2036

(f) Superimposed map of Sanctioned area on revenue map, duly attested by concerned Tehsildar/ SDO

(**Khasra No.-** 1)

Photocopy of Khasra Map & Jamabandi is enclosed as **Annexure No. VI**

(g) Infrastructure Facilities: nearest railway station, Police station, post office Medical facilities, Water & Electricity, education facilities, mode of transportation of Mineral, river/canal/port if any etc

1. Water supply: Water for drinking purposes will be arranged from local villages.

The Proposed Daily Requirement of Water: -

1.	Water sprinkling	: 1.0 KLD
2.	Plantation	: 0.5 KLD
3.	Domestic	: 0.25 KLD

	Total	**: 1.75 KLD**
		---

2. Electric supply – No electric power is available in lease area.

3. The Nearest Railway station is Jodhpur which is about 20 km from the lease area.

4. Medical facility is available at village Bujawad.

5. Educational facility is also available at village Bujawad.

3.0 GEOLOGY

A) PHYSIOGRPAHY:-

The lease area under having flat topography. The highest R.L 256 & lowest contour RL in the area is 252 m. No nalla is flowing within the lease area but Gollasni Nadi is flowing at a distance of 3.0 Km. in SE direction from the lease Area. There are no plants with in the lease area but local plants Jamun, Gundha, Sisam, gulmohar, Neem etc with thorny bushes are the major assets found around the lease area. The rainwater follows the natural slope and flows out of the lease area. All the surface features are marked on the Surface cum Geological plan plate No. 4. The land status is Govt. waste land.

(B) REGIONAL GEOLOGY

The regional geological set up as worked out by **G. S. I.(H.S. Pareek 1984)** indicates that the older rocks of Delhi Super Group represented by Punagarh Group include basic volcanic where as of the **Marwar Super Group** is present in major part of the district and is represented by Jodhpur-Bilara and Nagaur Groups. The igneous phase is represented by Malani rhyolites, Jalore and Siwana Ganites and in some part Erinpura Granits and Gneisses. The Palaezoic era is represented by sandstone and Bap boulder beds of Permo-carboniferous system. In the border region of Jodhpur, Jaisalmer and Bikaner some pockets of clays and fuller's earth of Jogira and Mudh Formation can be seen. However alluvium and blown sand cover the district in a large area and local geology is usually covered. The Regional Geological succession is as under: -

Cainozoic	Pleistocene to Recent		Aeolian sand and sand dunes
		Boulder spread	Gypsite
	Piestocene		
		Shumer formation	Scattered pebles of granite, rhyolite, quartzite etc Ferruginous sandstone, calcareous consertrations

	Palaeocene	Marh formation	Sandstone, Grit, conglomerate
Mesozoic	Jurassic	Lathi/ Mayeker formation	Sandstone, Grit, conglomerate
Upper Palaeozoic	Permian Permo-Carboniferous	Badhura formation Bap Boulder Bed	Sanstone, clay, shale Boulder & fragement of granite, rhyolite, quartzite etc.
Lower Palaeozoic	**Marwar Super Group**	Nagaur Group Bilara Group Jodhpur Group	Red sandstone with green clay, evaporite sequence Limestone & dolomite Brick red siltstone, shle, sandstone Sandstones with minor shale chert, dolomite
Middle Proterozoic		Malani	a. Rhyolite, tuff. Ash bed, ballast b. Granite c. Dolerite ballast
Lower Middle Proterozoic	Delhi Super Group	Erinpura Group Punagarh Group	Granite & Gneiss Phyllite, slate sandstons, quartzite, schist

The oldest sedimentary sequence of Western Rajasthan comprising silica-clastic and carbonate sediments of Cambrian age are designated as **Marwar Super Group**. Earlier, this was considered to be equivalent to Vindhyan rocks, but is now equated with sediments of Indus basin. This Super Group has been further sub divided into Jodhpur, Bilara and Nagaur Groups. **Jodhpur Group of rocks** - It is the oldest among these and has rock assemblage shale, chert and fine grained to gritty sandstone. Rocks of this group cover a large part in Jodhpur, Balesar, Bhopalgarh and Kherapa areas. Quarries of famous Jodhpur and Balesar building stone are located in the rocks of this group.

Rocks of Jodhpur Group were deposited on basement of Malani rocks. Area comprises of Jodhpur sandtone which is unconformably underlain by Malani rhyolites. Bilara Group of rocks represents calcareous facies having dolomite, chert and limestone. These occur between Phalodi to Nagaur and from Bilara to Borunda and are overlain by mottled sandstone, claystone and gypseous beds.

C. GENERAL GEOLOGY OF THE AREA

Masonary stone & Sandstone & its industrial uses :– This is an important building stone of whole of Western Rajasthan. History of its mining in Jodhpur district is 500 years old. Temples and Palaces in Jodhpur area are ample proof of Masonary stone's utility. Geologically the Jodhpur Masonary stone & Sandstone belongs to Sonia and Girbhakar formations of Jodhpur Group. Masonary stone is quarried for masonry stone (small block), slabs & aslets. Slabs are used for roofing purpose and aslet is used for making pillars and beams. Masonary stone is buff-pink to grey colured, medium to coarse grained in nature and is well sorted. Recent researches have indicated that good quality split table Masonary stone & Sandstone is confined to lower and middle facies of Jodhpur Group. Upper non-split table, blockable thick beds of Masonary stone are also being used for making slabs, tiles, liries by using advanced cutting and sewing machines. The important occurrences of Masonary stone are located around Jodhpur city viz., Mandore, Soor-Sagar, Keru, Berli, Kailana, Balesar, Dechu, Setrawa, Chokri, Ratkudiya, Osiyan, Bhopalgarh etc. The Masonary stone occurs as horizontally bedded formation and assumes plateau like land shapes.

The important mining areas of Masonary stone & Sandstone are located near Soorsagar, Fidusar, Balsamand, Mandore, Keru, Badli, Balesar, Setrawa, Kali-Bhuri Beri and Ghoda-Ghati. Masonary stone (Sandstone) mining is carried out under RCRLs/quarry licences, which are granted after delineation of suitable areas.

3.4 LOCAL GEOLOGY AND EXPLORATION ALREADY CARRIED OUT:

The area comprises Masonary stone (Sandstone) of the Jodhpur group of rocks.

Geologically the area comprises of horizontally deposited sandstone of Jodhpur group of rocks of Marwar super group of lower Palaeozoic age.

The area comprises of 3.0 m Weathered granule to pebbly Sandstone (Masonary stone) as O.B and below the O.B, 14mPinkish white to buff colored medium to fine grained , thickly bedded Sandstone occurs. It is massive, blockable in nature. After this 4m fine to medium grained brownish colour thickly bedded Sandstone occurs. It is also massive and block able in nature. The small to large size of blocks can be prepared / excavated by using wire saw machine.

