By Speed Post

No. J-11015/309/2013-IA.II (M)
Government of India
Ministry of Environment, Forest & Climate Change
Impact Assessment Division
***

Indira Paryavaran Bhavan,
Vayu Wing, 3rd Floor, Aliganj,
Jor Bagh Road, New Delhi-110 003'
Tel. No. 24695362

Dated: 1st July, 2015

To,

M/s Sher Singh Solanki
13, Shiv Nagar, Jaipur,
Rajasthan

Sub.: Mining of Mineral – River Sand (Bajri) Mine with proposed production capacity of 28.05 Lakh TPA (ROM) by M/s Sher Singh Solanki, located at Revenue village(s) of Tehsil–Reodar, District – Sirohi, Rajasthan (1286ha)- Information/ Clarification regarding.

Sir,

This has reference to your above mentioned proposal for environmental clearance. The Proposal of EC was appraised by the Reconstituted Expert Appraisal Committee in its 34th Meeting held during May 27-29, 2015. The Committee **has not received the copy of EIA/EMP Report on time**. The Committee noted that the EIA/EMP Report has not addressed all baseline as well as other environmental parameters adequately. The EIA/EMP Report has not been prepared in-line with the Annexure-III of EIA Notification, 2006. There are several deficiencies viz. (i) PP has not done the replenishment study; (ii) List of flora/fauna and endangered species are not accurate; (iii) There are Schedule I species, however the conservation plan has not prepared; (iv) The EIA/EMP Report has different contents than the presentation made during the EAC; (v) Online EIA/EMP Report and hard copy submitted are different; (vi) Organization Structure is not adequate; (vii) Action Plan along with budgetary provisions on the issues raised during Public Hearing are not prepared adequately; (viii) There is no page numbers mentioned in the EIA/EMP Report; (ix) Forest land and Aravali NOC has not submitted; (x) Geological profile of the area does not have the required details (and may have to be furnished afresh); (xi) Traffic management study has not made and cumulative joint traffic study is to made as the other mines are located nearby; (xii) Questionnaire' has not adequately addressed w.r.t. s. no. 4 and 28.2 etc.; and (xiii) details of Action Plan for occupational health of the workers has not been furnished.

2. The Committee **concluded *that the Project Proponent needs to revise the EIA/EMP report and also set right the* above said deficiencies**. The Committee therefore **rejected** the proposal as submitted, and will reconsider the Proposal only after a revised *EIA/EMP report is received*. The revised EIA/EMP Report must mention all the details in due compliance with Manuals, Standards, Office Memoranda and Guidelines issued by the Ministry from time to time. The Committee was also of the view that the Consultant has not followed the Manuals, Standards, Office Memoranda and Guidelines in preparing the EIA/EMP Report and in submitting documents to EAC members. The EAC members have found it difficult to appraise the Project. The

Committee observed that the Consultant and also the Project Proponent should not have submitted such a deficient Proposal causing delay in appraisal of Proposal and wasting the time of the Committee.

3. The matter was examined in the Ministry and the undersigned is hereby directed to say that your proposal has been rejected as the EIA/EMP report is not as per provision of EIA Notification, 2006. Keeping these in view, you are requested to submit the revised EIA/EMP report to the Ministry of Environment, Forests & Climate Change, Indira Paryavaran Bhawan, 3rd Floor, Vayu Wing, Aliganj, Jor Bagh Road, New Delhi-110003 for further necessary action on the matter.

Yours faithfully,

(Dr. U. Sridharan)
Director (S)

Copy to:-

The Additional Principal Chief Conservator of Forests (C), Ministry of Environment, Forest and Climate Change, Regional Office (CZ), Kendriya Bhawan, 5th Floor, Sector "H", Aliganj, Lucknow – 226020.

(Dr. U. Sridharan)
Director (S)

SHER SINGH SOLANKI

R/o 13, Shiv Nagar, Jaipur (Rajasthan)
Contact No.: 0141-2333907

Date: 02/09/015

To

The Director-IA Division
(Non Coal Mining)
Ministry of Environment & Forest and Climate Change
Indira Paryavaran Bhawan, Jor Bag Road,
New Delhi

Subject: **Submission of information /clarification** regarding the issues raised by the Expert Appraisal Committee for consideration of Environmental Clearance Proposal for River sand mine(minor mineral) Lease area-1286 ha Tehsil- Reodhar, District-Sirohi with production capacity 28.05 lakhs TPA owned by **M/s Sher Singh Solanki** during the 34th EAC meeting held on 27-29 May 2015.

Ref.: Vide MoEF Letter no. J-11015/309/2013-IA.II (M) Dated 1st July, 2015.

Dear Sir,

We are thankful to you for providing the desired clarification/information. The matter was examined in **34th Meeting of the Expert Appraisal Committee of MoEF May 27-29, 2015.** Point wise information is below:

S .No	Point Raised	Reply
1	EIA/EMP report has not been prepared in-line with the Annexure-III of the EIA Notification, 2006. There are several deficiencies viz. PP has not done the replenishment study.	The EIA/EMP report has been revised as per the guidelines mentioned in the Annexure-III of the EIA Notification, 2006. Replenishment study has been done and enclosed as Annexure no.-12
2	List of flora/fauna and endangered species are not accurate.	Revised List of flora/fauna and endangered species are enclosed as Annexure No.-15 And also incorporated in chapter- 3, section- 3.6 of EIA/EMP report.
3	There are schedule-I species, however the conservation plan has not prepared.	Conservation plan of schedule-I species prepared and submitted to DFO Sirohi. Submission receipt and conservation plan enclosed as Annexure no.-14
4	The EIA/EMP report has different contents than the presentation made during the EAC.	The EIA/EMP report has been corrected and presentation will be made as per EIA/EMP report which we are submitting.
5	Online EIA/EMP report and hard copy submitted are different.	The hard copy of EIA/EMP report will be same as per online submitted revised report.
6	Organization structure is not adequate.	Revised organization structure incorporated in chapter 6 Figure 6.1 of EIA/EMP report. Also enclosed as Annexure-9C

SHER SINGH SOLANKI

R/o 13, Shiv Nagar, Jaipur (Rajasthan)

Contact No.: 0141-2333907

7	Action plan along with budgetary provision on the issue raised during public hearing are not prepared adequately.	Detailed action plan for the issues raised under Public Hearing has been prepared along with the Budgetary allocation. Details are attached in **Annexure No. 5B.** And also incorporated in Chapter 7 of EIA/EMP report.
8	There is no page numbers mentioned in the EIA/ EMP report.	Proper page numbers mentioned in Revised EIA/EMP report.
9	Forest land and Aravali NOC has not been submitted.	Forest NOC enclosed as Annexure no.-7. Aravali NOC enclosed as Annexure no.-6
10	Geological profile of the area does not have required details (and may have to be furnished afresh)	Detailed geological profile of the study area incorporated in chapter- 2, section- 2.7 of EIA/EMP report.
11	Traffic management study has not been made and cumulative joint traffic study is to made as other mines are located nearby.	Traffic management study has been made and incorporated in chaptere-4, section- 4.10. Cumulative joint traffic study as other mines are located nearby has been made. Enclosed as Annexure no.-16
12	Questionnaire has not adequately addressed w.r.t.s. no. 4 and 28.2 etc.	Questionnaire has properly revised and enclosed separately with EIA/EMP report.
13	Details of action plan for occupational health of the workers has not been furnished.	Revised Occupational Health & Safety Management Plan has been provided in **Annexure No.-17,** also incorporated in chapter- 9, section- 9.7 of EIA/EMP report.

We are once again thankful to the Hon'ble members of committee for providing us guidance in the matter. You are kindly requested to take up our case for **Re- consideration** of EC earliest possible.

Thanking You

Yours Sincerely



Sher Singh Solanki

(Project Proponent)

SHER SINGH SOLANKI

R/o 13, Shiv Nagar, Jaipur (Rajasthan)
Contact No.: 0141-2333907

Date: 02/09/015

To,

The Director-IA Division
(Non Coal Mining)
Ministry of Environment & Forest and Climate Change
Indira Paryavaran Bhawan, Jor Bag Road,
New Delhi

Subject: -Appointment of New Consultant for Environment Clearance of River Sand mining project Lease area-1286 ha Tehsil- Reodhar, District-Sirohi with production capacity 28.05 lakhs TPA owned by M/s Sher Singh Solanki.

Ref: TOR vide letter No. J-11015/309/2013-IA.II (M) Dated 22nd November, 2013.

Sir,

With reference to above mentioned subject this is to inform you that we have appointed M/s. Perfact Enviro Solutions Pvt. Ltd. New Delhi as our consultant for environmental clearance for above mentioned project. Earlier our consultant was M/s. Ramji Mine Envirotech, Jaipur. Kindly do needful and oblige us.

Sincerely Yours

(Sher Singh Solanki)
Authorized Signatory

Shri Sher Singh Solanki
R/o 13, Shiv Nagar,
Jaipur (Rajasthan)
E-Mail: shersinghsolanki1286@gmail.com

ENVIRONMENT IMPACT ASSESSMENT REPORT

&

ENVIRONMENT MANAGEMENT PLAN

{TOR No. J-11015/309/2013-IA.II (M) DATE 22nd NOVEMBER, 2013}

(FINAL REPORT)

OF

MINING OF MINERAL RIVER SAND (BAJRI) NEAR REVENUE VILLAGES: AWADA, BHAMRA, BOOTRI, CHHAPOL, DANGRALI, DEROL, GULAB GANJ, GUNDWARA, HATHAL, JAMTHA, JAWAL, JEERAWAL, JUADARA, KARELI, KAROTI, LEELORA, LOONOL, MAKAWAL, MALAWA, MALGAON, MAROL, MEETAN, NIMBORA, PADROO KHERA, PEEPALIYA, RAJGARH, RAMPURA, REODAR, SELWADA, THAL, VIKANWAS, WASAN TEHSIL – REODAR, DISTRICT – SIROHI (RAJASTHAN).

LEASE AREA: 1286 Ha. (CAT. 'A')

STUDY PERIOD: (DECEMBER 2013 TO FEBRUARY 2014)

LEASE VALIDITY: 5 YEAR

PROJECT COST: 5.0 CRORE

NAME OF MINERAL: RIVER SAND (BAJRI) (MINOR MINERAL)

PROPOSED PRODUCTION CAPACITY: 28.05 LAC TPA

OBJECTIVE: FOR ENVIRONMENTAL CLEARANCE

For

||APPLICANT||

M/S. SHER SINGH SOLANKI

R/o 13 Shiv Nagar, Jaipur, Rajasthan,

Contact No.:0141-2333907

E-Mail: sharma.op985@gmail.com

||PREPARED BY||

M/S PERFACT ENVIRO SOLUTIONS PVT. LTD.

NABET (ISO 9001: 2008 & ISO 14001: 2004 Certified) regd. Company

Sl No. 112, Rev-23, 7th OCT 2014

501-507, 5th Floor, NN Mall, Mangalam Palace

Sector 3, Rohini, New Delhi-110085

Phone No.: 011-47528467

Fax: 011-47528434

SHER SINGH SOLANKI

R/o 13, Shiv Nagar, Jaipur (Rajasthan)

Contact No.: 0141-2333907

Ref.:

Date: 02/09/015

Undertaking

I, Sher Singh Solanki, project proponent of River Sand (Bajri) mining Project give this undertaking to the effect that the conditions laid down in Terms of Reference prescribed by MoEF, New Delhi vide letter No. - J-11015/309/2013-IA.II (M)} Dated 22.11.2013 for proposed River Sand (Bajri) Mining Project (Lease Area – 1286 Ha.) Near Villages – Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan, Tehsil - Reodar, District - Sirohi (Rajasthan) have been complied with, and the data submitted and the information presented in this report are factually correct.

Place:

Date:

For

Sher Singh Solanki
(Project Proponent)

INDIA NON JUDICIAL

Government of National Capital Territory of Delhi

e-Stamp

सत्यमेव जयते

Certificate No.	:	**IN-DL71094175648870N**
Certificate Issued Date	:	21-Feb-2015 10:15 AM
Account Reference	:	IMPACC (IV)/ dl897903/ DELHI/ DL-DLH
Unique Doc. Reference	:	SUBIN-DLDL897903391763912113 92N
Purchased by	:	PERFACT ENVIRO SOLUTIONS PVT LTD
Description of Document	:	Article 4 Affidavit
Property Description	:	Not Applicable
Consideration Price (Rs.)	:	0 (Zero)
First Party	:	PERFACT ENVIRO SOLUTIONS PVT LTD
Second Party	:	Not Applicable
Stamp Duty Paid By	:	PERFACT ENVIRO SOLUTIONS PVT LTD
Stamp Duty Amount(Rs.)	:	10 (Ten only)

NOTARIAL

Please write or type below this line

Undertaking

We Perfact Enviro Solutions Pvt. Ltd., 5th floor, NN Mall, Mangalam Place, Sector- 3, Rohini (New Delhi), Environment Consultants of ***M/s. Sher Singh Solanki,*** having its residence cum office S/o Shri Mangal Singh Solanki 13, Shiv Nagar, Jaipur, Rajasthan has a mining lease (M.L.Area-1286 Ha.) of River sand (Bajri) under Rajasthan minor minerals concession rules 1986,

Statutory Alert:

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3. In case of any discrepancy please inform the Competent Authority.

near village- Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan, Tehsil - Reodar, District - Sirohi (Rajasthan) give this undertaking to the effect that the terms of reference prescribed by MoEF&CC, New Delhi - vide letter no. J-11015/309/2013-IA.II (M) Dated 22nd November, 2013 has been complied with, and the data submitted are factually correct.

Place:

Date:

For & On Behalf of Perfact Enviro Solutions Pvt. Ltd.

NOTARY

ATTESTED

26 AUG 2015

QUESTIONNAIRE

OF

28.05 LAC TPA RIVER SAND (BAJRI)

PRODUCTION

At

Near Villages Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan Tehsil Reodar, District Sirohi (Rajasthan)

Lease Aera – 1286 Ha. (Cat. ‘A’)

OF

M/s. Shri Sher Singh Solanki

PROFORMA FOR ENVIRONMENTAL APPRAISAL OF MINING PROJECTS
(MINING SECTOR PROJECTS)

Note 1: All information to be given in the form of Annex/s should be properly numbered and form part of reply to this proforma.

Note 2: Please enter √ in appropriate box where answer is Yes/No

Note 3: No abbreviation to be used - **Not available** or **Not applicable** should be clearly mentioned.

Note 4: **Core Zone** is the mining lease area.

Buffer zone in case of ML area up to 25 ha. is to be considered as **5 km** all around the periphery of the core zone and for ML area above 25 ha. an area **10 km** all around the periphery of the core zone.

Note 5: Adopt **Scoping process** in carrying out EIA study.

Note 6: Please indicate source of data.

1. General Information

(a) Name of the project : M/s. Sher Singh Solanki

Name of the proponent : Shri Sher Singh Solanki

Mailing Address : R/o-13, Shiv Nagar, Jaipur (Rajasthan)

E-mail : shersinghsolanki1286@gmail.com

Telephone : 0141-2333907

Fax No. : --

(b) Objective of the project : Mining of River Sand (Bajri) @ 28.05 Lac TPA (Max.)For meeting the huge demand of construction material for Roads,Bridges, Precasted structures , metro pillars and Highways.

(c)Location of mine (s) : Mine lease area has been sanctioned in Govt. Khasra land of Gair mumkin nadi in 32 Revenue villages in 844 Khasras total admeasuring area is 1286 ha. Details of Khasra nos. is annexed with EIA as annexure no.1 with LOI.

Village(s)	Tehsil	District	State
Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan,	Reodar	Sirohi	Rajasthan

Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan			

(d) Does the proposal relate to

(i)	New mine	Yes	√	No	
(ii)	Expansion	Yes		No	√
➢	Increase in ML area	Yes		No	√
➢	Increase in annual production	Yes		No	√
(iii)	Renewal of ML	Yes		No	√
(iv)	Modernization	Yes		No	√

(e) Site Information

(i) Geographical Location

➢ Latitude	24°31’13.65”N to 24°41’27.02”N
➢ Longitude	72°25’04.32”E to 72°42’27.86”E
➢ Survey of India Toposheet number	45 D/6, 45 D/10
➢ Elevation above Mean Sea Level	264mRL to 205 mRL in Sipu River 279 mRL to 248 mRL in Sukli River
➢ Total mining lease area (in ha.)	1286.0 Ha.

(ii) Dominant nature of terrain

➢	Flat	Yes		No	√
➢	Undulated	Yes	√	No	
➢	Hilly	Yes		No	√

2. Land usage of the mining lease area (in ha.)

(a)	Agricultural	Nil
(b)	Forest	Nil
(c)	Gair mumkin Nadi/Nallah	1286.0
(d)	Grazing	Nil
(e)	Surface water bodies (Seasonal)	Nil
(f)	Others (Specify)	Nil

Total	1286.0

3. Indicate the seismic zone in which ML area falls. In case of zone IV & V, details of earth quakes in last 10 years.

(a) Severity (Richter Scale) - Zone III

(b) Impact *i.e.* Damage to

➢ Life	Yes		No	√
➢ Property	Yes		No	√
➢ Existing mine	Yes		No	√

4. Break-up of mining lease area (in ha.) as per Approved Conceptual Plan:

Purpose	Mining Lease Area				Total	Area acquired				Area to be acquired			
	Government		Private			Government		Private		Government		Private	
	Forest	Others	Agri.	Others		Forest	Others	Agri.	Others	Forest	Others	Agri.	Others
1. Area to be excavated	-	299	-	-	299	-	3.5	-	-	-	295.5	-	-
2. Storage for top soil	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Overburden / Dumps	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Mineral storage	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Infrastructure (Workshop, Administrative Building)	-	-	-	-	-	-	-	-	-	-	-	-	-
6. Roads	-	4.5	-	-	4.5	-	4.5	-	-	-	-	-	-
7. Railways	-	-	-	-	-	-	-	-	-	-	-	-	-
8. Green Belt	-	12.5	-	-	12.5	-	-	-	-	-	12.5	-	-
9. Tailings pond	-	-	-	-	-	-	-	-	-	-	-	-	-
10. Effluent treatment plant	-	-	-	-	-	-	-	-	-	-	-	-	-
11. Coal handling plant / mineral separation plant	-	-	-	-	-	-	-	-	-	-	-	-	-
12. Township area	-	-	-	-	-	-	-	-	-	-	-	-	-
13. Other (Specify)-Undisturbed	-	970	-	-	970	-	-	-	-	-	-	-	-
TOTAL	**-**	**1286.0**	**-**	**-**	**1286.0**	-	**8.0**	-	-	**-**	**308**	**-**	**-**

5. Township (outside mining lease)

(a)	Total area (in ha)	Not Applicable
(b)	No. of dwelling units	Not Applicable
(c)	Distance from mine site	Not Applicable

6. Distance of water bodies (in km)

Distance from	River Bank *	Other Water bodies * Sea/creek/lake/nalla etc.(specify)
Mining lease boundary	Distance is nil in respect of Sipu and Sukli river as the project is confined to river channel.	Tokara Dam is located about 500 meters East of Lease area.
Ancillary facilities	-	-

[* From highest flood line/high tide line]

7. For projects falling within the Coastal Regulation Zone (CRZ) Not Applicable

Whether the mineral to be mined is of rare nature and not available outside CRZ? Yes [ ] No [√]

if yes, annex a scaled location map showing low tide line (LTL), high tide line (HTL) duly demarcated by one of the authorized agencies* [*Director, Space Application Centre, Ahmedabad: Centre for Earth Sciences Studies, Thiruvananthapuram: Institute of Remote Sensing, Anna University, Chennai: Institute of Wetland Management & Ecological Designs, KolKata: Naval Hydrographers's Office, Dehradun: National Institute of Oceanography, Panjim, Goa: and National Institute of Ocean Technology, Chennai], boundary of mining lease area, distance of ML area from LTL and HTL CRZ boundary and CRZ classification of the project area as per the approved Coastal Zone Management Plan, and settlements, sand dunes, mangroves, forest land/patches, turtles breeding and nesting sites etc., if any, in the project area.

8. Indicate aerial distance from the periphery of core zone/area from the periphery of the buffer zone to the boundary of following (up to 10 km):

S.No.	Areas	Name	Aerial distance from (in km.) Core * Zone	Buffer* Zone
1.	National Park/Sanctuary	Mount Abu Wildlife Sanctuary	7.1 km	
2.	Biosphere Reserve/Tiger Reserve/Elephant Reserve/ any other Reserve	None	Not Applicable	
3.	Forest (RF/PF/Unclassified)	(i) Balda Bir Reserve forest in NE direction from Dior River. (ii) Maila God Reserve forest in East direction from Sipu Nadi.	8.3 km 5.0 km	
4.	Habitat for migratory birds	None	Not Applicable	
5.	Corridor for animals of schedule I & II of the Wildlife (Protection) Act, 1972	None	Not Applicable	

6.	Archaeological sites * Notified * Others	None	Not Applicable
7.	Defense Installation	None	Not Applicable
8.	Industries/Thermal Power Plants	None	Not Applicable
9.	Other Mines	Nil	Nil
10.	Airport	Dabok Air Port Udaipur	123 km
11.	Railway Lines	Abu Road Railway Station	25 km
12.	National / State Highways	(i) SH 11 from Abu Road to Sildar is passing through the lease area near village Loonol. (ii) SH 27 also pass through the lease near village Loonol.	0.0 km

[*Buffer zone in case of ML area up to 25 ha. is to be considered as **5 km** all around the periphery of the core zone and for ML area above 25 ha. an area **10 km** all around the periphery of the core zone].

9. Description of flora & fauna separately in the core and buffer zones.*

[* Consult the Wildlife (Protection) Act, 1972 as amended subsequently and list species with (1) Common name (2) Scientific name and (3) under which schedule of the Wildlife (Protection) Act the identified species fall. Get the list authenticated by an Expert in the field / credible scientific institute / University / Chief Wildlife Warden office. **Information to be based on field survey.**]

A. Flora	**Core Zone**	**Buffer Zone**
1. Agricultural crops	None	**Kharif Crops-**Maize, Pearl Millet, Sesame, Castor, Green gram, Fennel, & Cluster Beans etc. **Rabi Crops-**Wheat, Mustard, Gram & Cumin etc.
2. Commercial crops	None	Mustard and Cumin
3. Plantation	Nil	Nil
4. Natural vegetation/forest type	*Acacia nilotica* *Azadirachta indica* *Prosopis juliflora* *Ziziphus mauritiana* *Calotropis procera* *Capparis deciduas* *Physalis minima* *Ricinus communis* *Ziziphus nummularia* *Argemone mexicana* *Solanum xanthocarpum* *Amaranthus spinosus* *Acalypha indica* *Citrullus colocynthis* *Cucurbita pepo* *Datura metel* *Launaea nudicaulis* *Indigofera cordifolia* *Lantana camara* *Tephrosia purpurea* *Cenchrus biflorus* *Saccharun spontaneum* *Saccharum munja*	*Albizia lebbeck* *Ailanthus excelsa* *Acacia senegal* *Acacia leucophloea* *Acacia nilotica* *Azadirachta indica* *Butea monosperma* *Bamboo sp.* *Cassia siamea* *Cassia fistula* *Dalbergia sissoo* *Delonix regia* *Ficus religiosa* *Eucalyptus globulus* *Ficus benghalensis* *Mangifera indica* *Phoenix sylvestris* *Pithecellobium dulce* *Pongamia pinnata* *Polyalthia longifolia* *Prosopis cineraria* *Prosopis juliflora* *Terminalia arjuna* *Syzygium cumini* *Ziziphus mauritiana*

		Holoptelea integrifolia *Calotropis procera* *Calotropis gigantea* *Capparis decidua* *Euphorbia neriifolia* *Grewia tenex* *Opuntia elatior* *Nerium oleander* *Plumeria alba* *Physalis minima* *Ricinus communis* *Ziziphus nummularia* *Argemone mexicana* *Solanum xanthocarpum* *Amaranthus spinosus* *Aerva tomentosa* *Acalypha indica* *Citrullus colocynthis* *Cucurbita pepo* *Datura metel* *Launaea nudicaulis* *Indigofera cordifolia* *Lantana camara* *Tephrosia purpurea* *Pedalium murex* *Ipomoea nil* *Aristida depressa* *Chloris dolichostachys* *Cynodon dactylon* *Cenchrus biflorus* *Dichanthium annulatum* *Saccharun spontaneum* *Saccharum munja*
5. Grass lands	None	None
6. Endangered species	None	None
7. Endemic species	None	None
8.Others (Specify)	None	None
B. Fauna		
1. Total listing of faunal elements	**Mammals** *Lepus nigricollis* *Funambulus pennanti* **Reptiles** *Mabuya carinata* *Calotes versicolor* **Avifauna** *Ploceus philippinus* *Francolinus pondicerianus* *Merops orientalis* *Streptopelia enegalensis* *Bubulcus ibis* *Dicrurus macrocercus* *Saxicoloides fulicata* *Pycnonotus cafer* *Turdoides striatus* *Prinia socialis*	**Mammals** *Boselaphus tragocamelus* *Presbytis entallus* *Macaca mulatta* *Canis aureus* *Lepus nigricollis* *Rattus rattus* *Herpestes edwardsii* *Funambulus pennanti* *Felis chaus* *Melursus ursinus* *Panthera pardus* **Reptiles** *Eryx johnii* *Mabuya carinata* *Calotes versicolor* *Hemidactylus flaviviridis* *Naja naja* *Geochelone elegans*

		Avifauna *Pseudibis papillosa* *Threskiornis melanocephalus* *Mycteria leucocephala* *Actitis hypoleucos* *Ceryle rudis* *Ardeola grayii* *Fulica atra* *Ardea cinerea* *Vanellus cinereus* *Ploceus philippinus* *Francolinus pondicerianus* *Pavo cristatus* *Merops orientalis* *Centropus bengalensis* *Psittacula krameri* *Halcyon smyrnensis* *Apus affinis* *Columba livia* *Streptopelia enegalensis* *Streptopelia decaocto* *Streptopelia tranquebarica* *Egretta garzetta* *Bubulcus ibis* *Corvus splendens* *Dicrurus macrocercus* *Saxicoloides fulicata* *Sturnus contra* *Acridotheres tristis* *Pycnonotus cafer* *Corvus macrorhynchos* *Turdoides striatus* *Nectarinia asiatica* *Passer domesticus* *Motacilla maderaspatensis* *Motacilla flava* *Microcarbo niger* *Himantopus himantopus* *Saxicola caprata* *Prinia socialis* *Chrysocola ptes festivus* *Amaurornis phoenicurus* *Dendrocitta vagabunda* *Anas poecilorhyncha*
2. Endangered species	None	None
3. Endemic species	None	None
4. Migratory species	None	None
5. Details of aquatic fauna, if, applicable	None	**Amphibians** *Hoplobatrachus tigerinus* *Fejervarya limnocharis*

10. Details of mineral reserves (as per approved Mining Plan)

	Quantity (in million tonnes)
(a) Proved63	59.46
(b) Indicated	-
(c) Inferred	-

(d)	Mineable reserves					47.57

11. Major geological formation/disturbances in the mining lease area

(a)	Geological maps submitted	Yes	√	No		
(b)	Geological sections submitted	Yes	√	No		
(c)	Contour map submitted	Yes	√	No		
(d)	Whether the presence, if any, noted of					
	(i) Faults	Yes		No	√	
	(ii) Dykes	Yes		No	√	
	(iii) Shear Zone	Yes		No	√	
	(iv) Folds	Yes		No	√	
	(v) Other weak zones	Yes		No	√	
(e)	Source of data (Indicate)					GSI

12. Production of mineral(s) and life of mine

(a)	Rated capacity of mine mineral wise (Tonnes / annum)					28.05 Lac TPA
(b)	Life of mine at proposed capacity (Years)					17 years as per reserves
(c)	Lease period (Years)					5
(d)	Date of expiry of lease (D /M /Y)					Lease is yet to be granted
(e)	Indicate in case of existing mines					
	(i) Date of opening of mine					Temporary working permission granted by Hon'ble supreme court
	(ii) Production in the last 5 years 1st year to 5th year in million tonnes.					Production carried out from Dec. 2013 to March. 2015, 414361 Tone
	(iii) Projected production for the next 6th to 10th year 2.805 in million tonnes.					-
	(iv) Whether mining was suspended after Opening of the mine?	Yes		No	√	
	If yes, details thereof including last production figure and reason for the same.					Not Applicable
(f)	Whether plans & sections provided?	Yes	√	No		

13. Type and method of mining operations

TYPE		METHOD	
Opencast	√	Manual	
Underground		Semi-mechanised	√
Both		Mechanised	

14. Details of ancillary operations for mineral processing

(a) Existing — None

(b) Additional — None

15. Mine details

(a) Opencast Mine

(i) Stripping ratio (mineral in tonnes to over burden in m^3) — Nil

(ii) Ultimate working depth (in m bgl) — 3m

(iii) Indicate present working depth in case of existing mine (in m bgl) — Nil

(iv) Thickness of top soil (in m.)

- Minimum — Nil
- Maximum — Nil
- Average — Nil

(v) Thickness of overburden (in m.)

- Minimum — Nil
- Maximum — Nil
- Average — Nil

(vi) Mining Plan

- Height and width of the bench in overburden/waste. — Not Applicable
- Height & width of the bench in ore body/coal seam. — Height (~3m), Width (~45m)
- Proposed inclination/slope of the sides of the opencast mine (separately for overburden, coal/

ore and overall slope of the pit sides) both while operating the mine as well as at the time of closure of the mine. | 45°

- Whether transverse sections across the opencast mine at the end of fifth year and at the end of the life of the mine have been submitted? Yes | √ | No |

(vii) Type of blasting, if any, to be adopted. | Not Any

(b) Underground Mine - **Not Applicable**

(i) Seam/Ore body

Min. Depth (m)	Max. Depth (m)	Avg. thickness (m)
Not Applicable	Not Applicable	Not Applicable

Rate of dip in degree	Direction of dip
Not Applicable	Not Applicable

ii) Mode of entry into the mine

- Shaft | Not Applicable
- Adit | Not Applicable
- Incline | Not Applicable

(iii) Details of Machinery

- On surface | Not Applicable
- At Face | Not Applicable
- For transportation | Not Applicable
- Others | Not Applicable

(iv) Method of Stoping (Metalliferrous Mines)

- Open | Not Applicable
- Filled | Not Applicable
- Shrinkage | Not Applicable
- Caving | Not Applicable
- Combination of above | Not Applicable
- Others (Specify) | Not Applicable

(v) Extraction method

- Caving — Not Applicable
- Stowing — Not Applicable
- Partial extraction — Not Applicable

(vi) Subsidence

- Predicted max. subsidence (in m) — Not Applicable
- Max. value of tensile strain (in mm/m) — Not Applicable
- Max. slope change (in mm/m) — Not Applicable
- Whether identified possible subsidence area(s) superimposed on Surface Plan has been submitted? Yes [ ] No [√]
- Major impacts on surface features like natural drainage pattern, houses, buildings, water bodies, roads, forest, etc. Yes [ ] No [√]
- Salient features of subsidence management (monitoring and control). Yes [ ] No [√]

16. Surface drainage pattern at mine site

(a) Whether the pre-mining surface drainage plan submitted? Yes [√] No [ ]

(b) Do you propose any modification/diversion in the existing natural drainage pattern at any stage? If yes, when. Provide location map indicating contours, dimensions of water body to be diverted, direction of flow of water and proposed route/changes, if any i.e. realignment of river/nallah/any other water body falling within core zone and its impact. Yes [ ] No [√]

17. Embankment and/or weir construction

(a) Do you propose, at any stage, construction of

(i) Embankment for protection against flood? Yes [ ] No [√]

(ii) Weir for water storage for the mine? Yes [ ] No [√]

(b) If so, provide details thereof.

(c) Impact of embankment on HFL and settlement around. Not Applicable

(d) Impact of weir on down stream users of water. Not Applicable

18. Vehicular traffic density (outside the ML area)

	Type of vehicles	No. of vehicles per day		
(a) Existing	Car/ jeep/ van Two wheeler, Trucks trolleys,	SH-27	SH-11	MDR
		148	345	54
		156	265	68
		172	357	78
		78	98	43
(b) After the proposed activity	Car/ jeep/ van Two wheeler, Trucks trolleys,	SH-27	SH-11	MDR
		148	345	54
		156	265	68
		572	587	148
		405	312	252

(c) Whether the existing road network is adequate?
If no, provide details of alternative proposal? Yes [√] No [ ]

19. Loading, transportation and unloading of mineral and waste rocks on surface:

(a)	Manual	Yes	[ ]	No	[√]
(b)	Tubs, mine cars, etc.	Yes	[ ]	No	[√]
(c)	Scraper, shovels, dumpers / trucks.	Yes	[√]	No	[ ]
(d)	Conveyors (belt, chain, etc.)	Yes	[ ]	No	[√]
(e)	Others (specify).		Tippers and Trucks		

20. Mineral(s) transportation outside the ML area

		Qty. (in TPD)	Percentage (%)	Length (in km)
(a)	Road	8500	100%	
(b)	Rail	Nil	Nil	
(c)	Conveyors	Nil	Nil	
(d)	Rope way	Nil	Nil	
(e)	Water ways	Nil	Nil	

(f)	Pipeline	Nil	Nil	
(g)	Others (Specify)	Nil	Nil	
	Total	8500	100%	

21. Baseline Meteorological and Air Quality data

(a) Micro-meteorological data

[Continuous monitoring through autographic instrument for one full season other than monsoon]

(i) Wind rose pattern for one full season (16 points of compass i.e. N, NNE, NE, ---) based on 24-hourly data. For coastal area also furnish day-time and night time data.

- Day time
- Night time
- 24 – hours period

(ii) Site specific monitored data

Month	Temperature(^{o}C)			Humidity (%)			Wind speed (Km/hr)		
	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
1st December – 31st December 2013	24.9	5.4	15.9	98.0	27.0	62.7	17.28	0.1	6.88
1st January – 31st January 2014	25.9	6.0	14.8	97.0	29.0	57.9	18.36	1.7	8.78
1st February – 28th February 2014	27.6	9.0	18.5	95.0	23.0	59.1	23.4	3.0	9.75

* 24-hours rainfall should be reported from 08:30 hrs. IST of previous day to 08:30 hrs. IST of the day.

* Rainy day is considered when 24 hrs. rainfall is ≥ 2.5 mm.

** Visual observations of cloud cover should be recorded four times a day at regular intervals.

(iii) Indicate name and distance of the nearest IMD meteorological station from which climatological data have been obtained for reporting in the EIA report, if any.-

(b) Ambient air quality data* (RPM, SPM, SO_2, and NOx)

[*Monitoring should be carried out covering one full season except monsoon – same season as in 21 (a) (i)]

[*Frequency of sampling: Sampling to be done twice a week for the entire season 24 hourly for SPM & RPM. For gaseous pollutants 24- hourly data be given irrespective of the sampling period.]

