CLUSTER MINING PLAN

(Submitted under Rule 29 of RMMCR, 2017 for forest diversion area)

OF

PAHARPUR SANDSTONE MINE (BLOCK A & B)

VILLAGE- PAHARPUR

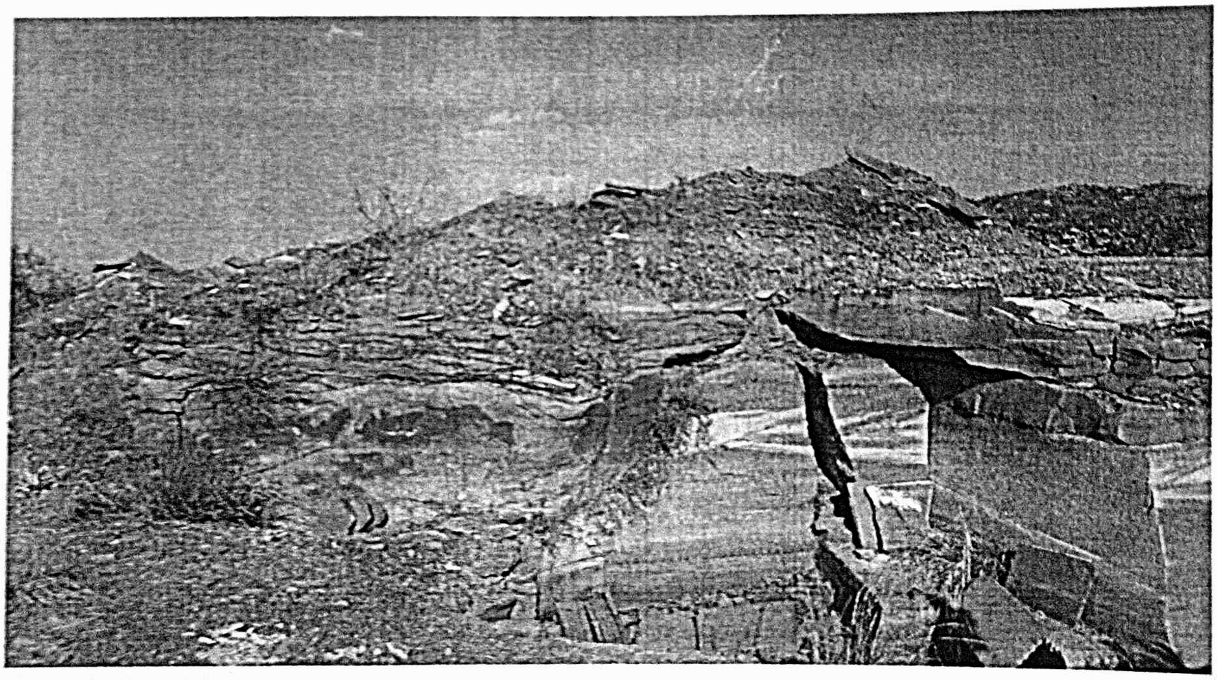
TEHSIL- ROOPWAS

DISTRICT- BHARATPUR

STATE- RAJASTHAN

TOTAL LEASE AREA- 398.0085 Hect. (FOREST)

LEASE PERIOD 50 YEARS



User Agency

Assistant Mining Engineer, Roopwas

Department of Mines and Geology

(Rajasthan)

Approved vide Letter No. S.P.-1
SME ... /Mining Plan
Dt. 12/04/2021 M.L.No.....

अधीक्षण खनि. अभियन्ता
खान विभाग
भरतपुर (राज.)

User Agency

Assistant Mining Engineer, Roopwas

Department of Mines and Geology (Rajasthan)

CERTIFICATE

1. It is certified that the provisions of Mines Act, Rules and Regulations made there under have been observed in the Simplified Mining Scheme Including Progressive Mine Closure Plan for Paharpur Sandstone Mine, over an area (Block A & B) of 398.0085 Hect for mineral Sandstone near Village- Paharpur, Tehsil- Roopwas, District- Bharatpur, State- Rajasthan, and wherever specific permissions are required, the lessee/applicant will approach the Director General of Mines Safety. Further, the standards as prescribed by DGMS in respect of miner's health will be strictly implemented.

2. The Cluster Mining Plan for Paharpur Sandstone Mine, over an area (Block A & B) of 398.0085 Hect for mineral Sandstone near Village- Paharpur, Tehsil- Roopwas, District- Bharatpur, State- Rajasthan, and the lessee/ applicant complies all the statutory Rules, Regulations; Orders made by the Central Government or State Government, Statutory organizations, Court etc. and have been taken into consideration. Wherever any specific permission is required, the lessee will approach the concerned authorities.

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INTRODUCTION

The Cluster mining plan for sand stone Mines (Delineated plots) near village – Paharpur, Tehsil- Roopwas, District- Bharatpur (Raj.) has been prepared by Assistant Mining Engineer Roopwas, Department of Mines & Geology Government of Rajasthan for fulfillment of Rule 29 (10) & 29 (5) (vi) of R.M.M.C.R., 2017.

The plots are delineated in forest area for e-auction for mineral concession. The area of Delineated plots varies from 4 to 15 Hectares. Total applied area for diversion is 398.0085 Hectare. After completion of the formalities, delineated plots will be auctioned and Leases will be granted for the period of 50 Years.

CHAPTER – 1

General Information about Forest Area Block A&B

(a) **Name and address of user agency:-**

Assistant Mining Engineer, Roopwas

District- Bharatpur (Rajasthan)

E-Mail ID- ame.roopwas@rajasthan.gov.in

(b) **Status of the area:-**

Forest Land Block A & B Total area: 646.56 hac.