Detailed geological mapping of the lease area of 1.0Hectares was carried out on a scale of 1:1000. Topographical survey of the ML area was simultaneously done. Mineralized bodies i.e. Masonary Stone & Sandstone is precisely marked. The Surface Geological Plan is enclosed as **plate No. 3** along with this report.

Description of litho units: -

Given below are the generalized litho-units:

- Weathered granule to pebbly Sandstone (O.B) – 3.0 mts
- Masonary Stone & Sandstone – 18.0mts (Proved) (14.0 mts Pinkish white to buff colored medium to fine grained & 4.0 mts fine to medium grained brownish colour

  9.0mts (Probable)

  5.0mts (Possible)
- **Dimension of pit -** At present one working pit is present in the lease area and its dimension is 65 mts X 85 mts.

The physical properties of Masonary Stone & Sandstone are:

Mineralogy

A wide variety of rock fragments with up to 80% quartz grains.

The other minerals are biotite muscovite, feldspar & iron oxides.

Occurrence

Associate with most other sedimentary rock types.

Water Absorption

The capacity of water absorption is not more than 1.0%

Texture

Medium-grained; may range widely in degrees of grain sorting and shape Struc ture

Bedding is often apparent along with sedimentary structures and fossils

Hardness

Lies between 6 to 7 on Moh's Scale Density 2.5 Kg/m3

Color

Sandstone is available in many colors – red, pink, white & brown. The variation in colour is due to change in percentage of constituents and the binding material.

Porosity

The porosity of sandstone is almost negligible. Thus sandstone is almost imper meable.

Compressive Strength

Varies from 365 to 460 Kg/m2

(D)ESTIMATION OF RESERVES

RESERVES

The reserve estimation is done, taking the Exposed Masonary Stone & Sandstone in the lease area into consideration. The true thickness of Masonary Stone & Sandstone visible in the pit section is taken. Specific gravity has been taken as 2.5.

The reserves of Pinkish white to buff coloured medium to fine grained , thickly bedded Masonary stone & Sandstone and fine to medium grained brownish colour thickly bedded Masonary stone & Sandstone is calculated together. The reserves are divided in three categories i.e. Proved, Probable and Possible.

The thickness of weathered granule Masonary stone is taken upto 3.0mts and its reserves are calculated separately.

A. PROVED RESERVES (Refer Plate no.3)

Looking to Masonary Stone & Sandstone depth the average thickness for this category is taken as 18.0mts. Surface area has been calculated and then area multiplied by thickness to get volume of the mineral. To get tonnage of Masonary stone & Sandstone, volume is multiplied by bulk density 2.5Tonnes/Cum under Proved category.

B. PROBABLE RESERVES

The thickness of the Probable reserves is taken as 9.0m. further to depth of proved reserves. The area has been multiplied by the thickness of 9.0 m to get the volume of the probable reserves. To get tonnage of Masonary Stone & Sandstone, volume is multiplied by bulk density 2.5Tonnes/Cum.

C. POSSIBLE RESERVES

The thickness of the possible reserves is taken 4.0mts further of the probable thickness i.e. 5.0 m further to probable reserves depth. The area has been multiplied by the thickness of 5.0 m to get the volume of the possible reserves. To get tonnage volume is multiplied by bulk density 2.5Tonnes/Cum.

The detailed calculations are given in table 3.

TABLE 3 RESERVE CALCULATION OF MASONARY STONE & SANDSTONE

(REFER PLATE NO. 4)

Category	Area	Average Thickness	Volume	Tonnage	Masonary Stone 60%	Sandstone 40%
	Sqm.	**(m)**	**Cum.**	**In MT**		
Proved	10000	18	180000	450000		
Already Excavated area			19200	48000		
Net Proved Reserves			**160800**	**402000**	**241200**	**160800**
Probable	10000	9	90000	225000	135000	90000
Possible	10000	5	50000	125000	75000	50000
		TOTAL	**300800**	**752000**	**451200**	**300800**

ESTIMATION OF MINEABLE RESERVES FOR MASONARY STONE & SANDSTONE

Proved Reserves

1. (i) Area covered by 7.5m of boundary barrier in the proved category of reserve has been calculated as 1164sqmt.

Thus the mineral blocked in barrier is 1164 x 18.0 x 2.5 = **52380 MT**

(ii) Area covered by working benches in the proved category reserves 2736cum.

Mineral blocked in benches is 2736 x 18 x 2.5 = **123120 MT**

Total Mineral blocked under proved category due to boundary barrier and making of benches = 52380+123120 = 175500 MT (“**211”**)

Mineable reserves (proved) – blocked reserve (Barrier+ Benches)

402000– 175500 = **226500MT**. **under “111”**

Probable Reserves

(i) Area covered by 7.5m of boundary barrier in the probable category of reserve has been calculated as 1164sqmt.

Thus the mineral blocked in barrier is 1164 x 9.0 x 2.5 = **26190 MT**

(ii) Area covered by working benches in the probable category reserves 882cum.

Mineral blocked in benches is 882 x 9 x 2.5 = **19845 MT**

Total Mineral blocked under probable category due to boundary barrier and making of benches 26190 + 19845 = 46035MT under **"221"**)

Mineable reserves (probable) – blocked reserve (Barrier+ Benches)

225000 – 46035 = 178965 MT. **under "121"**

Total Mineable Reserves = 226500 MT + 178965 MT = 405465MT

UNFC code for reserve transcription

Classification	Code	Quantity in M.T.
Total Mineral resources (A+B)		**752000**
A. Mineral Reserve: -		
1.Proved Mineral Reserves	111	226500
2.Probable Mineral Reserves	121 & 122	178965
B. Remaining Resources: -		
1.Feasibility Mineral Resources	211	175500
2.Prefeasibility Mineral Resources	221 & 222	46035
3.Measured Mineral Resources	331	
4.Indicated Mineral Resources	332	
5. Inferred Mineral Resources	333	125000
6.Reconnaissance Mineral Resources	334	

(G) Surface cum Geological plan - Enclosed with reports as **plate No. 3**

4.0 DETAILS OF PRODUCTION OF LAST YEARS: -

Year	**Production in MT**
2009-10	1200.0
2010-11	49.0
2011-12	1795
2012-13	1796
2013-14	1600
2014-15	00
2015-16	5300
2016-17	19875
2017-18	11039
TOTAL	**42654**

Photocopy of last few years production data is an enclosed as **Annexure No-VII**

5.0 PHYSICAL & GEOLOGICAL CHARACTERISTICS OF MASONARY STONE & SANDSTONE DEPOSIT

Dimensional Sandstone means roofing stone, which is splittable along bedding planes, as well as Blockable Sandstone, which is sawed and cut into desired sizes & shapes. Such sandstone is found around Jodhpur and Balesar and it is also associated with overburden and interburden of masonary (sandstone). Whereas second category of sandstone by virtue of its dull colours, coarse texture and fractured nature can only be used as masonary stone. Majority of dimensional sandstone are associated with Sonia , Girbhakar and Nagaur formation. On the basis of colours and physical features author has identified three broad categories of marketable sandstone namely Chittar (Beige) sandstone, red sandstone and brown sandstone.