(i) Season and period for which monitoring has been carried out.-**Winter Season (December-2013, January-2014 and February-2014)**

(ii) No. of samples collected at each monitoring station: **24**

Name of monitoring equipment used			**SPM**			**PM10**			**SO_2**			**NO_x**			**Pb****		
			-			Respirable Dust Sampler APM-860			APM-860			APM-860			-		
Equipment sensitivity			-			5.0			5.0			5.0			-		
Permissible AAQ standard (CPCB)		**R**	-			100			80			80			-		
		I	-			100			80			80			-		
		S	-			100			80			80			-		
Monitoring Location	**No. of Samples Drawn**	**Category* (R, I, S)**	**Min.**	**Max.**	**98% tile**	**Min.**	**Max.**	**98% tile**	**Min.**	**Max.**	**98% tile**	**Min.**	**Max.**	**98% tile**	**Min.**	**Max.**	**95% tile**
AAQ1	24	I	-	-	-	49.9	61.2	60.97	6.2	8.6	8.46	10.0	13.1	13.05	-	-	-
AAQ2	24	R	-	-	-	51.7	69.0	68.7	5.8	8.2	8.2	10.3	13.7	13.6	-	-	-
AAQ3	24	R	-	-	-	50.1	63.4	63.1	6.1	8.5	8.4	9.9	12.9	12.9	-	-	-
AAQ4	24	R	-	-	-	47.6	68.2	67.4	5.6	8.0	7.9	10.2	13.3	13.2	-	-	-
AAQ5	24	R	-	-	-	48.4	59.7	59.5	6.0	8.7	8.6	10.1	13.5	13.4	-	-	-
AAQ6	24	R	-	-	-	52.2	64.3	63.9	5.9	8.4	8.4	10.0	13.2	13.2	-	-	-
AAQ7	24	I	-	-	-	51.3	63.5	63.4	6.1	8.6	8.6	9.8	13.1	13.0	-	-	-
AAQ8	24	R	-	-	-	49.7	63.8	63.3	5.8	8.5	8.4	10.2	13.6	13.5	-	-	-
AAQ9	24	R	-	-	-	46.9	63.9	63.6	6.0	8.3	8.3	9.9	13.3	13.2	-	-	-
AAQ10	24	I	-	-	-	52.0	59.1	58.8	5.7	8.2	8.1	10.4	13.9	13.8	-	-	-

* R = Residential; I = Industrial; S = Sensitive

** Pb for mineral specific sites only.

\# Annex a location map indicating location of AAQ stations, their direction and distance with respect to project site.

22. Stack and emission details, if any* NOT APPLICABLE

Sl. No.	Process / unit of operation (e.g. DG Set, Boiler)	Height of stack (m)	Internal top dia. (m)	Flue gas exit velocity (m/sec)	Emission Rate (kg/hr)				Heat emission rate from top of stack (K.cal/hr)	Exhaust/Flue gas			
					SPM	SO_2	NO_x	CO		Temp ^oC	Density	Specific Heat	Volumetric flow rate (m^3/hr.)

23. Details of fugitive emissions during mining operations* -During transportation and loading of mineral activities.

24. Air Quality Impact Prediction (AQIP)*

(a) Details of model (s) used for AQIP including grid size, terrain features, and input meteorological data: **ISC-AERMOD View-6.8.6.**

Details are given in Chapter-5 of EIA/EMP report.

(b) Maximum incremental GLC values of pollutants based on prediction exercise

(in µg/m^3)

Location	Background Concentration PM10 (µg/m3)	Predicted Incremental Concentration PM10 (µg/m3) without control measures	Post Project Air Quality PM10 without control measures (µg/m3)	Predicted Incremental Concentration PM10 (µg/m3) with control measures	Post Project Air Quality PM10 with control measures (µg/m3)	NAAQS (µg/m3)
Down Wind from Sili Nadi	60.9	0.11	61.01	0.04	60.94	100
Mandar	68.7	0.05	68.75	0.01	68.71	100
Marol	63.1	0.54	63.64	0.02	63.12	100

Reodar	67.4	1.70	67.74	0.06	67.46	100
Jirawal	59.5	0.10	59.60	0.03	59.53	100
Thal	63.9	3.60	67.5	0.05	63.95	100
Selwara	63.4	11.43	74.83	0.09	63.49	100
Dangrali	63.3	2.11	65.41	0.03	63.33	100
Anadra	63.6	0.19	63.79	0.05	63.65	100
Sipu River	58.8	10.35	68.35	1.23	59.03	100

[* Question Number 22, 23 & 24 need not be filled-in for mines having ML area of **25 ha. or less.**]

[**Information on item no. 2 & 3 to be provided in cases with captive power generation of 500 KVA and above]

25. Water requirement (m^3/day)

Purpose	Avg. Demand	Peak Demand
A. Mine site		
1. Mine operation	-	-
2. Land reclamation	-	-
3. Dust suppression	9.0	10.0
4. Drinking	2.0	3.0
5. Green Belt	5.0	6.0
6. Beneficiation	-	-
7. Washeries	-	-
8. Fire Service	-	-
9. Others (specify)	-	-
B. Township		
1. Green Belt	-	-
2. Domestic	-	-
3. Other (specify)	-	-
Total	**16.0**	**19.0**

26. Source of water supply*

S.No.	Source	m^3/day
1	River (name)	Nil
2	Ground water (Wells)	16
3	Mine water (sump/pit)	Nil
4	Other surface water bodies (By tankers)	Nil

[*Annex a copy of sanction letter/permission from the concerned authority (Central Ground Water Authority in case of ground water abstraction is from notified area / State Ground Water Board in case of non-notified area/State Irrigation Department for surface water pumping) for drawing water.]

27. Lean season flow in case of pumping from river/nalla (cumecs) Not Applicable

28. Ground water potential of the study area

28.1. Ground water availability

(a) Range of water table (m bgl)

(i) Pre-monsoon (April/May)

- Core Zone: 10-15
- Buffer zone: 20-25

(ii) Post-monsoon (November)

- Core Zone: 8-13
- Buffer zone: 18-23

(b) Total annual replenishable recharge (million m^3/ year)

- By ground water table fluctuation method — Not Available
- By rainfall infiltration factor method — Not Available

(c) Annual draft excluding estimated draft through mine discharge (million m^3/year) — Nil

(d) Estimated draft through mine discharge (million m^3/ year) — Nil

(e) Net annual ground water availability (million m^3/ year) — Nil

(f) Stage of ground water development in % — Nil

28.2 Water demand - Competing users of the water source

S.No.	Usage	Present Consumption (m^3/day)		Additional proposed as per local plan (m^3/day)		Total (m^3/day)	
		Surface	Ground	Surface	Ground	Surface	Ground
1	Drinking & Domestic Uses	-	-	-	2.0	-	2.0
2	Dust Suppression	-	-	-	9.0	-	9.0
3	Industry	-	-	-	-	-	-
4	Mining	-	-	-	-	-	-
5	Greenbelt	-	-	-	5.0	-	5.0
Total		**-**	**-**	**-**	**16.0**	**-**	**16.0**

29. Water quality*

(a) Annex physico-chemical analysis of water at intake point **

(b) In case of existing mine, annex report on quality of water discharge *i.e.* complete physico - chemical analysis** Table No.-3.8 in EIA/EMP report.

[*For non-discharging mines at least four ground water samples to be taken preferably from downstream direction of the mine in pre-monsoon and post-monsoon periods and analysed. For discharging mines six samples are to be analysed]

**All parameters as per BIS 10500. Indicate name of Methodology, Equipment used for analysis, and Detection Level (DL) for each parameter.

*** Wherever any analytical parameter is below detection level, "BDL" (Below Detection Level) should be written instead of 'NIL'.

30. Impact on ground water regime/stream/lake/springs due to mine dewatering*

(a) Radius of influence (in m)

[To be estimated based on analysis of pumping test data and application of empirical formula] — Not applicable as no Dewatering from mine is involved and the mining activities shall not intersect the ground water table

(b) Whether saline water ingress will take place? Yes [ ] No [√] (applicable to coastal areas)

(c) Impact on stream/lake/springs

[* Provide a comprehensive hydro-geological assessment report if the average mine dewatering is more than 100 m^3/day and or going below water table in non-monsoon period. The report should be based on preferably latest one year pre-monsoon and post-monsoon baseline data covering information on ground water situation, aquifer characteristics, water level conditions (April – May and November), estimate of ground water resources, predicted impact of the project on ground water regime and detailed remedial / conservation measures such as artificial recharge of ground water etc. The report should be based on actual field inventory out of existing wells, at least 30 observation wells in the buffer zone with supplementary information from secondary sources (mention name). For estimation** of ground water resource (refer question no. 28 above) be designated study area of the buffer zone may be sub-divided into command and non-command areas, watershed-wise (in case of hard rock/consolidated formations)/block-wise/mandal-wise in case of alluvial / unconsolidated formations)**]**

[**For estimating ground water resources in the area follow the Ground Water Estimation Committee recommendations of 1997]

31. Waste Water Management

Not Applicable as no waste water will be generated from mine

<u>Mine</u>

(a) Daily average discharge (m^3/day) from different sources

(i) Mine water discharge during

- Lean period — Nil
- Monsoon period — Nil

(ii) Workshop — Nil

(iii) Domestic (mine site) — Nil

(iv) Beneficiation / Washeries — Nil

(v) Coal Handling Plant — Nil

(vi) Tailings pond — Nil

(vii) Others (Specify) — Nil

Total — Nil

(b) Waste water treatment plant; flow sheet for treatment process attached. Yes [ ] No [√]

(c) Quantity of water recycled/reused/ to be recycled in

(i) Percentage — Nil

(ii) m^3 /day — Nil

(d) Point of final discharge

Final Point	Quantity discharged (in m^3/day)
1. Surface (i) Agricultural land (ii) Waste land (iii) Forest land (iv) Green belt	 Nil Nil Nil
2. River / nallah	Nil
3. Lake	Nil
4. Sea	Nil
5. Others (specify)	Nil
Total	Nil

(e) Users of discharge water

(i) Human	Yes		No	√
(ii) Livestock	Yes		No	√
(iii) Irrigation	Yes		No	√
(iv) Industry	Yes		No	√
(v) Others (specify)	No sizeable discharge is envisaged			

(f) Details of the river /nalla, if final effluent is / will be discharged (cumecs)

(i) Average flow rate	Nil
(ii) Lean season flow rate	Nil
(iii) Aquatic life	Nil

(iv) Analysis of river water 100 meters upstream and 100 meters downstream of discharge point submitted. Yes [ ] No [√]

Township

(a) Waste water generation from township (m^3/day) — **Not Applicable as there is no proposal of developing any township**

(b) Are you planning to provide sewage treatment plant? Yes [ ] No [√]

(c) Usage of treated water — No waste water will be generated

32. Attach water balance statement in the form of a flow diagram indicating source (s), consumption (Section-wise) and output.-Details are given in Chapter-5, Table 5.3 of EIA/EMP report on Page No.84.

33. Ambient noise level leq dB(A)

S.No	Loaction	L_{eq} Day Noise level dB(A)	L_{eq} Night Noise level dB(A)	Day time (6.00 A.M to 10.00P.M)	Night time (10.00 P.M to 6.00A.M)
				Standard (L_{eq} in dB(A)	Standard (L_{eq} in dB(A)
1	0.5 km downwind	56.4	54.7	75.0	70.0
2	Mandar	55.1	44.5	55.0	45.0
3	Marol	54.6	44.2	55.0	45.0
4	Reodar	53.8	44.1	55.0	45.0
5	Jirawal	54.5	43.9	55.0	45.0
6	Thal	54.1	44.2	55.0	45.0
7	Selwara	55.3	53.1	75.0	70.0
8	Dangrali	53.5	43.8	55.0	45.0
9	Anadra	54.2	44.0	55.0	45.0
10	Sipu Nadi	56.4	54.2	75.0	70.0

34. Solid Waste- Not Any

(a) Top soil and Solid waste quantity and quality

Name (Lump/fines/slurry/ Sludge/others)	Composition	Quantity (m^3/month)	Method of disposal
Mining activity*			
a) Top Soil	Nil	Nil	Not Applicable
b) Over burden	Nil	Nil	Not Applicable
c) Others (specify)	Nil	Nil	Not Applicable
Effluent Treatment Plant (sludge)	Nil	Nil	Not Applicable
Total	Nil	Nil	Not Applicable

[* Annex layout plan indicating the dump sites.]

(b) (i) Does waste (s) contain any hazardous/toxic substance/ radioactive materials or heavy metals? Yes [ ] No [√]

(ii) If yes, whether details and precautionary measures provided? Yes [ ] No [√]

(c) Recovery and recycling possibilities.- Not Applicable

(d) Possible user(s) of the solid waste – Not Applicable

(e) (i) Is the solid waste suitable for backfilling? Yes [ ] No [√]

(ii) If yes, when do you propose

to start backfilling. | Not Applicable |

(in million m^3)

Solid waste (s)	Already accumulated (A)	To be generated (B)	% of A & B to be backfilled	
			A	B
Over burden	Not Applicable	Nil	Nil	Nil
Others (specify)	Not Applicable	Nil	Nil	Nil

Land reclamation Plan

(f) In case waste is to be dumped on the ground, indicate | Not Applicable

(i) Associated environmental problems:- | Not Applicable

(ii) Number & type of waste dumps

- No. of external dumps | Nil
- Max. projected height of dumps (in m) | Nil
- No. of terraces and height of each stage | Nil
- Overall slope of the dump (degree) | Not Applicable
- Proposed reclamation measures | Not Applicable

(iii) Section of the waste dump in relation to the adjacent ground profile attached. Yes [ ] No [√]

35. Fuel / Energy requirements*

[*To be furnished for mines having ML area more than 25 ha. or captive power generation of 500KVA and above]

(a) Total power requirement : NOT APPLICABLE

(in MW)

S.No.		Mine Site	Township	Others (specify)	Total
1	Present	Nil	Nil	Nil	Nil
2	Proposed /additional	Nil	Nil	Nil	Nil
Total		Nil	Nil	Nil	Nil

(b) Source of power : NOT APPLICABLE

(in MW)

S.No.		SEB/Grid*	Captive power plant	DG Sets
1	Present	Nil	Nil	Nil
2	Proposed	Nil	Nil	Nil
Total		Nil	Nil	Nil

[* Annex a copy of the sanction letter from the concerned authority]

(c) Details of fuels

S.No.	Fuel	Daily Consumption (LPD)		Calorific value (Kcals/kg)	% Ash	% Sulphur
		Existing	Proposed			
1	HSD	Nil	1400	-	-	-
2	LSHS	Not Applicable	Not Applicable	Not Applicable	-	-
3	Other (specify)	Not Applicable	Not Applicable	Not Applicable	-	-

36. Storage of inflammable/explosive materials

S.No.	Name	Number of Storages	Consumption (in LPD)	Maximum Quantity at any point of time
1	Fuels	2-4	1400	2500
2	Explosives	Nil	Nil	Nil

37. Human Settlement

	Core Zone	Buffer Zone
Population*	Nil	113552
No. of villages	Nil	60
Number of households village-wise	Nil	21418

[* As per 2011 census record or actual survey]

38. Rehabilitation & Resettlement (R&R) Plan*

[*Provide a comprehensive rehabilitation plan, if more than 1000 people are likely to be displaced, other-wise a summary plan]

(a) Villages falling within the study area

	Villages	
	Number	Name
Core zone	Nil	Not Applicable
500 m from the blasting site (s)	Nil	Not applicable
Buffer zone	60	List is enclosed and given in Chapter-3, in EIA/ EMP report.
Township site	1	Reodar

(b) Details of village(s) in the core zone-**Not any, as the lease area is confined to river channel.**

S.No.	Village Name	Population*		Average Annual Income
		Tribal	Others	
1	Not Applicable	Not Applicable	Not Applicable	Not Applicable
2	Not Applicable	Not Applicable	Not Applicable	Not Applicable
3	Not Applicable	Not Applicable	Not Applicable	Not Applicable

[*As per 2001 census / actual survey]

(c) Population to be displaced and / or Land oustees

Name of village(s) falling within	Number of oustees		
	Land (only)	Homestead (only)	Land and Homestead (both)

Mining Lease 1. 2. None ▪ ▪	NOT APPLICABLE
Township Site 1. 2. Not Applicable ▪	NOT APPLICABLE

(d) Whether R & R package has been finalised? If yes, salient features of R&R plan for oustees. - Not Applicable

(i) Site details where the people are proposed to be resettled & facilities existing / to be created. Not Applicable

(ii) Funds earmarked for compensation package. Not Applicable

(iii) Agency /Authority responsible for their resettlement. Not Applicable

(iv) Time of commencement of resettlement of Project Affected People (PAP). Not Applicable

(v) Period by which resettlement of PAP will be over. Not Applicable

39. Lease -wise plantation details

		Existing mine	New mine
(a)	Lease area (in1286 ha.)		
(i)	Area broken up	Not Applicable	New Mine
(ii)	To be broken up	Not Applicable	299
(iii)	Area not to be broken-up	Not Applicable	970
(b)	Township area (in ha.)	Not Applicable	Nil

(c) Area afforested and proposed (in ha.)

S.No.		Peripheral	Dumps	Roads	Top Soil Dump	Township	Others	Total
(i)	Existing	Nil	Nil	Nil	Nil	Nil	Nil	Nil
(ii)	Proposed	Nil	Nil	Nil	Nil	Nil	12.5	12.5

(d) No. and type of trees planted and proposed

(i) Existing Nil

- When plantation was started? Month / Year (Lease is yet to be granted)

No.of plant species planted	Number saplings (per ha.)

Nil	Nil

- Survival rate % | Not Applicable | D Avg. height | Not Applicable |

(ii) Proposed

No. of plant species to be planted	Number of saplings (per ha.)
5-10	2216

40. Environmental health and safety

(a) What major health and safety hazards are anticipated?

(i) Air borne disease

(ii) Noise borne problem

(iii) Accidents

The persons may get injured while working in the mine or suffer from occupational diseases due to air born dust. Therefore measures are being taken to protect the employes from hazards.

(b) What provisions have been made/proposed to be made to conform to health and safety requirements?

- Masks will be provided to workers those who are working dust prone areas. Dust suppression is being done by water sprinkling.
- Earplugs will be provided to workers those who are working in near the mining machineries.
- Proper precautions will be taken to avoid accidents.
- Regular medical checkup of the employs would be done as per provision of Mines Act, 1952.
- A well equipped first aid station will be kept operated all the time of work.
- Group insurance scheme will be implemented to protect the future of mine worker and their families in case of any accident, mishappening while working in the mine.

- Budgetary Provisions for Occupational Health and Safety

S.No.	Provisions	Budget (Recurring Cost) In Lakh
1.	Regular health check up camps for the workers engaged in mines shall be organized;	0.5
2.	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;	0.5
3.	Insurance cover to all workers engaged in mines shall be provided;	2.0
4.	Common vocational training center shall be setup at district level;	1.50

5.	Local needs of habitant like school, crèche, hospital, veterinary hospital, sanitation, drinking water etc. shall be considered positively.	3.0
	Total	**7.50 Lakh**

(c) In case of an existing mine

(i) Comprehensive report on health status of the workers as under the Mines Act annexed. Yes [ ] No [√]

(ii) Mineralogical composition of RPM (dust)

- Free silica — Within Limit
- Chromium* (Total as well as Hexavalent) — Not Applicable
- Lead** — Not Applicable

[* Only for Chromite mines]

[**Only for Base Metal mines]

(d) Information on radiation protection measures, if applicable. — Not Applicable

41. Environmental Management Plan

Salient features of environmental protection measures

S.No.	Environmental Issues*	Already practiced, if applicable	Proposed
1.	Air Pollution	-	➢ Water spraying arrangement will be done on haul roads to control dust/fugitive emission. ➢ Air monitoring will be done once in 6 months. ➢ Care will be taken to prevent spillage by covering the carrying vehicles with tarpaulin. ➢ Proper tuning of vehicles will be ensured to keep gas emission from the vehicles within prescribed limits/norms. ➢ Overloading of material will be kept under check. ➢ Plantation of broad leaved vegetation along approach road, riparian zones, erosion prone zone etc.
2.	Water Pollution	-	Mining will confined to 3mts. from surface of river channel or above water level whichever is less. During mining ground water table will not be intersected. During mining no waste water will be generated. Mine will maintain zero discharge status. So there will no chance of water pollution in core & buffer zone.
3.	Water conservation	-	During monsoon, ground water will naturally recharge through seepage of rain water at some extent.
4.	Noise Pollution	-	Proper maintenance & servicing of transport vehicles will be done to minimize the noise.

5.	Solid Waste/ Tailings	-	No waste generated during life of mine so there is no mitigation or management measures are proposed.
6.	Land degradation	-	As the mining area is confined to river channel only no other land will disturbed due to mining.
7.	Erosion & Sediment	-	To control or prevent bank erosion, scientific mining practices will be followed. No mining activity will carried towards concave side of river. Erosional prone zone area will be identified and properly planted to stop further degradation.
8.	Top soil	-	No top soil will be encountered during mining activity so no measures are proposed. All the material is directly marketable.
9.	Ground Vibration	-	No blasting will be carried out during mining so there is no chance of ground vibration.
10.	Wildlife Conservation	--	Mining is strictly confined to river channel only no other land will be disturbed due to mining activities in the area. Mount Abu wildlife sanctuary is located in 10 km radius of lease area. In this regards Conservation plan is attached as annexure.
11.	Forest protection	-	Plantation programme will improve the ecosystem in surrounding area. Afforestion programmes will continue to protect the local biodiversity of the study area.
12.	Others (Specify)	-	For details, environment management plan is given as Chapter-9, in EIA/EMP report.

[* As applicable]

42. Compliance with environmental safeguards (For existing units)

(a)	Status of the compliance of conditions of environmental clearance issued by MoEF, if any, enclosed.	Yes		No	√
(b)	Status of the compliance of 'Consent to Operate' issued by SPCB, if any, enclosed.	Yes		No	√
(c)	Latest 'environmental statement' enclosed.	Yes		No	√

43. Scoping of EIA

Whether environmental impact assessment of the project has been carried out by following scoping process?		Yes	√	No	
If yes, a copy of scoping of EIA annexed.		Yes	√	No	

44. Mine closure

(a)	Have you planned mine closure?	Yes		No	√
(b)	Submitted a conceptual mine closure plan.	Yes	√	No	

(c) If yes, indicate estimated amount for implementing the same (in Rs. lakhs) — Not Applicable

45. Capital cost of the project (in Rs. Lakh) (Based on latest estimate) — 500 Lakh

46. Cost of environmental protection measures

Table - Budget for Environmental Protection Measures

(in Rs. Lakh)

S.No.	Particulars	Capital Cost (In Lakhs)	Annual Recurring Cost (In Lakhs)
1	Pollution Monitoring Air,water,noise	-	3.00
2	Pollution Control Measures (Water Sprinkling & Others)	-	5.00
3	Plantation including protection	3.00	6.00
4	Rainwater harvesting in nearby villages	-	3.00
5	Maintenance of Haul Road	-	2.00
	Total	**3.00**	**19.00**

47. Amount earmarked for socio-economic welfare measures for the nearby villages other than R&R plans.-23.50 Lacks

Table- budgetary provisions for corporate social responsibility

S.No.	Particulars	Annual Recurring Cost (In Lakhs)
1	School function, furniture, prize distribution and provision of scholarship for meritorious students in nearby villages.	5.50
2	Community functions *i.e.* Dusshera, Holi and sports activities in villages.	3.50
3	Training and awareness campaign	4.00
4	Community hall development, renovation of structure such as temple, school buildings, make drinking water structures etc. in nearby villages	10.00
5	Health Check up camps in villages	0.50
	Total	**23.50**

48. Public Hearing –

(a) Date of Advertisement — 03.08.2014

(b) Newspapers in which the advertisement Appeared — Rajasthan Patrika & Hindustan Times

(c) Date of public hearing (DD/MM/YYYY) — 01.09.2014

(d) Public Hearing Panel chaired by & members present: — ADM & RSPCB Officers

(e) No. of people attended the public hearing meeting and number of people from the lease area. — 63

(f) Summary/details of public hearing in tabular form.

S.No.	Issues raised by the Public	Response/Commitment of Project Proponents	Suggestions made by the Public Hearing Panel	Action (with budgetary allocation)
1.	Shri Govardhan Singh Devra resident of Sirohi, Said that problem will occur in construction work due to unavailability of Gravel. Amount that is being deposited to state govt. at the rate of ` 5/ton should be spent on plantation and their conservation.	Technical advisor said that plantation will be carried out on 7.5m safety zone and other suitable places.	-	A capital budget of Rs. 3.0 lacks with recurring cost of Rs. 6.5 lacks has been earmarked for plantation with protection. (Ref. Table 9.6 of EIA/EMP)
2.	Shri Ganpat Singh resident of Nimbora said that suggestion of plantation is good but who will provide water facility and care for them. And road should be constructed on river for transportation by tractor.	Project proponent said that we will develop plantation and taken care of it's for five year from the date of agreement.	Shri Virendra Singh Chaudhary, SDM, Tehsil- Reodar, said that gram pamnchayat make sure where the plantation has to be done.	A capital budget of Rs. 3.0 lacks with recurring cost of Rs. 6.5 lacks has been earmarked for plantation with protection. (Ref. Table 9.6 of EIA/EMP)
3.	Shri Bhupendra Singh resident of Reodar, said that evaluation committee should be formed for monotoring the maintenance of plants,		Shri V. Sarwan Kumar, District Collector, Sirohi said that taken care of plantation will be done by the PP upto five year and after that gram panchayat will look after the plantation.	Agreed, PP will taken care of plantation upto five years.
4.	Shri Ramsingh resident of Awada, said that there is provision for plantation upto 7.5 m on both side of river but due to non availability of land on many places plantation will be carried out on Khatedari Land or Encroachment, who will demarcate it?		Shri V. Sarwan Kumar, District Collector, Sirohi said that administration will taken care that plantation would carried out upto 7.5m on both side of river. In case of non availability of land in the area, plantation will be carried out on other suitable land.	Plantation will be carried out with the consultation of Gran Panchayat and not be done in khatedari land.

49. Whether the following approvals* (wherever applicable) have been obtained?

(i)	Site clearance from MoEF	Yes		No	√
(ii)	'Consent for Establishment' from the State Pollution Control Board	Yes		No	√
(iii)	NOC from Atomic Mineral Division	Yes		No	√
(iv)	Mining plan approval from IBM/ Ministry of Coal	Yes	√	No	

(v)	In case of existing mines, mining scheme approval from IBM	Yes		No	√
(vi)	Forestry clearance under FCA, 1980	Yes		No	√
(vii)	NOC from Chief Controller of Explosives	Yes		No	√
(viii)	Commitment regarding availability/ pumping of water from the concerned Authorities	Yes		No	√
(ix)	In case of ML area falling in notified areas of the Central Ground Water Authority, NOC from them.	Yes		No	√

[* Annex copies of approvals and number them]

50.	**Was/is there any court case relating to the project or related activities? If so, provide details present status. -**	Yes		No	√

Verification: The data and information given in this proforma are true to the best of my knowledge and belief.

Date:

Place:

Signature of the applicant* with full name & address
[* Owner or his authorized signatory]

Given under the Seal of organization on behalf of whom the applicant is signing

TOR LETTER

By Speed Post

No. J-11015/309/2013-IA.II (M)
Government of India
Ministry of Environment and Forests
IA Division
***

Paryavaran Bhavan,
C.G.O. Complex, Lodi Road,
New Delhi-110 003
Telefax: 011-24364067

Dated: 22nd November, 2013

To

M/s Sher Singh Solanki
13, Shiv Nagar, Jaipur,
Rajasthan.

Sub.: Mineral – River Sand (Bajri) Mine with production capacity 28.05 Lakh TPA (ROM) by M/s. Sher Singh Solanki, located at near village(s) – Awada, Bhamra & others, Tehsil – Reodar, District – Sirohi, Rajasthan. (1286ha) – Prescribing TORs regarding.

This has reference to your letter no. Nil dated 19.08.2013 regarding the proposal for determining the Terms of Reference (TORs) for undertaking detailed EIA study for the purpose of obtaining environmental clearance in accordance with the provisions of the EIA Notification, 2006. For this purpose, the Proponent had submitted information in the prescribed format (Form-1) along with a Pre-feasibility Report. The proposal was considered by the Reconstituted Expert Appraisal Committee in its 12th meeting held during 31st October, 2013 to 01st November, 2013.

2. The mine lease area is located near villages Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan, Tehsil - Reodar, District - Sirohi (Rajasthan). The proposed production capacity is 28.05 Lakh TPA (ROM). The lease area lies on River Sipu Nadi & Sukri Nadi. The mine lease area is between 24°41'27.02"N, 72°42'27.86"E to 24°31'13.65"N to 72°25'04.32"E. The project is located in Seismic Zone-III. Total lease area of the project is 1286ha. Total length of the rivers allotted for mining is about 64 km (Sipu River -38.5 km, Sukri River -25.5 km).

3. Mining is by semi-mechanized opencast method. Excavation will be carried out up to a maximum depth of 3 meters from surface of sand deposit and not less than one meter from the water level of the River channel whichever is reached earlier. The lease area has been granted as per the Rajasthan State Govt. Letter of Intent (P.8 (16) Khan/Group-2/2013 Dated 27-02-2013).

4. Total water requirement of the project will be 16 KLD. This water will be sourced from nearby wells & tube wells through water tankers for drinking, dust suppression and plantation purposes. The total project cost would be around 5.0 Crores.

5. Based on the information content in the documents submitted and the presentation made before the Committee for mining projects, the following TORs are prescribed for undertaking detailed EIA study:-

1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification, 1994 came into force w.r.t. the highest production achieved prior to 1994.
2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
3) All documents including approved mine plan, EIA and public hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management and mining technology and should be in the name of the lessee.
4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/toposheet should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
5) Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large may also be detailed in the EIA report.
6) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
7) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc should be for the life of the mine / lease period.
8) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
9) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
10) A Certificate from the Competent Authority in the State Forest Department

should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.

11) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.

12) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.

13) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.

14) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly detailed mitigative measures required, should be worked out with cost implications and submitted.

15) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the State Wildlife Department/Chief Wildlife Warden under the Wildlife (Protection) Act, 1972 and copy furnished.

16) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.

17) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Minning Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.

18) Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

19) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village located in the mine lease area will be shifted or not. The issues relating to shifting of Village including their R&R and socio-economic aspects should be discussed in the report.

20) One season (non-monsoon) primary baseline data on ambient air quality (PM_{10}, SO_2 and NOx), water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.

21) Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

22) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.

23) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

24) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.

25) Impact of the project on the water quality, both surface and groundwater should be assessed and necessary safeguard measures, if any required, should be provided.

26) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.

27) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.

28) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
29) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the project.
30) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered.
31) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA report.
32) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
33) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given.
34) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP.
35) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
36) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
37) Detailed environmental management plan to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
38) Public hearing points raised and commitment of the project proponent on the same along with time bound action plan to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
39) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the project should be given.
40) The cost of the project (capital cost and recurring cost) as well as the cost towards implementation of EMP should clearly be spelt out.
41) Details of replenishment studies
42) Details of Transportation of mined out materials as per the Indian Road

Congress for both the ways (loaded as well as unloaded trucks) load and its impact on Environment;

43) Proper species specific Conservation plan for Schedule–I and II species;
44) Impact of mining on plankton;
45) Details of mining activity to be provided w.r.t Block Wise/ Calendar wise/ Zonal wise, as the mine lease area is having a long stretch,
46) Details of Gradient of river bed to be provided;
47) Details of excavation schedule & sequential mining plan;
48) Mining Plan shall be prepared carefully, dividing lease area into manageable blocks to ensure scientific and systematic mining of minor minerals; and
49) The base line data shall be collected so as to represent the whole mine lease area.

6. Besides the above, the below mentioned general points are also to be followed:-

a) All documents to be properly referenced with index and continuous page numbering.
b) Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
c) Where the documents provided are in a language other than English, an English translation should be provided.
d) The Questionnaire for environmental appraisal of industrial projects as devised earlier by the Ministry shall also be filled and submitted.
e) While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should also be followed.
f) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the F.R for securing the TOR) should be brought to the attention of MoEF with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.
g) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, you are requested to submit certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project by the Regional Office of Ministry of Environment & Forests, if applicable.

7. The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

8. The prescribed TORs would be valid for a period of two years for submission of the EIA/EMP reports, as per the O.M. No. J-11013/41/2006-IA.II(I) dated 22.3.2010.

9. After preparing the draft EIA (as per the generic structure prescribed in Appendix- III of the EIA Notification, 2006) covering the above mentioned issues, the

proponent will get the public hearing conducted and take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.

(Dr. Saroj)
Director

Copy to:

1). **The Secretary**, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi

2). **The Secretary**, Department of Mines & Geology, Government of Rajasthan Secretariat, Jaipur.

3). **The Secretary**, Department of Environment, Government of Rajasthan, Secretariat, Jaipur.

4). **The Chief Conservator of Forests**, Central Region, Ministry of Environment and Forests, B-1/72, Sector-A, Aliganj, Lucknow-226020.

5). **The Member Secretary**, Rajasthan State Pollution Control Board, 4, Institutional area, Jhalana, Doongri, Jaipur.

6). **The Controller General,** Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur - 440 001

7). **The District Collector**, Sirohi District, State of Rajasthan.

8). **Guard File**

9). **MoEF website**.

(Dr. Saroj)
Director

TOR

COMPLIANCE

COMPLIANCE OF TOR VIDES LETTER NO. J-11015/309/2013-IA.II (M) DATE 22nd NOVEMBER, 2013 OF M/S. SHER SINGH SOLANKI NEAR VILLAGE - AWADA, BHAMRA, BOOTRI, CHHAPOL, DANGRALI, DEROL, GULAB GANJ, GUNDWARA, HATHAL, JAMTHA, JAWAL, JEERAWAL, JUADARA, KARELI, KAROTI, LEELORA, LOONOL, MAKAWAL, MALAWA, MALGAON, MAROL, MEETAN, NIMBORA, PADROO KHERA, PEEPALIYA, RAJGARH, RAMPURA, REODAR, SELWADA, THAL, VIKANWAS, WASAN TEHSIL – REODAR, DISTRICT – SIROHI (RAJASTHAN).