Applied area for diversion: 398.0085 hac.

Delinated Area:-369.2986 hac.

Plantation Area:- 12.9191 hac.

Approach Road:- 4.5563 hac.

Safety zone area:- 3.9095 hac.

Dumping area:- 7.3250 hac.

resulting in very open

CHAPTER – 2

Location map of the applied area for diversion for Mining Leases

a) Name of the Mineral: - Sandstone

The Delineated area have been shown in Plate No. 1 of Mining Plan.

Details of the mining area

Near Village	Tehsil	Dist. & State	G.T. sheet No.	Khasra No./ Plot No.	Status of land	Area	Period
Paharpur	Roopwas	Bharatpur Rajasthan	54 F/5 & 54 F/9	Block A-1 to 10 Block B- 1 to 60	Forest Land	113.6950+284.3135 Total- 398.0085	50 Year

(d.) Infrastructure Facilities:-

1. **Police station -** The nearest police station is Rudawal at a distance of 6.31 km towards NW direction from lease area.
2. **Post Office-** The nearest Post & Telegraph Office is Paharpur
3. **Medical Facilities-** Nearest Dispensary is at village Paharpur at a distance of 1.25 km.
4. **Education Facility- U**p to Secondary school facility is available at Paharpur at a distance of 1.25 km
5. **Availability of water** The Ground water table is 25m (in rainy season) to 40m (in Dry Season). The drinking water can be brought from the wells of nearby village.
6. **Electricity -** The Electric Line passes outside the Delineated Plots area.
7. **Mode of Transport of Mineral** –Railway transportation facility also available at Paharpur. Mineral will be transported by truck/Dumper from mine site to riico area bayana etc.
8. **River/ Canal: -** There is no river/canal passing through the area or nearby the area.
9. Other relevant information:- Banking and all other facilities are available at Rudawal/Roopwas.

CHAPTER-3

GEOLOGY AND EXPLORATION

a) Physiography & Drainage: - The M.L area falls in G.T. sheet No. 54 F/5 Lease area is located 1.00 Km. North east of village Paharpur. The area for which Simplified Mining Scheme is prepared is Plain area. The Mining lease area occupied by sandstone and negligible quantity of Alluvium. The highest RL of the area is 261.36 mRL and lowest RL of the area is 205.13 mRL. The level difference is 56.23mtr. General drainage pattern is North Eastern side of the Mining Lease area. There is reserved forest in the lease area.

(b) Climate

The area is characterized by semi arid type with an average annual rainfall about 675 mm. which is mainly, received during June to September. The area belongs to Semi Arid zone.

Minimum Temp - Varies from 3.5° to 5° C

Maximum Temp- Varies from 43° to 46° C

(c) Regional Geology: Almost the entire northern part of the district is covered by alluvium, with few isolated hills of schist & quartzites belonging to Aravalli & Delhi Groups.

Geologically Bharatpur district comprises of rocks belonging to Delhi Super Group and Vindhyan Super Group. Stratigraphic succession of the rock units of Bharatpur region is given below:

Quaternary		Soil & Alluvium
Vindhyan Super Group	Bhander Group	Dholpur Shale
		Upper Bhander (Maihar) Sandstone
Delhi Super Group	Ajabgarh Group	Quartzite, carbonaceous phyllite, impure marble
	Alwar Group	Quartzite, gritty quartzite

The Pre Delhi rocks include schists, Phyllites, quartzite and highly altered basic rocks (probably Volcanics). The Delhi Super group is characterized by a thick pile of conglomerate - quartzite assemblage of Alwar Group, and lower part of the Raialo Group, basic volcanics and quartzite inter beds of the upper part of Raialo Group, arenaceous rocks of weir formation and phyllites and shales of Kushalgarh formation of Ajabgarh Group. During the first phase of Delhi orogeny the Bayana sub-basin is

reported to have suffered northerly monoclinal tilting. Resulting in very open monoclinical fold with NW–SE to WNW- ESE axial trend superimposed in the limb of earlier folds.

Ajabgarh group dis-confirmably overlies the Alwar group comprising litho assemblage of carbonaceous shale, phyllite ferruginous quartzite & white quartzite. Nature of contact between Alwar and Ajabgarh groups is not clear though it's observable near village Hathori. Milky white, grey and pink quartz veins and also the jasper veins are the abundant post Delhi intrusive of the area. These are either along the regular joint planes, irregular fractures or in the Form of gash veins. In places, quartz veins occupy the tensional fractures in the hige zone and in other places they are cofolded with the primary bedding. The Delhi Super Group sedimentations have taken place in the coastal environment of unstable shelf, characterized by intermittent vertical tectonics. Vindhyan Super group of rocks assemblage is represented by sand stone and shales etc, which are exposed in the north eastern part of the district in Rupbas Tehsil. Bhander sandstone is underlain at places by light green to olive green shales

(d) Local Geology:

Paharpur area is covered by alluvium, with Undulated outcrops of Sandstone. Geologically rocks of the area belonging to Bhander Group of Vindhyan Super group. Stratigraphic succession of the area is given below:

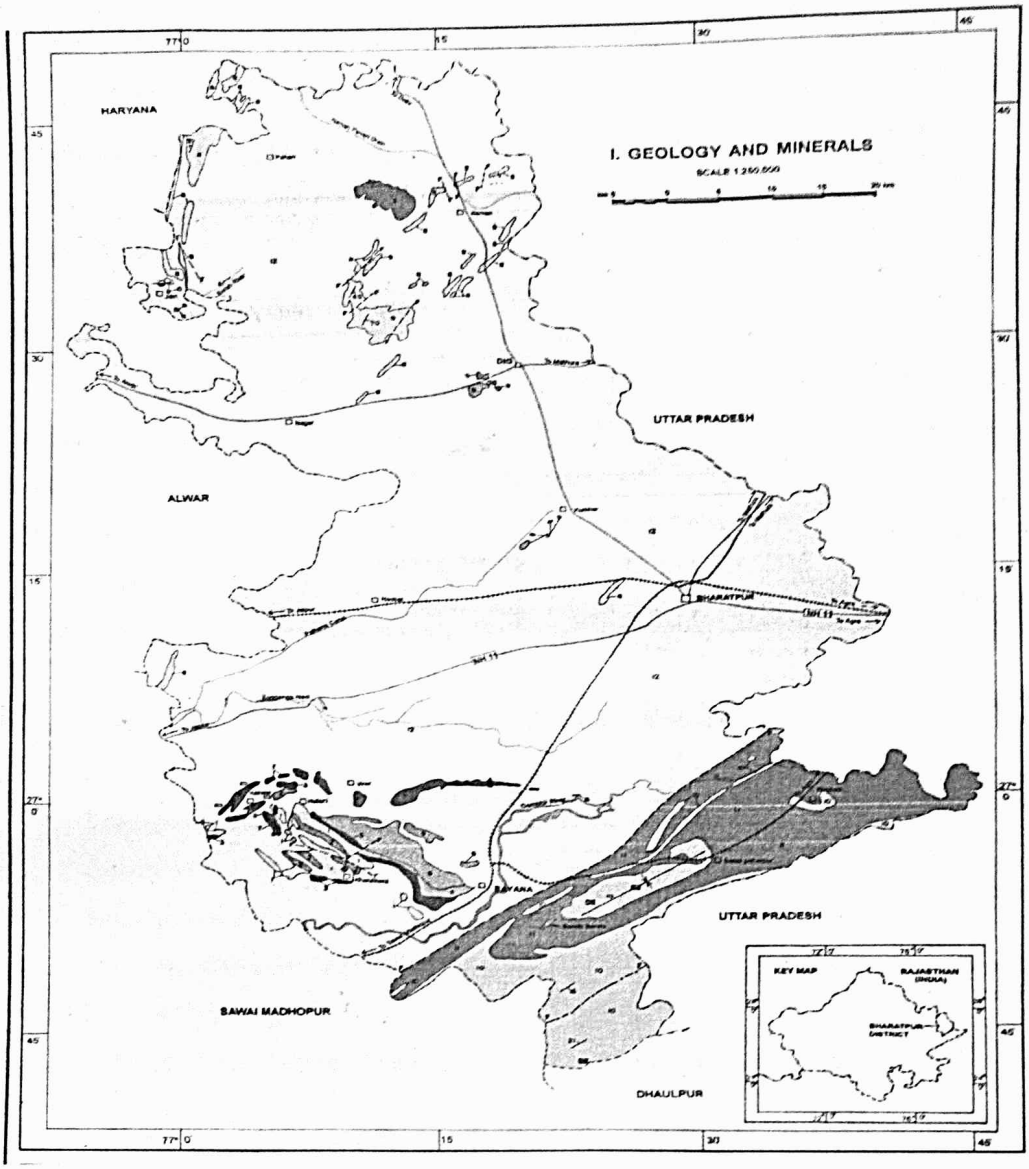
Quartenary		Soil & Alluvium
Vindhyan Super Group	Bhander Group	Dholpur Shale
		Upper Bhander (Maihar) Sandstone

Vindhyan Super group of rocks assemblage is represented by sand stone mainly, which are exposed in the area as undulated outcrops in the area.

Sandstone of Vindhyan age is extensively mined in Bharatpur. Bloackable / Splittable sand stone is available near village Bansi Paharpur, Bandh Baretha, Sirrondh, Mahalpur Churra etc. Sand stone varies in colour from buff-red to pink and creamish pink, at places spotted pink is also seen.

Presently, two blocks have been delineated for sandstone in Bansi Paharpur, one Block-A (221.75 HEC.) North of railway track and Block- B (424.81 hect.) South of railway track. As per Survey of India Toposheet 54 F/5. Taking these blocks in consideration Depth of deposit taken approx. 60 and 100 mt. in Block-A & Block-B simultaneously.

Geological Map of Bharatpur District



(f) Method of Estimation of Reserves

Reserve estimation in small-scale non-metallic mineral area is a great task which cannot be very definitive and exhaustive but it is only on the basis of existing pits and exploration data as applied diverted area wholly excavated. Generally exploration, development and exploitation are carried out simultaneously and therefore requisite data for reserve estimation are seldom adequately available. The reserves of mineral have been estimated by plan area method and the basis of the outcrops findings in the area, structural behaviors & the control of mineralization the physical limits such as strike length, width & depth extension etc. The estimated reserves have been classified into proved, probable & possible category on the basis of present exploration for the purpose

of reserve calculation. The plan area has been calculated from the surface geological plan, this is multiplied by thickness of mineral and then by the bulk density.

(g) PHYSICAL & GEOLOGICAL CHARACTERISTICS OF THE DEPOSIT

Physical & Geological Characteristics of The Mineral: -

The sandstone deposit of the Paharpur area is having following physical

Characteristic :

Occurrence:- Sandstone is a clastic sedimentary rock produced from a stone made up of grains of quartz and other minerals of fairly uniform size and often smooth and rounded. These grains are held together by a cementing material which may be siliceous or ferruginous. The toughness of sandstone depends mostly on the nature of this cementing material.