6.0 DETAILS OF THE MINING MACHINERY DEPLOYED OR TO BE DEPLOYED AND THEIR DETAILED SPECIFICATIONS

Type	**Size/ Capacity**	**Make**	**Motive Power**
J/Hammer	32 mm	Atlas Copco	Compressed Air
Compressor	62.5 kgf/cm^2	Company made/Local	Diesel
D.G. Set	15KVA	Local	Diesel
Excavator	148HP	Tata Hitachi	Diesel
Dumper	75HP	Ashok Leyland	Diesel
Tractor mount Water tanker	5000 ltr	Ford	Diesel
Wagon drill m/c	30m	Altas Copco	Diesel

Efforts will be made to do mining with the help of new technology i.e wire saw method which are being used in mining of dimensional stone.

7.0 METHOD OF MINING

7.1 Proposed Year Wise Development for Next Two Years

The proposed method of mining will be semi mechanized. For the systematic working of open cast mines, benching will be done. The Masonary stone & sandstone is overlain by O.B. So to extract masonary stone & sandstone it is necessary to remove the Weathered granule to pebbly Sandstone (Masonary stone). The mining will be done with making systematic benches. Road and ramps will be made during the mining as per requirement. The height of the benches will be kept, 5m in Masonary Stone & Sandstone. The overburden in this area is in the form of loose weathered granule to pebbly Masonary Stone having thickness up to 3.0mts. Usable sandstone is quarried mainly by conventional hand tools i.e. chisel, spad etc.

The blocks of 3 to 3.60 m length, 0.45 m height and 0.60 m width are extracted. Thereafter, blocks are splitted in roof slabs, ashler (block) and khanda. No conventional blasting is being practiced in routine. Very occasionally blasting is used for removal of hard capping of overburden whenever encountered. The drilling will be done with the compressor and Jack Hammer, drilling holes of 32mm diameter and depth will vary depending upon the market requirement of sandstone blocks to be produced. For block mining, a special **soundless technique** is being used for cracking of rock mass which is non-explosive, noise less and free of flying rocks. It takes approximate 6 hrs duration for cracking of rock mass. For the process of cracking of rock mass '**Expansion Mortar Powder**' is used. The main development work will be the systematic benching. This benching will also give the desired production of the Masonary Stone & Sandstone. In the Next two years of Modified Mining scheme with PMCP period, each year about 80000MT (Average) of Masonary Stone & Sandstone will be excavated.

7.2 Proposed Rate of Production when area is fully developed

The proposed rate of production for the next two years is 80,000 tons per annum.

7.3 Mineable Reserves

405465MT

7.4 Proposed Rate of Production and Expected Life of area:

Proposed Rate of Production for next two years = 80,000 MT per annum

Mineable reserves = 405465 MT

Life of Mine = 405465MT /80,000 = 5 years

7.5 Conceptual Plan - (Refer plate no.7)

At the end of area of life 405465 MT of mineable reserves will be excavated from the applied area as shown in **Plate no. 7 Conceptual Plan**.

At end of the life of mine out of a total of about 0.8836 hectares excavated area, in which about 0.1819 hectare area will be backfilled from O.B excavated & topsoil spread over it. The land may be used for agriculture purpose and some trees will also be planted over it to preserve the aesthetic look of the area. An area of about 0.7017 hectare will be left as for accumulation of rainwater, which will charge the water table of the area and water collected in this reservoir, which will be utilized for the agriculture purpose

7.6 Blasting

Blasting will be carried out as per rules it will be done with all safety measures. Mining shall be carried out by open cast method with drilling & blasting.

(A) TYPE OF EXPLOSIVE TO BE USED

Blast details in Masonary Stone (Sandstone): No explosive blasting is being practiced. For mining, a special **soundless technique** is being used for cracking of rock mass which is non-explosive, noise less and free of flying rocks. Locally this technique is known as “Bindai” which takes approximate 6 hrs duration for cracking of rock mass. For the process of cracking of rock mass ‘**Expansion Mortar Powder**’ is used.

Spacing - 4 inches

Burden - 2-3 feet

Depth of Hole – 3-4 feet

Diameter
Hole diameter = 32-34 mm

Safety Precautions

No explosive blasting is practiced.

(B) STORAGE OF EXPLOSIVE

There is no proposal of use of explosive so no storage of explosive will be required.

(C) PRECAUTIONS: No explosive blasting is practiced.

7.7 Mine Drainage

No seasonal nalla flowing through the area. In the rainy season the rainwater from the natural slopes flows down and is spread in the nearby area. Ground water table is 45-50 m deep from the surface level. So the ground water will not hinder the working. Pump shall be available at the site for dewatering the water from working pit if water gets accumulated in rainy season.

7.8 Surface cum geological plan & Section

Surface cum Geological Plan & Section is attached as **Plate No. 4**

8.0 YEAR WISE PROGRAMME OF MINING FOR NEXT TWO YEARS

Year	Avg. Bench R.L.		Area	Avg. Thickness Mts.	Vol. Cum	ROM	Marketable Masonary stone MT 60%	Marketable Sand stone 40%	O.B In cum	
	From	To								
2018-19	256	251	6676	3	20028	-	-		20028	
	251	245	5333	6	31998	79995	47997	31998	-	
					Total	**79995**	**47997**	**31998**	**20028**	
2019-20	251	245	884	6	5304	13260	7956	5304	--	
	245	239	4450	6	26700	66750	40050	26700	-	
					Total	**80010**	**48006**	**32004**	**-**	
					Grand Total	**160005**	**96003**	**64002**	**20028**	

TOTAL MARKETABLE MASONARY STONE WILL EXCAVATED IN NEXT TWO YEARS = 96003 MT

TOTAL MARKETABLE SANDSTONE WILL EXCAVATED IN NEXT TWO YEARS = 64002 MT

TOTAL O.B WILL BE GENERATED IN NEXT TWO YEARS = 20028cum

9.0 DETAILS OF THE EMPLOYMENT: (MANAGEMENT PLAN)

TECHNICAL/SKILLED/UNSKILLED PERSON

Deployment of man power for Management plan, Technical and other persons to be employed as follow:

S. No.	Designation	Qualification	Requirement
1.	Mining Engineer	B.E. (Mining)	1
2.	Mining Mate	Mate Certificate	1
3.	Geologist	Graduate	1
4.	Time Keeper	Matriculate	1
5.	Chowkidar	Literate	1

Labor Requirement

For Masonary Stone & Sandstone : -

Targeted production = 80000 MT per year

Working days in a year = 300 days

No of shift in a day = One

Per day out put required in Mineral = 267 MT

Labor required per day in Mineral will be 15 No.