S.No.	Conditions	Status
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification, 1994 came into force w.r.t. the highest production achieved prior to 1994.	This is a new proposal of mining lease for which LOI has been issued by State Government Order No. P.8 (16) Khan/Group-2/2013 Dated 27-02-2013. In order of Interim relief by the Hon'ble Supreme court in interest of public, Temporary working condition is granted from 25/11/2013**(Annexure-2).** Production from Dec. 2013 to March. 2015 was carried 414361 Tonnes only.
2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	Letter of Intent**(Annexure-1)** **Allotted Revenue villages with Khasra details of lease area(Annexure-1A)**
3	All documents including approved mine plan, EIA and public hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management and mining technology and should be in the name of the lessee.	Yes, all the documents are compatible to each other. Proposal is for Production of 28.05 Lac TPA river sand (Bajri), public hearing was also conducted for same production. All the data related to production, waste generation and mining technology are incorporated for proposed production 28.05 Lac TPA. No waste will be generated during mining.
4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery / toposheet should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Map with all coordinates of mining lease area has been superimposed on toposheet is enclosed as plate No.-2 of Final EIA/EMP report.
5	Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or	The Project proponent has environmental policy of its own **(Annexure-9A).** The PP shall comply with the environment norms and conditions set forth in the main environmental clearance of the project and shall submit compliance to the MoEF periodically as warranted under the EC letter. The hierarchical system of the company and the system for reporting non compliance have been given in **Annexure no 9C & 9B.**

	stakeholders at large may also be detailed in the EIA report.	
6	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	All the issues related to Safety of opencast riverbed mining and safeguard measures have been covered Chapter 7, **section 7.4** and its sub-section.
7	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc should be for the life of the mine / lease period.	The EIA study has been carried out for 10km radius zone from the periphery of mine lease area. Key plan showing core zone (lease area) and buffer zone of 10 km radii from lease boundary has been incorporated in Plate No. 2. Data regarding mining operations and waste generation have been incorporated in **Chapter-2.**
8	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Satellite imagery showing the present land use pattern for the Core & Buffer zone (10 km from the Lease Boundary) is enclosed as plate No. 8-11. The same has been incorporated in Chapter-3 of Final EIA/EMP Report. Mount Abu Wildlife Sanctuary falls within the 10 km radius study area.
9	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	There will be no development of overburden dump and thus no land shall be required for it. Beside this applied lease area is government land and belongs under category of gair mumkin nadi. Also lease has been granted on river bed only, Hence no R & R is applicable.
10	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	The Mine lease area is revenue waste land and no forest land is involved in mining operation. details of Khasra No. and Jamabandi record are annexed as annexure **No.-1A**
11	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	Not Applicable
12	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act,	Not Applicable

	2006 should be indicated.	
13	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	List of RF/PF are given in Chapter-2 in **Table No. 2.1** Detailed biological studies are given in Chapter-3 in **Section-3.6.**
14	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly detailed mitigative measures required, should be worked out with cost implications and submitted.	A detailed biological study has been carried by EB expert in the study area and impact of the Mining Project on wildlife of the study area, and their mitigative measures with cost implications has been incorporated in Section 3.6 of chapter -3 of EIA report and **conservation plan submitted to DFO Sirohi for sch.I species as annexure no.14 of EIA Report.**
15	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the State Wildlife Department/Chief Wildlife Warden under the Wildlife (Protection) Act, 1972 and copy furnished.	Mount Abu Wildlife Sanctuaries falls within the study area (10 km radius of the mine lease boundary) Which has been indicated on 10 km radius topographical map is given and annexed as **Plate No.-2**.
16	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	Detailed Biological study for the study area (core zone and buffer zone) has been conducted and same has been incorporated in Chapter-3 **section 3.6.** Conservation plan for schedule-I species has been prepared and enclosed as Annexure no. 14
17	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.	The mining lease area does not fall in Critically Polluted area and the Aravalli range. **NOC** from competent authority regarding **aravalli range** enclosed as **Annexure-6.**
18	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The	Not Applied as ML area does not falls under CRZ.

	Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	
19	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village located in the mine lease area will be shifted or not. The issues relating to shifting of Village including their R&R and socio-economic aspects should be discussed in the report.	There is no habitation in the core zone, Lease area allotted for river sand mining. Hence R & R is not applicable.
20	One season (non-monsoon) primary baseline data on ambient air quality (PM10, SO2 and NOx), water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	The Baseline data for winter Season (Dec. 2013, to Feb. 2014) has been collected in respect of ambient air quality (Section 3.4), water quality (Section 3.3), noise level (Section3.5), soil (Section 3.2), flora and fauna (Section 3.6) along with Site-specific meteorological data. The locations of Ambient Air Quality Monitoring stations were decided on the basis of prevailing micro – meteorological conditions (Wind direction & wind speed) of the study area.
21	Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.	Ambient air quality modeling has been conducted for this mining project through mathematical modeling and incorporated in chapter-4 of final EIA/ EMP report. The Air dispersion report is enclosed as **Annexure- 13.**
22	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	Total water requirement for the mining project will be supplied by the tanker from bore wells of nearby villages on payment basis. Section 2.9.2. Water balance is shown in **Figure 9.2.**
23	Necessary clearance from the Competent Authority for	There will be no drawl of water as total water

	drawl of requisite quantity of water for the Project should be provided.	requirement for the proposed mining project will be 16 KLD. Drinking water will be brought by water tanker from nearby villages.
24	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The lease area falls in part of river bed. Therefore, water harvesting is not proposed. Natural seepage will recharge the ground water table in the area. Beside this water conservation provision has been made under Budget of EMP (**Table 9.6**)
25	Impact of the project on the water quality, both surface and groundwater should be assessed and necessary safeguard measures, if any required, should be provided.	Impact of the project on the water quality both surface and groundwater along with measures to control water pollution has been given in Chapter 9 of Final EIA Report.
26	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	Ground water table lies between 10-15 mtr deep in core zone and 20-25 mtr deep in surrounding areas. Ultimate working depth is 3m So, the mine working will not intersect ground water table at any stage of mining.
27	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	No diversion of stream (seasonal or otherwise) passing through the lease area and there is no modification is proposed.
28	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.	Site elevation of the Sipu River bed is 264mRL to 205 mRL or Sukli River 279 mRL to 248 mRL and maximum working depth is 3m. Schematic diagram of river sand (Bajri) mining given in chapter-2 of EIA/EMP report.
29	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the project.	Details regarding plantation and greenbelt development programme are given in Chapter- 9, of EIA/EMP report.
30	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered.	Detailed transport study has been carried out and incorporated under Section 4.10 of EIA/EMP report.
31	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA report.	Details regarding infrastructure facilities to be provided to the mine workers are given in chapter-10 of EIA/EMP report.

32	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	The Conceptual land use is given in Chapter-2 of Final EIA/EMP Report. Conceptual Plan has been annexed as Plate No.-4 in Final EIA/EMP Report.
33	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given.	Details regarding plantation and greenbelt development programme are given in Chapter- 9, Table No.9.1.
34	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP.	Detailed occupational health management plan incorporated Chapter 9 of EIA report.
35	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Details regarding public health incorporated in Chapter -9, of Final EIA/ EMP Report.
36	Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	The positive and adverse impact on socio-economic aspect to the local community has been discussed under section 4.8 of EIA report.
37	Detailed environmental management plan to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	Detailed environmental management plan to mitigate environmental impacts have been incorporated in Chapter-9.
38	Public hearing points raised and commitment of the project proponent on the same along with time bound action plan to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	Detailed public hearing proceedings are enclosed as **annexure no-5A and 5B.**
39	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the project should be given.	There is no litigation pending against the project.
40	The cost of the project (capital cost and recurring cost) as well as the cost towards implementation of EMP should clearly be spelt out.	Capital cost of the project is 5.0 crore. Capital cost and recurring cost for implementation of EMP have been provided in chapter 9, table 9.6
41	Details of replenishment studies.	Replenishment study has been done and details

		are given in Section 4.11 and annexure no. – 12
42	Details of Transportation of mined out materials as per the Indian Road Page **6** of **7** Congress for both the ways (loaded as well as unloaded trucks) load and its impact on Environment.	Detailed transport study has been carried out and incorporated under Section 4.8.
43	Proper species specific Conservation plan for Schedule–I and II species.	Conservation plan for schedule–I species are attached as annexure no. 14 in Final EIA/EMP report.
44	Impact of mining on plankton.	Only Seasonal water bodies have been observed during study. Therefore plankton study has not been carried out.
45	Details of mining activity to be provided w.r.t Block Wise/ Calendar wise/ Zonal wise, as the mine lease area having a long stretch.	Block Wise covered under Section 2.5.6 and Development plan **enclosed as plate 6.**
46	Details of Gradient of river bed to be provided.	Details of gradient of river bed are given in Chapter-2, Section-2.5.4.
47	Details of excavation schedule & sequential mining plan.	Details covered under Section 2.5.7. and table 2.4.
48	The Mining Plan shall be prepared carefully, dividing lease area into manageable blocks to ensure scientific and systematic mining of minor minerals.	Approved mining plan enclosed as Annexure 4.
49	The base line data shall be collected so as to represent the whole mine lease area.	Section 3.1 through 3.5.
	Besides the above, the below mentioned general points are also to be followed:-	
A	All documents to be properly referenced with index and continuous page numbering.	Complied
B	Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.	Complied
C	Where the documents provided are in a language other than English, an English translation should be provided.	Complied
D	The Questionnaire for environmental appraisal of industrial projects as devised earlier by the Ministry shall also be filled and submitted.	Questionnaire has been filled and enclosed with Final EIA/EMP report.
E	While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should also be followed.	Complied
F	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the F.R for securing the TOR) should be brought to the attention of MoEF with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public	Not Any

	Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.	
G	As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, you are requested to submit certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project by the Regional Office of Ministry of Environment & Forests, if applicable.	Not Applicable

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8A	Laboratory Test reports for analysis of air,water,soil,noise
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13	Air dispersion modeling
14	Conservation Plan (schedule-I)
15	EB Report (Revised List of Flora/Fauna)
16	Cumulative joint traffic study
17	Occupational health and safety management plan
18	Submission receipt to NBWL

FINAL ENVIRONMENT IMPACT ASSESSMENT REPORT &

ENVIRONMENT MANAGEMENT PLAN

OF

28.05 LAC TPA RIVER SAND (BAJRI) PRODUCTION

At

Near Villages Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan Tehsil Reodar, District Sirohi (Rajasthan).

Lease Aera – 1286 Ha. (Cat. 'A')

OF

M/s. Shri sher Singh Solanki

CHAPTER-1

INTRODUCTION

1.1 PREAMBLE

Environment Impact Assessment (EIA) is a process used to identify the environmental, social & economic impacts of a project prior to decision making. It aims to predict environmental impacts at an early stage of project planning & design, find ways & means to reduce adverse impacts. By using EIA, both environmental & economic benefits can be achieved. By environmental effects prediction & mitigation, early benefits in project planning, protection of environment, optimum utilization of resources, thus saving overall time & cost of the project.

Rivers are the most important life sustaining system of nature and play a vital role in transport of sediment (material) from one place to other. Total quantity of material transported by rivers, a substantial part is detained within its channels and adjoining environments as fluvial deposits. River sand (Bajri) will not create any problem to riverine ecosystem as the quantity of mining well within the replenishment limits.

To overcome this problem systematic and scientific mining is necessary with a certain depth from surface of river channel. River sand is a product of natural weathering of rocks over a period of millions of years. It is mined from the river bed. Quarrying of river sand is an important economic activity in India as well as in the state of Rajasthan. Rajasthan has varying topographic features though a major part of the state is dominated by ephemeral rivers. Climate of the area is semi-arid type. Precipitation is erratic, scanty and varies place to place. River sand (Bajri) plays a crucial role to the construction industries and infrastructure projects used as a basic raw material in mortars and concrete.

River sand mining has pros and cons of the environment and social well being. In sand mining, river holds more volume of water by deepening the channel. While on other hand some problems is associated *i.e.* channel widening, bank (riparian) erosion, alteration in channel morphology, local environment change such as dust pollution due to increasing traffic activities etc.

From environment view point, river sand mining is essential because river has an assimilative capacity to retain certain amount of sand in their bed/channel. Due to filling of sand in river channel, river lost their natural passage and morphology. River diverted and flows in downward of both of side create new

water channels. River devastate its surrounding land may be agriculture land, habitation, forest, waste land and riparian erosion along both of side of river etc.

Lease area of this mine is 1286 Ha of River Sand (Bajri) (Category 'A'). Proposed production capacity of River Sand (Bajri) @ 28.05 Lac TPA, hence requires appraisal for Environment Clearance from MoEF, New Delhi. As per EIA Notification 14th September 2006 and subsequent amendments as on date, this is a fresh mining project of river sand (Bajri) and requires prior environment clearance. Lease is yet to be granted for a period of 5 years from the date of agreement.

1.2 GENERAL INFORMATION ON MINING OF MINERALS

LOI has been issued in favour of M/s. Sher Singh Solanki, R/o 13, Shiv Nagar, Jaipur (Rajasthan). Sanctioned mining lease area is 1286 Ha. The mine lease area, covered underSOI Toposheet no. 45 D/6, 45 D/10 is linearly stretched under 32 revenue villages &844 Khasara nos. of Tehsil- Reodar, District – Sirohi (Rajasthan). Lease has been allotted by auction for mining of mineral River Sand (Bajri) near villages.

Lease has been allotted by auction for mining of mineral River Sand (Bajri) near village – Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan Tehsil Reodar, District Sirohi (Rajasthan). LOI is granted in favour of M/s. Sher Singh Solanki, S/o Shri Mangal Singh Solanki 13, Shiv Nagar, Jaipur (Rajasthan) for mineral River Sand over an area of 1286 hectares by State Government Order No. P.8 (16) Khan/Group-2/2013 Dated 27-02-2013. **(Copy of LOI is enclosed as annexure No-1).** The material produced is of good quality and is suitable for use in all type of civil works and casting of pre casted concrete items such as blocks, polls and various pre casted parts of building. Due to increasing use of pre-fabricated material and use of locking tiles for pedestrian paths where river sand is used for leveling the under surface for tiles. The use and demand of river sand has substantially increased.

Mining is proposed with semi-mechanized opencast method mining. For the systematic working of opencast mines, benching will be done for 3 mtr by Poclain machine. Maximum permissible depth as conditional permission granted with LOI for digging is 3.0 mtr from surface level of river channel or water level which is achieved earlier. No waste generated during life of mine. All material i.e. sand is loaded into trucks, tippers directly and sold in the market.

1.3 ENVIRONMENTAL CLEARANCE

Applicant intends to proposed production of River Sand (Bajri) from 28.05 Lac TPA. Lease area of this mine is 1286 ha which is more than 50ha so it comes in Category **'A'** project. Thus the project will be assessed by Expert Appraisal Committee of Ministry of Environment & Forest (MoEF), New Delhi. Therefore, the lessee will have to take environmental clearance from Ministry of Environment & Forest (MoEF), New Delhi as per MoEF Notification of EIA, 2006 and amendments as on date.

1.4 TOR (Terms of Reference)

TOR of this mining project has been issued from Ministry of Environment & Forest (MoEF), New Delhi vide letter no. J-11015/309/2013-IA.II (M) Dated 22nd November, 2013.

1.5 PUBLIC CONSULTATION

Public consultation for this project was conducted on 01/09/2014 at 11:00 A.M. at Office – Subsection Officer, Tehsil - Reodar, District - Sirohi (Rajasthan) which was presided over by the District Collector-Sirohi and attended by officers of RSPCB, Pali. The public hearing was attended by various entities like local community in surrounding who may have any concern about the project or other specific person/organizations have to express any opinion in the project approval. Requisite publicity through local news papers/ media i.e. in Rajasthan Patrika dated 03.08.2014 and Hindustan Times Dated 03.08.2014 was given at least 30 days in advance of the date fixed for public hearing through the Collector and State Pollution Control Board official in the matter.

The views and grievances were listened and resolved. The project proponent has given commitment to fulfill the environmental and social responsibility for

development of community of nearby villages. In this report, public hearing proceedings and minutes of public hearing is included in the final EIA/EMP report and submitting to Expert Appraisal Committee (EAC), MoEF, New Delhi for Environment Clearance.

1.6 NEED FOR EIA

As per the EIA Notification, 2006, it is mandatory to prepare Environmental Impact Assessment in order to evaluate the potential impacts that would arise due to mining and production of mineral and to delineate management plan to minimize the adverse impacts, if any. TOR for this project has been issued from MoEF, New Delhi Vide letter no. No. J-11015/309/2013-IA.II (M) Dated 22nd November, 2013. Presentation for TOR was held in its 12th Reconstituted Expert appraisal committee during August 31st October, 2013 to 01st November, 2013.

Therefore, the environment study (Collection of Primary & Secondary data) has been carried out during study period (Dec. 2013 to Feb. 2014), as per EIA guidelines laid by Ministry of Environment & Forests (MoEF) and various statutory agencies. The findings of the study carried out during winter season and its impact assessment is incorporated in this report.

1.7 DETAILS OF PROJECT PROPONENT

Name of Project Proponent	:	M/s. Sher Singh Solanki
Residence cum office Address	:	S/o Shri Mangal Singh Solanki 13, Shiv Nagar, Jaipur, Rajasthan
E-mail Address	:	shersinghsolanki1286@gmail.com
Contact No.	:	0141-2333907

1.8 BRIEF DESCRIPTION OF THE PROJECT

LOI holder M/s. Sher Singh Solanki is an individual applicant for mining lease heaving area of 1286 hectares for mineral River Sand (Bajri) near village Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan Tehsil Reodar, District Sirohi (Rajasthan). The cost of the proposed project is about Rs. 5.0 Crore. Lease area is sanctioned first time by govt. of Rajasthan

for mining of mineral river sand (Bajri) by auction of mining lease. In past, mining in river was carried by royalty paid basis by contractors and these were not carried systematic mining so there was leading to more environment degradation and hazards. Now state govt. has amended its policy and lease is auctioned for grant. There area certain conditions area fixed and bound to carry mining as given in Table no. 1.2 One important condition is to carry mining only upto depth of 3 mtr. From surface bed level of lean season. Lease area is part of River Sipu and Sukri.Which is seasonal. Only river flows in rainy season otherwise it remains dry through out the year. There is huge quantity of sand available in river and there is more demand of sand for construction nearby area. Gradient of river Sipu is264 mRL to 205 mRL and gradientof river Sukri is 279 mRL to 248 mRL.

1.8.1Location of Project:

Mine site is well connected with rail and road transport. There is no Railway Station within the 10km radius of lease area. There is no National Highway within the 5 km radii of lease area. SH-11 from Abu Road to Sildar is passes through the lease area near village Loonol. SH 27 also pass through the lease near village Loonol. The Location map and key plan shows the position of lease area on route map on GT Sheet Map as Plate No. 1 and 2, respectively.



Figure 1-1 Google Image showing Location of River (Core Zone)

1.9 Regulatory Compliances

Table 1-1Environmental Legislations applicable in development sector

Name	Scope and Objective	Key Areas	Operational Agencies/Key Player
Water (Prevention and Control of Pollution) Act, 1974, 1988	To provide for the prevention and control of water pollution and enhancing the quality of water	Control sewage and industrial effluent discharges	Central and State Pollution Control Boards
Air (Prevention and Control of Pollution) Act, 1981, 1987	To provide for the prevention and control of air pollution	Controls emission of air pollutants	Central and State Pollution Control Board
Noise Pollution (Regulation & Control) Rule 2000	Noise pollution control	Control of noise pollution in residential, commercial, industrial and silent zones	Central and State Pollution Control Board
Forest (Conservation) Act, 1980, 1988	To consolidate acquisition of common property such as forest, halt India's rapid deforestation and resulting environmental degradation	Regulates access to natural resources, state has a monopoly right over land, categories forests, restriction on dereservation and using forest for non-forest purpose	State Government and Central Government
Wildlife (Protection) Act, 1972, 1993	To protect wildlife	Creates protected areas (national parks / sanctuaries) categories of wildlife which are protected	Wildlife Advisory Boards, Central Zoo Authorities
Ancient Monuments and Archaeological sites & Remains Act, 1958	To protect ancient monuments of national heritage / importance	Conservation of cultural and historical remains found in India	Archaeological Survey of India
Hazardous Wastes (Management and Handling) Rules, 1989	Health and safety	Assessment of hazardous materials and management	Central and State Pollution Control Board
Biological Diversity Act, 2002	Biodiversity conservation	Disclosure of species survey or collection activities to the National Biodiversity Authority	MoEF, New Delhi and State Forest Departments
Environment (Protection) Act, 1986	To provide for the protection and improvement of environment	An umbrella legislation, supplements pollution laws	Central government nodal agency, MoEF can delegate to state departments of environment
Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013	The new legislation will guide all land acquisitions of central and state governments, bringing in stricter norms and increasing landowners' compensation significantly.	Fair compensation to the assets acquired and proper rehabilitation and resettlement of PAFs with improvement in postacquisition social and economic status	Central and State Government
EIA Notification 14th Sep 2006 and amendment 1st Dec 2009	Environment Impact Assessment	Environmental Protection	Project Development, State and Central Government

As per MoEF notification, dated 14th September 2006 and amendment as on date, Development or construction of a new project or activities or the expansion or modernization of existing projects or activities listed in the

schedule to the notification shall be undertaken in any part of India only after the prior environmental clearance from the Central Government in the Ministry of Environment and Forests, New Delhi for matters falling under Category 'A' in the schedule.

1.10 Scope of Study

In consonance with the provision, under section-6 of the MoEF notification, dated 14th September 2006, the project proponent has moved an application, to the Ministry of Environment and Forests in the prescribed Form-I duly filled along a copy of the PFR of the project. The first step, required in the environment clearance process is 'Scoping' by which the EAC determines detailed and comprehensive Terms of Reference (TOR) addressing all relevant environment concerns for the preparation of an Environmental Impact Assessment (EIA) Report in respect of the project for which prior environment clearance is being sought. After going through the various aspects of the river bed mining at the proposed site and the related documents like Form – I and the PFR, the EAC, MoEF. in its 12th meeting held on 31st , October, 2013 to 01st November, 2013 set out the scoping for Environment clearance and issued ToR proposed for environmental impact assessment studies and preparation of environmental management plan for River bed mining and for submission of Final report after Public Hearing. Applicant has conducted EIA and has undergone Public hearing as per EIA Notification, amendment 2009. Scoping of EIA Study has been carried under guidelines, MoEF memorandom of MoEF and vide state govt. applicable guidelines for river bed mining. There are certain conditions are imposed for river bed mining by state govt. which are mentioned below.

Table 1-2Conditions imposed by Govt. of Rajasthan under amendment of RMMCR 1986, second amendment 2012

S. No. of Form V i.e. of Mine lease Deed	General Conditions	Precautionary measures inherentlycovered under mining plan
3a	The mining operations within 45 m of the public works etc. The Lessee/Lessees shall not work or carry on or allowed to be worked or carried on any mining operations at or to any point within a distance of 45 m from any Railway line except with the previous written permission of the railway Administration concerned, or from any reservoir, canal or other public works or buildings or inhabited site except with the previous	Within the mine lease area, the prohibited area/no mining zone have been delineated in approved mine plan. The project proponent shall ensure that such areas are precluded from mining activities.

	permission of the Collector or any other officer authorized by the Government in this behalf and other wise than in accordance with such instructions, restrictions, and conditions either general or special as may be attached to such permissions. The said distance of 45 m shall be measured in the case of Railway, reservoir or canal horizontally from the outer toe of the bank or the outer edge of the cutting as the case may be and in case of a building horizontally from the plinth thereof	
4 (8)	The Lessee/Lessees shall not erect any building or carry or any surface operations on any public pleasure grounds, places of worship, scared graves burial grounds or village sites for houses, public roads or other places which the competent authority may determine as public grounds to bring within this restriction.	The lease area is revenue waste land. The Lessee shall only erect temporary rest shelter, on upper terraces of river bank which has been left as offset, for mine workers. However, the lessee will ensure that such temporary structure is not erected in the graveyard/ cremation ground.
4 (14)	The Lessee/Lessees may erect on the area granted to him/them any building , required for bonafide mining purposes and such building shall be the property of the government after expiry of the lease	The Lessee shall only erect temporary rest shelter, on upper terraces of river bank which has been left as offset, for mine workers. However, these structures shall be dismantled at the expiry of the lease
6 (2)	The Lessee/Lessees shall keep throughout the terms of his /their lease all mines, building, engines, machinery and other mining plants in good repair and working order.	The lessee shall ensure proper maintenance of rest shelters / toilets. The mining and transport equipment's shall be procured on hire / rental basis and the onus of their regular maintenance lies with the owners. However the lessee will ensure that only useful and well maintained equipments are used in mining activities.
6 (8)	The lessee / lessees shall keep open and in no way obstruct any road path or way by any means whatsoever.	The approved mine plan has been prepared considering that no mining operations is carried out within the distance of 45m from any public road.
6 (11)	The lessee / lessees shall not cultivate or use the land save for the purposes of the lease.	The lease area lies in gair mumkin nadi/nala and its designated use as per mine plan is only for the purpose of mining.
6 (13)	The lessee / lessees shall not injure or cause to deteriorate any sources of water power or water supply and shall not in any other way render any spring of streams of water supply and shall not in any other way render any spring of stream of water unfit to be used or do anything to injure adjoining lands, villages or houses.	The approved mine plan has been prepared considering that no mining operations is carried out within the distance of 45m from any source of water supply or stream/spring, canal, reservoir or well.

CHAPTER-2

PROJECT DESCRIPTION

2.1 GENERAL

NAME OF PROJECT

River Sand (Bajri) mining project located near Village - Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan, Tehsil - Reodar, District - Sirohi (Rajasthan)

Category of Project: **'A'**

DETAILS OF PROJECT PROPONENT

Name of Project Proponent	:	M/s. Sher Singh Solanki
Residance cum office Address:		S/o Shri Mangal Singh Solanki
		13, Shiv Nagar, Jaipur, Rajasthan
E-Mail Address	:	shersinghsolanki1286@gmail.com
Contact No.	:	0141-2333907

M/s. Sher Singh Solanki, having its Residence cum office S/o Shri Mangal Singh Solanki 13, Shiv Nagar, Jaipur, Rajasthan is an applicant mining lease of River sand (Bajri) under Rajasthan minor minerals concession rules 1986, near village Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan, Tehsil - Reodar, District - Sirohi (Rajasthan). As per EIA Notification 2006 project proponent has to obtain Environmental Clearance from MoEF, New Delhi for production of River sand (Bajri) 28.05 Lac TPA of this EIA Notification. The cost of the proposed project is around Rs. 5.0 Crore.

2.2 TYPE & SIZE OF THE PROJECT

This is fresh mining lease applied for mining of mineral River Sand LOI has been granted. Annual Production for minerals River Sand 28.5 Lac TPA over an area of 1286 Ha. by State Government Order No. P.8 (16) Khan/Group-2/2013 Dated 27-02-2013. **(Copy of LOI is enclosed as annexure No-1).**

2.3 NEED OF THE PROJECT

Due to the new ventures, the requirement for River Sand (Bajri) has been on the rise over the last few years. Mineral river sand is used mainly in construction sector. Sand is used as building material. Its strength and long life makes it suitable for a number of purposes viz. construction of bridges, metro pillars, under passes, Highways, etc.

Mining industry play an important role in economic sector in India. Rajasthan is rich in mineral wealth. The state is endowed with major and minor mineral resources. The region, where the project is situated is mostly dependant on agriculture and mineral resources. The development of mining in the area provides direct and indirect employment opportunities, infrastructure development, communication and socio-economic infrastructure. The important benefits accruing from the project can thus be stated as-boost to local and regional economy, direct contribution to the state exchequer.

2.4 LOCATION AND LAYOUT OF THE PROJECT PHYSIOGRAPHIC AND DRAINAGE:

The lease area forms part of G.T. Sheet No. 45 D/6 and 45 D/10. The lease area is situated south east of Tehsil Reodar. Topographically, the area is almost flat. Location of villages granted for River sand mining are Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan, Tehsil –Reodar, District - Sirohi. Khasra numbers given in LOI are not under Arravali hills. Letter is attached as Annexure- 7. NOC from forest department is attached as Annexure- 8. Mount Abu Wildlife sanctuary is 7.1 km from lease area.

The large part of the district Sirohi is a vast semi desert plain, marked by isolated hills and chain of hillocks forming the eastern and south western part of the district Aravalli hill ranges expands in the East. Abu- Sirohi ranges divides the district into two parts. In the western portion, scattered hills are available in each in Reodar tehsil. Detached hills of the Aravalli range are situated in the south east of the district; Mount Abu is situated at about 1219metre above sea level. Another important plateau is Oriya in Abu Road

tehsil and lies below the main peak of Guru Shikhar which is 1722 meter above the mean sea level.

In general, the district as a whole reveals dendritic drainage pattern which shows general flow direction towards NW and SE respectively. South Easterly flowing streams feeds run off to the Banas River. North Westerly flowing streams feeds run off to River Jawai, Khari, Kapalganga and Krishnawati whereas, River Sipu receives run off from streams flowing towards North West as well as towards South Easterly.

Jawai is the longest and largest river of North West which eventually joins Luni River. Other important rivers of Sirohi District are Banas, Khari, Sukri, Badi, Kapal Ganga & Krishnawati. All the aforesaid rivers are seasonal rivers i.e., water flows in rivers during rainy season and becomes dry during summer season.



Figure 2-1 Satellite image Showing River and Surroundings

Transport Connectivity

Mine site is well connected with rail and road transport. SH 11 from Abu Road to Sildar are passes through the lease area near village Loonol. SH 27 also pass through the lease near village Loonol.

Land Form, Land use and Land ownerships

Total land of mining lease comes under Gair Mumkin Nadi (Government land). The lease area forms part of GT Sheet No. 45 D/6 and 45 D/10. The land detail of lease area is given below:

Table 2-1Land details of Lease Area

Status of Land	Govt. Land (Gair mumkin Nadi, Nallah)
Total Lease Area	1286 Ha.
Period	5 years
Near Village	Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan
Tehsil	Reodar
District	Sirohi
State	Rajasthan

2.5 TECHNOLOGY & PROJECT DESCRIPTION

2.5.1 PROJECT DESCRIPTION

Table 2-2Salient Features of the Mine Site & Surrounding

<table>
<tr><th>S.No</th><th>Particulars</th><th>Details</th></tr>
<tr><td>A.</td><td>Project Details</td><td></td></tr>
<tr><td></td><td>Nature of project</td><td>River sand mining project</td></tr>
<tr><td></td><td>Date of Grant of LOI</td><td>27/02/2013</td></tr>
<tr><td></td><td>Validity of applied lease period</td><td>5 Years from agreement of lease</td></tr>
<tr><td>B.</td><td>Size of Project</td><td></td></tr>
<tr><td></td><td>Lease area</td><td>1286 Ha.</td></tr>
<tr><td></td><td>Current production capacity</td><td>Nil</td></tr>
<tr><td></td><td>Proposed production capacity</td><td>28.05 Lac TPA</td></tr>
<tr><td>C.</td><td>Project Location</td><td></td></tr>
<tr><td></td><td>Near Village</td><td>Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan</td></tr>
<tr><td></td><td>Tehsil</td><td>Reodar</td></tr>
<tr><td></td><td>District</td><td>Sirohi</td></tr>
<tr><td></td><td>State</td><td>Rajasthan</td></tr>
<tr><td></td><td>Lease area Coordinates</td><td><table><tr><td>Latitudes</td><td>24°41’27.02”N</td><td>24°31’13.65”N</td></tr><tr><td>Longitudes</td><td>72°42’27.86”E</td><td>72°25’04.32”E</td></tr></table></td></tr>
<tr><td></td><td>Toposheet No. Core zone</td><td>45 D/6 and 45 D/10</td></tr>
<tr><td></td><td>Toposheet No Buffer Zone</td><td>45 D/5,45 D/7, 45 D/9 and 45 D/11</td></tr>
<tr><td></td><td>Khasra Nos. allotted by state govt. for forming mine lease area</td><td>Details of village wise Khasra details are as:<table><tr><th>S.No.</th><th>Village Name</th><th>Khasra No.</th><th>Total nos. of Khasras</th><th>Area in Ha.</th></tr><tr><td>1.</td><td>Awada</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>212,213,214,234,282,2,3,11,13,17,19,24,53,59,65,87,89,154,92</td><td>19</td><td>354.52</td></tr></table></td></tr>
</table>

2.	**Bhamera**			
		3,11,11/593,26,29,36,41,33,164,168,170,179,242,303,342,360,383,384,407,415,458,481,508,538,564,576,582,588,574,	29	162.24
3.	**Bootri**			
		28,159,172,215,218,158,219,158/228	8	141.51
4.	**Chhapol**			
		16,17,19,20,21	5	42.78
5.	**Dangrali**			
		13,99,112,162,45,58,67,92,96,97,156,159,171,178,201,268,284,286,288,290,295,296,298/642,298/655,298/669,298/674,307,307/628,308/697,380/627,376,380,390,395,402,405,418,422,438,447,471,478,486,528,586,617	47	253.04
6.	**Derol**			
		88,89,95,96,120,3,6,7,26,32,36,48,61,71,81,82,91,92,247,262,270,272,280, 283	24	128.14
7.	**Gulabganj**			
		132,106/2,130,131/1, 133/9,204/971,214/972,98/1,161,163,177,200,216,449,457/8,466/01,468,472/3,472/7,472/09,472/11,619,620,778,807/38, 881,897,465/1029	28	372.23
8.	**Gundwara**			
		104,173	2	25.11
9.	**Hathal**			
		480,508,509,737,791,861,94,100,102,133,162,167,169,237,244,342,375,403,476,478,526,528,584,1117,1195,1205,1206, 1208,1209,1211,1289	31	675.09
10.	**Jamta**			
		14,16,19,20,21,99/361,84,91,122,137,152,161,172,179,183,218, 238,240,243,261,286,154/367, 253/380	23	424.26
11.	**Jawal**			
		1,271,134,147,150,166, 168,170,172,180,182,194,221, 223,227,247,272,316,329, 127/344,256	21	362.18
12.	**Jeerawal**			
		18/811,32,52/1,52/3,67/8,72, 105/1,312,320,345,346,360,409/1,409/2,410/1,507,508,509,514/1, 522,526/1,527/1,542,730/1,731, 734,741,742,814/384,155/973, 512/916,56,57,171,173,192, 228/821,274,283,368,465,469, 487,520,523,627/1,675,676, 820/164,485/1	50	497.63
13.	**Juadara**			
		1/258,2/259,47,54,57,59,70,82,94,99,100,105,159,181,183,193,198,203,205,207,218,224,227	23	307.71
14.	**Kareli**			
		8,2,21,74,76,81,83,85,92,99,104,136,156,207,207/255,216,220,221,222,224,226,239,4	23	114.46
15.	**Karoti**			
		1,35,61,72,102,105,112,114,127,145,169,171,173,184,210,212,217	17	23.43
16.	**Leelora**			
		58,81,94,143,157,178,185,228,230,281	10	88.05
17.	**Loonol**			

					202/959,96/972,14/922,133,134,157,159,164,368,402,416,550,560,604,612,613,682,736,757,798,842,855,866,870/883,873	25	50.57
			18.	**Makawal**			
					28,29,55,61,64,69,73,124,137,166,169,172,189,190,195,446,447,449,483,518,520,541,559,578,623,635,642,684,690,695,717,718,739,794,798,809,816,830,33,566/876,689,687,795	41	255.17
			19.	**Malawa**			
					412, 414	3	59.41
			20.	**Maalgaon**			
					1,18,192,193,196,98/1,295,295/484,297,299,302,304,695,699,711,743	16	334.32
			21.	**Marol**			
					9,10/1094,53,53/196,53/197,289,373,374,10,2,187,267,348,370,387,397,398,414,418,440,447,515,519,573,586,628,640,643,645,646,653,660,769,781,784,904,915,996,1000,1003,1004,1032,1034,1057	45	649.171
			22.	**Meetan**			
					267,340,11,81,96,116,119,132,201,210,242,246,248,266	14	132.22
			23.	**Nimbora**			
					1,1/531	2	182.21
			24.	**Padroo Khera**			
					1,5,8,55,59,60,78,87,89,90,92,94	12	75.78
			25.	**Peepaliya**			
					5,39,53,67,69,82,86,92,94,95,98,103,108,110,118,179,194,199,200,210,214,215,218,77	24	83.28
			26.	**Rajgarh**			
					84/268,262,35,35/267,36,38,40,50	8	39.3
			27.	**Rampura**			
					1,3,10,26,27,42,58,61,66,67,75,121,123,40/306,70/309,87/318	16	307.42
			28.	**Reodar**			
					237,377,124,229,232,331,366,407,471,502,556,562,570,632,634,638,647,660,708,710,775,778,801/1262,900,940,1203/1263,303	27	321.21
			29.	**Selwada**			
					406,407,409,10,411,567,1082,408,4,5,8,10,16,17,35,46,56/1280,57,65,68,71,77,79,83/1523,84,85/1236,88,94,95/1447,96,123,138,141,143,151,173,174,186,188,216,248,256,257,259,265,271,273,276,282,284,292,306,326,327,328/1439,330/1422,333,343/1301,348,350,403/1359,403/1380,404,416,445,447,531,532,533,534,535,598,756,758,772,777,782,804,809,814,817,835,839,847,858,860,864,866,868,877,886,892,895,897,900,929,933,943,955,958,975,983,993,997,1016,1025,1032,1040,1049,1050,1083,1087,1089,1090,1091,1092,1094,1097,1098,1110,1113,1129	122	586.2
			30.	**Thal**			
					14,16,28,30,34,43,45,56,58,558,578,579,597,602,640,869,917/1008,240,363,373,384,384/1007,869,999	22	86.04
			31.	**Vikanwas**			
					66, 81,101, 115, 109, 419,	12	390.34

				421, 422, 423, 424, 425, 501		
		32.	**Wasan**			
				632,4, 6, 9, 10, 11, 14, 15, 20, 23, 26, 31, 37, 63, 98, 102, 105, 106, 109, 117, 119, 121, 123, 201, 207, 216, 231, 233, 235, 236, 237, 239, 241, 246, 248, 250, 257, 278, 283, 295, 312, 316, 398, 418, 423, 428, 432, 441, 443, 451, 461, 463, 467, 496, 501, 518, 525, 603, 634, 635, 665, 717, 736, 739, 771, 801, 817, 825, 828, 843, 845, 847, 851, 853, 870, 923, 946, 957, 966, 1045, 1047, 1060, 1065, 1068, 1073, 1083, 1101, 1107, 1117, 1123, 1129, 472/1234, 7, 703/1244, 720/1247	95	416.64
		Total	**Village=32**		**844**	**Area = 1286Ha**
D.	**Land Details**					
	Gair Mumkin Nadi(Govt. land)	1286 Ha.				
	Agriculture land	Nil				
	Forest Land	Nil				
E.	**Mining Details**					
	Stripping Ratio (Mineral in tonne : OB in cubic meter)	Nil				
	Method of Mining	Open cast semi - mechanized				
	Operational days/year	330 days				
	Source of water	Purchasing water from of nearby villages				
	Total water requirement	16 KLD				
	Man power requirement	53 Persons				
	Maximum and Minimum R.L of lease area	River Sipu -264 mRL to 205 mRL River Sukri is 279 mRL to 248 mRL.				
F.	**Project Site vicinity Details**					
	Nearest Industry	Nil				
	Nearest Highway	1. SH 11 from Abu Road to Sildar is passes through the lease area near village Loonol. 2. SH 27 also passes through the lease near village Loonol.				
	Nearest Railway Station	Abu Road Railway Station is 25 km in SE Direction.				
	Nearest Village	Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan				
	Nearest City/Town	Nearest town is Reodar is 1.0 km in East direction from Sill Nadi.				
	Nearest Air Port	Dabok Air Port Udaipur is 123 km in East from lease area				
G.	**Environment Setting(Within 10Km Radius)**					
	Ecological Sensitive Areas (Wild life Sanctuaries, National Parks, Biosphere Reserves, Reserve/ Protected Forest etc.)	Mount Abu Wildlife Sanctuary at a distance of 7.1km in East of Sipu River.				