Form	- Massive Bedded
Colour	- Reddish Brown
Structure	- current bedding
Texture	- Fine to medium grained
Lusture/Glose	-Dull
Transparency	-Opaque
Hardness	-6 to 7 on Mohr's hardness
Specific gravity	-2.4 t/m^3
a. Compressive Strength	-6.3-214MPa
b. Tensile Strength	-4-25MPa

(h) Parameters of estimation of geological reserve and their category:

The following Parameters have been considered while estimating the geological reserves (in situ):

1. Average 1.5m cover has been considered as soil, 4m cover has been considered as fractured Sandstone.
2. Average 16.5m cover has been considered as salable sandstone in proved category. Recovery of saleable Sandstone 70%. 10% is considering as Sub grade, 10 % is considering as a waste Generation & 10 % is considering as Overburden generation. The recovery is an assumed it may be changed due any reason cannot consider for any kind of Assessment.

Therefore, considering the above parameter in consideration, block wise tentative

Geological Reserves = Cross-Sectional Area (sqm.) x influence length (m) x Bulk Density (t/m^3)

Block-A

Proved Reserve					
Section	Cross Section Area	Influence Length	Volume	Bulk Density	Tonnege
A-A'	15001.15	567.00	8505650.12	2.50	21264125.31
B-B'	17676.32	567.00	10022474.46	2.50	25056186.15
C-C'	9214.44	567.00	5224585.04	2.50	13061462.60
D-D'	18594.65	567.00	10543166.61	2.50	26357916.52
E-E'	11005.32	567.00	6240017.35	2.50	15600043.37
				Total	**101339733.95**

Probable Reserve					
Section	Cross Section Area	Influence Length	Volume	Bulk Density	Tonnege
A-A'	25554.47	567.00	14489382.45	2.50	36223456.12
B-B'	28798.71	567.00	16328868.57	2.50	40822171.43
C-C'	20665.98	567.00	11717610.66	2.50	29294026.65
D-D'	25549.50	567.00	14486566.50	2.50	36216416.25
E-E'	20395.78	567.00	11564406.13	2.50	28911015.32
				Total	**171467085.76**

Possible Reserve					
Section	Cross Section Area	Influence Length	Volume	Bulk Density	Tonnege
A-A'	12777.23	567.00	7244691.28	2.50	18111728.20
B-B'	14399.36	567.00	8164434.29	2.50	20411085.71
C-C'	10332.99	567.00	5858805.33	2.50	14647013.33
D-D'	12774.75	567.00	7243283.25	2.50	18108208.13
E-E'	10198.31	567.00	5782438.94	2.50	14456097.34
				Total	**85734132.70**

Total Geological Reserve = (Proved Reserve + Probable Reserve+ Possible Reserve)

=101339733.95 +171467085.76+85734132.70

= 358540952.4 Tonne

Block- B

Proved Reserve					
Section	Cross Section Area	Influence Length	Volume	Bulk Density	Tonnege
F-F'	11931.32	886.00	10571152.36	2.50	26427880.89
G-G'	17632.85	886.00	15622700.85	2.50	39056752.12
H-h'	23252.84	886.00	20602017.57	2.50	51505043.92
I-I'	25249.11	886.00	22370711.37	2.50	55926778.43
J-J'	43682.23	886.00	38702457.37	2.50	96756143.44
				Total	**269672598.79**

Probable Reserve					
Section	Cross Section	Influence Length	Volume	Bulk Density	Tonnege

	Area				
F-F'	27115.38	886.00	24024226.68	2.50	60060566.70
G-G'	21258.69	886.00	18835199.34	2.50	47087998.35
H-h'	32439.90	886.00	28741751.40	2.50	71854378.50
I-I'	27943.59	886.00	24758020.74	2.50	61895051.85
J-J'	39912.30	886.00	35362297.80	2.50	88405744.50
				Total	**329303739.90**

Possible Reserve					
Section	**Cross Section Area**	**Influence Length**	**Volume**	**Bulk Density**	**Tonnege**
F-F'	13557.69	886.00	12012113.34	2.50	30030283.35
G-G'	10629.35	886.00	9417599.67	2.50	23543999.18
H-h'	16219.95	886.00	14370875.70	2.50	35927189.25
I-I'	13971.80	886.00	12379010.37	2.50	30947525.93
J-J'	19956.15	886.00	17681148.90	2.50	44202872.25
				Total	**164651869.95**

Total Geological Reserve = (Proved Reserve + Probable Reserve+ Possible Reserve)

=269672598.79 + 329303739.90+164651869.95

= 763628208.64 Tonne

Total Geological Reserve of (Block A + Block B) = 358540952.4 + 763628208.64

= 1122169161 Tonne

Mineable Reserve= Cross-Sectional Area (sqm.) x influence length (m) x Bulk Density (t/m^3)

For Block A

Proved Reserve					
Section	**Cross Section Area**	**Influence Length**	**Volume**	**Bulk Density**	**Tonnege**
A-A'	12302.77	559.50	6883397.41	2.50	17208493.52
B-B'	17347.19	567.00	9835854.86	2.50	24589637.15
C-C'	8887.02	567.00	5038942.89	2.50	12597357.23
D-D'	18272.23	567.00	10360357.19	2.50	25900892.97
E-E'	10644.34	559.50	5955508.73	2.50	14888771.83
				Total	**95185152.70**

Probable Reserve					
Section	**Cross Section Area**	**Influence Length**	**Volume**	**Bulk Density**	**Tonnege**
A-A'	24553.25	559.50	13737545.00	2.50	34343862.49
B-B'	28300.20	567.00	16046215.84	2.50	40115539.60
C-C'	19808.47	567.00	11231400.73	2.50	28078501.83
D-D'	25027.98	567.00	14190866.76	2.50	35477166.89
E-E'	0.00	559.50	19642.78	2.50	49106.95
				Total	**138064177.76**