10.0 MEASURES TAKEN AND TO BE TAKEN FOR LAND RESTORATION, RECLAMATION AND PLANTATION IN/OR NEARBY APPLIED AREA

(a) In the next two years, there is no proposal for reclamation of the land affected by mining because the bottom of the Masonary Stone & Sandstone will not be reached in the next two years.

(b) At end of the life of mine out of a total of about 0.8836 hectares excavated area, in which about 0.1819 hectare area will be backfilled from O.B excavated & topsoil spread over it. The land may be used for agriculture purpose and some trees will also be planted over it to preserve the aesthetic look of the area. An area of about 0.7017 hectare will be left as for accumulation of rainwater, which will charge the water table of the area and water collected in this reservoir, which will be utilized for the agriculture purpose

(c) Lessee has already been planted 33% trees i.e. Jamun, Gundha, Sisam etc at outside the lease area in Samshan Bhoomi. Photocopy of Environment Development and Social Welfare Committee of lease holder is enclosed as an Annexure No. VIII. Now during the next two years proposal for saplings of local plants Jamun, Gundha, Sisam, gulmohar, Neem etc will be planted 50trees per year over an area of 0.1hectare along boundary line F as shown in working plan, plate no. 4. The number of sapling proposed to be planted during next two years period is furnished below:

Year	No.	Replacements (20%)	Year wise Area (in Hect)	Type of species	Location
2018-19	50	10	0.05	Jamun, Gundha, Sisam, gulmohar etc	As shown in working plan, plate no. 4
2019-20	50	10	0.05		

About 0.1 hect area will be covered under plantation inside the lease area on boundary barrier in next two years. About 0.23hect area will be planted over the backfilled area & in boundary barrier during life of mine.

Hence total 0.33 ha area will be covered under plantation during the life of mine. The position at the end of life of mine is shown in Conceptual Plan

11.0 MEASURES TAKEN AND TO BE TAKEN FOR PROTECTION OF ENVIRONMENT IN AND AROUND APPLIED AREA

a. By planting trees dust, smoke and gaseous emission will be under permissible limits of Environment laws.
b. Proper maintainance of machine & Blasting will be carried out within safe limits.
c. Labour and staff will be given motivation for not to run machines idle. This will reduce the pollution as well as cost of production.
d. Water spray will continue during and after mining to control dust and other particles.
e. Regular watchmen/chowkidar shall be posted to keep away cattle, human beings from mining area.
f. No discharge of toxic effluents into surface water and ground water aquifers is envisaged there

12.0 MEASURES TAKEN AND TO BE TAKEN FOR DUMPING OF OVERBURDEN, STACKING OF TOP SOIL AND UTILIZATION OF TOP SOIL

There is no fertile topsoil present in the area.

The overburden i.e weathered granule masonary stone will be stacked separately near boundary line 'C' covering an area of 130sqm. as shown in Proposed working Plan enclosed as plate no. 5

13.0 MEASURES TAKEN AND TO BE TAKEN FOR CONTROL OF WATER, NOISE AND AIR POLLUTION

Water Environment

(i) Surface Water

No seasonal nalla is passing through the area. Therefore there will be no effect on the surface water.

ii) Ground Water

The water table is 45m to 50m below the lowest level in the area. The mining activity is proposed on the higher level and the pit bottom will never touch the water table during the next two years period of mining; therefore no effect on ground water due to mining operation will be there.

(iii) Quality of water: - There will be no impact of mining on quality of water as mining will be higher level.

(iv)Air Environment

Drilling will generate the dust in the air. This will affect the air environment. Other than this plying of trucks may generate some dust, which will be negligible. The lessee shall be use dry dust extractor if dust generation is more. In the sandstone mining during the drilling operations free silica is likely to be generated. The drilling operations are mostly carried out by wet drilling methods which control the release of free silica within the vicinity of mining operations.

(v) Noise Environment

There will be sound of the compressors; Jackhammers when drilling of holes will be made. Except this there will be sound at the time of machines working. To avoid this proper maintenance of the m/c will be done and the earplugs shall be provided to the drillers and operators.

14.0 CONTRIBUTION REGARDING THE SOCIAL DEVELOP-MENT OF THE NEARBY RESIDENTS

This Masonary stone & Sandstone mine is and will provide direct employment opportunities to the local residents. Hence earning of the people will increase and will help in improving their living standard.

Social Welfare Services Proposed -

The lessee will provide employment for nearby villagers as far as possible on priority basis and will organize health check up camps for mine workers as well as needy villagers. The lessee will be committed for community social upliftment by way of providing drinking water facilities, in school renovation and further as per requirement.

15.0 DETAILS OF HEALTH CHECK UP AND INSURANCE OF ALL THE EMPLOYED PERSONS (FOR EXISTING LEASE)

Medical facilities will be provided to the child of employed person in the mine & also Medical checkup of the worker will be done as per Act & Rules.

Signature of Technical Person

RAKESH PUROHIT

B.E. MINING

PROGRESSIVE MINE CLOSURE PLAN

1.0 INTRODUCTION

(a) Name of applicant & complete address:

Shri Baga Ram S/o Shri Girdhari Ram

R/o – Village- Bujawad,Gangana

Tehsil- Luni, District- Jodhpur (Raj.)

(b) Lease area: - 1.00Hect..

(c) Type of area: - Non forest land

(d) Present land status: - Govt. land = 1.00 Hect.

(1). Area already excavated = 0. 55Hect

(2). Storage for Topsoil/alluvium = Nil

(3). O.B./Dump = 0.01HA

(4). Mineral storage = Nil

(5). Infrastructure (Workshop/Adm. Building, cart track) = 0.002Ha.

(6). Roads = Nil

(7). Railways = Nil

(8). Green belt = Nil

(9). Tailing pond = Nil

(10). Effluent treatment plant = Nil

(11). Mineral separation plant = Nil

(12). Township area = Nil

(13). Others (To specify) = Nil

(e) Method of mining: - Open cast semi mechanized mining by forming benches of 6.0mts maximum height in mineral.

(f). Mineral-processing operations: - No mineral beneficiation is proposed, at the site.