	Nearest Forest	1. Balda Bir Reserve forest at a distance of 8.3km in NE direction from Dior River. 2. Maila God Reserve forest at a distance of 5.0km in East direction from Sipu Nadi.
	Historical places/ Heritage	There is no Heritage within 10 km radius.
	Surface water body	Tokara Dam is located about 500 meters East of Lease area.
	Topography	Almost flat with gently sloping
	Seismic Zone	Seismic Zone-III

2.5.2 MINING TECHONOLOGY

River bed mining is proposed for extracting sand from riverbed of river Sipu & Sukli River. As per RMMC Rules 1986(amendment 2012), extraction is limited to 3.0 m depth only from the surface area. River bed remains dry for most period of the year except for rainy season and one or two months thereafter during which the mining activity is stalled or shall be carried out from such wider stretches of river section which do not have the flowing water section. The collective stretch of the lease area for river has been sub-divided in to seven blocks for ease of operation, supervision, management and safety. Dry riverbed mining will be carried out as per the approved production schedule. Light weight excavators will be deployed for extraction in 3.0 m layer only forming one bench. This is as per the digging depth of the equipment. Mineral will be loaded in tippers/trucks (20 tonne). The mining machinery and equipment and transportation vehicles will be on hire/rental basis. Every block will be considered as a unit and will be provided with all facilities like rest shelter, first aid facilities, drinking water arrangement. 3m high bench will advance parallel to the bank of the river in available varying width after secluding 10m wide bank offsets. Mine working will be restricted within the lease area. However, movement of trucks after mineral loading will be towards both sides through approach roads connecting to metalled link road either to NH and SH; SH- 11 and SH-27 for destination.Every block will have its own approach roads from riverbed connecting to the nearest DR/ SH.

2.5.3 METHOD OF MINING

River Sand Mining

Mining is proposed by semi-mechanized open-cast method. Mining will be done in scientific manner with proper taken care of environment & surroundings.

Salient Points on Scientific mining of River Sand (Bajri) are:

1. Mining will be carried out only in one bench formation of maximum 3 mtr height and formation of haul roads will be within pits and joined to nearest approach roads. Bench height will not be more than 3mtr at any site.
2. Mineral will be directly filled into tippers, trolleys and trucks.
3. Mining will be carried under supervision of competent person not less than second class mines manager certificate of competency holder.
4. 7.5 mtr un-worked buffers will be maintained along the river bank boundary (riparian zone) and vegetation growth generated on meandering boundary to protect further erosion during flooding of water in the River during monsoon.
5. There will be 45mtr unworked zone where any bridges & Anicuts and any other permanent structure as per RMMCR, 1986, Second Amendment 2012.
6. No drilling and blasting will be carried for mining of mineral river sand (Bajri) as the mineral is loose in nature. Mining will be carried by Poclain–Dumper combination as shown in**Figure 2.2**

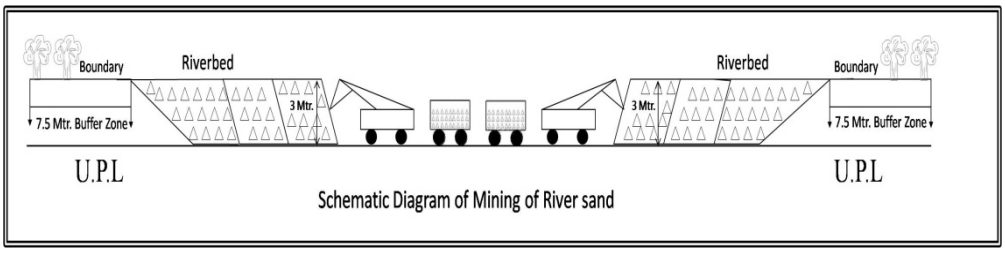


Figure 2-2 Schematic Diagram of River Sand (Bajri) Mining

2.5.4 Graph Showing River Gradient

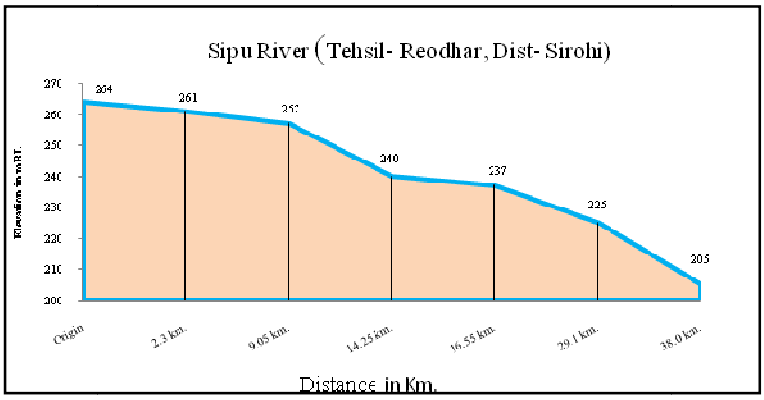


Figure 2-3 Graphs Showing Gradient of Sipu River

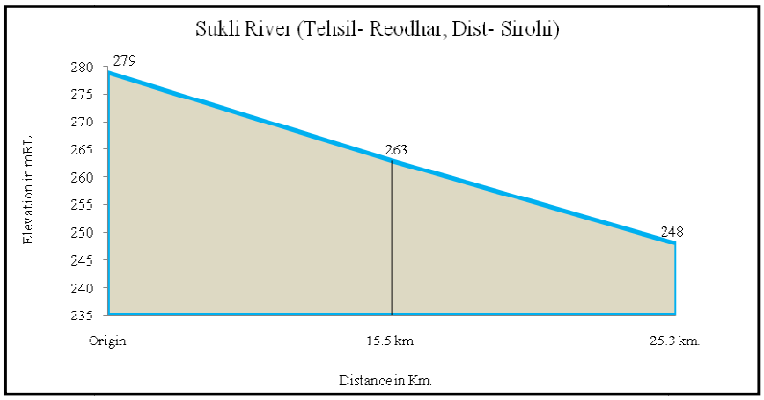


Figure 2-4 Graphs Showing Gradient of Sukri River

2.5.5 Production Schedule:

Production schedule during 1st to 5 year is shown as below. The production from Ist to Vth year will be @ 28.05 Lac TPA.

Table 2-3Proposed Production details of River Sand (Bajri)

Years	Proposed Production in Tons
First	28.05 Lac Tons
Second	28.05 Lac Tons
Third	28.05 Lac Tons
Fourth	28.05 Lac Tons
Fifth	28.05 Lac Tons
Total	**140.25 Lac Tons**

2.5.6 Details of Mining Activities with Respect to Block wise, Calendar wise, Zonal wise

The mining lease area has been conceived by considering the Tehsil, drained by river Sipu Nadi and Sukri Nadi are ephemeral rivers as one unit. Thus the mining project is unlike a compact polygonal shaped mining area with normal dimensions, having smaller ratio of length and breadth/width, where the mining activities can be implemented with easy control. The current project has vast linear length along river Sipu Nadi and Sukri Nadi as compared to the width of mining. The project is thus necessarily a linear project and so the principle of working from piecemeal to the whole has been adopted in context of its planning and implementation. For facilitating easy operation, supervision and safety, the lease area along river in the concerned Tehsil has been sub divided into seven blocks. In each block the mining shall be carried every year to maintain universal slope by deploying light weight excavators

for digging upto 3m bench height, wherever feasible, and with 20m width, the benches will advance parallel to the bank of the river by maintaining stipulated offsets from both banks. The blocks will be worked systematically at the places of dry riverbed and away from the flow section. The mine developmental plan is shown in the approved mining plan.

2.5.7 Details of Excavation Schedule and Sequential Mining Plan

The year-wise and block wise excavation mining scheduled for 5 years lease period is shown in Table 2.3.It is evident from Table 2.3 that the annually 28.05 lakh metric tons/year shall be mined out from the total lease area (1286 ha). The sequential mining/ block wise mining is shown in following table.

Table 2-4Block – wise yearly production for five years (lakh metric tonne)

S.No.	Year	Dangrali, Peepaliya, Rajgarh **(Block-I)**	Selwada, Hathal, Gulab Ganj Karoti,, Malgaon **(Block-II)**	Meetan, Nimbora, Loonol, Chhapol, Jeerawal **(Block-III)**	Awada, Marol, Padroo Khera, Bootri **(Block-IV)**	Vikanwas, Reodar, Thal, Derol, Malawa, Bhamra **(Block-V)**	Kareli, Wasan, Leelora, Makawal **(Block-VI)**	Jamtha, Jawal,Juandara, Gundwara, Rampura **(Block-VII)**	**Total**
1	I	6.0	6.05	4.0	3.0	4.0	2.0	3.0	**28.05**
2	II	4.0	3.0	4.0	6.0	6.05	3.0	2.0	**28.05**
3	III	6.0	6.0	4.0	3.05	4.0	2.0	3.0	**28.05**
4	IV	4.0	2.0	3.0	6.0	6.0	4.05	3.0	**28.05**
5	V	6.0	6.0	4.05	3.0	4.0	2.0	3.0	**28.05**
Total		**26.0**	**23.05**	**19.05**	**21.05**	**24.05**	**13.05**	**14.0**	**140.25**

2.5.8 Extent of Mechanization

Various equipments to be used are proposed ahead.

Table 2-5 Proposed Mechanization at Mine Site

Type	Nos.	Size / Capacity	Motive Power
Back Hoe Excavator	8	Bucket capacity (2.5 cum)	Diesel
Front End Loaders	2	-	Diesel
Water Sprinklers	2	4000Ltr Capacity	Diesel
Jeep	1	For Supervision	Diesel
Road Grader/Compactor	1	For compactness of Haul roads	Diesel
Van cum Ambulance	1	For emergency services	Diesel
Mobile Store Room with necessary tools	1	For maintenance of machinery at site	Diesel
Tippers/Trucks/Dumpers	-	20 Tonne	Diesel

2.5.9 Human Resource

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

Table 2-6 Staff Details of Mine Site

S.No.	Designation	Qualification	Requirement
1	Mines Manager	Second or First Class Certificate of Competency holder	1
2	Mine Foreman	Foreman Certificate of Competency	1
3	Mine Mate	Mate certificate holder	2
4	Time Keeper & Chowkidar	Matriculate	2
5	other supervisory staff	Literate	4
6	Skilled labours	To operate the machineries (Poclain machine)	8
7	Unskilled labour	For loading & unloading material	15
8	Labours	For maintenance of road, afforestation, Potable water arrangement and miscellaneous works	10
	Total		**53**

For desired annual production of sand, desired excavation will have to be mined out daily. Total persons per day will work around 53 persons. Labours deployment will be given priority for nearby villagers.

2.6 Conceptual Mining Plan

Mining will be started at various points within the river channel confined to lease area @ 28,05,000 Tons per annum. Lease will be worked for five year period for 3 mtr working depth as it is prescribed for mining. Since river sand is replenished in every rainy season hence the life of mine is unlimited and cannot be ascertained.

Afforestation along 7.5 mtr buffer zone River boundary of lease will be carried out in Phased manner with local species in the Govt. land only as riparian vegetation so that erosion of slopes of boundary is protected during monsoon season and environment is protected.Lease is granted for Five year period so that progressive Plantation along river bank and haul roads in buffer zone will be carried out.

Blasting: River sand is in loose form so there is no requirement of Blasting.

Mine Drainage:

The ground water in this area gets intersected at a depth of more than 10-15 mtr below ground level in riverbed and more than 20-25 m in surrounding agricultural fields as seen during field survey. No Mining work will be carried out below the water Table. As such there shall be no need for any pumping operations. No water problem is envisaged during the five years working of lease period.

Table 2-7 Land: Stage Wise Land use Operational and Post Operational Reclamation Area (Ha.)

S.No.	Particular	Present	End of 5 Year
1.	Area excavated	3.5	299 Ha.
2.	Storage of Top Soil	Nil	Nil
3.	Overburden/ Dump	Nil	Nil
4.	Mineral Storage	Nil	Nil
5.	Infrastructure (Workshop, administration building etc)	Nil	Nil
6.	Roads	4.5 Ha.	4.5 Ha.
7.	Railways	Nil	Nil
8.	Green Belt	-	12.5 Ha
9.	Tailing Pond	Nil	Nil
10.	Effluent Treatment Plant	Nil	Nil
11.	Mineral Separation Plant	Nil	Nil
12.	Township Area	Nil	Nil
13.	Undisturbed land	1278	970
Total land		**1286**	**1286**

(Source: Approved Mining Plan)

2.6.1 Nature of Waste

No waste generated at mine site, except some gravelly stone met during mining. No waste dump is proposed at mine site at end of life of mine so no impact is anticipated. The entire mined out mineral is directly marketable.

2.7 GEOLOGY

2.7.1 Regional Geology

Geologically, Sirohi district comprises of meta sediments of Ajabgarh Group of Delhi Super Group namely, Phyllite, Schist, Gneisses, Marble and Amphibolite carrying post-Delhi intrusives and extrusives such as Erinpura granite, Jalor Granite, Malani Rhyolite, Dolerite and Basalt which in turn over lane by sand and alluvium of recent to sub recent age.

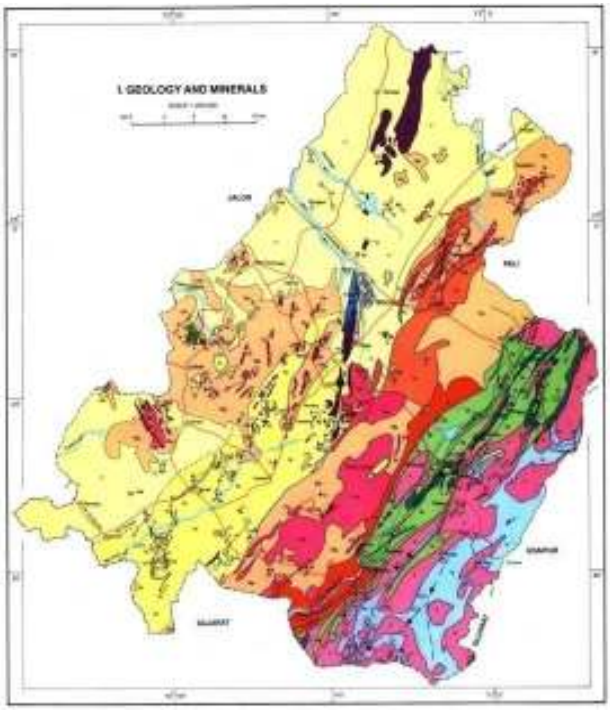


Figure 2-5 Geological map of Sirohi District, Rajasthan

A generalized stratigraphic succession of Sirohi District after GSI is enumerated here under:

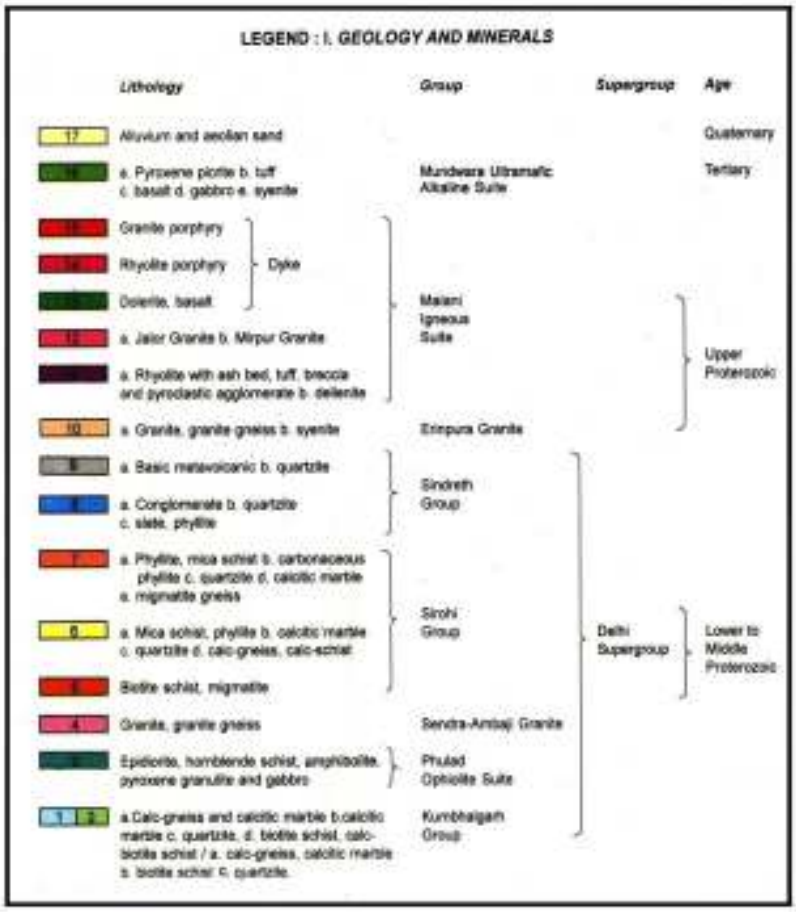


Figure 2-6 Geology and Minerals

Age	Lithology
Recent To Sub Recent	Sand, Alluvium etc.

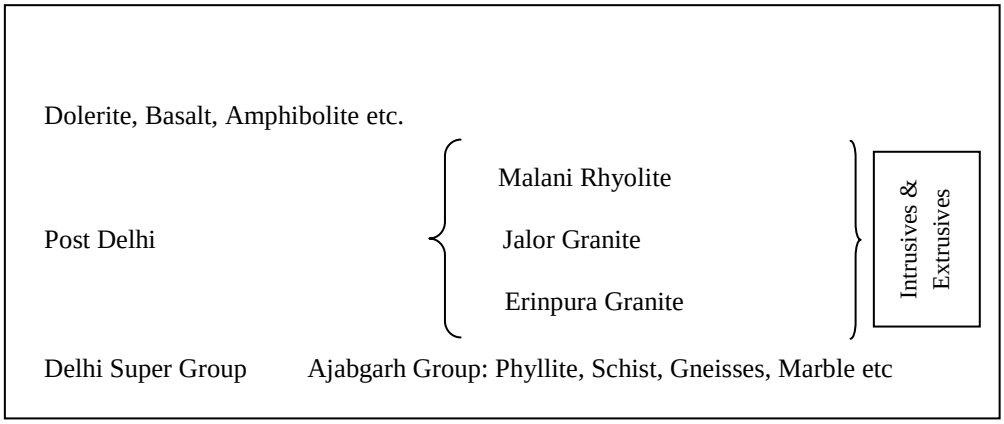


Figure 2-7 Stratigrapic Succession of Sirohi District, Rajasthan

2.7.2 Local Geology

The river and surrounding area is by and large undulating plain covered under soil and Alluvium of Recent to Sub-recent age, obscuring the subsurface geology of the area However in the surrounding area of river, few isolated hillocks are revealed which comprises of Limestone of Delhi Super group intruded by Granite of Post Delhi Age.

Seismicity

In view point of seismicity, Tehsil Reodar lies in a moderate damage risk zone. In the seismic zoning map of India, the district comes in a Zone-III (Moderate Risk Zone) depicted in Fig. 2.8. No significant earthquakes originated in past history in the district.

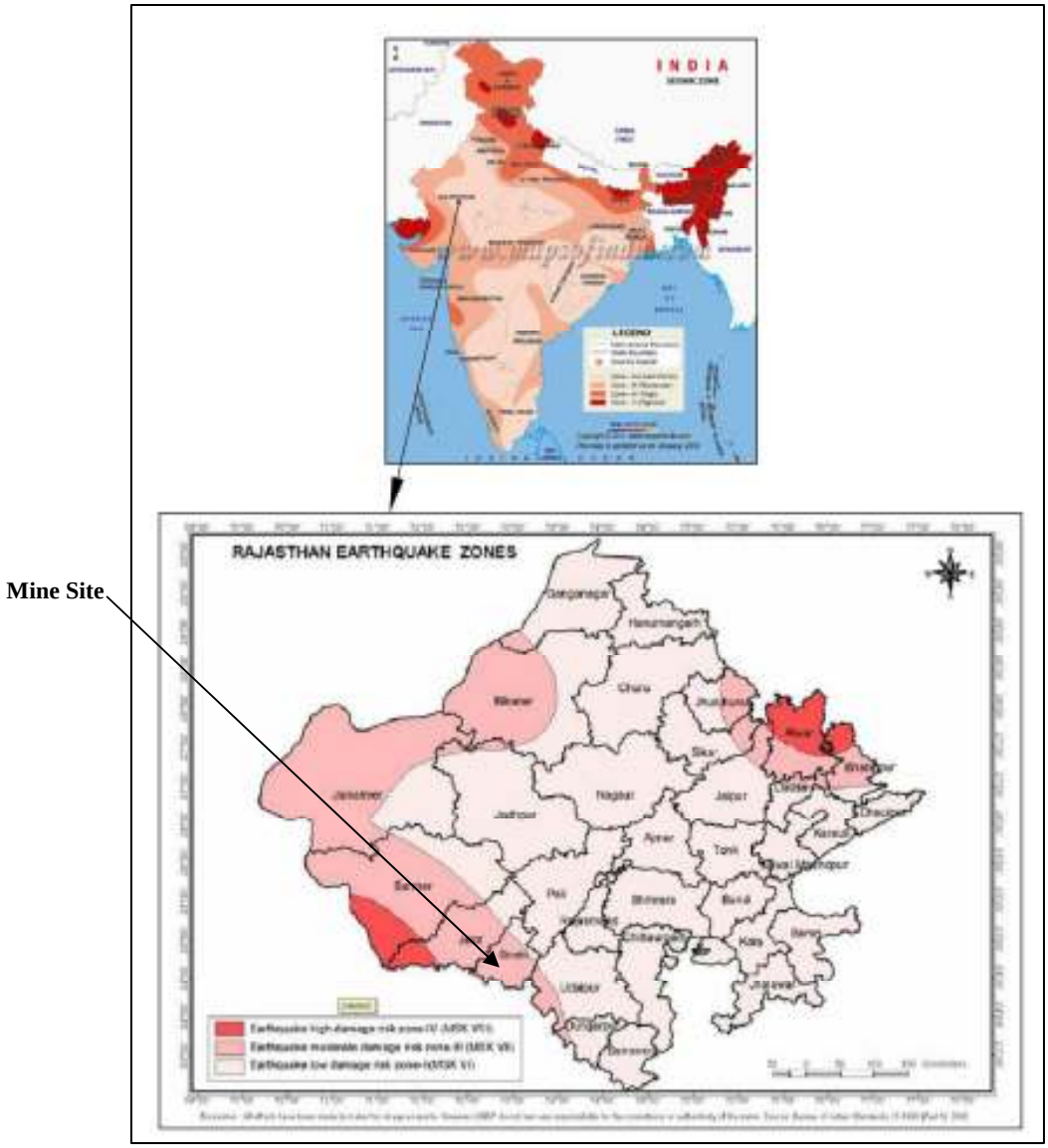


Figure 2-8 Seismic Zoning Map of India & Rajasthan Shown Mine Site

2.8 GEOLOGICAL RESERVES

2.8.1 Exploration carried out in the area

Mineral has been taken at 3m depth (proved) as per existing pits in lease area. Hence no exploration is needed in this case.

2.8.2 Estimation of Geological Reserves

Reserves have been computed by Plan area method:-

Length x Average width) x Depth x Bulk density

Parameters considered:

Depth of Mineral=3mtr,

Bulk Density (B.D.) =1.56

Hence, the mineable reserves are computed for one category proved only & recovery from ROM mineral is considered 100%. No sub grade will be generated during the course of mining.

Geological Reserves of River Sand

Proved Geological Reserves of River sand are 59467157.57 Tonne.

MINEABLE RESERVES

Mineable reserves of river sand

Rajasthan Government vide its circulars and Notification and amendment in Rajasthan minor mineral concession rules vide order Government of Rajasthan Mines (Gr. II) Department No. F-14(1) Mines/ Gr.II/2011 Jaipur Dated 23-05-2012 isssued permission for bajri mining upto 3 mtr depth from Surface level of River bed. It was Gazette notified by MINES (Gr.II) Department Notification; Jaipur dated June 21, 2012.

Mineral is well exposed on surface as well as depth upto 3 mtr. in existing pits hence mineable reserves are considered as proved category reserves for 3 mtr. from surface level. Proved Mineable Reserves of River Sand are= Geological reserves x 80%= 59467157.57x 80% = **47573726** Tons.

2.9 LIFE OF MINE

In the proposed project of river sand mining, mining would be carried out @ 28.05 Lac TPA. Life of mine @ 28.05 Lac TPA is around 17 years as per reserves but due to replenishment of river, life cannot be ascertained.

2.10 TRANSPORT FROM MINE HEAD TO THE DESTINATION

From the working face, River sand (Bajri) will be transported by trucks/dumpers to customer's destination.

2.10.1 Site Services

Infrastructure facilities such as temporary office building of Tin Shed, first aid center, rest shelter, mobile workshop are proposed for working in the area.

2.10.2 Proposed Infrastructure

A. Industrial Area (Processing Area)

An office-cum-store will be made available near the mine site.

B. Resident Area (Non Processing Area)

No residential area is proposed. All the workers will come from nearby villages by their own conveyance.

C. Green Belt

To improve the environment of the area plantation is proposed along the river side (Riparian zone) of 7.5 m buffer zone (as and when available), erosion prone zone and other unworked area such as schools, Panchayat Bhawan & govt. land with consultation of Gram Panchayats.

D. Drinking Water Management (Source & supply of water)

Drinking water requirement of 2.0 KLD will be met from nearby villages.

Table 2-8 Water Requirement

S.No.	Activities	Average Demand (m^3/day)
1.	Mine a. Drilling and Spraying b. Dust Suppression c. Equipment/Vehicle washing d. Pit head bath e. Drinking water at mine site	- 9.0 - - 2.0
2.	Township Drinking	-
3.	Crushing / Screening Dust Suppression a. Road b. Ore Stack	- -
4.	Greenbelt	5.0
5.	Ore Beneficiation (if any)	-

E. Sewerage System

No sewerage will be generated from the project area. Mobile toilet and lavatories will be made available near mine site.

F. Industrial Waste Management

No Industrial waste will be generated from the project.

G. Solid waste Management

No waste will be generated from this mine. All the material will be directly saleable.

H. Power Requirement

Nearby village's area is well electrified. At mine site, diesel operated mine machineries will be used.

2.10.3 Grade and Uses

The River sand found in the river bed has been found very useful for medium to high quality construction work. The granular coarse grained variety is suitable for concrete work. The size of the sediments varies from 1 MM to about 3 MM and is not uniform. The grains in all sizes, small or large are rounded in shape. The color of sand is grayish. These deposits are of good quality and can be used for building industries.

2.11 POWER, WATER SUPPLY & OTHER INFRASTRUCTURE REQUIREMENT

Total water requirement in the mine will be about 16.0 KLD for drinking & domestic use, dust suppression and plantation. Drinking water will be brought by water tanker from nearby villages. Diesel is used as motive source of primary energy for mine machinery. Diesel will be used in compressor, JCB, dumpers and tractors. About 1400 liter per day is assumed to be consumed. Diesel will be outsourced from nearby diesel pumps. Nearby villages is well electrified.

CHAPTER-3 DESCRIPTION OF ENVIRONMENT

3.1 GENERAL

Baseline data generation forms a part of the Environmental Impact Assessment study, which helps to evaluate the predicted impacts on the various environmental attributes in the study area (Core and Buffer Zone) by using scientifically developed and widely accepted environmental impact assessment methodologies. This also helps in preparing an Environmental Management Plan (EMP) outlining the measures for improving the environmental quality and scope of future expansions for environmentally sustainable development. Baseline environmental study also helps to identify the critical environmental attributes, which are required to be monitored after the implementation of project. Baseline data of environment is important to understand region's existing physical, biological, cultural and social environmental characteristics. This chapter describes the existing environmental conditions of the study area, which covers the mining lease area (core zone) and an area falling within distance of 10 km from the boundary of the core zone, also known as buffer zone. The baseline study for environmental attributes has been carried out in core zone and buffer zone, collectively known as study area. The methodology for establishing baseline environmental scenario has been briefly described and details of data generation/collection; analysis and interpretation are presented in the respective sections of this chapter. The main objectives of EIA/EMP studies of River sand mining project are as:

- To establish the existing environmental scenario (Air, Water, Soil, Noise, Flora & Fauna of study area (Core and Buffer Zone of 10km radii).
- To identify the impacts by proposed project of river sand mining operations on environment.
- To suggest mitigative measures to minimize adverse impacts and to maximize beneficial impacts.
- To suggest an environmental monitoring to evaluate the effectiveness of mitigative measures.
- To prepare a detailed environmental management plan with capital and annual recurring cost estimate for successful implementation of mitigation measures as suggested in EIA/EMP report.

This chapter illustrates the description of the existing environmental status of the study area with reference to the prominent environmental attributes. The existing environmental setting is considered to be adjudge the baseline conditions which are described with respect to climate, hydro-geological aspects, atmospheric conditions, water quality, soil quality, vegetation pattern, ecology, socio-economic profile, land use, etc. The environmental monitoring includes meteorological parameters, ambient air quality, water quality, soil quality, noise measurement, flora and fauna of the study area (Core Zone and Buffer Zone of project site). The present report incorporates the data generated for a period of three months *i.e.* during the period of December-2013, January-2014 & February-2014 and secondary data collected from various government, semi-government and public sector organizations as well as from other studies available on the subject.

3.2 LAND ENVIRONMENT

3.2.1 Land-Use

Land is the vital resource for sustenance of life and degradation of land due to industrialization, urbanization and population growth is a matter of concern. Therefore, it is necessary to establish the existing land use pattern to optimize the land use as well as minimize degradation due to the developmental activities. The basic idea of land use classification for the purpose of EIA study is to define the distribution of the existing land according to its actual use. The land use pattern indicates the manner in which different parts of land in the study area is being utilized or un-utilized. It is an important indicator of environmental health and human activity and a degree of inter-play between these two. Even though the soil quality, water availability and climatic conditions have strong influence on agriculture and vegetation, the human activity may alter the natural environment to a large extent to suit human needs. In mining project, land plays a crucial role. Unplanned development of land often triggers rapid environmental deterioration and disturbs ecological balance *i.e.* flora & fauna).

3.2.2 Land Use-Core Zone

The core zone is devoid of top soil. The area is dominated by sand (Bajri). The lease area is 1286 Ha. The area forms a part of GT Sheet No. 45 D/6, 45 D/10.

Topographically, the area is almost flat with gentle slope. The breakup of lease area is given below as follows:

Table 3-1 Land Status of Lease Area

Type of Land	Gair Mumkin Nadi, Nalla
Area in (Ha.)	1286 Ha.
Near Village	Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Wasan, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Thal, Selwada, Vikanwas
Tehsil	Reodar
District	Sirohi
State	Rajasthan

The details of existing and proposed land use pattern of mining lease area are given in Table 3.2. The land use pattern has been established based on Census records of 2011, Revenue land data.