Possible Reserve					
Section	Cross Section Area	Influence Length	Volume	Bulk Density	Tonnege
A-A'	12276.63	559.50	6868772.47	2.50	17171931.18
B-B'	14150.10	567.00	8023107.89	2.50	17171931.18
C-C'	9904.23	567.00	5615700.39	2.50	20057769.73
D-D'	12513.99	567.00	7095433.35	2.50	14039250.99
E-E'	9821.39	559.50	5495067.54	2.50	17738583.38
				Total	86179466.44

Total Mineable Reserve = (Proved Reserve + Probable Reserve+ Possible Reserve)

= 95185152.70 + 138064177.76+86179466.44

= 319428796.91 Tonne

For Block B

Proved Reserve					
Section	Cross Section Area	Influence Length	Volume	Bulk Density	Tonnege
F-F'	11750.91	878.50	10323173.56	2.50	25807933.89
G-G'	17288.65	886.00	15317742.75	2.50	38294356.87
H-h'	22944.13	886.00	20328495.46	2.50	50821238.65
I-I'	24859.22	886.00	22025269.63	2.50	55063174.07
J-J'	42653.23	878.50	37470860.71	2.50	93677151.78
				Total	263663855.26

Probable Reserve					
Section	Cross Section Area	Influence Length	Volume	Bulk Density	Tonnege
F-F'	26526.83	878.50	23303823.23	2.50	58259558.07
G-G'	20804.05	886.00	18432389.72	2.50	46080974.29
H-h'	31988.08	886.00	28341434.89	2.50	70853587.23
I-I'	27430.60	886.00	24303514.35	2.50	60758785.87
J-J'	38714.51	878.50	34010692.91	2.50	85026732.27
				Total	320979637.73

Possible Reserve					
Section	Cross Section Area	Influence Length	Volume	Bulk Density	Tonnege
F-F'	13263.42	878.50	11651911.57	2.50	29129778.93
G-G'	10402.03	886.00	9216194.86	2.50	23040487.15
H-h'	15994.04	886.00	14170717.40	2.50	35426793.51
I-I'	13715.30	886.00	12151757.22	2.50	30379393.04
J-J'	19357.25	878.50	17005346.41	2.50	42513366.02
				Total	160489818.65

Total Mineable Reserve = (Proved Reserve + Probable Reserve+ Possible Reserve)

=263663855.26 + 320979637.73 +160489818.65

= 745133311.64 Tonnage

(i) The mineral reserves are computed as per UNFC. The reserves are as follows:

Reserves of Sandstone

Total Mineral Resources (A+B)	Code	Reserves(Metric Tonnes)
1 Mineral Reserves		
Proved Mineral Reserves	111	358849007.96
Probable Mineral Reserves	21 & 122	459043815.49 MT
Remaining Mineral		
Feasibility Mineral Resources	211	-
Prefeasibility Mineral Resources	21 & 222	-
Measured Mineral Resources	331	Nil
Indicated Mineral Resources	332	Nil
Inferred Mineral Resources	333	Nil
Reconnaissance Mineral Resources	334	Nil

Details of UNFC Classification

UNFC is a three digit code based system, the economic viability axis representing the first digit, the feasibility axis the second digit and the geological axis the third digit. Each digit provided

Codes 1, 2 and 3 in decreasing order. The highest category of resources under UNFC system has code (111) and for lowest category the code is (334).

Code (111): This code is provided for the economically mineable part of the measured mineral resources (proved category reserves).

Code (121): This code is provided for the economically mineable part of the indicated mineral resources (probable category reserves).

Code (211): The part of the measured mineral resources (proved category), which as per feasibility study has not found economically mineable. The reserves blocked in 7.5 meters buffer zone and 45 meters from permanent structure.

Code (222): The part of the indicated mineral resources (probable category), which as per feasibility study has not found economically mineable. The reserves blocked in 7.5 meters buffer zone and 45 meters from permanent structure.

Code (333): Tonnage, Grade and mineral contents can be estimated with low level of confidence and resources are also inferred from geological reserves.

Life of mine:-

We are considered average production of 4, 00, 00,000 MT of sandstone per annum from the mine.

Life of mine = Total mineable reserve (Proved + Probable)/ Av. Annual Production

= 817892823.46 /40000000

= 20.44 Years, say as 21 Years.

CHAPTER-4

Method of Mining

The mining shall be started from the top of hill. Delinated area applied for diversion is completely broken up and pre-excavated. Direction of advance shall be in SE direction as shown in the Plate no. 6.

Topsoil shall be removed initially & stack separately. The Bench Parameters shall be for mineral

1. Height – 1m -3m 2. Width - More than height

The Bench Parameters shall be for O/B/Fracture

1. Height – 1m -6m 2. Width - More than height

Gradient of the Haul Road: - 1 in 16 (ramps).

(a) Proposed Year wise Development for Five Years –

The Mining shall be started from the top of Bottom. SW side & near pillar of the Delineated plot area. The mineral shall be collected in the mineral stack yard and then sorted over manually before its final dispatch to various industries through trucks. The waste generated shall be carried through dumpers to the dump yard. Overburden shall be removed on contractual basis.

Year wise proposed production of minerals

Year	Salable Sand Stone tonnes	Sub Grade In tonnes	Waste generated in tonnes	Overburden generated tonnes
First Year	40 million tonne	10% of the saleable	10% of saleable	10% of saleable
Second Year	40 million tonne	10% of the saleable	10% of saleable	10% of saleable
Third Year	40 million tonne	10% of the saleable	10% of saleable	10% of saleable
Fourth Year	40 million tonne	10% of the saleable	10% of saleable	10% of saleable
Fifth Year	40 million tonne	10% of the saleable	10% of saleable	10% of saleable

(b) Proposed Rate of Production when the mine is fully developed and expected life of the mine and the year from which effected:-

Proposed rate of Production when the mining area is fully developed: - 40 million tons per year.