1.1 Reasons for closure: - The mine is closes either due to depletion of Mineable reserve or due to uneconomic mining or due to search of more economic substitute for mining product. The aforesaid reasons for closure are not applicable at this stage.

Statutory obligations: -

Lessee has to follow Mines Safety Rules and Regulation for day to day working in the interest of labor. Lessee has to be obtained Environment clearance for Masonary Stone & Sandstone .

1.2 Name & address who is preparing the progressive closure plan: -

Rakesh Purohit
B.E Mining
Address - 17E/777,Chopasani Housing Board, Jodhpur.
Phone (0291) 2706098 (Tele. Fax), 98290-21098 (M)

Executing Agency: -

Shri Baga Ram S/o Shri Girdhari Ram
R/o – Village- Bujawad,Gangana
Tehsil- Luni, District- Jodhpur (Raj.)

2.0 MINE DESCRIPTION

A) PHYSIOGRPAHY:-

The lease area under having flat topography. The highest R.L 256 & lowest contour RL in the area is 252 m. No nalla is flowing within the lease area but Gollasni Nadi is flowing at a distance of 3.0 Km. in SE direction from the lease Area. There are no plants with in the lease area but local plants Jamun, Gundha, Sisam, gulmohar, Neem etc with thorny bushes are the major assets found around the lease area with thorny bushes are the major assets found around the lease area. The rainwater follows the natural slope and flows out of the lease area. All the surface features are marked on the Surface cum Geological plan plate No. 3. The land status is Govt. waste land.

(B) REGIONAL GEOLOGY

The regional geological set up as worked out by **G. S. I.(H.S. Pareek 1984)** indicates that the older rocks of Delhi Super Group represented by Punagarh Group include basic volcanic where as of the **Marwar Super Group** is present in major part of the district and is represented by Jodhpur-Bilara and Nagaur Groups. The igneous phase is represented by Malani rhyolites, Jalore and Siwana Ganites and in some part Erinpura Granits and Gneisses. The Palaezoic era is represented by sandstone and Bap boulder beds of Permo-carboniferous system. In the border region of Jodhpur, Jaisalmer and Bikaner some pockets of clays and fuller's earth of Jogira and Mudh Formation can be seen. However alluvium and blown sand cover the district in a large area and local geology is usually covered. The Regional Geological succession is as under: -

Cainozoic	Pleistocene to Recent		Aeolian sand and sand dunes
	Piestocene	Boulder spread	Gypsite
		Shumer formation	Scattered pebles of granite, rhyolite, quartzite etc

	Palaeocene	Marh formation	Ferruginous sandstone, calcareous consertrations Sandstone, Grit, conglomerate
Mesozoic	Jurassic	Lathi/ Mayeker formation	Sandstone, Grit, conglomerate
Upper Palaeozoic	Permian Permo-Carboniferous	Badhura formation Bap Boulder Bed	Sanstone, clay, shale Boulder & fragement of granite, rhyolite, quartzite etc.
Lower Palaeozoic	**Marwar Super Group**	Nagaur Group Bilara Group Jodhpur Group	Red sandstone with green clay, evaporite sequence Limestone & dolomite Brick red siltstone, shle, sandstone Sandstones with minor shale chert, dolomite
Middle Proterozoic		Malani	d. Rhyolite, tuff. Ash bed, ballast e. Granite f. Dolerite ballast
Lower Middle Proterozoic	Delhi Super Group	Erinpura Group Punagarh Group	Granite & Gneiss Phyllite, slate sandstons, quartzite, schist

The oldest sedimentary sequence of Western Rajasthan comprising silica-clastic and carbonate sediments of Cambrian age are designated as **Marwar Super Group**. Earlier, this was considered to be equivalent to Vindhyan rocks, but is now equated with sediments of Indus basin. This Super Group has been further sub divided into Jodhpur, Bilara and Nagaur Groups. **Jodhpur Group of rocks** - It is the oldest among these and has rock assemblage shale, chert and fine grained to gritty sandstone. Rocks of this group cover a large part in

Jodhpur, Balesar, Bhopalgarh and Kherapa areas. Quarries of famous Jodhpur and Balesar building stone are located in the rocks of this group. Rocks of Jodhpur Group were deposited on basement of Malani rocks. Area comprises of Jodhpur sandtone which is unconformably underlain by Malani rhyolites. Bilara Group of rocks represents calcareous facies having dolomite, chert and limestone. These occur between Phalodi to Nagaur and from Bilara to Borunda and are overlain by mottled sandstone, claystone and gypseous beds.

C. GENERAL GEOLOGY OF THE AREA

Masonary stone & Sandstone & its industrial uses :– This is an important building stone of whole of Western Rajasthan. History of its mining in Jodhpur district is 500 years old. Temples and Palaces in Jodhpur area are ample proof of Masonary stone's utility. Geologically the Jodhpur Masonary stone & Sandstone belongs to Sonia and Girbhakar formations of Jodhpur Group. Masonary stone is quarried for masonry stone (small block), slabs & aslets. Slabs are used for roofing purpose and aslet is used for making pillars and beams. Masonary stone is buff-pink to grey colured, medium to coarse grained in nature and is well sorted. Recent researches have indicated that good quality split table Masonary stone & Sandstone is confined to lower and middle facies of Jodhpur Group. Upper non-split table, blockable thick beds of Masonary stone are also being used for making slabs, tiles, liries by using advanced cutting and sewing machines. The important occurrences of Masonary stone are located around Jodhpur city viz., Mandore, Soor-Sagar, Keru, Berli, Kailana, Balesar, Dechu, Setrawa, Chokri, Ratkudiya, Osiyan, Bhopalgarh etc. The Masonary stone occurs as horizontally bedded formation and assumes plateau like land shapes.

The important mining areas of Masonary stone & Sandstone are located near Soorsagar, Fidusar, Balsamand, Mandore, Keru, Badli, Balesar, Setrawa, Kali-Bhuri Beri and Ghoda-Ghati. Masonary stone (Sandstone) mining is carried out under RCRLs/quarry licences, which are granted after delineation of suitable areas.

2.4 LOCAL GEOLOGY AND EXPLORATION ALREADY CARRIED OUT:

The area comprises Masonary stone (Sandstone) of the Jodhpur group of rocks.

Geologically the area comprises of horizontally deposited sandstone of Jodhpur group of rocks of Marwar super group of lower Palaeozoic age.

The area comprises of 3.0 m Weathered granule to pebbly Sandstone (Masonary stone) as O.B and below the O.B, 14mPinkish white to buff colored medium to fine grained , thickly bedded Sandstone occurs. It is massive, blockable in nature. After this 4m fine to medium grained brownish colour thickly bedded Sandstone occurs. It is also massive and block able in nature. The small to large size of blocks can be prepared / excavated by using wire saw machine.