Table 3-2 Conceptual Land Use-Core Zone

S.No.	Particular	Present	End of 5 Year
1.	Area excavated	3.5 Ha	299Ha.
2.	Storage of Top Soil	Nil	Nil
3.	Overburden/ Dump	Nil	Nil
4.	Mineral Storage	Nil	Nil
5.	Infrastructure (Workshop, administration building etc)	Nil	Nil
6.	Roads	4.5 Ha.	4.5 Ha.
7.	Railways	Nil	Nil
8.	Green Belt	-	12.5 Ha
9.	Tailing Pond	Nil	Nil
10.	Effluent Treatment Plant	Nil	Nil
11.	Mineral Separation Plant	Nil	Nil
12.	Township Area	Nil	Nil
13.	Undisturbed land	1278	970
Total land		**1286**	**1286**

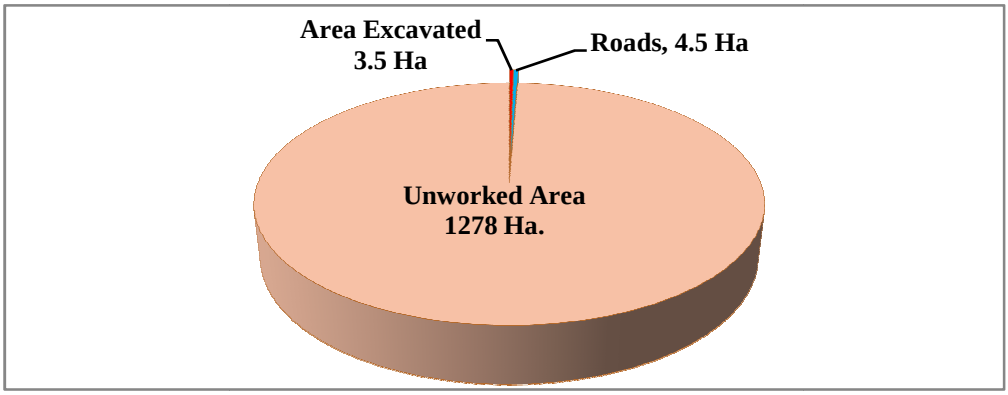


Figure 3-1 Showing Existing Land Use

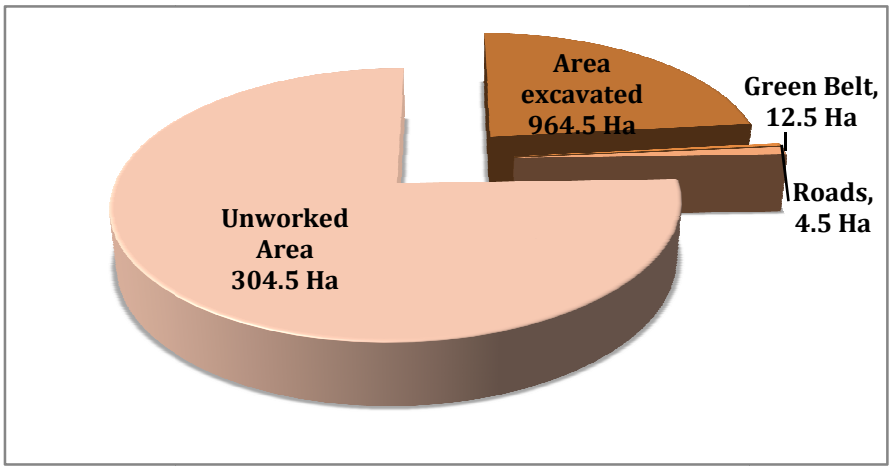


Figure 3-2 Showing Land Use - After Five Years

Table 3-3 Land-Use/Land Cover Map of 10 Km Radius Study Area

S.No.	Class Name	Total Area (Ha.)	% of Area
1	Water Bodies	3064.11	2.52
2	Open Mixed Jingal	13401.28	11.01
3	Stony Area	2015.79	1.66
4	Open Scrub Land	18186.56	14.94
	Forest Land	6262.87	5.15
5	Plantation/Vegetation	3703.49	3.04
6	Fallow Land	37748.65	31.02
7	Crop Land	35483.50	29.15
8	Human Settlement	1536.91	1.26
	Mine Quarry	303.74	0.25
Total		**121706.68**	**100.00**

From the above table & figures, it is clear that the minimum part of the area is already broken for various mining activities leaving maximum portion. The objectives of the present study are:

- To map the study area with respect to various land use/land cover categories.
- To identify the sensitive areas within 10 km radius around the project site.

3.2.3 Physiography & Soils

The large part of the district Sirohi is a vast semi desert plain, marked by isolated hills and chain of hillocks forming the eastern and south western part of the district Aravalli hill ranges expands in the East. Abu- Sirohi ranges divides the district into two parts. In the western portion, scattered hills are available in each in Reodar tehsil.

Detached hills of the Aravalli range are situated in the south east of the district; Mount Abu is situated at about 1219metre above sea level. Another important plateau is Oriya in Abu Road tehsil and lies below the main peak of Guru Shikhar which is 1722 meter above the mean sea level.

3.2.4 Selection of Sampling Locations for Soil

Six soil sampling locations were identified based on the local distribution of vegetation and the agricultural practices.

3.2.5 Methodology

The soil samples were collected from the study area. The samples collected from all location are homogeneous representative of each location. It was uniformly mixed before homogenizing the soil samples. The samples were filled in polythene bags, labeled in the field with number and site name and sent to laboratory for physico-chemical analysis.

3.2.6 Soil Quality Characteristics of Study Area

Soil quality characteristics of the study area have been established through monthly sampling and analysis of the following parameters:

Physical Parameters: Color, Texture (Sand, Silt & Clay), Bulk density & Porosity etc.

Chemical Parameters: pH, Electrical Conductivity, Organic matter, Chloride, Calcium (Ca), Magnesium (Mg), Chloride (Cl^-), Sodium (Na), Potash (K_2O), Available Nitrogen (N) and Available Phosphorus (P_2O_5).

Sampling locations were selected to know the physico-chemical characteristics of the soil in the core zone and buffer zone of the study area.

Table 3-4 Soil Sampling Locations of the Study Area

Station code	Sampling Station	Distance&Direction
S1	Sipu River	-
S2	Sirohi	1.5 km, North East
S3	Mandar	3.5 km, South West
S4	Bhamera	1.0 km, North East
S5	Kapasiya	3.0 km, South
S6	Thal	0.5 km, South East

Soil Sampling Locations:

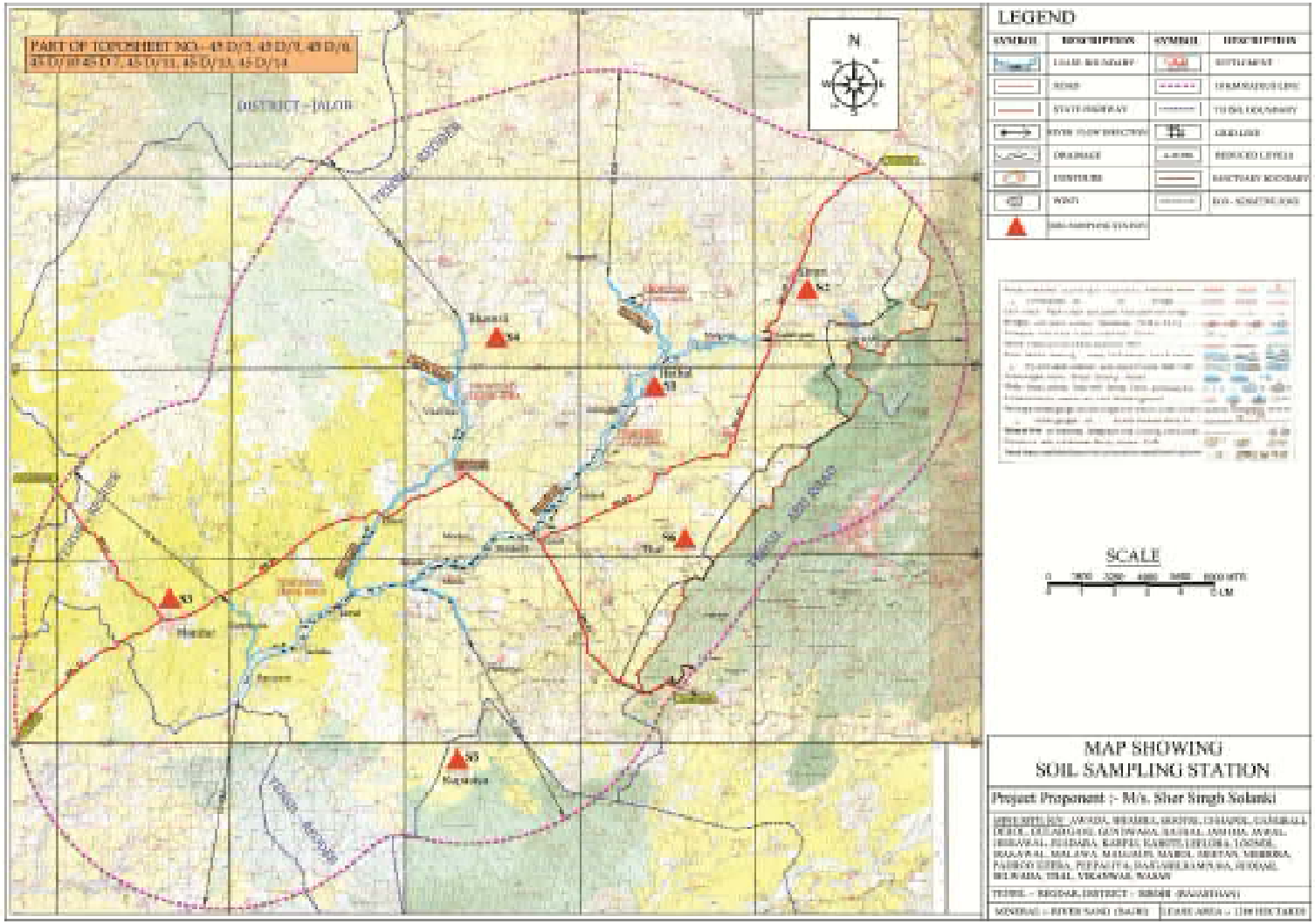


Figure 3-3 Soil Sampling Locations

Table 3-5 Results of Soil Sample

S.No.	Parameter	LOCATION				
		Sipu River	Sirohi	Mandar	Bhamera	Kapasiya
		(S1)	(S2)	(S3)	(S4)	(S5)
1.	pH	8.5	8.0	7.8	7.6	8.1
2.	Conductivity (µS/cm)	50.0	64.0	46.0	17.0	80.0
3.	Bulk density (gm/cc)	1.79	1.39	1.53	1.37	1.48
4.	Spe. Gravity (gm/cc)	2.61	2.34	2.57	2.39	2.67
5.	Porosity (%)	31.4	40.7	39.8	42.5	44.2
6.	Calcium (mg/kg)	18.2	44.1	27.7	12.02	43.6
7.	Magnesium (mg/kg)	10.1	20.0	16.8	7.2	24.0
8.	Sodium (mg/kg)	1.3	11.2	16.2	4.7	6.7
9.	Ava. Potassium (mg/kg)	8.8	6.3	4.6	3.1	13.8
10.	Ava. Phosphorus (mg/kg)	0.1	1.2	1.3	1.4	1.8
11.	Ava. Nitrogen (mg/kg)	56.8	40.7	50.1	6.2	25.1
12.	Organic matter (%)	0.12	0.24	0.22	0.26	0.22
13.	Chloride (mg/kg)	22.4	17.5	35.0	12.6	21.6
14.	Texture	Sand	Sandy Clay Loam	Sand	Sandy loam	Sandy loam
15.	Sand (%)	94.5	63.9	91.5	84.5	63.9
16.	Silt (%)	3.2	11.0	1.6	6.9	19.5
17.	Clay (%)	2.2	25.0	6.7	8.4	11.1

3.2.7 Soil Characteristics in and around the Mining Lease Area

Physical Characteristics

Soil of the region is light brown to brown in color. Generally, soil of the area having varied between sandy loam, Sandy Clay Loam and sand in texture. The porosity of the soils varies from 31.4 % to 44.2 % among different sites of study. The bulk density of soils varies from 1.37 gm/cc. to 1.79 gm/cc.

Chemical Characteristics

The pH value of soil samples varies 7.6- 8.5 . The electrical conductivity of soil varied between17.0 µS/cm to 0.80 µS/cm among different sites of study. Maximum value of EC was recorded at S5 and minimum at S4. The content of chlorides in soil varies between 35.0 mg/kg (S3) to 12.6 mg/kg (S4).Calcium content of soils varies between 12.02 mg/kg to 44.1 mg/kg (S4 & S2), respectively. The magnesium content of soils varies between 7.2 mg/kg (S4) to 24.0 mg/kg (S5), respectively.

3.2.8 Fertility Status of Soils

The fertility of soil is dependent on its organic matter content, macro as well as micronutrients. Organic carbon plays a vital role in binding of all types of nutrients. Availability of these nutrients is determined by soil pH. During the study period, the value of organic matter varies 0.12 % to 0.26 % across different sites. Soil of the study area clearly depicts that the soil retains medium content of organic matter. The N, P and K value further tells the macronutrients status of the soils of the study area and availability among different site is low. The availability of micronutrients in soil is low. The results of analysis of soils are presented in table 3.5.

3.3 WATER ENVIRONMENT

Surface Water Scenario

Surface water resources are meager in the state. In the buffer zone, some of the seasonal surface water bodies located *i.e.* Devangan Nadi, Sili Nadi, Sipu River & Thandawara Nadi. All the above water bodies are seasonal in nature.

Ground Water Scenario

Ground water quality in Sirohi significantly influenced by semi-arid climate and hydro-geologically diversity-salinity, sodicity and fluoride are the major factors affecting the ground water quality. Ground water is the major source of irrigation in the district.

Geological Setup

Geologically, Sirohi district comprises of meta sediments of Ajabgarh Group of Delhi Super Group namely, Phyllite, Schist, Gneisses, Marble and Amphibolite carrying post-Delhi intrusives and extrusives such as Erinpura granite, Jalor Granite, Malani Rhyolite, Dolerite and Basalt which in turn over lane by sand and alluvium of recent to sub recent age.

Hydro-geology

Depth of ground water level varies from 10 to 30 meters. Parts of Reodar block is either critical or over exploited from ground water view point. Abu road block is semi critical from underground point of view. In other parts of the district situation in terms of ground water resources is safe and satisfactory. Important aquifers are alluvium occupying about 982 sq.km areas

in the district. Calk Schist and Gneiss covering 525sq.km area in Pindwara block. Phyllites and Schist covering 1543 sq.km area in Abu Road, Pindwara.

Methodology

Ground water and surface water samples were examined for physico-chemical parameters in order to assess the effect of mining and other activities on surface and groundwater. The samples were collected and analyzed as per the procedures specified in "Standard Methods for the Examination of Water and Waste Water" published by American Public Health Association (APHA) and protocols of Indian Standards (IS: 10500). Samples for physico-chemical analysis were collected in polyethylene carboys. The selected parameters of physico-chemical have been analyzed for projecting the existing quality of water and its status in the study area.

3.3.1 Water Quality Characteristics of Study Area (Surface and Ground water)

The water quality characteristics of the study area have been established through monthly sampling a.nd analysis of the following parameters:

Physical Characteristics: Color, Odour, Turbidity etc.

Chemical Characteristics: pH, Total Dissolved Solids (TDS), Electrical Conductivity (EC), Chlorides, Total Hardness, Calcium, Magnesium, Alkalinity, Nitrate, Phosphate, Fluoride and Sulphate (SO_4^{2-}) etc.

3.3.2 Water Sampling Locations

Six ground water samples were collected from Hand pump/tube wells which are commonly used for drinking purposes. These samples were taken as grab samples and were analyzed for various physico-chemical parameters and compared with the standards for drinking water as for IS: 10500. The water sampling locations are listed below in Table 3.6.

Table 3-6 Details of Surface and Ground Water Sampling Locations

Station Code	Location	Distance& Direction
GW 1	Hathal	0.5 km, West
GW 2	Kotra Khera	0.5 km, South
GW 3	Mandar	3.5 km, South West
GW 4	Mokawal	0.5 km, South
GW 5	Dhani	3.5 km, North West
GW 6	Tokara	0.5 km, East

Table 3-7 Details of Surface Water Sampling Locations

Station Code	Location	Distance& Direction
SW 1	Sipu River*	-
SW 2	Thandawara Nadi*	4.0 km, West
SW 3	Sili Nadi*	-
SW 4	Devangan Nadi*	3.5 km, South East

**** Denoted dried*** ***GW= Ground water, SW=Surface Water***

Location of Ground Water & Surface Water Sampling:

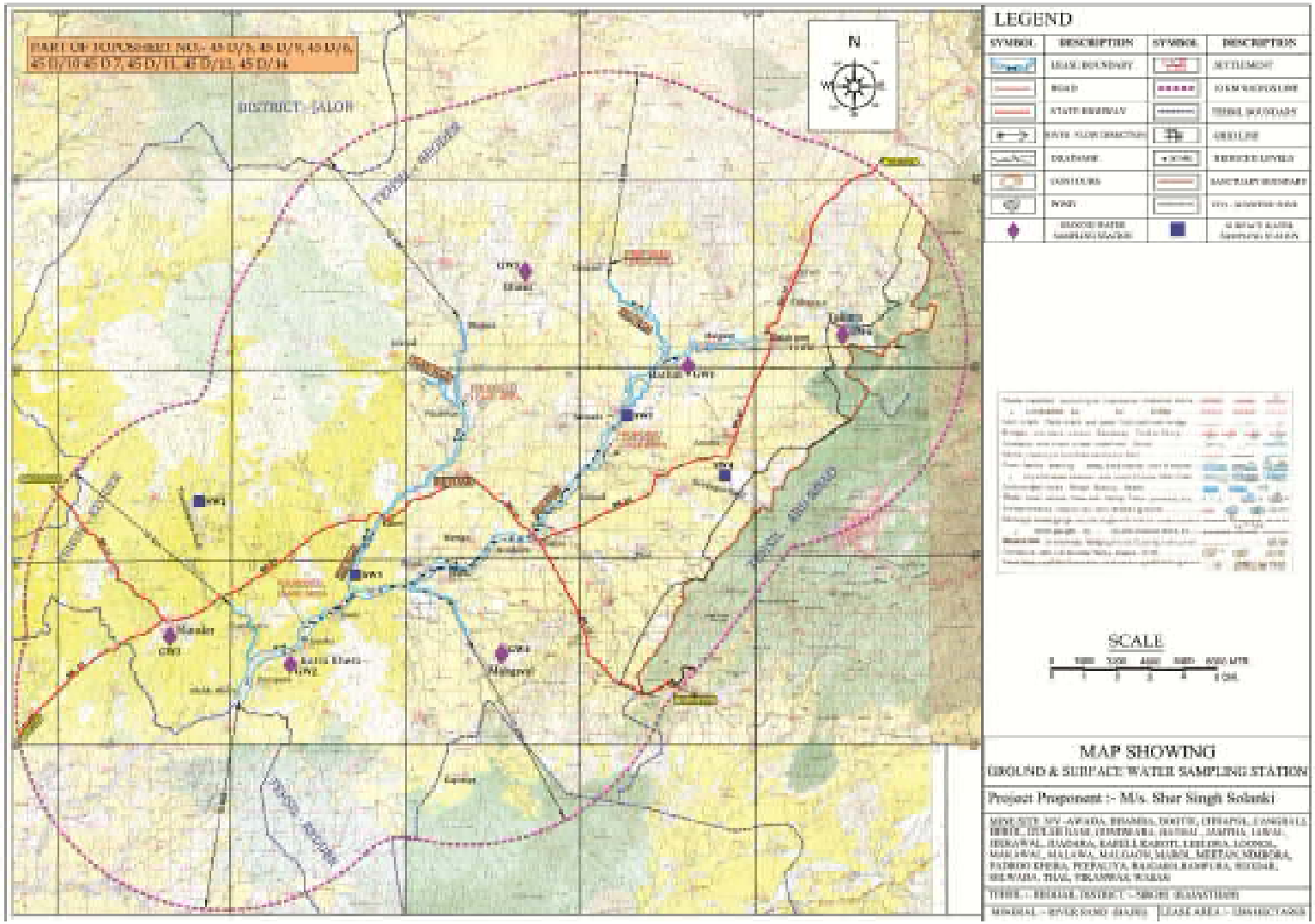


Figure 3-4Ground & surface water Sampling Locations

Table 3-8 Results of Ground & Surface Water

S.No.	Parameters	LOCATION OF GROUND WATER SAMPLING						
		Hathal GW1	Kotra Khera GW2	Mandar GW3	Mokawal GW4	Dhani GW5	Tokara GW6	Drinking water standards, IS:10500 ;2012 (Permissible Limits)
1	pH	8.2	8.0	8.2	7.8	8.2	8.2	6.5-8.5
2	Conductivity (µmhos/cm)	1767.6	1146.6	1056.6	1123.2	860.4	1200.6	-
3	Turbidity (NTU)	<1	<1	<1	<1	<1	<1	1
4	Temperature	23.6	23.0	22.9	23.4	22.7	24.0	-
5	Color (HAZEN)	<1	<1	<1	<1	<1	<1	5
6	Odour	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Agreeable
7	Total Dissolved Solids (mg/l)	982	637	587	624	478	667	500
8	Chloride (as Cl -) (mg/l)	242.6	204	164	148	130	212	250
9	Alkalinity (as CaCO3) (mg/l)	357	218.5	177.1	378.6	157.2	210.2	200
10	Total Hardness (as CaCO3) (mg/l)	428	430.4	281	390	296.3	442.7	200
11	Calcium (as Ca) (mg/l)	120.2	124.2	70.6	115	80.4	131.6	75
12	Magnesium (as Mg) (mg/l)	31.1	29.2	25.5	25.0	23.2	27.7	30
13	Sodium (as Na) (mg/l)	86.0	26.0	33.0	24.8	19.0	22.3	--
14	Potassium (mg/l)	2.7	2.3	5.9	1.8	6.1	2.7	--
15	Fluoride (as F) (mg/l)	2.0	1.3	1.4	1.2	1.2	1.8	1
16	Nitrate Nitrogen (as NO3-) (mg/l)	32.1	27.1	182.1	22.5	29.4	25.4	45
17	Sulphate (as SO42-) (mg/l)	70.5	52.2	25.6	11.4	62.4	53.8	200
18	Iron (mg/l)	<0.3	<0.3	<0.3	1.6	<0.3	<0.3	0.3

3.3.3 Results of Water Samples

The results of the water samples collected at ten from different sites are given in **Table 3.8.** The results for the water samples collected with the study area and compared with standard limits.

Ground water Quality

Six ground water samples were collected from different sites. pH of these water samples ranged between 7.8 to 8.2 shows normal to slightly alkaline and comes under permissible limits of standards prescribed by IS:10500 is (6.5-8.5). Odor is unobjectionable throughout all sampling stations. The content of total hardness of water samples shows variation among differentsites between 281 mg/l (GW3) to 442.7 mg/l (GW6).

The results of water samples clearly depicts that the values of total hardness in ground water were comparatively higher than surface water. The content of calcium in ground water varied between 70.6 mg/l (GW3) to 131.6 mg/l (GW6). Chloride values were higher in groundwater. Maximum value of chloride was 242.6 mg/l at site GW1 and minimum 130 mg/l at site GW5.

Maximum values of TDS 982 mg/l were found at GW1 and minimum 478 mg/l at GW5. The values of alkalinity ranged between 157.2 mg/l (GW5) to 378.6 mg/l (GW4). The contents of nitrate in ground water varied between 22.5 mg/l (GW4) to 182.1 mg/l (GW3). The content of iron was found 1.6 mg/l (GW4). The concentration of fluoride is higher than the permissible limits of standards for drinking water.

3.4 AIR ENVIRONMENT

3.4.1Meteorology

Meteorological factors such as wind speed, direction, ambient temperature, humidity etc. play an important role in dispersion and dilution of pollutants. Atmospheric pressure, rainfall and cloud cover also govern this activity. Other factors such as terrain and local topography also take part in atmospheric dispersion of pollutants. The study area is a part of semi arid climatic zone having hot summer, moderately cool winter and moderate monsoon during June to September. The meteorological data recorded during the monitoring

period is extremely important for interpretation of the baseline information as well as for input prediction models for air quality dispersion.

3.4.2 Climatology

The district has a dry climate with a hot season. Generally cold season starts from December and last till February followed by hot season continues up to middle of June, while the period from mid June to mid September is of the South West monsoon, next remaining period till winter is post monsoon. Maximum, minimum and mean temperatures recorded are 37° C, 6° C and 25.5° C respectively. The normal annual Rainfall is 681.6mm.

(i) Temperature:

The Maximum temperature of the area was recorded as 43.1 in May; whereas the minimum temperature of the area was recorded as 2.2 in January. Data of the maximum and minimum temperature are given below. Graphical representation of maximum & minimum temperature is given below:

Table 3-9; Maximum & minimum Temperature

Temperature (in ^{0}C)		
	Higest Maximium	**Lowest Mininmum**
January	29.1	2.2
February	32.6	3.7
March	37.9	8.9
April	41.2	14.2
May	43.1	19.7
June	42.2	21.7
July	36.1	22.2
August	33.7	21.2
September	35.7	18.4
October	36.0	12.4
November	32.9	7.4
December	29.3	3.1

(***Source***: ***Climatological Tables of India, 1971 - 2000***)

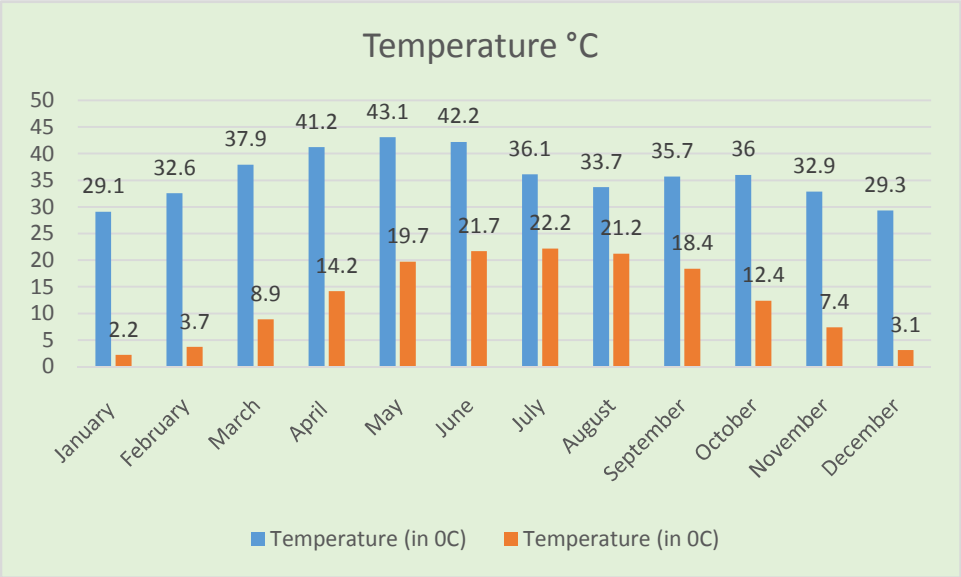


Fig 3- 5; Graphical representation of Minimum & Maximum Temperature

(ii) Relative Humidity

From the below data, the Maximum humidity was recorded as 84 % in August. Minimum relative humidity was recorded as 20 % in April. The humidity figures show that area is semi-arid. **Table-3-9**

Table 3-10; Maximum& minimum Humidity

Mean Relative Humidity (%)		
	Maximum	**Minimum**
January	69.0	34.0
February	58.0	27.0
March	43.0	21.0
April	35.0	20.0
May	42.0	25.0
June	63.0	44.0
July	80.0	68.0
August	84.0	73.0
September	76.0	59.0
October	62.0	37.0
November	63.0	37.0
December	69.0	38.0

(***Source***: ***Climatological Tables of India, 1971 - 2000***)

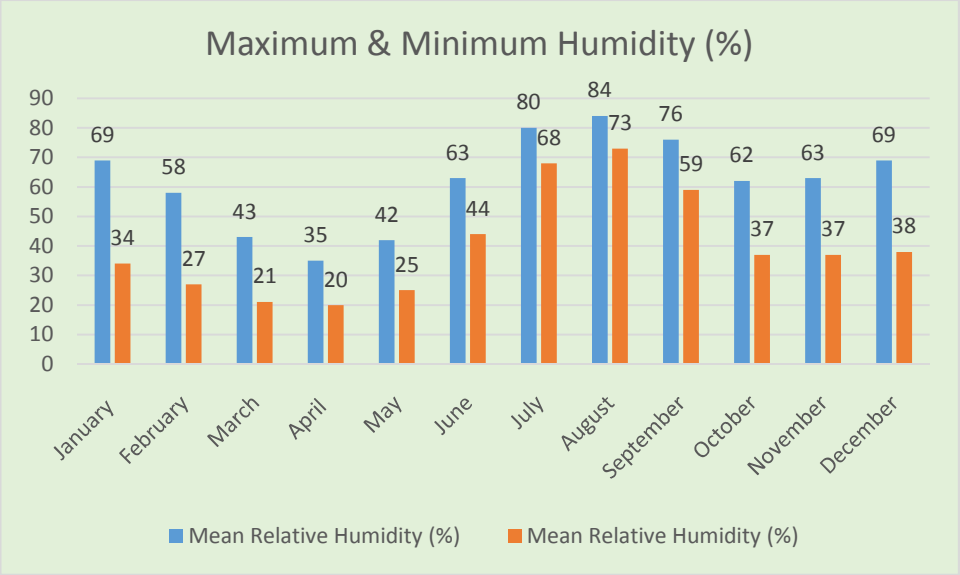


Fig 3- 6; Graphical representation of Minimum & Maximum Temperature

(iii) Wind Direction

The general pattern of wind in study area was observed and the prevailing wind direction shown from West to East direction.

3.4.2.1 Rainfall

The climatic conditions of district Sirohi is dry climate with a hot season. The annual rainfall of the Sirohi district is 681.6 mm. The annual variation in the rainfall recorded from past 21 years is given in **Table 3-11**

Table 3-11Year wise Statistics of Rainfall Tehsil -Reodar, District - Sirohi (Rajasthan)

S.No.	Year	Rainfall (in mm)
1.	1992	1279.0
2.	1993	539.0
3.	1994	1366.0
4.	1995	488.0
5.	1996	400.0
6.	1997	813.0
7.	1998	739.0
8.	1999	400.2
9.	2000	342.0
10.	2001	756.0
11.	2002	243.0

12.	2003	829.0
13.	2004	588.0
14.	2005	573.0
15.	2006	1322.0
16.	2007	684.0
17.	2008	451.0
18.	2009	336.0
19.	2010	890.0
20.	2011	737.0
21.	2012	538.0
Average Annual Rainfall in (mm.)		**681.6**

(Source:** waterresources.rajasthan.gov.in**)

3.4.3 MICRO-METEOROLOGICAL DATA (Site Specific Data)

A weather station was installed near the site for hourly monitoring of temperature, humidity, and wind speed for the month of December 2013 - February 2014. Average data is given in **Table –3.12**

Table 3-12;MICRO - METEOROLOGICAL DATA

Month	Temperature(^{0}C)			Humidity (%)			Wind speed (Km/hr)		
	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
1st December – 31st December 2013	24.9	5.4	15.9	98.0	27.0	62.7	17.28	0.1	6.88
1st January – 31st January 2014	25.9	6.0	14.8	97.0	29.0	57.9	18.36	1.7	8.78
1st February – 28th February 2014	27.6	9.0	18.5	95.0	23.0	59.1	23.4	3.0	9.75

(i) Temperature: Temperature of the area varied from 5.4^{0}C to 27.6^{0}C. Mean temperature is 14.8^{0}C to 18.5^{0}C.

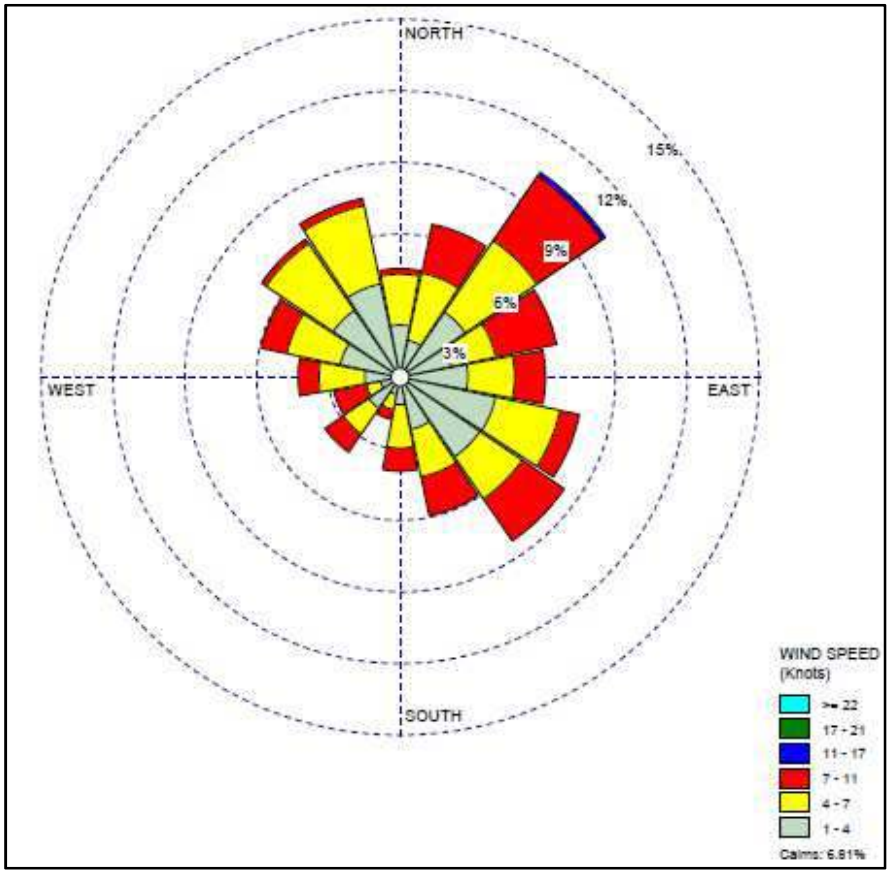
(ii) Relative Humidity:

Humidity of the area varied from 23.0 % to 98.0 %. The mean humidity for each month is 57.9 % to 62.7 %.

(iii) Wind Speed:

Wind speed was in the range of 0.1 Km/hr to 23.4 Km/hr. The wind speed was almost close to each other during the whole study period. The average wind speed for month is 6.88 Km/hr to 9.75 Km/hr

Windrose Diagram December 2013- Feburary 2014



3.4.4 Ambient Air Quality

The baseline studies on air environment include identification of specific air pollution parameters and their existing levels in ambient air. The ambient air quality with respect to the study zone of 10 km radius around the project site forms the baseline information. The sources of air pollution in the region are mostly due to vehicular traffic, dust arising from unpaved village road and domestic fuel burning.

The prime objective of the baseline air quality study was to establish the existing ambient air quality of the study area. These will also be useful for assessing the conformity to standards of the ambient air quality during the operation of proposed mine. This section describes the identification of sampling locations, methodology adopted during the monitoring period and sampling frequency. The results of ambient air monitoring during the study period (December-2013, January-2014 & February-2014) represent the winter season.

3.4.4.1 Methodology Adopted and Selection of Sampling Location

The baseline status of ambient air quality has been established through a scientifically design ambient air quality monitoring network and is based on the considerations such as:

- Meteorological conditions at the site
- Topography of the study area
- Representative of the regional background air quality for obtaining baseline status
- Representative of the likely impact area

The ambient air quality monitoring stations (AAQM) were setup at 10 locations with due consideration to the above mentioned points and as per the Ministry of Environment and Forest (MoEF), Government of India (GoI) guidelines of AAQM.

Table 3-13Ambient Air Quality Monitoring Locations

Station Code	Location	Distance& Direction
AAQ 1	Down Wind from Sili Nadi	0.5 km, South West
AAQ 2	Mandar	3.0 km, West
AAQ 3	Marol	0.5 km, South
AAQ 4	Reodar	0.5 km, East
AAQ 5	Jirawal	0.5 km, North West
AAQ 6	Thal	0.5 km, North
AAQ7	Selwara	0.25 km, West
AAQ8	Dangrali	0.5 km, North
AAQ9	Anadra	4.0 km, South East
AAQ10	Sipu River	-

3.4.4.2 Frequency and Parameters of the Sampling

The frequency has been adopted for sampling are as follows: Ambient air quality monitoring has been carried out with a frequency of two days per week at ten locations for three months study period. The ambient air quality parameters along with their frequency of sampling are given in Table 3-14.