(c) Anticipated Life of Mine

By considering average production of 40 million tonnes of mineral per annum

Life of mine = Total mineable reserve (Proved + Probable)/ Av. Annual Production

= 817892823.46 /40000000

= 20.44 Years, say as 21 Years.

The Life of mine may change depend upon the market demand, rate of production and the extent of mechanization done by the lessee in near future.

(d) Proposed Mining Method: - The Sand Stone mine shall be developed by Mechanized opencast Mining. The mineral is lying on the sub surface therefore open cast mining has been the obvious choice.

- For sandstone Benches

The Bench Parameters shall be for mineral

1. Height – 1m -3m 2. Width - More than height

The Bench Parameters shall be for O/B/Fracture

1. Height – 1m -6m 2. Width - More than height

- Gradient of the Haul Road: - 1 in 16 (ramps).
- Width of the approach Road: - 6M

The main mining operation includes digging, cutting and the transportation by trucks. The Mineral in the trucks are loaded by excavator.

(d) CONCEPTUAL MINING PLAN: -

Proposal of Conceptual Plan

The Proposals of the Conceptual Closure are based on the Geology and Topography of the region. A part of the excavated region shall be converted into water reservoir & Part shall be Backfilled after exhausting the complete available mineral. The lessee shall make water drains for the purpose. This shall also increase the aesthetic beauty of the area. The office and other buildings, the mine road and the other entire infrastructure developed by the lessee shall be used by lessee for various purposes. The virgin & backfilled region shall be used for agriculture purposes.

Land Degradation and Reclamation

Total Excavated Area : 272.0903 Hectares

Area to be Reclaimed (Back Filled)	:	136.0451 Hectares
Area to be Water Reserve	:	268.1294 Hectares
Remaining Dump Area	:	Separately marked

- **Post Mining Land use: -** At the end of the mining operation, all part shall be back filled. The Backfilled and None utilized area would be used for a Forming/forestation after spreading topsoil over it. The lessee would use the Buildings and Roads for infrastructure facilities.

(e) Rehabilitation

As no personnel are expected to be migrated due to mining in the mining lease and the adjoining region is also having a good mineral potential, the rehabilitation of the employees is not a problem. The workers and other staff can get job in the neighboring areas after the end of life of mine. The lessee shall also try for employment of the workers.

Plantation Proposals

Type of Plants	:	1. Peepal, 2. Neem, 3. Bargad, 4. Babool 5. Sheesham & other Native Species.
No. of Plants	:	As per departmental norms
Time of Implementation	:	During the rainy season in form of green festival

(f) Blasting

Small blasting with low charge of holes just to loosen the rocks is proposed in upper layers to remove the hard overburden.

CHAPTER-5

Details of the Mining Machinery to be deployed and their detailed

Mining in sandstone mine is done by semi mechanized mining method with the uses of, following machinery deployed or to be deployed during the course of mining in the Sandstone mine lease area.

Mining Machinery to be deployed

S. No.	Machine	No's	Capacity
1	Air Compressor	5	256 CFM
2	Wagon Drill	5	100 mm dia
3	Jack Hammer	5	32 mm dia
4	Derrick Crane	5	30 tonne
5	Dumper	20	20 Tonne
6	Excavator	5	1.2 m^3
7	Wire Saw Cutter	25	30 HP
8	Tractor	5	35 HP
9	D. G. Set	2	220 kva

CHAPTER-6

MINE DRAINAGE

The average rainfall in this area is very low, and it hardly exceeds 600mm. Seasonal water stream do pass through the mining lease area in which the water flows through natural gradient. It is capable of dealing with the rainwater during the rainy season. There is scarce chance of this water enter into the Pits. If rainwater does get collected in pits and remain there for a considerable period of time, it takes about two to three months to percolate down the ground. Normally work at bottom of the pit remains suspended in the months following the rains. However, in case of necessity the water may be pumped out using one diesel engine driven pump of say 5-10H.P. This water can be spilled in the water drain made for the proper drainage of the mine water outside the mining lease area.

The Ground water table is 25m (in rainy season) to 40m (in Dry Season).

The drinking water can be brought from the wells in nearby areas.

The rain water shall be utilized by harvesting techniques.

CHAPTER-7

DETAILS OF EMPLOYMENT

Requirement of Technical, other staff and man power are as follows:

S. No.	Designation	Proposed	Qualification
1	Mines Manager	70	II class Mines Manager/Permit Managers Certificate Holder
2	Mining Mate	70	Mining mate certificate
3	Geologist (Part time)	4	M.Sc. (Geology)
4	Surveyor (Part time)	4	Mine surveyor's Certificate
5	Time keeper cum Store keeper	15	Secondary
6	Watchmen	20	Certificate holder
7	Skilled Labour/Operator	320	
	Unskilled Labor	320	
Total		**823**	

It is proposed to employ labors on Contract basis.

CHAPTER – 8

Measure Taken And To Be Taken For Dumping Overburden, Stacking of Top Soil And Utilization of Top Soil And Land Restoration, Reclamation And Plantation In or Near By Mining Area.

Measure Taken for Dumping Overburden, Stacking of Top Soil and Utilization of Top Soil:-Top soil stacked separately and utilized within the year for plantation. Dumping site for OB has been chosen such that natural water channel not get disturbed. A wall of rubble stone made around the dump to stop the lateral spread of the waste dump. Water garlands are also constructed around the waste dump to trap the silt contamination.

- **Nature of Waste** The waste as overburden in the area is top soil and fractured waste. The soil cover in the area varies from 0.5m and fractured waste with shale parting waste varies from 1m. The rock fragments of small size are also resulted after mining.