Detailed geological mapping of the lease area of 1.0Hectares was carried out on a scale of 1:1000. Topographical survey of the ML area was simultaneously done. Mineralized bodies i.e. Masonary Stone & Sandstone is precisely marked. The Surface Geological Plan is enclosed as **plate No. 3** along with this report.

Description of litho units: -

Given below are the generalized litho-units:

- Weathered granule to pebbly Sandstone (O.B) – 3.0 mts
- Masonary Stone & Sandstone – 18.0mts (Proved) (14.0 mts Pinkish white to buff colored medium to fine grained & 4.0 mts fine to medium grained brownish colour

  9.0mts (Probable)

  5.0mts (Possible)
- **Dimension of pit -** At present one working pit is present in the lease area and its dimension is 65 mts X 85 mts.

(D)ESTIMATION OF RESERVES

RESERVES

The reserve estimation is done, taking the Exposed Masonary Stone & Sandstone in the lease area into consideration. The true thickness of Masonary Stone & Sandstone visible in the pit section is taken. Specific gravity has been taken as 2.5.

The reserves of Pinkish white to buff coloured medium to fine grained , thickly bedded Masonary stone & Sandstone and fine to medium grained brownish colour thickly bedded Masonary stone & Sandstone is calculated together. The reserves are divided in three categories i.e. Proved, Probable and Possible.

The thickness of weathered granule Masonary stone is taken upto 3.0mts and its reserves are calculated separately.

PROVED RESERVES (Refer Plate no.3)

Looking to Masonary Stone & Sandstone depth the average thickness for this category is taken as 18.0mts. Surface area has been calculated and then area multiplied by thickness to get volume of the mineral. To get tonnage of Masonary stone & Sandstone, volume is multiplied by bulk density 2.5Tonnes/Cum under Proved category.

PROBABLE RESERVES

The thickness of the Probable reserves is taken as 9.0m. further to depth of proved reserves. The area has been multiplied by the thickness of 9.0 m to get the volume of the probable reserves. To get tonnage of Masonary Stone & Sandstone, volume is multiplied by bulk density 2.5Tonnes/Cum.

POSSIBLE RESERVES

The thickness of the possible reserves is taken 4.0mts further of the probable thickness i.e. 5.0 m further to probable reserves depth. The area has been multiplied by the thickness of 5.0 m to get the volume of the possible reserves. To get tonnage volume is multiplied by bulk density 2.5Tonnes/Cum.

The detailed calculations are given in table 3.

TABLE 3 RESERVE CALCULATION OF MASONARY STONE & SANDSTONE

(REFER PLATE NO. 4)

Category	Area	Average Thickness	Volume	Tonnage	Masonary Stone 60%	Sandstone 40%
	Sqm.	**(m)**	**Cum.**	**In MT**		
Proved	10000	18	180000	450000		
Already Excavated area			19200	48000		
Net Proved Reserves			**160800**	**402000**	**241200**	**160800**
Probable	10000	9	90000	225000	135000	90000
Possible	10000	5	50000	125000	75000	50000
		TOTAL	**300800**	**752000**	**451200**	**300800**

ESTIMATION OF MINEABLE RESERVES FOR MASONARY STONE & SANDSTONE

Proved Reserves

1. (i) Area covered by 7.5m of boundary barrier in the proved category of reserve has been calculated as 1164sqmt.

Thus the mineral blocked in barrier is 1164 x 18.0 x 2.5 = **52380 MT**

(ii) Area covered by working benches in the proved category reserves 2736cum.

Mineral blocked in benches is 2736 x 18 x 2.5 = **123120 MT**

Total Mineral blocked under proved category due to boundary barrier and making of benches = 52380+123120 = 175500 MT (“**211”**)

Mineable reserves (proved) – blocked reserve (Barrier+ Benches)

402000– 175500 = **226500MT**. **under “111”**

Probable Reserves

(i) Area covered by 7.5m of boundary barrier in the probable category of reserve has been calculated as 1164sqmt.

Thus the mineral blocked in barrier is 1164 x 9.0 x 2.5 = **26190 MT**

(ii) Area covered by working benches in the probable category reserves 882cum.

Mineral blocked in benches is 882 x 9 x 2.5 = **19845 MT**

Total Mineral blocked under probable category due to boundary barrier and making of benches 26190 + 19845 = 46035MT under **"221"**)

Mineable reserves (probable) – blocked reserve (Barrier+ Benches)

225000 – 46035 = 178965 MT. **under "121"**

Total Mineable Reserves = 226500 MT + 178965 MT = 405465MT

UNFC code for reserve transcription

Classification	Code	Quantity in M.T.
Total Mineral resources (A+B)		**752000**
A. Mineral Reserve: -		
1.Proved Mineral Reserves	111	226500
2.Probable Mineral Reserves	121 & 122	178965
B. Remaining Resources: -		
1.Feasibility Mineral Resources	211	175500
2.Prefeasibility Mineral Resources	221 & 222	46035
3.Measured Mineral Resources	331	
4.Indicated Mineral Resources	332	
5. Inferred Mineral Resources	333	125000
6.Reconnaissance Mineral Resources	334	

2.4 Mining Method: -

The proposed method of mining will be semi mechanized. For the systematic working of open cast mines, benching will be done. The Masonary stone & sandstone is overlain by alluvium & O.B. So to extract masonary stone & sandstone it is necessary to remove the Weathered granule to pebbly Masonary Stone. The mining will be done with making systematic benches.

Road and ramps will be made during the mining as per requirement. The height of the benches will be kept, 6m in Masonary Stone & Sandstone. The overburden in this area is in the form of loose weathered granule to pebbly Masonary Stone having thickness up to 3.0mts. Usable sandstone is quarried mainly by conventional hand tools i.e. chisel, spad etc.

The blocks of 3 to 3.60 m length, 0.45 m height and 0.60 m width are extracted. Thereafter, blocks are splitted in roof slabs, ashler (block) and khanda. No conventional blasting is being practiced in routine. Very occasionally blasting is used for removal of hard capping of overburden whenever encountered. The drilling will be done with the compressor and Jack Hammer, drilling holes of 32mm diameter and depth will vary depending upon the market requirement of sandstone blocks to be produced. For block mining, a special **soundless technique** is being used for cracking of rock mass which is non-explosive, noise less and free of flying rocks. It takes approximate 6 hrs duration for cracking of rock mass. For the process of cracking of rock mass '**Expansion Mortar Powder**' is used. The main development work will be the systematic benching. This benching will also give the desired production of the Masonary Stone & Sandstone. In the Next two years of Modified Mining Scheme with PMCP period, each year about 80000MT (Average) of Masonary Stone & Sandstone will be excavated.