Table 3-14 Details of AAQM Parameters and Frequency of Sampling

Parameter	Frequency
Particulate Matter (PM_{10})	Twice in a Week
Sulphur Dioxide (SO_2)	Twice in a Week
Oxides of Nitrogen (NOx)	Twice in a Week

3.4.4.3 Details of Sampling Locations

- **Core Zone- 0.5 Km Downwind from Sili Nadi (AAQ1)**

  The site is located in South west direction about 0.5 km away from mine site. The location has been selected to assess the air quality levels from mine site.

- **Mandar (Buffer Zone, AAQ2)**

  The site is located in west direction about 3.0 km away from mine site. The surroundings comprise residential area.

- **Marol (Buffer Zone, AAQ3)**

  The site is located in south direction about 0.5 km away from mine site. The surroundings comprise residential area.

- **Reodar (Buffer Zone, AAQ4)**

  Reodar is located at 0.5 km away from mine site in East direction. This location includes residential and agricultural lands.

- **Jirawal Village (Buffer Zone, AAQ5)**

  The above site is located about 0.5 km in North West direction from mine site. The sampler was placed as per the norms in this area.

- **Thal Village (Buffer Zone, AAQ6)**

  Thal is located about 0.5 km away from mine site in North direction. This location is representing buffer zone sampling location.

- **Core Zone-Selwara Village (AAQ7)**

  Selwara village located away about 0.25 km in west direction from mine site. The site comes under industrial category. The sampler was placed as per the norms in this area.

- **Dangrali Village (Buffer Zone, AAQ8)**

  Dangrali is located about 0.5 km in north direction of mine site. The site comes under residential category.

- **Anadra Village (Buffer Zone, AAQ9)**

  Anadra is located about 4.0 km in south-east direction of mine site. The site comes under residential category.

- **Core Zone-Sipu River (AAQ10)**

  The location has been selected to assess the air quality levels in the core zone of the mine site. As the site is an open land, therefore no residential buildings in the vicinity. The location was away from the village road and did not experience any frequent vehicular movement. The sampler was placed in the core zone area.

3.4.4.4 Instrument used for the sampling

Respirable Dust Samplers (High Volume Sampler) were used for PM_{10} and gaseous pollutants such as SO_2 and NO_2.

3.4.4.5 Sampling and Analytical Techniques for PM_{10}, SO_2 and NO_2

I. **Particulate Matter (PM_{10}) (IS: 5182 Part 23:2006):** Particulate Matter (PM_{10}) was carried out by Respirable Dust sampler as per IS: 5182(Part 23):2006. Particulate matter was collected on the GF/A Filter Paper. Particles with aerodynamics diameter less than the cut-point of the inlet are collected by the filter. The mass of these particles is determined by the difference in filter weight prior to and after sampling.

II. **Sulphur dioxide (SO_2) (IS: 5182; Part – II – 2001):** Sulphur dioxide is absorbed by aspirating a measured air sample through a solution of Potassium or sodium tetrachloromercurate, TCM. This procedure results in the formation of a dichloro sulphite mercurate complex. The Sulphite Ion produced during sampling is reacted with sulphamic acid, formaldehyde and pararosaniline to form an azo dye and then determined colorimetricaly.

III. **Nitrogen Oxides (IS: 5182; Part – VI – 2006):** Nitrogen dioxide is collected by bubbling air through a sodium hydroxide- sodium arsenite solution to form a stable solution of sodium Nitrite. The Nitrite Ion Produced during sampling is reacted with hydrogen peroxide, Sulphanilamide and NEDA to form an azodye and then determined calorimetrically.

Table 3-15 Methods used for Ambient Air Quality Monitoring

Parameters	Methods	Protocols Used
Sulphur dioxide as (SO_2)	West & Gaeke Method	(IS: 5182 Part-II, 1999-2006)
Nitrogen dioxide as (NO_2)	Jacob and Hochhiser	(IS: 5182 Part-VI, 1999-2006)
Respirable Suspended Particulate Matter (PM_{10})	Respirable Dust Sampler (Gravimetric Method)	(IS:5182 Part-23, 2006)

3.4.4.6 Results of Ambient Air Quality Monitoring

Details of the results of ambient air quality monitoring during the study period of three months *i.e.* from December 2013, January 2014 & February-2014 are mentioned in **Table 3-16.**

Table 3-16 Ambient Air Quality Monitoring Results

Station	Sampling locations	SO_2		NO_2		PM_{10}	
		Min.	Max.	Min.	Max.	Min.	Max.
AAQ1	Down Wind from Sili Nadi	6.2	8.6	10.0	13.1	49.9	61.2
AAQ2	Mandar	5.8	8.2	10.3	13.7	51.7	69.0
AAQ3	Marol	6.1	8.5	9.9	12.9	50.1	63.4
AAQ4	Reodar	5.6	8.0	10.2	13.3	47.6	68.2
AAQ5	Jirawal	6.0	8.7	10.1	13.5	48.4	59.7
AAQ6	Thal	5.9	8.4	10.0	13.2	52.2	64.3
AAQ7	Selwara	6.1	8.6	9.8	13.1	51.3	63.5
AAQ8	Dangrali	5.8	8.5	10.2	13.6	49.7	63.8
AAQ9	Anadra	6.0	8.3	9.9	13.3	46.9	63.9
AAQ10	Sipu River	5.7	8.2	10.4	13.9	52.0	59.1

(Unit = µg/m^3)

3.4.4.7 Monitoring locations

Ambient air quality analysis results for the 10 monitoring locations which were selected to represent baseline conditions of the region are given below:

- **Core Zone- 0.5 Km Down Wind (AAQ)**

  The location comes under industrial zone.

  PM_{10} was in the range of 49.9 -61.2 µg/m^3; SO_2 and NO_2 were in the range of 6.2 - 8.6µg/m^3 and 10.0-13.1µg/m^3 respectively.

- **Mandar (Buffer Zone-AA Q)**

  The location comes under residential zone. PM_{10} was in the range of 51.7-69.0 µg/m^3, SO_2 and NO_2 were in the range of 5.8-8.2µg/m^3 and 10.3-13.7 µg/m^3 respectively.

- **Maral (Buffer Zone, AAQ3)**

  The location comes under residential zone. The value of PM_{10} was in the range of 50.1-63.4 µg/m^3, SO_2 and NO_2 were in the range of 6.1-8.5 µg/m^3 and 9.9-12.9 µg/m^3.

- **Reodar (Buffer Zone, AAQ4)**

  The location comes under residential zone. The value of PM_{10} was in the range of 47.6-68.2 $\mu g/m^3$, SO_2 and NO_2 were in the range of 5.6-8.0 $\mu g/m^3$ and 10.2-13.3 $\mu g/m^3$.

- **Jirawal (Buffer Zone, AAQ5)**

  The location comes under residential zone. The value of PM_{10} was in the range of 48.4 -59.7 $\mu g/m^3$, SO_2 and NO_2 were in the range of 6.0-8.7 $\mu g/m^3$ and 10.1-13.5 $\mu g/m^3$.

- **Thal (Buffer Zone, AAQ6)**

  The location comes under residential zone. The value of PM_{10} was in the range of 52.2-64.3 $\mu g/m^3$, SO_2 and NO_2 were in the range of 5.9-8.4 $\mu g/m^3$ and 10.0-13.2 $\mu g/m^3$.

- **Core Zone-Selwara (AAQ7)**

  The location comes under industrial zone. The value of PM_{10} was in the range of 51.3-63.5$\mu g/m^3$, SO_2 and NO_2 were in the range of 6.1-8.6 $\mu g/m^3$ and 9.8-13.1 $\mu g/m^3$.

- **Dangrali (Buffer Zone, AAQ8)**

  The location comes under residential zone. The value of PM_{10} was in the range of 49.7-63.8$\mu g/m^3$, SO_2 and NO_2 were in the range of 5.8-8.5 $\mu g/m^3$ and 10.2-13.6 $\mu g/m^3$.

- **Anadra (Buffer Zone, AAQ9)**

  The location comes under residential zone. The value of PM_{10} was in the range of 46.9-63.9 $\mu g/m^3$, SO_2 and NO_2 were in the range of 6.0-8.3 $\mu g/m^3$ and 9.9-13.3 $\mu g/m^3$.

- **Core Zone-Sipu River (AAQ10)**

  The location comes under industrial zone. The value of PM_{10} was in the range of 52.0-59.1 $\mu g/m^3$, SO_2 and NO_2 were in the range of 5.7-8.2 $\mu g/m^3$ and 10.4-13.9$\mu g/m^3$.

Table 3-17National Ambient Air Quality Standards (NAAQS: 2009)

S.No.	Pollutants	Time Weighted Average	Concentration in Ambient Air		Method of Measurement
			Industrial Area, Residential Rural & Other Areas	Ecologically Sensitive Area (Notified by Central Govt.)	
(1)	(2)	(3)	(4)	(5)	(6)
1	Sulphur Dioxide (SO_2), µg/m^3	Annual Average* 24 hours**	50 80	20 80	Improved West and Gaeke Method. Ultraviolet fluorescence
2	Oxides of Nitrogen as NO_2, µg/m^3	Annual Average * 24 hours**	40 80	30 80	Modified Jacob & Hochheiser (Na-Arsenite) Method Chemiluminescence (Gas phase)
3	Particulate Matter (size less than 10µm) or PM_{10},µg/m^3	Annual Average * 24 Hours**	60 100	60 100	Gravimetric, TOEM, Beta attenuation.
4	Particulate Matter (size less than 2.5µm) or $PM_{2.5}$,µg/m^3	Annual Average* 24 Hours **	40 60	40 60	Gravimetric, TOEM, Beta attenuation.
5	Ozone (O_3), µg/m^3	8 Hours ** 1 Hours *	100 180	100 180	UV Photometric, Chemilminescence, Chemical Method.
6	Lead (Pb), µg/m^3	Annual Average * 24 Hours **	0.50 1.0	0.50 1.0	AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper. ED-XRF using Teflon filter
7	Carbon MoNO2ide (CO), mg/m^3	8 Hours** 1 Hours	02 04	02 04	Non Dispersive Infrared (NDIR) Spectroscopy
8	Ammonia (NH_3), µg/m^3	Annual Average* 24 hours **	100 400	100 400	Chemiluminescence (Gas phase) Indophenol blue method
9	Benzene (C_6H_6), µg/m^3	Annual Average*	05	05	Gas Chromatography based continuousanalyzer, Adsorption and Desorption followed by GC analysis.
10	Benzo(α) Pyrene (BaP) – Particulate Phase only, ng/m^3	Annual Average*	01	01	Solvent extraction followed by HPLC'GC analysis
11	Arsenic (As), ng/m^3	Annual Average*	05	06	AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper.
12	Nickel (Ni), ng/m^3	Annual Average*	20	20	AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper.

*(**Source:** CPCB, New Delhi)*

- Annual Arithmetic mean of minimum 104 measurements in a year taken twice a week 24 hourly at uniform interval.

** 24 hourly/8 hourly values should be net 98% of the time in a year. However 2% of the time, it may exceed but not on two consecutive days.

3.5 NOISE ENVIRONMENT

Noise survey was conducted in the study area in the month of December-2013, January-2014, February-2014 (Winter Season) to assess the background noise levels in different areas *viz;* residential, industrial, commercial and silence zones as per the Gazette Notification dated 14.02.2000 of MoEF on ambient noise standards In the present study, Sound Pressure Level (SPL) was measured by a sound level meter make Lutron (Model SL-4010). Loudness of sound is important by its effects on people, the dependence of loudness upon frequency must be taken into account in environmental noise assessment.

3.5.1 Selection of Monitoring Locations

Noise monitoring has been undertaken for the duration of 24 hrs at each location to cover up all the periods of the day to establish the baseline noise levels and assess the impact of the total noise generated by the operation of the proposed project.

Table 3-18 Details of Noise Measurement Locations

Station Code	Location	Distance& Direction	Category
N1	Downwind from Sili Nadi	0.5 km, South West	Industrial
N2	Mandar	3.0 km, West	Residential
N3	Marol	0.5 km, South	Residential
N4	Reodar	0.5 km, East	Residential
N5	Jirawal	0.5 km, North West	Residential
N6	Thal	0.5 km, North	Residential
N7	Selwara	0.25 km, West	Industrial
N8	Dangrali	0.5 km, North	Residential
N9	Anadra	4.0 km, South East	Residential
N10	Sipu River	-	Industrial

3.5.2 Instrument Used for Monitoring

Sound pressure level (SPL) measurements were automatically recorded with the help of an Integrated Sound Level Meter to give the equivalent noise level for every hour continuously for 24 hours in a day. There are different types of

fields for measuring the ambient noise level, which can be categorized as free field, near field and far field.

Free Field: The free field is defined as a region where sound wave propagates without obstruction from source to the receiver. In such case, the inverse square law can be applied so that the sound pressure level decreases by 6 dB (A) as the distance is doubled near Field.

Near field: The near field is defined as that region close to the source where the inverse square law does not apply. Usually this region is located within a few wavelengths from the source.

Far Field: The far field is defined as that region which is at a distance of more than 1 km from the source.

3.5.3 Measurement of Parameters

The important parameters measured are L_{eq}, L_{day}, and L_{night}.

L_{eq}: Noise monitoring equipments have the facility for measurement of L_{eq} directly.

However, L_{eq} can also be calculated using the following equation:

$$L_{eq}\ (hr.ly) = L_{50} + (L_{10} - L_{90})^2 / 60$$

Where, L_{10} (Ten Percentile Exceeding Level) is the level of sound, which exceeds 10% of the total time of measurement. L_{50} (Fifty Percentile Exceeding Level) is the level of sound, which exceeds 50% of the total time of measurement. L_{90} (Ninety Percentile Exceeding Level) is the level of sound, which exceeds 90% of the total time of measurement.

L_{day}: This represents L_{eq} of daytime. L_{day}: is calculated as Logarithmic average using the hourly $L_{eq's}$ for day time hours from 6.00 A.M to 10.00 P.M.

L_{night}: This represents L_{eq} of night time $L_{n.}$ L_{night} is calculated as Logarithmic average using the hourly $L_{eq's}$ for night time hours from 10.00 P.M. to 6.00 A.M.

3.5.4 Results of Ambient Noise

The details of noise level monitoring results are given in the**Table 3.19**

Table 3-19 Results of Ambient Noise of Study Area

S.No	Loaction	L_{eq} Day Noise level dB(A)	L_{eq} Night Noise level dB(A)	Day time (6.00 A.M to 10.00P.M)	Night time (10.00 P.M to 6.00A.M)
				Standard (L_{eq} in dB(A)	Standard (L_{eq} in dB(A)
1	0.5 km downwind	56.4	54.7	75.0	70.0
2	Mandar	55.1	44.5	55.0	45.0
3	Marol	54.6	44.2	55.0	45.0
4	Reodar	53.8	44.1	55.0	45.0
5	Jirawal	54.5	43.9	55.0	45.0
6	Thal	54.1	44.2	55.0	45.0
7	Selwara	55.3	53.1	75.0	70.0
8	Dangrali	53.5	43.8	55.0	45.0
9	Anadra	54.2	44.0	55.0	45.0
10	Sipu Nadi	56.4	54.2	75.0	70.0

From the monitoring survey of ambient noise levels it was observed that the day time noise levels were observed in the range of 53.5 dB(A) – 56.4 dB (A) were within the industrial area & Residential area standard limit of 75.0 dB(A)& 55.0 dB(A) . The nighttime ambient noise level ranges from 43.8dB (A)–54.7dB (A), which is found to be within the nighttime standards limits for residential and industrial araes standard limit of 70.0 dB (A)& 45.0 dB (A) .

Table 3-20 Ambient Noise Level Standards

Area Code	Category of Area/ Zone	Limits in dB (A) Leq*	
		Day Time	Night Time
(A)	Industrial area	75	70
(B)	Commercial area	65	55
(C)	Residential Area	55	45
(D)	Silence Zone	50	40

*(**Source:** CPCB, New Delhi)*

- Day time shall mean from 6.00 a.m. to 10.00 p.m.
- Night time shall mean from 10.00 p.m. to 6.00 a.m.

Silence zone is defined as an area comprising not less than 100 meters around hospitals, educational institutions and courts. The silence zones are zones, which are declared as such by the competent authority. Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority.

3.6 BIOLOGICAL ENVIRONMENT

Biodiversity studies comprise the systematic examination of the full array of different kinds of organisms together with the technology by which the diversity can be maintained and used for the benefit of humanity. Current basic research at the species level focuses on the process of species formation the standing level of species numbers in various higher taxonomic categories and the phenomena of hyper diversity and extinction proneness. The major practical concern is the massive extinction rate now caused by human activity which threatens losses in the esthetic quality of the world, in economic opportunity and in vital ecosystem services.

Biological impact assessment is an integral and important component of "Environmental Impact Assessment" (EIA). Biological impact assessment (BIA) generally includes lists of plants and animals present in the core and buffer areas of the proposed project site. The identified species then check for their status according to an IUCN list of threat categories viz., endemic, endangered, vulnerable, rare, indeterminate and insufficiently known. In certain cases it is also considered desirable to conduct vegetation analysis using standard phyto-sociological methods.

BIA documents and collates the baseline data and information on the status of biodiversity and bio-resources likely to be impacted by the proposed activity and suggests measures for mitigation of the impact. Thus the fundamental objective of the BIA is to conserve the biodiversity and ensure its sustainable utilization.

In India BIA comes under the purview of the Environmental Protection Act 1986, Environmental Impact Assessment Notification of 1994, Wildlife Act of 1972, Forest Conservation Act 1980 amended in 1988, Biodiversity Act 2002.

The detailed environmental study was conducted in the project area to assess all possible consequences on the biological environment for river sand mining project. The present study is highlighting the various issues pertaining to floristic diversity and the faunal wealth in and surrounding of river sand mine area in District Reodar - Rajasthan.

Objectives of the study:

The biological study of the area has been conducted in order to understand the ecological status of the existing flora and fauna to generate baseline information and evaluate the probable impacts on the biological environment.

The present objectives were undertaken with the following objectives:

- To collect the baseline terrestrial biodiversity status regarding flora and fauna in the project area.
- To assess the frequency, density, abundance, Importance Value Index (IVI) and Shannon-Wiener Diversity Index (flora).
- To evaluate the dominant species of plant and animal. Secondary data also be collected from the local residents and authenticated list of flora and fauna by the Department of Forest, Govt. of Rajasthan, Rajasthan.
- To identify the endangered / threatened / scheduled species in the study area (both flora and fauna). The conservation plan will be given if any wildlife species of schedule I is present there.
- To mark the wetlands and other ecologically sensitive areas such as national parks/ sanctuaries, if present there.
- To provide the conservation plan and suggestion / recommendation for social forestry green belt / plantation.
- To assess the effect of construction and operation of the project on existing ecology.

On the basis of on-site observations a checklist of flora and fauna was prepared.

STUDY APPROACH AND METHODOLOGY

Delineation of the Study Area

The project study area was delineated into two zones for biodiversity inventory. The existing project lease boundary was considered as Core Zone while, the area encompassing 10 km radius from the project boundary was designated as Buffer Zone. Field survey was carried out in all major habitats covering both core and buffer zones.

Methodology:

1. Floral Study

Floral study is based on extensive field survey of the area. The study has been conducted in winter season. The plant species were identified taxonomically through available literature, consultation with forest department and local people. A nested quadrate technique was used for sampling the vegetation. The size and number of quadrates needed were determined using the species area curve (Mishra,1968) and running mean method (Kershaw ,1973) .Summarization of previously used method and recommendations led to the use of more than often (10*10 m) quadrates laid out of sampling the tree stratum at different altitudinal gradients and (1*1 m) for herbs and grasses. DBH of trees was also determined. All individuals > 10 cm GBH (Girth at Breast Height) were included in tree category. However, for examining the shrub species 3x3m sample plots were laid out.

The vegetation data collected for biological study were quantitative analyzed for density, Frequency and Abundance according to Curtis and McIntosh (1950). The relative value of frequency, density, and dominance of all the species were summed up to represent Importance Value Index (IVI). The following are the formulae to derive frequency, density, dominance, IVI etc.

$$\text{Density} = \frac{\text{Total number of individuals of a species}}{\text{Total number of quadrate studied}}$$

$$\text{Frequency} = \frac{\text{Total number of quadrate in which species occurred}}{\text{Total number of quadrate studied}} \times 100$$

$$\text{Abundance} = \frac{\text{Total number of individuals of species in all quadrate}}{\text{Total number of quadrate in which species occurred}}$$

$$\text{Dominance} = \frac{\text{Total Basal Area}}{\text{Total area sampled}}$$

$$\text{Relative Frequency} = \frac{\text{Frequency of the species}}{\text{Total frequency of all species}} \times 100$$

$$\text{Relative Density} = \frac{\text{Density of the species}}{\text{Total density of all species}} \times 100$$

$$\text{Relative Abundance} = \frac{\text{Abundance of the species}}{\text{Total abundance of all species}} \times 100$$

$$\text{Relative Dominance} = \frac{\text{Dominance of the species}}{\text{Total Dominance of all species}} \times 100$$

$$\text{Importance Value Index (IVI)} = \text{Relative frequency + Relative density + Relative dominance}$$

Shanon – Weaver Index (1948) :

The number of species and number of individuals in a community is measure of species diversity which depends on stability of the habitat. Vegetation of the study area was assess by determining Shannon – Weaver diversity index (1948)

$D = -\Sigma (ni / n) \log_2 (ni / n)$

ni = Number of individuals of each species in the sample

n =Total number of individuals

Terrestrial Flora in the study area

Plant species were recorded during biodiversity assessment in study area including RF/PF in which are described in below:

Table 3-21 Flora of RF/PF of project study area

S.No.	Common Name	Binomial name	Family	Habitat
1	Dhok	*Anogeissus pendula*	Combretaceae	T
2	Cumta	*Acacia senegal*	Fabaceae	T
3	Ronjh	*Acacia leucophloea*	Fabaceae	T
4	Babool	*Acacia nilotica*	Fabaceae	T
5	Neem	*Azadirachta indica*	Meliaceae	T
6	Dhak	*Butea monosperma*	Fabaceae	T
7	Amaltash	*Cassia fistula*	Fabaceae	T
8	Shesham	*Dalbergia sissoo*	Fabaceae	T
9	Pipal	*Ficus religiosa*	Moraceae	T
10	Safeda/Sugandhapatra	*Eucalyptus globulus*	Myrtaceae	T
11	Bargad	*Ficus benghalensis*	Moraceae	T
12	Khajoor	*Phoenix sylvestris*	Arecaceae	T
13	Jungal jalebi	*Pithecellobium dulce*	Fabaceae	T
14	Khejari	*Prosopis cineraria*	Mimosaceae	T
15	Bilayati Babool	*Prosopis juliflora*	Fabaceae	T

16	Arjun	*Terminalia arjuna*	Combretaceae	T
17	Ber	*Ziziphus mauritiana*	Rhamnaceae	T
18	Papri,Chilbul	*Holoptelea integrifolia*	Utreaceae	T
19	Aak	*Calotropis procera*	Asclepiadaceae	S
20	Kair	*Capparis decidua*	Capparaceae	S
21	Dandathor	*Euphorbia neriifolia*	Euphorbiaceae	S
22	White crossberry	*Grewia tenex*	Tiliaceae	S
23	Nag phani	*Opuntia elatior*	Cactaceae	S
24	Arandi	*Ricinus communis*	Euphorbiaceae	S
25	Raimuniya	*Lantana camara*	Verbenaceae	H
26	Pili Kantili	*Argemone mexicana*	Papaveraceae	H
27	Apamarga	*Achyranthes aspera*	Amaranthaceae	H
28	Burr marigold	*Bidens pilosa*	Asteraceae	H
29	Buffelgrass	*Cenchrus cilliaris*	Poaceae	G
30	Kanchara	*Commelina benghalensis*	Commelinaceae	H
31	Bara dudhi	*Euphorbia hirta*	Euphorbiaceae	H
32	Ban tulsi	*Ocimum gratissimum*	Lamiaceae	H
33	Chikana	*Sida acuta*	Malvaceae	H
34	Gokharu	*Tribulus terrestris*	Zygophyllaceae	H
35	Tal muriya	*Tridax procumbens*	Asteraceae	H
36	Chiriyari	*Triumfetta rhomboidea*	Tiliaceae	H
37	Jangli chaulai	*Amaranthus spinosus*	Amaranthaceae	H
38	Bui	*Aerva tomentosa*	Amaranthaceae	H
39	Muktajhuri	*Acalypha indica*	Euphorbiaceae	H
40	Chitraa	*Citrullus colocynthis*	Cucurbitaceae	H
41	Dhatura	*Datura metel*	Solanaceae	H
42	Peli Dhoodhak	*Launaea nudicaulis*	Asteraceae	H
43	Gokhru	*Indigofera cordifolia*	Fabaceae	H
44	Sarphonk	*Tephrosia purpurea*	Fabaceae	H
45	Bada gokhru	*Pedalium murex*	Pedaliacae	H
46	kaladana	*Ipomoea nil*	Convolvulaceae	C
47	Bristle grass	*Aristida depressa*	Poaceae	G
48	Doob ghas	*Cynodon dactylon*	Poaceae	G
49	Sheda Grass	*Dichanthium annulatum*	Poaceae	G
50	Munja grass	*Saccharum munja*	Poaceae	G

Table 3-22Flora of core and buffer zone of project study site

S.No.	Common Name	Binomial Name	Family	Habitat	Core	Buffer
1	Siris	*Albizia lebbeck*	Mimosaceae	T	-	+
2	Ardu	*Ailanthus excelsa*	Simaroubaceae	T	-	+
3	Cumta	*Acacia senegal*	Fabaceae	T	-	+
4	Ronjh	*Acacia leucophloea*	Fabaceae	T	-	+

5	Babool	*Acacia nilotica*	Fabaceae	T	+	+
6	Neem	*Azadirachta indica*	Meliaceae	T	+	+
7	Dhak	*Butea monosperma*	Fabaceae	T	-	+
8	Baas	*Bamboo sp.*	Poaceae	G	-	+
9	Kassod	*Cassia siamea*	Fabaceae	T	-	+
10	Amaltash	*Cassia fistula*	Fabaceae	T	-	+
11	Shesham	*Dalbergia sissoo*	Fabaceae	T	-	+
12	Gulmohar	*Delonix regia*	Caesalpiniaceae	T	-	+
13	Pipal	*Ficus religiosa*	Moraceae	T	-	+
14	Safeda/Sugandh apatra	*Eucalyptus globulus*	Myrtaceae	T	-	+
15	Bargad	*Ficus benghalensis*	Moraceae	T	-	+
16	Mango	*Mangifera indica*	Anacardiaceae	T	-	+
17	Khajoor	*Phoenix sylvestris*	Arecaceae	T	-	+
18	Jungal jalebi	*Pithecellobium dulce*	Fabaceae	T	-	+
19	Karanj	*Pongamia pinnata*	Fabaceae	T	-	+
20	Ashok	*Polyalthia longifolia*	Annonaceae	T	-	+
21	Khejari	*Prosopis cineraria*	Mimosaceae	T	-	+
22	Vilayati Babool	*Prosopis juliflora*	Fabaceae	T	+	+
23	Arjun	*Terminalia arjuna*	Combretaceae	T	-	+
24	Jamun	*Syzygium cumini*	Myrtaceae	T	-	+
25	Ber	*Ziziphus mauritiana*	Rhamnaceae	T	+	+
26	Papri,Chilbul	*Holoptelea integrifolia*	Utreaceae	T	-	+
27	Aak	*Calotropis procera*	Asclepiadaceae	S	+	+
28	Aakra	*Calotropis gigantea*	Asclepiadaceae	S	-	+
29	Kair	*Capparis decidua*	Capparaceae	S	+	+
30	Dandathor	*Euphorbia neriifolia*	Euphorbiaceae	S	-	+
31	White crossberry	*Grewia tenex*	Tiliaceae	S	-	+
32	Nag phani	*Opuntia elatior*	Cactaceae	S	-	+
33	Kaner	*Nerium oleander*	Apocynaceae	S	-	+
34	Champa	*Plumeria alba*	Apocynaceae	S	-	+
35	Native gooseberry	*Physalis minima*	Solanaceae	H	+	+
36	Arandi	*Ricinus communis*	Euphorbiaceae	S	+	+
37	Jharberi	*Ziziphus nummularia*	Rhamnaceae	S	+	+
38	Pili Kantili	*Argemone mexicana*	Papaveraceae	H	+	+
39	Kateli	*Solanum xanthocarpum*	Solanaceae	H	+	+
40	Jangli chaulai	*Amaranthus spinosus*	Amaranthaceae	H	+	+
41	Bui	*Aerva tomentosa*	Amaranthaceae	H	-	+
42	Muktajhuri	*Acalypha indica*	Euphorbiaceae	H	+	+
43	Chitraa	*Citrullus colocynthis*	Cucurbitaceae	H	+	+
44	Pumpkin	*Cucurbita pepo*	Cucurbitaceae	C	+	+
45	Dhatura	*Datura metel*	Solanaceae	H	+	+

46	Peli Dhoodhak	*Launaea nudicaulis*	Asteraceae	H	+	+
47	Gokhru	*Indigofera cordifolia*	Fabaceae	H	+	+
48	Raimuniya	*Lantana camara*	Verbenaceae	H	+	+
49	Sarphonk	*Tephrosia purpurea*	Fabaceae	H	+	+
50	Bada gokhru	*Pedalium murex*	Pedaliacae	H	-	+
51	kaladana	*Ipomoea nil*	Convolvulaceae	C	-	+
52	Bristle grass	*Aristida depressa*	Poaceae	G	-	+
53	Rama grass	*Chloris dolichostachys*	Poaceae	G	-	+
54	Doob ghas	*Cynodon dactylon*	Poaceae	G	-	+
55	Bhurat	*Cenchrus biflorus*	Poaceae	G	+	+
56	Sheda Grass	*Dichanthium annulatum*	Poaceae	G	-	+
57	Kans Grass	*Saccharun spontaneum*	Poaceae	G	+	+
58	Munja Grass	*Saccharum munja*	Poaceae	G	+	+

Where, T = Tree, S = Shrub, H = Herb, G = Grass, C= Climber, (-) = absent, (+) = Present

Floral study: Trees (10x10m)

Core zone :

S.No	Common name	Binomial name of Species	R.D.	R.F	R.Dom	IVI	SWD Index $H= -\sum P_i (\ln P_i)$
1	Neem	*Azadirachta indica*	13.73	12.90	20.40	47.02	-0.273
2	Ber	*Ziziphus mauritiana*	21.57	22.58	20.48	64.63	-0.331
3	Babool	*Acacia nilotica*	39.22	38.71	36.99	114.92	-0.367
4	Vilayati babool	*Prosopis juliflora*	25.49	25.81	22.13	73.43	-0.348
							1.319

It was observed that four trees Neem (*Azadirachta indica)* ,Babool (*Acacia nilotica),* Ber (*Ziziphus mauritiana*) and vilayati babool (*Prosopis juliflora)* were present at core zone of project site during survey. *Acacia nilotica (IVI-114.92)* was the dominant species in core zone followed by *Prosopis juliflora*(IVI-73.43)sparsely present on study site. SWD index is showing less density of trees in core zone.

Buffer zone: Trees (10x10)

S.No	Common name	Binomial name of Species	R.D.	R.F	R. Dom	IVI	SWD Index $H= -\sum P_i (\ln P_i)$
1	Siris	*Albizia lebbeck*	5.18	6.43	8.05	19.65	-0.1532
2	Ardu	*Ailanthus excelsa*	3.96	4.36	4.57	12.89	-0.1278
3	Cumta	*Acacia senegal*	3.50	4.36	4.69	12.55	-0.1174
4	Ronjh	*Acacia leucophloea*	2.28	2.49	3.51	8.29	-0.0863
5	Babool	*Acacia nilotica*	5.18	4.77	3.53	13.47	-0.1532
6	Neem	*Azadirachta indica*	5.33	5.39	6.37	17.09	-0.1562
7	Dhak	*Butea monosperma*	4.72	4.98	3.81	13.51	-0.1441
8	Kassod	*Cassia siamea*	5.18	6.43	6.58	18.19	-0.1532

9	Amaltash	*Cassia fistula*	3.65	4.36	5.31	13.32	-0.1209
10	Shesham	*Dalbergia sissoo*	4.57	5.39	9.95	19.91	-0.1409
11	Gulmohar	*Delonix regia*	4.72	5.19	3.60	13.50	-0.1441
12	Pipal	*Ficus religiosa*	1.37	1.66	4.88	7.91	-0.0588
13	Safeda/Sugandhapatra	*Eucalyptus globulus*	3.96	3.94	2.72	10.62	-0.1278
14	Bargad	*Ficus benghalensis*	1.07	1.04	2.14	4.24	-0.0484
15	Mango	*Mangifera indica*	4.26	3.11	3.28	10.66	-0.1345
16	Khajoor	*Phoenix sylvestris*	2.59	2.90	1.49	6.98	-0.0946
17	Jungal jalebi	*Pithecellobium dulce*	2.59	2.90	2.36	7.85	-0.0946
18	Karanj	*Pongamia pinnata*	4.11	4.36	1.87	10.34	-0.1312
19	Ashok	*Polyalthia longifolia*	3.20	3.53	3.74	10.46	-0.1101
20	Khejari	*Prosopis cineraria*	5.63	4.36	1.28	11.26	-0.1620
21	Vilayati Babool	*Prosopis juliflora*	10.35	6.43	5.24	22.03	-0.2348
22	Arjun	*Terminalia arjuna*	1.07	1.04	6.45	8.56	-0.0484
23	Jamun	*Syzygium cumini*	2.13	2.28	0.90	5.32	-0.0820
24	Ber	*Ziziphus mauritiana*	4.26	3.94	1.08	9.29	-0.1345
25	Papri, Chilbul	*Holoptelea integrifolia*	5.18	4.36	2.60	12.14	-0.1532
							3.1121

Note: *R.D.=Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance,IVI= Importance Value Index, SWD Index H= - ∑ Pi (lnPi)= Shanon – Weaver Index*

It was observed that Vilayati Babool *(Prosopis juliflora, IVI-22.03)* dominant species in core zone.Then followed by Siris *(Albizia lebbeck,* IVI -19.65) and Chilbul(*Holoptelea integrifolia,* IVI-19.65) were dominant species in buffer zone of project study area. The other species which were present well in number as per the IVI i.e. Kasod tree (*Cassia siamea*, IVI- 18.19), Neem(*Azadirachta indica*, IVI-17.09), and Karanj(*Butea monosperma*,IVI-13.51). SWD index is indicated that trees diversity in buffer zone well in then the core zone.