Restoration

The mined out land partly shall be reclaimed by backfilling of overburden and stored top soil shall be spread over it. The lessee shall restore, reclaim of the land as under Rule RMMCR, 2017.

Rehabilitation

As no person are expected to be migrated due to mining in the mining lease area and the adjoining region is also having a good mineral potential, the rehabilitation of the employes is not going to be a problem. The workers and other staff can get job in the neighboring areas after the end of life of mine. The lessee shall also try for employment of the workers.

Programmed for Plantation

S. No.	Year of Plantation	Target of Plantation	Assumed survival
1	First year	40000	20000
2	Second year	40000	20000
3	Third year	40000	20000
4	Fourth year	40000	20000
5	Fifth year	40000	20000

Place of proposed plantation: - The plantation shall be done at the following places:-

The Plantation area marked on map	Both site of the road
Dump Site	Govt. waste land provided by the Govt. and own land

CHAPTER –9

Measures taken and to be taken for protection of environment in and around mining lease area

1. The lessee shall backfill mine out land or convert into water reservoir.
2. Plantation shall be done by the lessee.
3. Water Management:

(i) Water collected shall be analyzed and if found potable than it shall be diverted for drinking purpose in consultation with State Public Health Engineering Department.

(ii) Accumulated un-potable rain water shall be dewatered and diverted to nearby pond/aquifer/river/nallah, catchment area by providing suitable pipe line or drains or links canals, as the case may be, in consultation with State Public Health Engineering Department.

(iii) The procedure of water harvesting shall be adopted to recharge the ground water table.

(iv) Effective steps shall be taken for setting up of a water treatment plant wherever required to treat the effluents collected in the working pits; and

(v) For working below ground water level the mining lease, license or short term permit holder shall carry out a detailed hydro-geological study taking into account the mine water discharge, management of discharged water and shall obtain prior approval of State Ground Water Department.

(vi) The lessee takes all possible precaution for the protection of environment and control of pollution.

Environmental Management Fund:

The lessee shall deposit the amount in the Environmental Management Fund as decided by the State Government the fund shall be utilized for protection of environment in and around mining lease area.

CHAPTER – 10

Measures taken and to be taken for the control of water, noise and air pollution

The environment impact assessment should be done periodically for the degradation of the land pollution of air quality, noise level and vibration level

Water Environment

Surface Water: Proposed waste rock dump sites are away from any seasonal water stream Thus there will be no impact of mining in the natural flow of water and the drainage system in the area. The lessee shall make garland drain, retaining walls, setting tanks all around the pits and dumps as shown in plate-5. The rain water shall be utilized by harvesting techniques.

Ground water the water table in the area is 25m (in rainy season) to 40 m (in Dry Season). The mining activity shall be reached up to 479mRL. The ground water in the area is not likely to be effected at all.

Water quality- The mineral produced and the waste rocks generated are not likely to pollute the water quality in any manner.

Noise- Noise is created due to machineries deployed in the area. Precaution and regular maintenance of drills and excavator replacement of damaged/ worn out parts when even required will be taken. Ear plugs will be provided to the persons exposed to high noise level.

There shall be no adverse impact on this account to the workers and local inhabitants.

Air The only source to pollute air is the generation of dust while undertaking the mechanized mining operation including loading transportation & unloading sizing the mineral. The road will be maintained properly. The maintenance of road will also help in maintenance of machinery, tyres etc. dust suppression will be done by spraying water from time to time. Dust generation during drilling will be tackled by wet drilling / dust collector. In addition as an extra precaution dusk masks will be provided to the drilling crew. The total SPM concentration would be less than the national permeable limit of 200ug/m^3 for residential area.

Monitoring schedules for different environmental components after commencement of mining /during mining.

S. No.	Monitoring	Period
1	Air Monitoring	As per pollution consent
2	Noise Level Monitoring	
3	Water testing	
4	Soil testing	
5	Ground vibration	

CHAPTER- 11

Contribution regarding the social development for the nearby residents

The Lessee shall spend 1% of profit for the development of the area i.e. treatment of poor-schools, temples and other social work. Local residence shall be employed.

CHAPTER- 12

Details of health checkup and insurance of all the employed persons

(i) Area is delineated for e-auction. After completion of e-auction, lease will be granted for successful bidder. Leases will organize periodically health check up camps for the workers engaged in mines.

(ii) Occupational health surveillance program of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed;

(iii) Safety to prevent the worker getting injury during work following measure will be taken:

a. The workers will be trained in vocational training they get proper training in their particular work.

b. They will be provided proper safety equipment such as safety boots, helmets, and lifeline etc.

c. Proper benches will be formed.

d. Apart from this all safety precaution will be taken as per Act, Rules and Regulation.

CHAPTER- 13

USE OF MINERAL & MINERAL PROCESSING

Being a decorative stone, the principal use of this sand stone is in flooring and wall tiles. The lessee will export and also supply in indigenous market the blocks, tiles, slabs of the sand stone.

The excavated mineral is dressed as finished good before packing in container made ready for export/ indigenous use.