2.5 Mineral Beneficiation: - No mineral beneficiation required at site except sorting and removing any rock or waste material.

3.0 REVIEW OF IMPLEMENTATION OF MINING PLAN/ SCHEME OF MINING INCLUDING FIVE YEARS PROGRESSIVE CLOSURE PLAN UPTO THE FINAL CLOSURE OF MINE

It is a working mine and this progressive mine closure plan is being prepared for this area.

4.0 CLOSURE PLAN

4.1 Mine-out land: -

(i) Existing Land use pattern:

	Forest Land	Crop Land	Grazing Land	Waste Land	Others	Total	Indicate land req. Outside lease area
(In hectares)							
a) Pits & Quarries	-	-	-	0.55	-	0.55	-
b) Dumps of ore Waste & O.B.	-	-	-	0.01	-	0.01	-
c) Infrastructure including of office, Workshop & plants Roads	-	-	-	0.002	-	0.002	-
d) Mineral stack	-		-	-	-	-	-
e) Others (i) Barren land (ii) Crop land	- -	-	- -	0.438 -	- -	0.438 -	- -
Total occupied Area	-	-	-	1.00	-	1.00	-

f) Area backfilled by mine owner -nil,

g) Area afforested by mine owner - nil

i) Land Scape: **Land use after fifth year**

	Forest Land	Crop Land	Grazing Land	Waste Land	Others	Total	Indicate land req. Outside lease area
(In hectares)							
a) Pits & Quarries	-	-	-	0.88	-	0.88	-
b) Dumps of ore Waste & O.B.	-	-	-	0.02	-	0.02	-
c) Infrastructure including of office, Workshop & plants Roads	-	-	-	0.005	-	0.005	-
d) Mineral Stack	-		-	-	-		-
e) Others (i) Barren land (ii) Crop land	- -	- -	- -	0.095	- -	0.095	- -
Total occupied Area	-	-	-	1.00	-	1.00	-

e) Area backfilled by mine owner- Nil

g) Area afforested by mine owner 0.1Hects.

Proposed plantation will be done inside the area (0.33hect) upto the life of mine.

4.2 Water Quality Management: -

(i) Surface Water

No seasonal nalla is passing through the area. Therefore there will be no effect on the surface water.

ii) Ground Water

General ground water table in this area is 45m to 50mts below the ground level. The mining activity is proposed above the ground water table so the pit bottom may not be touching the water table during the next two years period of mining.

(iii) Quality of water: - There will be no impact of mining on quality of water.

4.3 <u>Air Quality Management</u>: -

Air Environment

Drilling will generate the dust in the air. This will affect the air environment. Other than this plying of trucks may generate some dust, which will be negligible. The lessee shall be use dry dust extractor if dust generation is more. There will be no impact on climatic conditions of the area by mining operations.

Noise Environment

There will be occasional sound of the compressors; Jackhammers when drilling of holes will be made. Except this there will be sound at the time of machines working. To avoid this proper maintenance of the m/c will be done and the earplugs shall be provided to the drillers and operators.

Climatic Conditions

There will be no impact on climatic conditions of the area by mining operations.

(ii) Ambient Noise & Vibration levels: -

There will be occasional sound of the compressors and Jack hammers when drilling of holes will be made. There will be sound due to machinery. To avoid this proper maintenance of the m/c will be done and the earplugs shall be provided to the drillers/ operators.

4.4 <u>Waste Management</u>: -

The waste rock will be stack separately inside the lease area at near C where there no planning of mining in the present period as given in proposed working plan and section.

No top soil is present in the lease area hence no stacking is required.

4.5 Topsoil Management: -

There is no fertile topsoil present in the area.

4.6 Tailing Dam Management: -

There will not be processing activity hence no toxic material will be used. Thus, there is no necessity of tailing pond for disposal of tailing of toxic mineral substance. Hence no management is required.

4.7 Infrastructure: -

The drinking water is made available from the nearby village by the tractor tanker working at the site. The office cum rest shelter is proposed inside the lease area. A store, First aid station, toilet and other facilities shall also be provided at the mines.

4.8 Disposal of Mining Machinery: -

No machinery is proposed to disposed off during the period of this progressive mine closure plan.

4.9 Safety & Security: -

All mining operation will be done, as per statutory provisions as mentioned in metal mines regulations. Proper benches will be maintained in overburden and height of benches will not exceed 5mts and width will not be less than height. Helmet & Shoes etc will be provided to the employees working in the lease area.

The excavated area will be kept properly cordoned off by masonry wall or secured barbed wire fencing.

During nighttime and off duty hours guards will be posted to prevent unauthorized and inadvertent entry of person and cattle.

The safe workings are proposed in the supervision of technical and qualified supervisory staff. Safety measures will be provided as per Mines Act.

4.10 Disaster Management and Risk Assessment: -

The proposed working will be semi-mechanized mining method. Underground mining is not proposed. No tailing dam is proposed. Thus high-risk accidents like land slide, subsidence, flood, inundation, fire, seismic activities etc. not come across.

In case of accident a well-equipped first aid station will be provided at mine site for giving first aid to injured persons. The area is near the state highway and vehicles on this highway with good frequency. The lessee vehicle also remains at site most of the time during working. The applicant is capable to meet any type of risk.

4.11 Care and maintenance during temporary discontinuance: -

In case of temporary discontinuance of mining operations, the mine workings will be in the watch of a watchman. Before re-open of the mine the maintenance will be provided to all the machineries deployed at mine. Before entering the laborers into mine workings are proposed to inspect by manager for safety purpose as per Mines Act.

The following precautions are to be taken: -

1. Total excavated area will be properly cordoned off by barbed wire fencing or permanent masonry bound any wall to prevent inadequate entry of human or cattle. Round the clock guarding by watch and ward personnel will be done.
2. The excavated area will be properly lighted during nighttime.
3. A stand by diesel pump shall be kept ready to dewater the pit during monsoon months so that mining operation can be resumed with much loss of time.
4. Before resuming mining operation the area will thoroughly inspected by manager and other officers and necessary steps will betaken ensure safe working condition.

5.0 ECONOMIC REPERCUSSIONS OF CLOSURE OF MINE AND MANPOWER RETRENCHMENTS

5.1 Number of local residents employed: -

All the laborers will be employed from nearby villages. Except these laborers few persons of near by area will also get employment as staff and supervisory staff etc. Some persons will get indirect job from the mining activities.

5.2 Compensation: -

The compensation to the employees with sustenance of himself and their family members will be provided as per Labour law and Mines Act.

5.3 Satellite occupations connected with mining activity: -

Employment is also provided to the local villagers by other allied activities.