Shrubs :Core zone (3x3m)

S.No	Common name	Binomial name of Species	R.D.	R.F	R. Ab.	IVI	SWD Index $H= - \sum P_i (lnP_i)$
1	Aak	*Calotropis procera*	34.21	32.86	26.21	93.28	-0.367
2	Kair	*Capparis decidua*	28.07	25.71	27.48	81.27	-0.357
3	Arandi	*Ricinus communis*	21.05	24.29	21.83	67.16	-0.328
4	Ber	*Zyzipus nummularia*	16.67	17.14	24.48	58.29	-0.299
							1.350

Note: R.D.= Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance, IVI= Importance Value Index, SWD Index $H= - \sum P_i (lnP_i)$= Shanon – Weaver Index

Shrub: Buffer zone (3x3m)

S.No	Common name	Binomial name of Species	R.D.	R.F	R. Ab.	IVI	SWD Index $H= -\sum P_i (lnP_i)$
1	Aak	*Calotropis procera*	19.53	14.91	13.31	47.75	-0.3190
2	Aakra	*Calotropis gigantea*	10.20	8.70	11.92	30.82	-0.2329
3	Kair	*Capparis decidua*	8.45	10.56	8.13	27.15	-0.2089
4	Dandathor	*Euphorbia neriifolia*	9.04	6.83	13.44	29.31	-0.2172
5	White crossberry	*Grewia tenex*	7.87	7.45	10.73	26.05	-0.2001
6	Nag phani	*Opuntia elatior*	4.66	6.21	7.63	18.50	-0.1430
7	Kaner	*Nerium oleander*	9.62	11.18	8.74	29.54	-0.2252
8	Champa	*Plumeria alba*	4.37	6.83	6.50	17.71	-0.1369
9	Arandi	*Ricinus communis*	12.24	14.29	8.71	35.24	-0.2572
10	Jharberi	*Ziziphus nummularia*	13.99	13.04	10.90	37.94	-0.2752
							2.2155

Note: R.D.= Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance, IVI= Importance Value Index, SWD Index $H= -\sum P_i (lnP_i)$= Shanon – Weaver Index

It was observed that Aak (*Calotropis procera*, IVI-93.28) and Kair (*Capparis deciduas*, IVI-81.27) were dominant shrub species in core zone while in buffer zone again aak (*Calotropis procera*, IVI- 47.75) and Jherber (*Ziziphus nummularia*, IVI-37.94) were dominant shrubs in buffer zone. The other species which were also well in number i.e. Arandi (*Ricinus communis*, IVI-35.24), Aakra (*Calotropis gigantean, IVI-30.82)* and Kaner (*Nerium oleander*, IVI-29.54) .

Herbs, grasses and climbers: Core zone(1x1m)

S.No	Common name	Binomial name of Species	R.D.	R.F	R. Ab.	IVI	SWD Index $H= -\sum P_i(lnP_i)$
1	Native gooseberry	*Physalis minima*	1.94	2.40	5.57	9.91	-0.0765
2	Pili Kantili	*Argemone mexicana*	4.06	4.40	6.35	14.81	-0.1300
3	Kateli	*Solanum xanthocarpum*	4.76	6.00	5.47	16.23	-0.1450
4	Jangli chaulai	*Amaranthus spinosus*	6.70	8.40	5.50	20.60	-0.1811
5	Muktajhuri	*Acalypha indica*	4.59	5.60	5.64	15.83	-0.1413
6	Chitraa	*Citrullus colocynthis*	2.12	3.60	4.05	9.77	-0.0816
7	Pumpkin	*Cucurbita pepo*	1.94	2.40	5.57	9.91	-0.0765
8	Dhatura	*Datura metel*	7.41	7.20	7.09	21.69	-0.1928
9	Peeli Dhoodhak	*Launaea nudicaulis*	13.05	12.80	7.02	32.87	-0.2658
10	Gokhru	*Indigofera cordifolia*	4.76	5.60	5.86	16.22	-0.1450
11	Raimuniya	*Lantana camara*	8.29	9.20	6.21	23.70	-0.2064
12	Sarphonk	*Tephrosia purpurea*	14.29	13.20	7.45	34.94	-0.2780
13	Bhurat	*Cenchrus biflorus*	8.99	7.20	8.60	24.80	-0.2166
14	Kans Grass	*Saccharum spontaneum*	9.17	6.40	9.87	25.44	-0.2191
15	Munja Grass	*Saccharum munja*	7.94	5.60	9.76	23.30	-0.2011
							2.5568

Note: R.D.= Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance, IVI= Importance Value Index, SWD Index $H= -\sum P_i (lnP_i)$= Shanon – Weaver Index

In core zone Sarphonk (*Tephrosia purpurea*) and Peeli dhoodhak (*Launaea nudicaulis*) were dominant species (IVI-34.94 & 32.87) then followed by other dominant species in core zone were Kans grass(*Saccharun spontaneum*, IVI-25.44) and Bhurat (*Cenchrus biflorus*, IVI-24.80).

Herb, grasses and climbers; Buffer zone (1x1m)

S.No	Common name	Binomial name of Species	R.D.	R.F	R. Ab.	IVI	SWD Index $H= - \sum P_i (\ln P_i)$
1	Native gooseberry	*Physalis minima*	1.52	2.49	2.53	6.54	-0.0636
2	Arandi	*Ricinus communis*	2.59	4.23	2.54	9.36	-0.0947
3	Jharberi	*Ziziphus nummularia*	4.20	4.98	3.50	12.68	-0.1331
4	Pili Kantili	*Argemone mexicana*	3.31	5.22	2.63	11.16	-0.1127
5	Kateli	*Solanum xanthocarpum*	1.88	3.98	1.96	7.81	-0.0746
6	Jangli chaulai	*Amaranthus spinosus*	3.31	5.22	2.63	11.16	-0.1127
7	Bui	*Aerva tomentosa*	1.70	2.74	2.58	7.01	-0.0692
8	Muktajhuri	*Acalypha indica*	2.32	3.48	2.77	8.57	-0.0874
9	Chitraa	*Citrullus colocynthis*	0.89	2.24	1.66	4.79	-0.0422
10	Pumpkin	*Cucurbita pepo*	0.80	1.74	1.92	4.46	-0.0388
11	Dhatura	*Datura metel*	3.49	4.48	3.23	11.19	-0.1170
12	Peli Dhoodhak	*Launaea nudicaulis*	6.79	7.96	3.54	18.29	-0.1827
13	Gokhru	*Indigofera cordifolia*	3.40	3.73	3.78	10.90	-0.1149
14	Raimuniya	*Lantana camara*	3.40	5.22	2.70	11.32	-0.1149
15	Sarphonk	*Tephrosia purpurea*	5.63	6.72	3.48	15.83	-0.1620
16	Bada gokhru	*Pedalium murex*	3.31	3.98	3.45	10.73	-0.1127
17	kaladana	*Ipomoea nil*	0.98	1.99	2.05	5.02	-0.0454
18	Bristle grass	*Aristida depressa*	6.97	7.21	4.01	18.19	-0.1857
19	Rama grass	*Chloris dolichostachys*	1.52	2.74	2.30	6.56	-0.0636
20	Doob ghas	*Cynodon dactylon*	10.01	3.73	11.13	24.87	-0.2304
21	Bhurat	*Cenchrus biflorus*	8.58	5.22	6.82	20.62	-0.2107
22	Sheda Grass	*Dichanthium annulatum*	6.34	4.48	5.88	16.70	-0.1750
23	Kans Grass	*Saccharun spontaneum*	7.95	2.74	12.06	22.75	-0.2013
24	Munja Grass	*Saccharum munja*	9.12	3.48	10.86	23.46	-0.2183
							2.9636

Note: R.D.= Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance,IVI= Importance Value Index, SWD Index $H= - \sum P_i (\ln P_i)$= Shanon – Weaver Index

Sparse vegetation of herbs and grasses were present in buffer zone. Doob grass (*Cynodon dactylon,*) and Munja (*Saccharum munja*) were dominant species (IVI-24.87 & 23.46). The other dominant species in buffer zone were Kans grass (*Saccharun spontaneum*, IVI-22.75) and Bhurat (*Cenchrus biflorus*, IVI-20.62).

Threat Status of the floristic diversity:

Flora recorded from the study sites during the survey when compared with the available literature revealed that none of the species recorded from the region fall under any category of threat status.

3.6.1 Faunal study:

i. Avifauna

Point count method was followed for counting the birds. Opportunistic surveys were also carried out with respect to avifaunal checklist. Identification by calls was also made for species which were not directly encountered or were hidden in the vegetation or canopy. Secondary data collected from the literature.

ii. Herpetofauna

Amphibians and reptiles recorded during area searches were identified by visual characteristics. Aquatic searches involved examining each type of aquatic habitat.

iii. Mammals

Presences of mammals were documented by using both direct sightings and indirect evidences i.e. animal burrows/holes, scats, pellets, droppings and tracks. Opportunistic sightings were also included. Circular Plots were used to search indirect evidences.

Fauna of Project study area:

During the study in the field, 11 species of Mammals, 6 species of Reptiles, 2 species of Amphibians and 43 species of Birds were recorded on project study area.

Table 3-23 Fauna were recorded in Core and Buffer Zone

S.No.	Common Name	Binomial Name of Species	Family	Schedule IW(P)A / IUCN	Core area	Buffer Area
	Mammals					
1	Nilgai	*Boselaphus tragocamelus*	Bovidae	III	-	+
2	Langur	*Presbytis entallus*	Cercoppithecidae	II	-	+
3	Bandar	*Macaca mulatta*	Cercoppithecidae	II	-	+
4	Jackal/Siyar	*Canis aureus*	Canidae	II	-	+

5	Hare	*Lepus nigricollis*	Leporidae	IV	+	+
6	House Rat	*Rattus rattus*	Muridae	V	-	+
7	Common Mongoose	*Herpestes edwardsii*	Herpestidae	II	-	+
8	Four Striped Palm Squirrel	*Funambulus pennanti*	Sciuridae	IV	+	+
9	Jungle cat	*Felis chaus*	Pteropodidae	II	-	+
10	Sloth Bear	*Melursus ursinus*	Ursidae	I	-	+
11	Panther	*Panthera pardus*	Felidae	I	-	+
	Reptiles					
10	Red sand Boa	*Eryx johnii*	Boidae	V	-	+
11	Brahminy Skink/ Bahmani	*Mabuya carinata*	Scincidae	LC	+	+
12	Common Garden Lizard/Girgit	*Calotes versicolor*	Agamidae	LC	+	+
13	House Gecko/Chhipkali	*Hemidactylus flaviviridis*	Gekkonidae	LC	-	+
14	Kobra	*Naja naja*	Elapidae	II	-	+
15	Starred Tortoise Kachhua	*Geochelone elegans*		IV		
	Amphibians					
16	Indian Bull Frog	*Hoplobatrachus* tigerinus	Dicroglossidae	IV	-	+
17	Indian cricket Frog	*Fejervarya limnocharis*	Dicroglossidae	IV	-	+
	Pisces: Not observed any species because seasonal water bodies were not present there.					

Table 3-24 Avifaunal species recorded on project study area

S.No.	Common Name	Binomial Name of Species	Family	Schedule IW(P)A / IUCN	Core area	Buffer Area
1	Black ibis	*Pseudibis papillosa*	Threskiornithidae	IV	-	+
2	Black-headed Ibis	*Threskiornis melanocephalus*	Threskiornithidae	IV	-	+
3	Painted stork	*Mycteria leucocephala*	Ciconiidae	IV	-	+
4	Common Sandpiper	*Actitis hypoleucos*	Scolopacidae	IV	-	+
5	Pied Kingfisher	*Ceryle rudis*	Cerylidae	IV	-	+
6	Indian Pond Heron	*Ardeola grayii*	Ardeidae	IV	-	+
7	Common coot	*Fulica atra*	Rallidae	IV	-	+
8	Grey Heron	*Ardea cinerea*	Ardeidae	IV	-	+
9	Red-wattled lapwing	*Vanellus cinereus*	Charadriidae	IV	-	+
10	Baya weaver	*Ploceus philippinus*	Ploceidae	IV	+	+
11	Grey francolin	*Francolinus pondicerianus*	Phasianidae	IV	+	+
12	Peafowl	*Pavo cristatus*	Phasianidae	I	-	+

13	Green bee-eater	*Merops orientalis*	Meropidae	LC	+	+
14	Lesser coucal	*Centropus bengalensis*	Cuculidae	IV	-	+
15	Rose-ringed parakeet	*Psittacula krameri*	Psittacidae	IV	-	+
16	White-throated kingfisher	*Halcyon smyrnensis*	Halcyonidae	IV	-	+
17	House swift	*Apus affinis*	Apodidae	LC	-	+
18	Rock pigeon	*Columba livia*	Columbidae	IV	-	+
19	Laughing dove	*Streptopelia enegalensis*	Columbidae	IV	+	+
20	Eurasian dove	*Streptopelia decaocto*	Columbidae	IV	-	+
21	Red Collared dove	*Streptopelia tranquebarica*	Columbidae	IV	-	+
22	Little egret	*Egretta garzetta*	Ardeidae	IV	-	+
23	Cattle egret	*Bubulcus ibis*	Ardeidae	IV	+	+
24	House crow	*Corvus splendens*	Corvidae	IV	-	+
25	Black drongo	*Dicrurus macrocercus*	Dicruridae	IV	+	+
26	Indian robin	*Saxicoloides fulicata*	Muscicapidae	IV	+	+
27	Asian Pied starling	*Sturnus contra*	Sturnidae	IV	-	+
28	Common myna	*Acridotheres tristis*	Sturnidae	IV	-	+
29	Red-vented bulbul	*Pycnonotus cafer*	Pycnonotidae	IV	+	+
30	Jungle crow	*Corvus macrorhynchos*	Corvidae	IV	-	
31	Jungle babbler	*Turdoides striatus*	Leiothrichidae	IV	+	+
32	Purple sunbird	*Nectarinia asiatica*	Nectariniidae	IV	-	+
33	House sparrow	*Passer domesticus*	Passeridae	IV	-	+
34	White-browed wagtail	*Motacilla maderaspatensis*	Motacillidae	LC	-	+
35	Yellow wegtail	*Motacilla flava*	Motacillidae	LC	-	+
36	Little cormorant	*Microcarbo niger*	Phalacrocoracidae	IV	-	+
37	Black wing Still	*Himantopus himantopus*	Recurvirostridae	IV	-	+
38	Pied Bush chat	*Saxicola caprata*	Muscicapidae	IV	-	+
39	Ashy Warn- Warbler	*Prinia socialis*	Cisticolidae	IV	+	+
40	Wood piker	*Chrysocola ptes festivus*	Picidae	IV	-	+
41	White-breasted waterhen	*Amaurornis phoenicurus*	Rallidae	IV	-	+
42	Rufous tree pie	*Dendrocitta vagabunda*	Corvidae	IV	-	+
43	Spotted bill duck	*Anas poecilorhyncha*	Anatidae	IV	-	+



Dicrurus macrocercus



Bubulcus ibis



Streptopelia capicola



Pycnonotus cafer



Acridotheres tristis



Vanellus indicus



Turdoides striatus



Funambulus pennanti

Photo- Avifauna of study area

3.6.2 Aquatic diversity

Riparian, free floating and submerge vegetation were observed in project study area which are described in Table 1.8.

Table 1.8 Aquatic vegetation recorded in project study area

S.No.	Local name	Scientific Name	Family
1	Nutgrass, Coco	*Cyperus rotundus*	*Cyperaceae*
2	Knotweed	*Polygonum species*	*Polygonaceae*
3	-	*Phragmites karka*	*Poaceae*
4	-	*Scirpus cernuus*	*Cyperaceae*
5	Giant Duckweed	*Spirodela polyrhiza*	*Araceae*
6	Era	*Typha elephantina*	*Typhaceae*

3.6.3 Endangered Species

Panther, Sloth bear and peafowl were recorded during the site visit .Therefore, conservation plan have submitted to DFO of Sirohi district, Rajasthan.

3.6.4 Eco-sensitive Zone

Mount Abu Wildlife Sanctuary is present at a distance of 7.1km in East of Sipu River from buffer zone.There is no National Park or Biosphere Reserves in the Core as well as buffer zone.

3.6.5 Cropping Pattern of the Study Area

Climatic factors chiefly determine the cropping pattern in the study area/ region. The area comes under semi arid zone of the state on account of non availability of adequate water; cropping patter is by and large single only. The main crops during Kharif season are Maize, Pearl Millet, Sesame, Castor, Green gram fennel and Cluster bean. Major Rabi Crops of the area are Wheat, Mustard, Gram and Cumin.

3.7 SOCIO – ECONOMICS & DEMOGRAPHIC PROFILE

Every developmental project has its beneficial and adverse effects. The project will impact on the local area and its socio-economic status. In EIA, all such positive and negative impacts are to be identified, quantified or described and predicted with futuristic approach of well being of environment and community development in the area.

All developmental activities are undertaken for the social well-being and upliftment for their living status in the area. Socio-economic plays a vital role in environmental impact assessment study of such type of developmental projects in the area/region.

3.7.1 Methodology Adopted for the Study

The general methodology of impact assessment that we have used to assess socio-economic impacts associated with the project is as follows:

- Description of existing socio-economic or demographic environment in the area of influence (baseline socio-economic set up of the proposed project area)
- Procurement of relevant standards and criteria:

Review of secondary data, such as District Census data 2011 prepared by Statistics Department of State Government, for the parameters of demography, occupational structure of people and other details available within the core and buffer zone of study area.

- Assessment of socio-economic impact significance.
- Mitigation measures for adverse socio-economic impacts and the monitoring process.

3.7.1.1 Baseline Status

It is important to conduct socio-economic studies and assess the existing status and also the impacts envisaged by proposed river sand mining project on the socio-economic conditions of the study area, which will help in mitigating any adverse impacts. The area comprises of government Gair Mumkin Nadi/ Nallah. There are no historical monuments, archaeological, cultural or ecological places of importance in the study area.

3.7.2 Demographic Profile

As per the Census data for the year 2011, the study area over a radius of 10 km has a number of villages. Total population of Reodar is about 113552 as per 2011 census in the study area. Out of the total population, 36.42% are scheduled caste and 13.22% is scheduled tribes. Literacy status in Reodar depicts that the area have 39.84% literates and 60.16% illiterates.

Table 3-25 Demographic Profile of Study Area (Reodar – Sirohi)

S.No.	Name	Household	Population	SC	ST	Literates	Illiterates	Literacy Rate
1	Amrapura	155	937	74	525	244	693	26.04
2	Anadra	1393	7058	2533	956	3078	3980	43.61
3	Anapur	338	2028	35	200	765	1263	37.72
4	Asao	78	398	88	30	189	209	47.49
5	Badechi	243	1346	778	125	272	1074	20.21
6	Bari Khera	26	151	0	150	14	137	9.27
7	Bhamra	162	862	285	139	307	555	35.61
8	Bhatana	960	4976	1741	515	1802	3174	36.21
9	Bheroogarh	256	1439	899	212	470	969	32.66
10	Dabani	326	1598	319	286	733	865	45.87
11	Danpura	135	697	6	119	312	385	44.76
12	Dantrai	900	4585	935	197	2195	2390	47.87
13	Datani	663	3268	2076	137	1251	2017	38.28
14	Derol	109	554	223	4	283	271	51.08
15	Dhanera	248	1387	1037	86	444	943	32.01
16	Dhawli	677	3380	2149	259	1315	2065	38.91
17	Dheebri	79	580	0	77	175	405	30.17
18	Dolpura	629	3096	2652	10	1013	2083	32.72
19	Fatepura	22	124	10	26	59	65	47.58
20	Gulab Ganj	686	3664	816	354	1776	1888	48.47
21	Gundwara	210	1199	86	211	434	765	36.20
22	Hadmatiya	37	180	0	0	60	120	33.33
23	Hadmatiya	186	1084	116	260	511	573	47.14
24	Hadmatiya	553	2838	1518	870	743	2095	26.18
25	Hathal	283	1431	808	77	652	779	45.56
26	Idarla	197	1198	151	228	484	714	40.40
27	Jamtha	161	892	339	347	322	570	36.10
28	Jawal	227	1149	637	22	418	731	36.38
29	Karjiya	177	1006	0	879	215	791	21.37
30	Kesuwa	161	827	120	226	236	591	28.54
31	Khan	288	1481	950	78	589	892	39.77
32	Kotra Khera	91	472	0	0	156	316	33.05
33	Leelora	213	1048	975	0	366	682	34.92
34	Magariwara	692	3822	1081	555	1755	2067	45.92
35	Makawal	470	2472	570	301	891	1581	36.04
36	Malawa	207	1137	166	242	481	656	42.30
37	Maleepura	189	1009	397	54	526	483	52.13
38	Malgaon	451	2312	453	76	1222	1090	52.85

39	Malpura	264	1398	84	475	506	892	36.19
40	Mandar	2719	13930	3414	1206	7087	6843	50.88
41	Methipura	228	1503	246	1141	440	1063	29.27
42	Mohabbatpura	73	466	94	0	185	281	39.70
43	Mooliya Khera	147	755	42	671	142	613	18.81
44	Nimbora	339	1657	1369	0	532	1125	32.11
45	Padar	264	1717	599	239	425	1292	24.75
46	Palri Khera	221	1089	881	93	353	736	32.42
47	Pamera	638	3722	783	130	1800	1922	48.36
48	Peepaliya	67	340	272	0	147	193	43.24
49	Perwa	242	1265	960	9	431	834	34.07
50	Rampura	121	626	226	0	262	364	41.85
51	Rampura Khera	191	1021	907	0	214	807	20.96
52	Sanwara	570	2925	802	184	1291	1634	44.14
53	Saran Ka Khera	186	929	494	51	450	479	48.44
54	Sonani	278	1648	257	286	626	1022	37.99
55	Suliva	351	1779	946	14	664	1115	37.32
56	Thal	494	2833	1815	587	912	1921	32.19
57	Tokra	305	1747	248	669	491	1256	28.11
58	Udwaria	339	1968	385	279	740	1228	37.60
59	Vikanwas	217	1089	193	149	396	693	36.36
60	Wadka	286	1460	1325	1	384	1076	26.30
Total		**21418**	**113552**	**41365**	**15017**	**45236**	**68316**	**36.93**

3.7.3 Caste distribution of the study area.

Caste wise distribution of study area constituted by General/OBC, SC/ST category. In which only 41365 (36.42 %) population belongs from SC category and 15017 (13.22 %) population belongs from ST category.

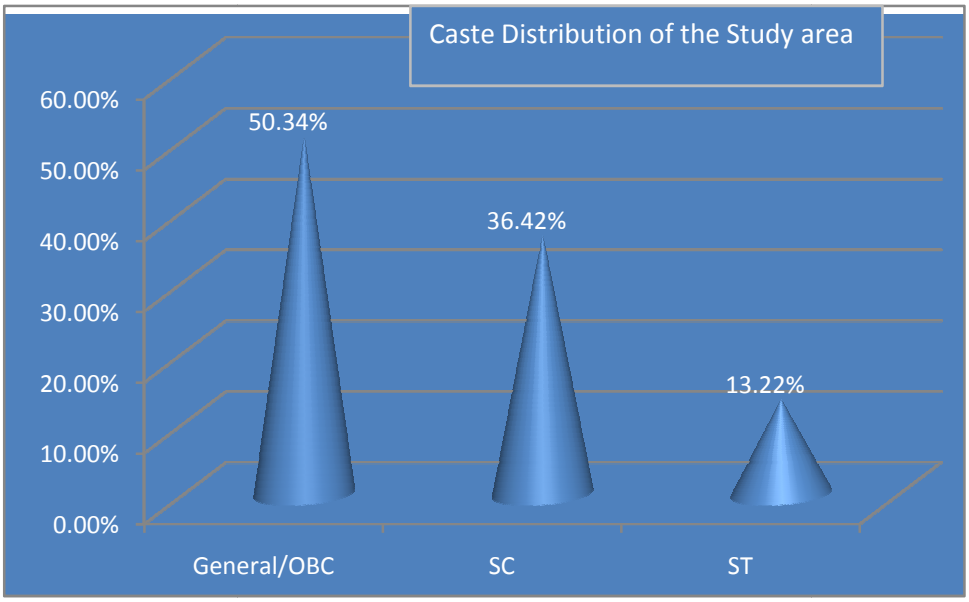


Figure 3-5Caste Distribution of the Study Area

3.7.4 Literacy Levels

As per census data for the year 2011, the study area over a radius of 10 km from the mining site has 42099 No. of literates. The summary of village-wise literacy status is given in **Table-3.24**.

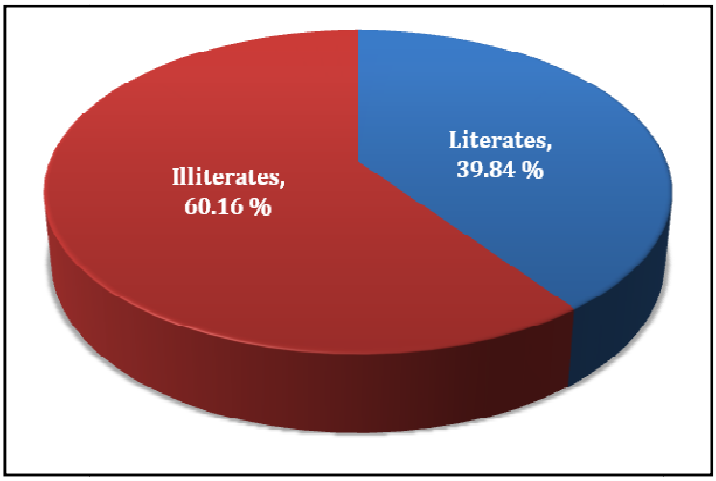


Figure 3-6 Demographic Profile-Literacy Status of the Study Area

3.7.5 Occupational Structure

With reference to the Table-3.25which have been generated through the study of secondary occupational data for the villages within 10 km radius of the proposed mining site. In the study area, predominant activity is agriculture, cultivators and agricultural labours. The total workers in the study area are 51366 out of this main workers are 41247 and marginal workers are 10119. The table given as appended in **Table 3.25** clearly shows that the status of non

workers in the study area is about 62186. The main occupation in the region is mining and allied activities.

Table 3-26 Occupational Structure of Study Area (Reodar - Sirohi)

S.No.	Name	Population	Total Worker	Main Worker	Marginal Worker	Non Worker
1	Amrapura	937	359	353	6	578
2	Anadra	7058	3034	2849	185	4024
3	Anapur	2028	579	423	156	1449
4	Asao	398	220	208	12	178
5	Badechi	1346	687	478	209	659
6	Bari Khera	151	80	36	44	71
7	Bhamra	862	446	380	66	416
8	Bhatana	4976	1970	1449	521	3006
9	Bheroogarh	1439	811	706	105	628
10	Dabani	1598	603	529	74	995
11	Danpura	697	312	242	70	385
12	Dantrai	4585	1599	1142	457	2986
13	Datani	3268	1562	1424	138	1706
14	Derol	554	282	156	126	272
15	Dhanera	1387	746	210	536	641
16	Dhawli	3380	1722	1599	123	1658
17	Dheebri	580	291	277	14	289
18	Dolpura	3096	1455	1302	153	1641
19	Fatepura	124	37	35	2	87
20	Gulab Ganj	3664	1820	1203	617	1844
21	Gundwara	1199	665	503	162	534
22	Hadmatiya	180	55	50	5	125
23	Hadmatiya	1084	422	276	146	662
24	Hadmatiya	2838	1542	1458	84	1296
25	Hathal	1431	610	563	47	821
26	Idarla	1198	401	396	5	797
27	Jamtha	892	432	374	58	460
28	Jawal	1149	722	636	86	427
29	Karjiya	1006	478	250	228	528
30	Kesuwa	827	328	318	10	499
31	Khan	1481	721	590	131	760
32	Kotra Khera	472	231	130	101	241
33	Leelora	1048	554	422	132	494
34	Magariwara	3822	1784	1287	497	2038
35	Makawal	2472	1111	1076	35	1361

36	Malawa	1137	530	478	52	607
37	Maleepura	1009	507	488	19	502
38	Malgaon	2312	873	851	22	1439
39	Malpura	1398	731	706	25	667
40	Mandar	13930	5206	4555	651	8724
41	Methipura	1503	826	354	472	677
42	Mohabbatpura	466	227	225	2	239
43	Mooliya Khera	755	404	325	79	351
44	Nimbora	1657	680	386	294	977
45	Padar	1717	745	492	253	972
46	Palri Khera	1089	499	493	6	590
47	Pamera	3722	1422	1022	400	2300
48	Peepaliya	340	209	115	94	131
49	Perwa	1265	630	377	253	635
50	Rampura	626	361	211	150	265
51	Rampura Khera	1021	593	586	7	428
52	Sanwara	2925	1350	999	351	1575
53	Saran Ka Khera	929	638	396	242	291
54	Sonani	1648	631	626	5	1017
55	Suliva	1779	1034	863	171	745
56	Thal	2833	1449	1117	332	1384
57	Tokra	1747	856	782	74	891
58	Udwaria	1968	1121	575	546	847
59	Vikanwas	1089	508	309	199	581
60	Wadka	1460	665	586	79	795
Total		**113552**	**51366**	**41247**	**10119**	**62186**

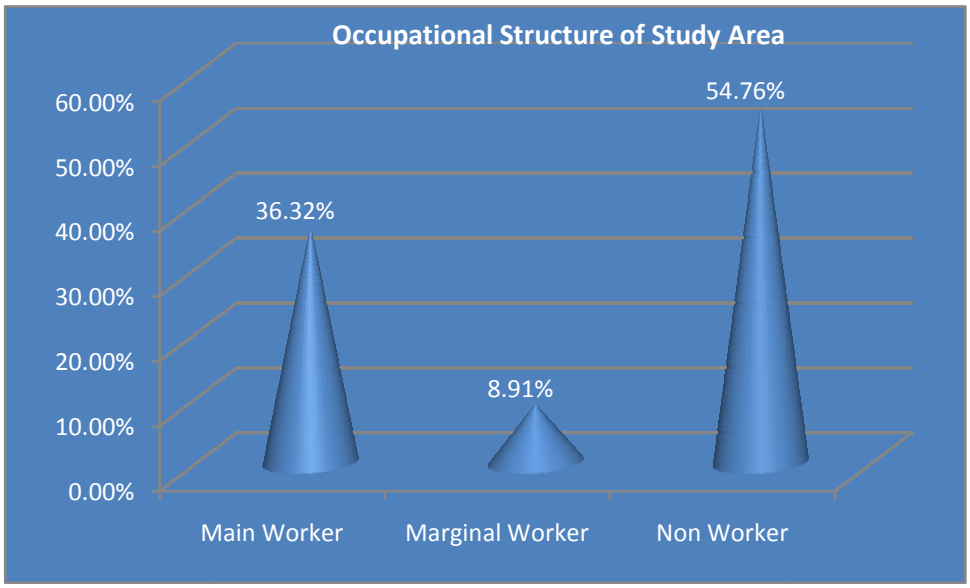


Figure 3-7Occupational Structure showing Main, Marginal and Non worker of the study area

3.7.6 Basic Amenities

Site Analysis

(i) Connectivity

Nearest Highway is SH-26 linking Nasirabad to Kekri. State Highway SH-26 Links Nasirabad to Kekri via Sarwar and then to Kota via Deoli. Motorable roads bifurcates towards villages Joining Riverside villages Bilavatiya Khera, Hingoniya, Manpura, Lallai, Hingtada, Sohanpura, Goverdhanpura, Someliya, Sarwad, Jadana, Khiriya, Sanodiaya, Jawala, Chandama, Piproli, Tantoti, Gudliya, Motipura near Dai river.

(ii) Infrastructure

Infrastructure resource base in villages under the study area of proposed project at near village Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan Tehsil-Reodar, District-Sirohi (Rajasthan) is satisfactory. Education facility up to primary level is available in all the villages. Facility up to middle school and high school is also available in some of the villages. Medical facility includes primary health centre (PHC), registered private practitioner etc. is available in some of the villages. In most of the villages, medical facility is available at a distance of 5 to 10 km. Govt. The main drinking water resource is through private dug-wells and bore wells. Roads are built with pucca and kaccha, both of type. Density of house along the main arterial roads comparatively higher than inner village areas. Other facility includes rest shelter, canteen, amusement center, communication facility with mobile telephone services and landline available at site. Other amenities for workers and staff in form of bonus, PF is provided timely.

(iii) Amenities/Facilities

Basic amenities/facilities available in nearby villages and towns are such as road, power supply, communication, water supply, medical and health etc. Site is well connected with road and other infrastructure facilities. Communication facilities such as post office, telecommunication available in near villages Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara,

Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan. Nearby villages are electrified. Medical facilities such as PHC available in some of the villages such as Reodar, Gulab Ganj and Rajgarh etc. Hospital and Dispensary facilities available in near town of Sarwar.

(iv) Water

Ground water forms a major source of drinking water in urban as well as in rural areas. More than 90% of the rural population uses ground water for domestic purposes. Sirohi district comprises 6 urban areas and each of them is facilitated by piped water supply. All the 467 villages and 375 marked hamlets are benefited by water supply for drinking and domestic purposes.

(v) Road Transport

The Mine site is in river Sipu&Sukari at tehsil Reodhar, Dist. Sirohi, Rajasthan which is well connected to Road Network.SH 11 from Abu Road to Sildar are passes through the lease area near village Loonol. SH 27 also pass through the lease near village Loonol.

(vi) Rail Transport

Sirohi has the major rail way station Abu Road connecting to most of the important Cities and rail way station in India.

Some of the rail way stations in district are Sirohi Road, Jawai Bandh, Swarupganj, Nana, Mori Bera, Keshavganj, Kothar and Kivarli. which connects most of the towns and villages in the District.

(vii) Air Transport

Air transport facility is not available in the district. The nearest airport is Maharana Pratap Airport, Udaipur at a distance of 160 kms.

(viii) Health and Educational facilities

There are good educational facilities in Sirohi district, which serve both townspeople and inhabitants of surrounding villages and towns in the hinterland. There are 920 primary schools, 196 Middle Schools, 210 secondary and higher secondary schools and 04 degree colleges,

Table 3-27 Shows Education facilities in the district

S.No.	Facilities/Institutions	Nos.
1	Primary Schools	920
2	Middle schools	196
3	Higher Secondary and Secondary Schools	210
4	Collages	04

Table 3-28 Medical facilities at District-Sirohi, Rajasthan

S.No.	Facilities	Nos.
1	Allopathic Hospitals	01
2	Ayurvedic Hospitals	02
3	Community Health Centres	06
4	Primary Health Centres	27
5	Dispensaries	68
6	Sub Health Centres	191

(ix) Population Projections

Total population of Sirohi District is 1,036,346as per latest provisional figures released by Directorate of Census Operations in Rajasthan. This shows increase of 21.76 percent in 2011 compared to figures of 2001 census. The initial figures of data shows that male and female were 534,231 and 502,115 respectively. Sirohi District of Rajasthan comprises an area of 5,136 sq.km. As per census 2011, density of Sirohi District per square km is 202 compared to 166 per sq.km of 2001. With regards to Sex Ratio in Sirohi, it stood at 940 per 1000 male compared to 2001 census figure of 943. In 2011 census, child sex ratio is 897 girls per 1000 boys compared to figure of 918 girls per 1000 boys of 2001 census data. . There were total 173,364 children under age of 0-6 against 168,985 of 2001 census. Of total 173,364 male and female were 91,370 and 81,994 respectively.In 2011, Children under 0-6 formed 16.73 percent of Sirohi District compared to 19.85 percent of 2001. There was net change of -3.12 percent in this compared to previous census of India.

Total population is 1,036,346compared to 851,107of 2001.

1. Male and female were 534,231 and 502,115 respectively.
2. Population Growth for Sirohi District recorded in 2011 for the decade has remained 21.76 percent. Same figure for 1991-2001 decade was 26.81% percent.

3. Total Area of Sirohi District was 5136 sq. Km with average density of 202 per sq. km.
4. Sex Ratio of Sirohi District is now 940, while child sex ratio (0-6) is 897 per 1000boys.
5. Children below 0-6 age were 173,364 which forms 16.73 of total Sirohi District population.
6. Average Literacy rate for Sirohi District is 55.25 percent, a change of from past figure of 53.94 percent. In India, literacy rate is counted only for those above 7 years of age. Child between 0-6 ages are exempted from this.

Total literates in the Sirohi District increased to 476,806.