CHAPTER-14:

CONCLUSION

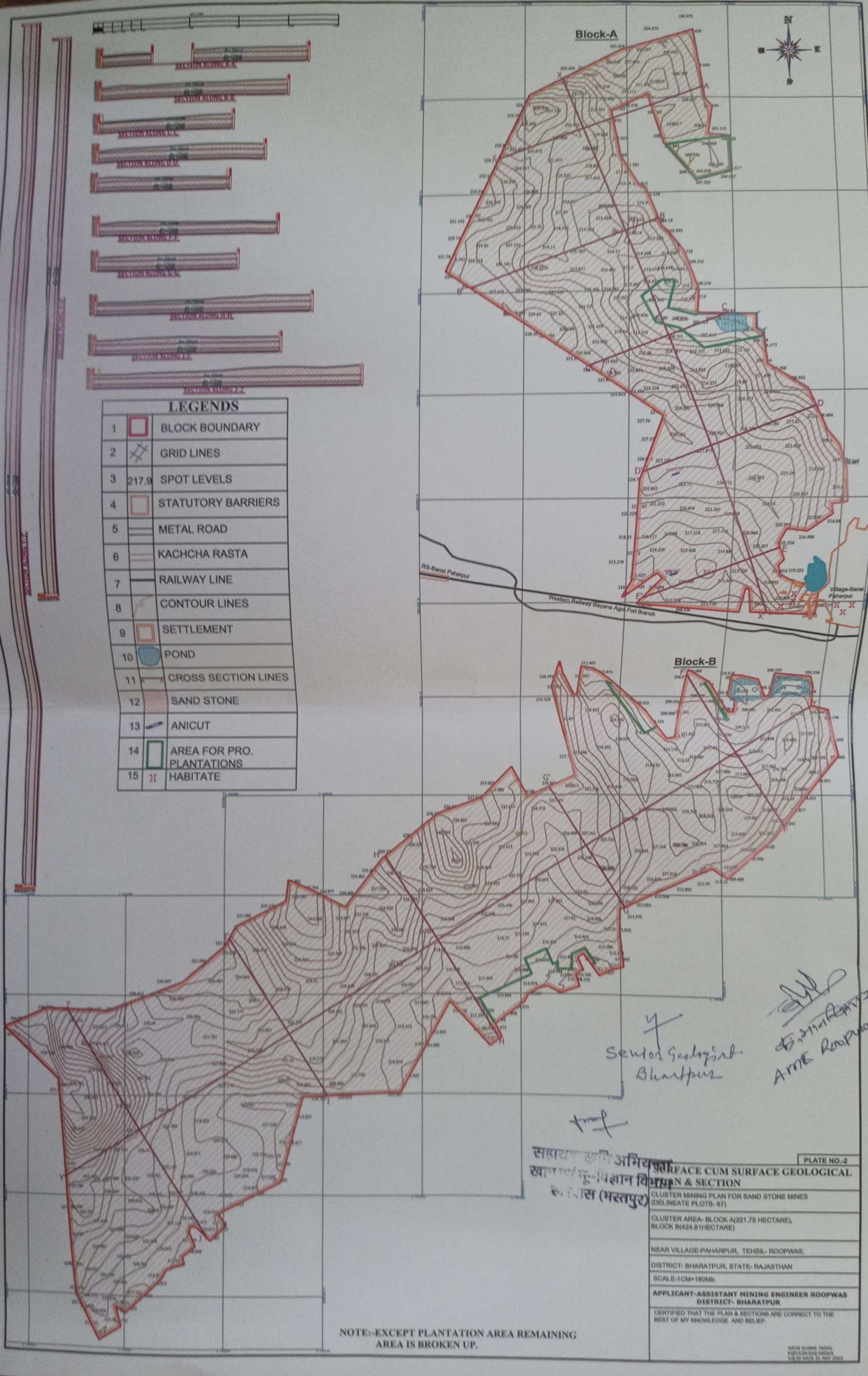
The mining will be mechanized open cast mine in the process of development. The mineral produced is of good quality. Its O/B ratio is low at present, which supports the mining potential. During this phase, efforts shall be made to fully develop this mine by a systematic pattern i.e.

- Adhering to the proposed mining sequence.
- Implementation of the planning with regard to the plantation and systematic dumping of the waste rocks, as proposed.

Senior Geologist
Bharatpur

Addl. Director
AMD Udaipur.

अधीक्षण खनि. अभियन्ता
खान एवं भू विज्ञान विभाग
भरतपुर-धौलपुर भरतपुर (राज



LEGENDS

1		BLOCK BOUNDARY
2		GRID LINES
3	217.9	SPOT LEVELS
4		STATUTORY BARRIERS
5		METAL ROAD
6		KACHCHA RASTA
7		RAILWAY LINE
8		CONTOUR LINES
9		SETTLEMENT
10		POND
11		CROSS SECTION LINES
12		SAND STONE
13		ANICUT
14		AREA FOR PRO. PLANTATIONS
15		HABITATE

Senior Geologist
Bharatpur

AME Roopwas

सहायक खनि अभियन्ता
खान एवं भू-विज्ञान विभाग
रूपवास (भरतपुर)

PLATE NO.-2

SURFACE CUM SURFACE GEOLOGICAL PLAN & SECTION

CLUSTER MINING PLAN FOR SAND STONE MINES (DELINEATE PLOTS- 67)

CLUSTER AREA- BLOCK A(221.75 HECTARE), BLOCK B(424.81HECTARE)

NEAR VILLAGE-PAHARPUR, TEHSIL- ROOPWAS,

DISTRICT- BHARATPUR, STATE- RAJASTHAN

SCALE-1CM=160Mtr.

APPLICANT-ASSISTANT MINING ENGINEER ROOPWAS DISTRICT- BHARATPUR

CERTIFIED THAT THE PLAN & SECTIONS ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

NOTE:-EXCEPT PLANTATION AREA REMAINING AREA IS BROKEN UP.

MAP SHOWING PROPOSED AREA OF DIVERSION OF FOREST BLOCK A & B NEAR VILLAGE PAHARPUR TEHSIL ROOPWAS DISTRICT BHARATPUR.

R.F.:- 1: 50000

PART OF GT SHEET NO. 54F/5 & 54F/9