5.4 Continued engagement of employment in the rehabilitated, status of mining lease area and any other remnant activities: -

Not applicable in this progressive mine closure plan

5.5 Envisaged repercussions on the expectation of the society around due to closure of mine: -

This paragraph belongs to final closure of the mine and not related with progressive mine closure plan.

6.0 TIME SCHEDULING FOR ABANDONMENT

This is a progressive closure plan for the next two years only for Masonary Stone & Sandstone mine near village Bujawad, and no abandonment or temporary discontinuance is being proposed during this progressive mine closure period.

Lessee has already been planted 33% trees i.e. Jamun, Gundha, Sisam etc at outside the lease area in Samshan Bhoomi. Photocopy of Environment Development and Social Welfare Committee of lease holder is enclosed as an Annexure No. VIII. Now during the next two years proposal for saplings of local plants Jamun, Gundha, Sisam, gulmohar, Neem etc will be planted 50trees per year over an area of 0.1hectare along boundary line F as shown in working plan, plate no. 4. The number of sapling proposed to be planted during next two years period is furnished below:

Year	No.	Replacements (20%)	Year wise Area (in Hect)	Type of species	Location
2018-19	50	10	0.05	Jamun, Gundha, Sisam, gulmohar etc	As shown in working plan, plate no. 4
2019-20	50	10	0.05		

About 0.1 hect area will be covered under plantation inside the lease area on boundary barrier in next two years. About 0.23hect area will be planted over the backfilled area & in boundary barrier during life of mine.

Hence total 0.33 ha area will be covered under plantation during the life of mine. The position at the end of life of mine is shown in Conceptual Plan

7.0 ABANDONMENT COST

No temporary discontinuance and abandonment is anticipated during the progressive mine closure plan period. But during this period of PMCP tentative expenditure will be done for protection of environment that is fencing, plantation and other environment aspects including backfilling & waste management as follows: -

(2018-19 to 2019-20)

Items	Details	Proposed			Remarks
		Area in Hect	Quantity	Expenditure in Rs.	
1	2	3	4	5	6
(A) RECLAMATION & REHABILITATION OF MINED OUT LAND / AREA	i) Backfilling	-	-	-	-
	ii) Afforestation on the back filled area	-	-	-	-
	iii) Others (please specify eg. Afforestation on exhausted benches)	-	-	-	-
	iv) Pisciculture	-	-	-	-
	V) Converting into water reservoir	-	-	-	-
	vi) Picnic spot	-	-	-	-
(B) STABILISATION & REHABILITATION OF DUMPS (WITHIN LEASE)	I) Terracing	-	-	-	-
	ii) Pitching	-	-	-	-
	iii) Construction of parapet walls / Retaining wall at toe of dumps	-	-	-	-
	iv) Construction of check dams along slope of vallies	-	-	-	-
	v) Construction of Settling ponds (Garland drains etc)	-	-	-	-
	vi) Desiliting of settling ponds, channels	-	-	-	-
	vii) Afforestation on dumps	-	-	-	-
	viii) Others (Please specify)				
(C) REHABILIATION OF BARREN AREA WITHIN LEASE	i) Afforestation (Green belt building)	0.1	100 Nos.	4000	40/sapling
	ii) Others (Care & Maint)	-	-	4,000	-
	iii) Wire fence	-	-	-	-
(D) ENVIRONMENTAL MONITORING (Core & Buffer zone separately)	i) Ambient Air Quality	-	-	4,000	-
	ii) Water Quality	-	-	4,000	-
	iii) Noise Level Survey	-	-	4,000	-
	iv) Ground Vibration	-	-	-	-
	v) Others (please specify)	-	-	-	-
		-	-	-	-
	Total			**20000**	

8.0 FINANCIAL ASSURANCE

Details of the end the period of the Progressive mine closure plan are given as below:

S.No	Head	Area put on use at start of plan (In hect)	Additional requirement during plan period (In hect)	Total (In hect)	Area considered at fully reclaimed & rehabilitated (In hect)	Net area considered for calculation (In hect)
1	Area under mining	0.55	0.33	0.88	Nil	0.88
2	Storage for top soil	Nil	Nil	Nil	Nil	Nil
3	Overburden/ Dump	0.01	0.01	0.02	Nil	0.02
4	Mineral stores	-	-	-	Nil	-
5	Infrastructure (Workshop, administrative building etc.)	0.002	0.003	0.005	Nil	0.005
6	Roads	Nil	Nil	Nil	Nil	Nil
7	Railways	Nil	Nil	Nil	Nil	Nil
8	Tailing pond	Nil	Nil	Nil	Nil	Nil
9	Effluent treatment plant	Nil	Nil	Nil	Nil	Nil
10	Mineral separation plant	Nil	Nil	Nil	Nil	Nil
11	Township area	Nil	Nil	Nil	Nil	Nil
12	Others to specify	Nil	Nil	Nil	Nil	Nil
	Total	**0.562**	**0.343**	**0.905**	**Nil**	**0.905**

As per Rule 29(14) of RMMCR, 2017, every lessee/ quarry licensee is has to be submitted financial assurance at the rate of Rs. 15,000/- per hectare or part there of the area of mining in terms of FDR. as asked by authorized officer.

9.0 CERTIFICATE

Certificate is enclosed with report.

10. PLAN & SECTIONS

Plan & sections area prepared & enclosed with this plan**.**

Place: Jodhpur (Raj.) Signature of Technical Person

Date: **RAKESH PUROHIT**
B.E. MINING

LIST OF ANNEXURES

S. No.	PARTICULARS	ANNEXURE NO.
1.	PHOTOCOPY OF RIDER AGREEMENT	I
2.	PHOTCOPY OF APPROVAL LETTER	II
3.	PHOTOCOPY OF INCLUSION LETTER	III
4	PHOTOCOPY OF EXPERIENCE CERTIFICATE	IV
5	PHOTOCOPY OF DEMARCATION REPORT	V
6	PHOTOCOPY OF KHASRA MAP & JAMABANDI	VI
7	PHOTOCOPY OF PRODUCITON FIGURE	VII
8	ENVIRONMENT DEVELOPMENT AND SOCIAL WELFARE COMMITTEE	VIII

LIST OF PLATES

S.No.	PARTICULARS	PLATE NO.	SCALE
1.	LEASE AREA MAP	1	1:5000
2.	KEY PLAN	2	1:50000
3.	SURFACE PLAN	3	1:1000
4	SURFACE CUM GEOLOGICAL PLAN AND SECTIONS	4	1:1000
5	PROPOSED TWO YEAR WORKING PLAN AND SECTION	5	1:1000
6	ENVIRONMENT PLAN	6	1:5000
7	CONCEPTUAL PLAN & SECTION	7	1:1000
8.	PROGRESSIVE MINE CLOSURE PLAN	8	1:1000

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