Table 3-29 Projected Population of the District Sirohi, Rajasthan

S.No.	Year	Population	% increase
1	2001	851,107	21.76
2	2011	1,036,346	

3.8 Existing Traffic Scenario

The existing traffic scenario is given from**Table 3.29** to **Table 3.31.**

Table 3-30 Existing Traffic density of SH- 27 (Sirohi)

Design service volume PCU/Day (C)	Type of Vehicle	No. of vehicle / day	PCU Factor	No. of PCU/ Day (V)	Proposed V/C Ratio	Level of Service (LOS)
15000	Car/ jeep/ van	148	1.0	148	0.05	"A"
	Two wheelers	156	0.5	78		
	Truck	172	3.0	516		
	Tractor	78	1.5	117		
	Total	554		859		

Table 3-31Existing Traffic density of SH- 11 (Abu Road & Mandar)

Design service volume PCU/Day (C)	Type of Vehicle	No. of vehicle / day	PCU Factor	No. of PCU/ Day (V)	Proposed V/C Ratio	Level of Service (LOS)
15000	Car/ jeep/ van	345	1.0	345	0.11	"A"
	Two wheelers	265	0.5	132.5		
	Truck	357	3.0	1071		
	Tractor	98	1.5	147		
	Total	1065		1696		

Table 3-32Existing Traffic density of Reodhar Jaswantpur-MDR

Design service volume PCU/Day (C)	Type of Vehicle	No. of vehicle / day	PCU Factor	No. of PCU/ Day(V)	Proposed V/C Ratio	Level of Service (LOS)
5800	Car/ jeep/ van	54	1.0	54	0.06	"A"
	Two wheelers	68	0.5	34		
	Truck	78	3.0	234		
	Tractor	43	1.5	65		
	Total	243		387		

V= Volume in PCU's/Day C=Capacity in PCU's/Day

The existing level of service at near village is "B" *i.e.* very good and at highway is "A" *i.e.* excellent.

3.8.1 Results

Based on the above analysis, it is clear that the Volume/Capacity ratio is likely to change to 0.05 to 0.11 with LOS being "A" which is categorized as 'excellent' as per classification given in IRC: 64 (1990). So the additional load on the carrying capacity of the concerned road is not likely to have any significant adverse affect at all.

Production per day = 8500 TPD @ 330 days of working per annum

Since we assume trucks of 20 tones and Trolley of 4 tone carrying capacity. There are 7 blocks having starch of around 9 Km. There will be maximum trolley assumed per block is 50-55 and trucks per block will be about 50-55. Separate route for each block will be maintained so that congestion on any route does not take place.

Separate route for each block will be maintained so that congestion on any route does not take place.

CHAPTER-4

ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

4.1 GENERAL

In order to understand the impacts, the baseline data generated requires being superimposed by impacts from different activities proposed to be taken up. Every developmental project will have both positive and negative impacts on the surroundings. Likely impacts on environment can be mitigated by proper and effective environment management plan (EMP). Superimposed predicted impacts over baseline environmental scenario give the ultimate environmental scenario. With such an assessment an impact score will be obtained with implementation of project without any mitigation measures. Each effects of the project on each environmental parameter are detailed below in accordance with the parameters of environment likely to be affected. In the present study, baseline environmental scenario was established through environmental monitoring data for the period of December-2013, January-2014 & February-2014 (winter Season). On the behalf of impact analysis, the proposed mitigating measures and future monitoring requirement are incorporated in the environment management plan for minimizing the impacts.

In order to assessment of environmental process, the mitigation measures have been developed with a view to bring down the levels of impacts within the prescribed permissible limits. Based on the project details and status of baseline environmental scenario, potential impacts as a result of the mining project of ***M/s. Sher Singh Solanki*** have been identified.

4.2 Details of identification of Environmental Impacts

The environmental impact assessment of activities of project proponent comprises the following for proposed production of mineral 28.05 Lac TPA of River sand (Bajri) from this mine. The key environmental problems arising due to proposed project of river sand mining are as follows:

- Change in Land-Use (Land Degradation, Soil Erosion etc.)
- Change in Ambient Air Quality
- Alteration in Water Quality Characteristics
- Change in Ambient Noise level
- Changes in Vegetation characteristics of the area
- Changes in Traffic Scenario

- Change in Socio-economic Status

4.2.1 IMPACTS PREDICTION OF LAND AND SOIL ENVIRONMENT

Predictions of impact of mining activity on land environment are based on the nature of activities and associated aspects of environment. Degradation of land is not a very significant adverse impact of riverbed mining due creation of access roads, mining operations, transportation of mined out material. Impact of sand mining may cause:

- Damage of river bank due to access ramps to river bed, causing damage to vegetation, soil erosion, micro-disturbance to ground water etc.
- Riparian vegetation losses standing along the bank due to making roads connecting successive access to river bed.
- Soil erosion due to excessive undercutting of river banks.
- Changes in channel slope and velocity.
- Changes in the downstream *i.e.* Deposition of sediment.
- Alteration in channel bed morphology.

Following impacts will be on land use due to proposed project of river sand mining as:

Table 0-1Land Use Operational & Post Operational

S.No.	Particular	Present	End of 5 Year
1.	Area excavated	3.5 Ha.	299Ha.
2.	Storage of Top Soil	Nil	Nil
3.	Overburden/ Dump	Nil	Nil
4.	Mineral Storage	Nil	Nil
5.	Infrastructure (Workshop, administration building etc)	Nil	Nil
6.	Roads	4.5 Ha.	4.5 Ha.
7.	Railways	Nil	Nil
8.	Green Belt	-	12.5 Ha
9.	Tailing Pond	Nil	Nil
10.	Effluent Treatment Plant	Nil	Nil
11.	Mineral Separation Plant	Nil	Nil
12.	Township Area	Nil	Nil
13.	Undisturbed land	1278	970
Total Land		**1286**	**1286**

4.2.2 Mitigation Measures

Excavations of river bed mineral and allied activities are the main sources of environmental degradation. Mining will not be done beyond the stipulated limit/norms, so the chance of river channel widening, bank widening and natural gradient will be negligible. Mining at concave side of the river channel will not be done to prevent further bank erosion.

Following measures to stop further degradation of land environment are as follows:

(i) Number of access roads to river bed shall be provided minimum for which cutting of river banks will be avoided and ramps are to be maintained.

(ii) Mining schedule is synchronized with the river flow direction and gradient of the land.

(iii) Minimum ramps (access route) will be formed as per requirement. Access route will be kept outside of village boundary.

(iv) Access point to the river bed will be decided basis on least steepness of river bank and least human activity.

(v) Access roads from public roads and upto river bank will be aligned in such a way that it would cause least environmental damage in the area.

(vi) Proper Mining will be carried to ensure that ponds are not formed in the river bed.

(vii) Proposed afforestation measures along the banks of the river and along the road side of the approach roads to arrest soil erosion and strengthening of banks.

(viii) Mining will not be done during monsoon season.

(ix) Creation of ponds and pits on the river bed shall not be allowed.

(x) Mining will be carried out in scientific manner to avoid overcutting of river banks.

(xi) Slope and gradient of channel will not be disturbed due to proposed mining operation.

(xii) No modification in channel morphology is proposed.

The proposed project of river sand (Bajri) mining will not be much impact of the project activity on the soil, land use and cropping pattern in the surrounding areas as the mine is confined to riverbed only, there will no other land disturbed. Vegetation is sparsely distributed in the area except with few thorny shrubs/bushes. No waste generated during proposed mining operation. Thus no waste dump proposal at mine site

4.3 WATER ENVIRONMENT

Excavation of sand within stream bed has a direct impact on the stream's physical characteristics such as geometry, gradient, substrate composition and stability, depth, velocity and sediment transport. Average annual rainfall is about 681.6 mm. Generally, ephemerals types of river are found in the district. Water flows in rivers only in monsoon season.No proposal for pumping of water either from river or tapping the groundwater is envisaged. There will not be any adverse impacts on surface hydrology and ground water regime. During mining, no diversion or modification of any part of the river is proposed. The status of surface water and ground water in 10km radius in Buffer zone of study area are depicted in **Table 4.2.**

Table 0-2Status of Ground water and Surface water in Study Area

Station Code	Location	Distance	Direction
GW 1	Hathal	0.5 km	West
GW 2	Kotra Khera	0.5 km	South
GW 3	Mandar	3.5 km	South West
GW 4	Mokawal	0.5 km	South
GW 5	Dhani	3.5 km	North West
GW 6	Tokara	0.5 km	East
SW 1	Sipu River*	-	-
SW 2	Thandawara Nadi*	4.0 km	West
SW 3	Sili Nadi*	-	-
SW 4	Devangan Nadi*	3.5 km	South East

*(**GW**= Ground Water, **SW**=Surface Water)*

The ground water will not encounter in the workings. Rainwater flows only in rainy days from mining area. The measures proposed in environment management plan will cause to improve surface and ground water quality.

4.3.1 Water Consumption/Water Demand

The water consumption at the mine is as following:

Table 0-3Water Requirement at Mine site

S.No.	Description	Water Requirement (KLD)	Source
1.	Dust Suppression	9.0	Bore/Tube well in nearby villages.
2.	Drinking & other domestic uses	2.0	Bore/Tube well in nearby villages.
3.	Green belt	5.0	Bore/Tube well in nearby villages.
Total		**16.0**	

4.3.2 IMPACT ON WATER QUALITY

Mining is proposed upto 3m depth only from surface of river channel or water table whichever is less. There is no impact envisaged on quality of groundwater. During mining, ground water table will not be intersected. Ground water table will remain always below the pit depth & hence not encounter in the workings up to 3m UPL (Ultimate Pit Limit).

Anticipated impact on water environment is alteration of flow patterns resulting from modification of the river bed

4.3.3 MITIGATIONS MEASURES

The mining from river bed does not have any impact on topography and natural drainage of surrounding area as no part of land outside river bed will be disturbed. During mining no other water channel or natural drainage will be obstructed. All the measures will be adopted to avoid surface water pollution in and around the study area. No toxic waste will be generated by mining or any other way. Mine will maintain zero discharge status. In order to mitigate the likely impacts, the following measures have been proposed:

- It is not proposed to divert or truncate any part of the river, mining will be restricted to riverbed only.
- No natural drainage /passage will be obstructed due to mining or any other way.
- Mobile toilets will be provided for the workers at site with septic tank followed by soak pit.
- There will not be any adverse impact on surface hydrology and ground water regime. Mining of river sand is confined to 3 meter depth from surface of river channel or above the ground water table whichever is

less. Thus no ground water pollution is expected as the mining operation will not intersect the ground water table.

- No liquid waste will be generated due to mining or any other way so there is no possibility of pollution of water resources due to liquid waste. There no contamination of ground water is envisaged.
- Flow and direction will not be altered by mining or any other way. Mine will not generate any toxic substance during 5 year period.
- To prevent silt being carried during monsoon period, a series of plants would be planted at riparian zone (erosion prone)

4.4 HYDROLOGY OF THE AREA & IMPACT ON GROUND WATERQUALITY

In view of the facts that the mining activities do not intersect the ground water table, no impact on the quality of ground water is anticipated. Beside this the sand and bajri are nontoxic in nature and therefore percolated water from the pits shall not impact the ground water quality. The extraction of sand and bajri from river channel shall lead to change in its cross-sectional profile and cause increasing the bed slope / gradient. During flow of water in monsoon season, the river channel creates a new channel path through the pit where it will deposit all bed sediments. During monsoon, rivers are flooded and carry bed load and deposit in excavated pits.

4.5 IMPACTS ON AIR ENVIRONMENT

The proposed mining operations are not anticipated to raise the concentration of the pollutants beyond prescribed limits. However, the following measures would be adopted to mitigate the PM_{10} levels in ambient air. Dust particles generated during various mining activities when airborne become lead to increase in PM_{10} level in the ambient air. Ambient air quality was studied and predicted through air dispersion modeling that the mining activity is not likely affect the quality of air. On the basis of modeling technique, anticipated impacts on ambient air environment are insignificant. The major source of dust generation is the transport of material by trucks and tippers.

4.5.1 Prediction of Impacts

Prediction of impacts helps to identify and implement environment management plan (EMP) during and after the execution of the developmental

mining activity. Prediction of impacts is the most important component in environmental impact assessment studies. Many scientific techniques and methodologies are available to predict impacts on physico-ecological and socio-economic environment. Such predictions are superimposed over the baseline status of environmental quality to derive the ultimate scenario of environmental conditions.

The mathematical models attempt to quantitatively describe the cause and effect relationships between sources of pollution and different components of the environment *viz.* air, noise, water, land, biological and socio-economic. There are also various scientific techniques/methodologies available to predict the environmental impacts quantitatively as well as qualitatively. The mathematical models used include steady state Gaussian Plume Dispersion model designed for multiple applications for air quality. For land, biological and socio-economic environments, the predictions have been made based on available scientific knowledge and techniques. In the present study, the most probable impacts on various components of the surrounding environment due to the proposed river sand mining operations have been predicted using mathematical models and statistical techniques.

Prediction of impacts on air environment has been carried out taking into consideration the proposed production and increase in emissions. This project proposal is production of 28.05 Lac TPA River sand. Details of production considered for prediction of impacts is given in **Table 4.4.**

Table 0-4Details of Production (Tonnes per Year)

Years	Proposed Production in Tons
First	28.05 Lac Tons
Second	28.05 Lac Tons
Third	28.05 Lac Tons
Fourth	28.05 Lac Tons
Fifth	28.05 Lac Tons
Total	**140.25 Lac Tons**

4.5.2 Impact on Air Environment

The air quality impact of a source or group of sources is evaluated by the use of mathematical models. The models simulate the relationships between air

pollutant emissions and the resulting impact on air quality. The inputs to the model include data relating to emissions, meteorology and atmospheric details like ambient temperature, wind speed and wind direction all of which are determined by formulating impact scenarios. The estimation and evaluation of dust generation from mining activities is an immensely complicated procedure. Dust to be generated during proposed mining activities will be from various sources like excavation operations which generate fugitive dust harmful to the human health and environment. Apart from this, vehicular movement within and around the mining activity will also generate huge quantity of dust. The proposed River Sand mine activity proposes to use heavy equipments like hydraulic excavators, loaders, dumpers and dozers which act as sources generating dust pollution along with movement of vehicles within the mining area acting as line sources.

4.5.3 Overview of Environmental Impacts due to Mining

4.5.3.1 Operation & Major Pollutant Sources

At mining sites, the major pollutant sources of concern include transportation of mineral, loading of mineral & moving of mining machineries.

4.5.4 Long-term Impacts of Mining

4.5.4.1 Impacts on Air Quality

The primary air pollutant of concern at mining sites is particulate matter. There are established standards as per the NAAQS. A variety of mining operations emit particulate, usually as fugitive dust (as opposed to emissions from stacks), and relatively simple controls are often sufficient.

- Loading and unloading bins for minerals generate dust. Again water sprays are typically used for control
- Equipment and vehicles travel on access and haul roads are major sources of fine and coarse dust. Most mines use water trucks to dampen the surface periodically
- Wind also entrains dust from dumps, roads and other disturbed areas. Spray from water trucks are often used when the mine is operating. During temporary closures, particularly after the active life, stabilization and reclamation are aimed in part at reducing fugitive dust emissions. Tailings in

particular can be a potent source of fine particulate; temporary or permanent closure greatly increases the potential for surface tailings to dry out and become sources of dust.

- The emission rates were calculated based on the field activities and the dust emission effect was estimated at different location. The details are as below:

Table 4-0-5Table Showing Impact Prediction without Using Control Measure

Location	Background Concentration PM10 (µg/m3)	Predicted Incremental Concentration PM10 (µg/m3) without control measures	Post Project Air Quality PM10 without control measures (µg/m3)	NAAQS (µg/m3)
Down Wind from Sili Nadi	60.9	0.11	61.01	100
Mandar	68.7	0.05	68.75	100
Marol	63.1	0.54	63.64	100
Reodar	67.4	1.70	67.74	100
Jirawal	59.5	0.10	59.60	100
Thal	63.9	3.60	67.5	100
Selwara	63.4	11.43	74.83	100
Dangrali	63.3	2.11	65.41	100
Anadra	63.6	0.19	63.79	100
Sipu River	58.8	10.35	68.35	100

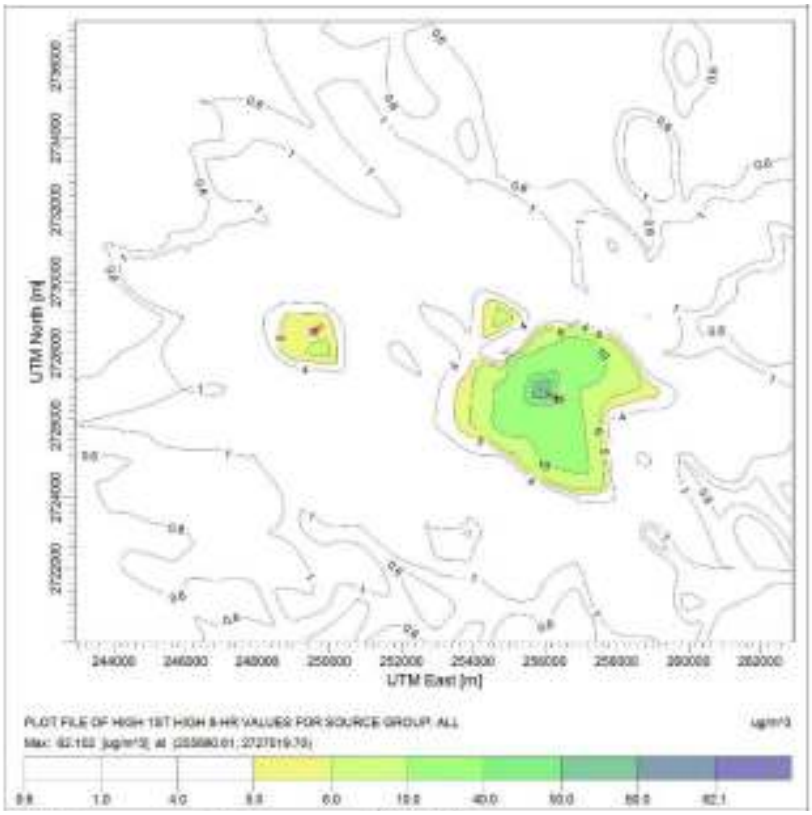


Figure 0-1 PM ISOPLINTH WITHOUT USING CONTRL MEASURES

4.5.5 Mitigation Measures

- The only air pollution sources are the road transport network of the trucks. The dust suppression measures like water spraying will be done on the roads regularly.
- Care will be taken to prevent spillage by covering the carrying vehicles with tarpaulin.
- Overloading of material will be kept under check.
- Proper tuning of vehicles will be ensured to keep gas emission from the vehicles within prescribed limits/norms.
- Plantation of trees along the 7.5m of riparian zone to attenuate the impact of dust in the nearby villages.
- Dust mask provided to the workers engaged at dust generation points like excavations and loading points.

Table 0-6Table Showing Impact Prediction with Using Control Measure

Location	Background Concentration PM10 (µg/m3)	Predicted Incremental Concentration PM10 (µg/m3) with control measures	Post Project Air Quality PM10 with control measures (µg/m3)	NAAQS (µg/m3)
Down Wind from Sili Nadi	60.9	0.04	60.94	100
Mandar	68.7	0.01	68.71	100
Marol	63.1	0.02	63.12	100
Reodar	67.4	0.06	67.46	100
Jirawal	59.5	0.03	59.53	100
Thal	63.9	0.05	63.95	100
Selwara	63.4	0.09	63.49	100
Dangrali	63.3	0.03	63.33	100
Anadra	63.6	0.05	63.65	100
Sipu River	58.8	1.23	59.03	100

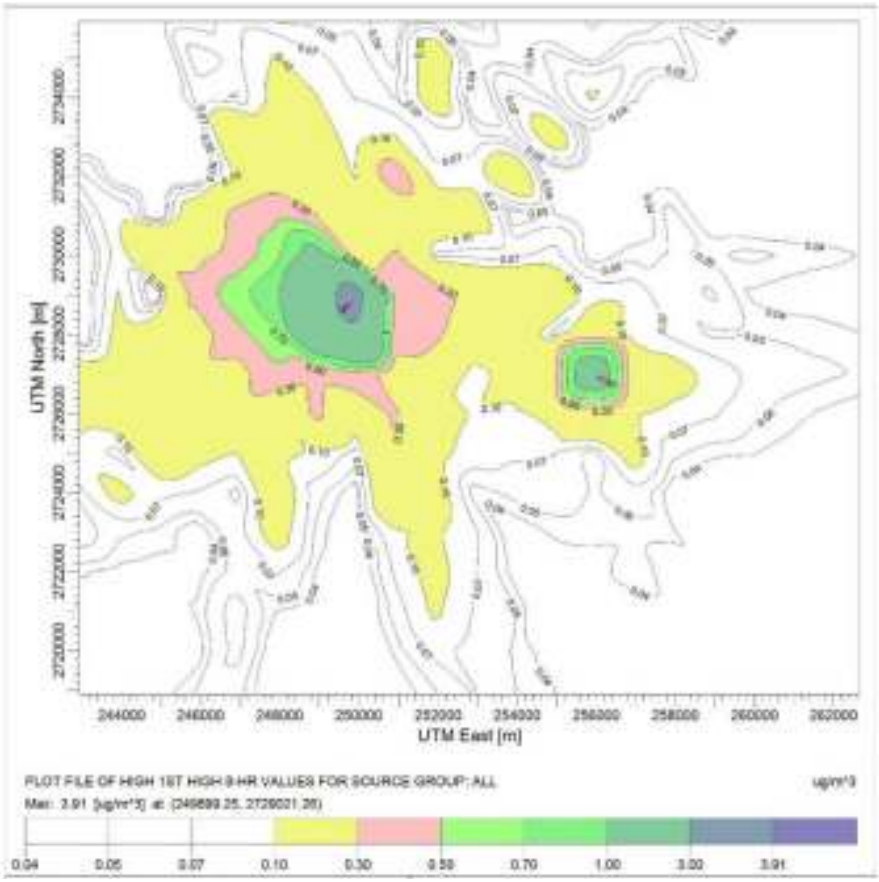


Figure 0-2 PM ISOPLINTH WITH USING CONTRL MEASURES

4.6 IMPACTS ON NOISE ENVIRONMENT

The noise levels are dependent upon the deployment of mining machinery and transport vehicles in the area. Ambient noise level in the core zone is likely to increases from deployment of additional noise generating equipment such as heavy earth moving machineries.

Computation of level of noise at the mine boundary is based on the assumption that there are no attenuation paths between the source and the mine boundary. Basic phenomenon of the model is the geometric attenuation of sound. Noise at a point generates spherical waves, which are propagated outwards from the source through the air at a speed of 1,100 ft/sec, with the first wave making an ever-increasing sphere with time. As the wave spreads the intensity of noise diminishes as the fixed amount of energy is spread over an increasing surface area of the sphere. The assumption of the model is based on point source relationship i.e. for every doubling of the distance the noise levels are decreased by 6 dB (A). Point source propagation is defined by the following equation:

Lp2 = Lp1 20 log r2/r1

Where Lp1 and Lp2 are sound pressure levels at points located at distances r1 and r2 respectively from the source.

The noise level during the proposed mining activities at Reodar has been predicted for the worst scenario. The cumulative noise level due to these sources shall be 46.0 dB(A). Hence, no impact on ambient noise level is anticipated.

4.6.1 Impacts Prediction

The impact of noise will be restricted in the working area only. The main sources of noise in the mine are classified as follows:

- Mobile Mining Equipment (Poclain, Excavators etc.)
- Transportation (Dumpers, Trucks, Tippers & other vehicles.)

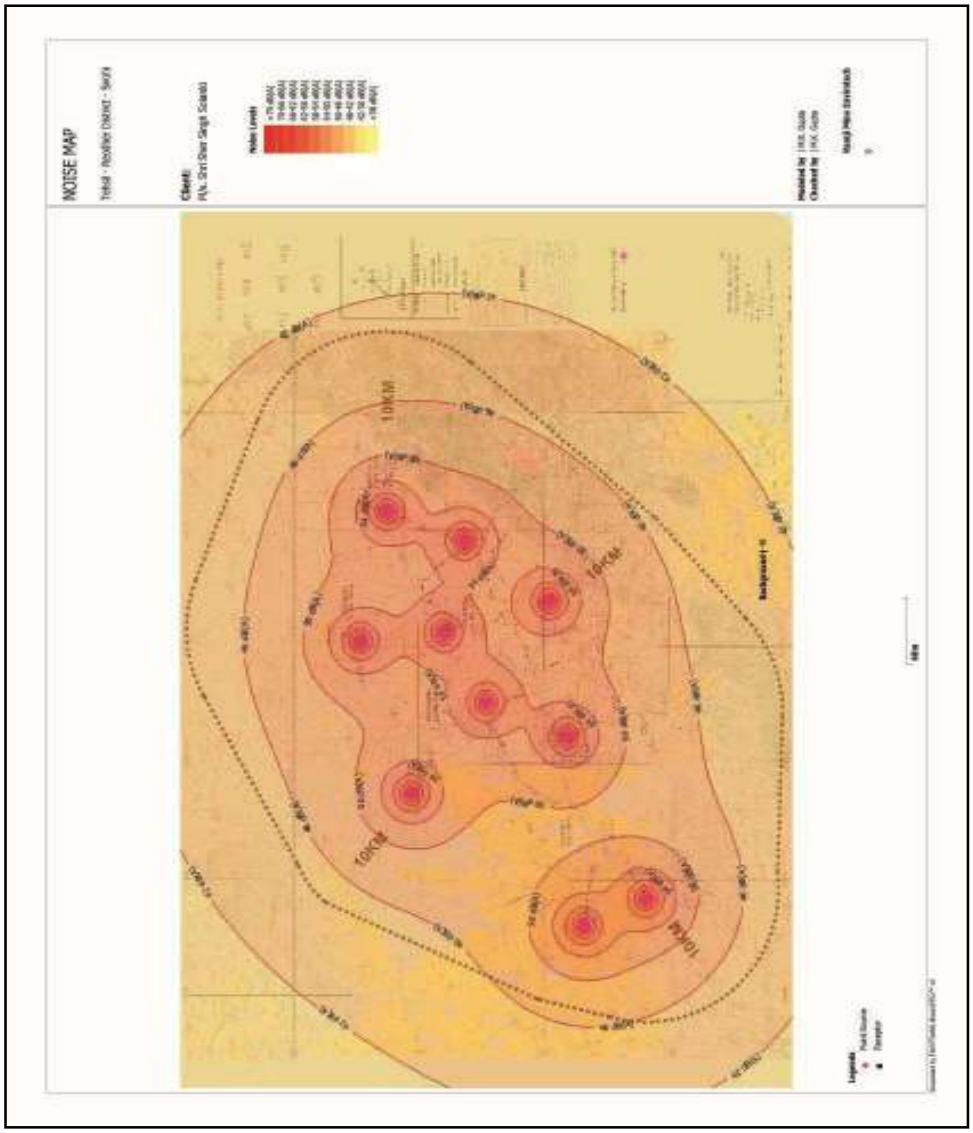


Figure 0-3 Noise modeling of study Area

4.6.2 Mitigation Measures

To keep the ambient noise levels within the permissible limits of 75dB (A), the following measures will be taken to minimize noise are as:

- Plantation of trees along the 7.5m riparian zone of the river will be done to dampen the noise.
- The vehicles will be maintained in good running condition so that noise will be reduced to minimum possible level.
- Timely maintenance of vehicles and their silencers to minimize vibration and sound.
- Phasing out of old and worn out trucks.
- Trucks drivers will be instructed to make minimum use of horns at the village area.
- Care will be taken to produce minimum sound during loading/excavation activities.

4.7 BIOLOGICAL ENVIRONMENT

The proposed mine lease area is 'Gair Mumkun Nadi Nala', which bears negligible density and species composition of forest vegetation. There are some economically important plants species in the buffer zone of the project which has very remote chance of getting disturbed due to mining activities. Since there will be no felling of trees or deforestation, there will be no impact on flora of the core zone. The mining activity per se shall not lead to any impact on the terrestrial flora of the buffer zone either. Mount Abu wild life sanctuaries fall at a distance of 7.1 km. in East direction from the lease area.

Protected and Reserved forests are also more than 5.0 Km away of area so there is anticipated no impact. The dust is the only major pollutant, which will be generated from different activities of mining.

The effect of particulate matter on vegetation is in the form of incrustation, plugging of stomata, and loss of chlorophyll and reduction of photosynthesis process. Disturbance in plant metabolism due to deposition of dust particles on foliar surfaces leads to reduction in plant growth. The atmospheric concentrations normally do not reach a level sufficient to induce acute injury.

The annual plantation, within the mine lease area, proposed for five years of mining period shall greatly help in developing a good vegetal cover on the upper terrace near the bank of the river and eventually attract micro fauna, birds etc in the area. Thus, there will be positive impact on terrestrial environment around the mine lease area.

4.7.1 Impacts Prediction

NATURE OF IMPACTS

Impact of mining on land environment gets reflected in land-use pattern of the respective area because the more the land gets exposed to erosion by loosing its green cover or by getting disturbed otherwise due to mining and related activities, its water resources gets damaged, soils get contaminated, part or total of flora and fauna gets lost, air and water gets polluted and the more damages go on proceeding in accelerated rates and the cumulative effects push the land towards degradation.

Mines and their associated infrastructure may impact terrestrial flora and fauna in diverse ways during operational phase. The main impacts the loss and fragmentation of habitats, with a consequent loss of biodiversity and possibly loss of species of special concern. This may result from direct land clearance, or occur indirectly via loss or changes in habitats due to consequent changes in drainage patterns, increased fire risk, or secondary impacts associated socio-economic factors resulting from changes in surrounding land use. During the operational life of the mine, small accumulative impacts also occur Including ongoing mortalities resulting from increased road traffic, increased disturbance (noise and light), dust generation, air pollution, increased litter and change in the incidence of fire. All of these factors may impact the surrounding fauna and ecological processes in different ways.

However, in most of the cases it has been observed that the damage due to mining activity has been reflected on decrease in green cover or water resource or both. Greenery bears a pivotal role in protecting the quality of all aspects of environment, also in many cases it is considered as a desired indicator of protector of environmental quality in the region. Regarding desired land use pattern, our National Forest Policy has fixed the national average forest cover at

33%. This fact indicates that there is still some drawback in the land-use management system. Strategies need to be developed including policy intervention, promoting research and stakeholder participation, and technological intervention to check land degradation.

EXISTING IMPACTS:

Many existing impacts occur in the region, particularly the loss of sensitive habitats (via primary destruction and secondarily via contamination), loss of faunal diversity (particularly large mammals and birds), loss of species of special concern, and disruption to faunal movements. The direct impacts of mining disturbances to land surfaces are usually significant, with the likelihood of destruction of local biodiversity within natural ecosystems through the removal of natural soils, plants and animals. However, mining is a temporary land use because the mineral deposit is finite and eventually gets exhausted.

The Key environmental problem and impacts of mining /quarrying are:

- Degradation of forest and loss of biodiversity
- Air and noise pollution
- Surface and ground water pollution
- Land degradation
- Environmental degradation due to abandoned and closed mine

4.7.2 Mitigation Measures

The impact on land cannot be fully eliminated because there are some mining impacts such as loss of agricultural land, water pollution, fall in water table etc are inevitable but its impact can be reduced to an acceptable level by adopting suitable mitigation measures and by doing adequate planning at the initial stage of mine development. Setting aside or exclusion of critically important areas, compensatory afforestation, creation of green belts, rehabilitation of species or individuals are basic actions taken for mitigation of impact. While creating green belt and undertaking the afforestation works, it is required to plant indigenous/local plants and as far as possible exotics should not be introduced. The cost of eco-restoration of the site should be included in the project cost. Some of the land related mitigation measures are as follows:

- Topsoil can be conserved by implementing adequate mitigation and cons - ervation plan.
- Open area should be planted with trees.
- Stabilization of overburden dumps by mechanical and biological reclamation.
- No mining in area support unique habitant, endemic, threatened or declining species, or species of high economic and cultural value to society.
- Natural drains or nallah should not be disturbed; Incase of diversion - alignments should be made by constructing artificial drain.

Plantation is a principal goal of reclamation and results in many desirable secondary water quality and aesthetic benefits. Plantation goals are from simple erosion control to the full restoration of complex native communities. The approaches and protocols employed, therefore, are specific for region, site and land use. The development of a permanent vegetation cover should aim to establish a plant community that will maintain itself indefinitely without attention or artificial aid, and support native fauna. To extract better results, some ecological variables must be considered while selecting species for plantation. These are; their capacity to stabilize soil, soil organic matter and available soil nutrients, and under storey development. In the initial stages of revegetation quick growing grasses with short life cycle and forage crops are recommended. It will improve the nutrient and organic matter content in soil. Plantation of mixed species of economic importance should be done after 2-3 years of growing grasses. While selecting suitable species for plantation in mine area, the following considerations have to be taken into account:

- Planting, pollutant tolerant species.
- Plants of fast growing with thick vegetation foliage
- Indigenous plants species with easy adaptability to the locality.
- Socio economic requirement of the people of the surrounding area.

There is need for creating green belt (approximately 7.5 to 15 m wide) in the safety area to provide an effective dust, noise and sight curtain in the periphery of the mining area. The trees to be planted in the green belt area shall act as

buffers and shock absorber against dusts, noise and stone flying. Trees in the green belt will be tall, wind firm, broad leaved and evergreen.

Greenbelt development program will be designed within the natural constraints of the river sand area and in particular species selection reflects flora known to be resistant to the local conditions.

A Greenbelt development is necessary for:

1) Landscaping and providing shelter
2) Help in reducing Pollution level
3) Surface air purification by providing oxygen and letting SPM to settle on the leaves.
4) To attenuate noise generation by movement of vehicles and other machinery.
5) Prevent soil erosion to great extent
6) Improve ecological conditions.
7) Improves the aesthetics & beneficially influence the microclimate of the surrounding.

SPECIES FOR PLANTATION AND GREEN BELT DEVELOPMENT

The species selected for plantation will be of mixed type having a combination of fast and slow growing species with an ultimate aim to have triple storey plantation i.e. a combination of species of tall, intermediate and short height in zigzag lining. A list of the species suggested for afforestation is giving for the development of mining site for sustainable environment of area. All these plants and shrubs can be cultivated in less water and have tolerance power of heat and dry conditions of atmosphere.

SUGGESTED PLANTS FOR RECLAMATION OF THE MINING SITE

TREE		
S. No	Species name	Binomial name
1	Shisham	Delbergia sisso
2	Ardu or Mahaneem	Ailanthus excelsa
3	Khejri	Prosopis cineraria
4	Indian Elm	Holoptelea integrifolia
5	Siris tree	Albizia lebbeck
6	Rohira	Tecomell undulata
7	Imli	Tamarindus indica

8	Babool	Acacia nilotica
9	Jungle Jalebi	Pithecellobium dulce
10	Ronj	Acacia leucophloea
11	Neem	Azadirachta indica
12	Ber	Zizyphus mauritiana
SHRUBS / HERBS		
1	Munja grass	Saccharum munja
2	Peeli Kaner	Thevetia peruviana
3	Vilayati Babool	Prosopis juliflora
4	Arandi	Ricinus cummunis
5	Kaner	Nerium Indicum
6	Sarphonka	Tephrosia hamiltonii
7	"Red (Yellow, Wild) Sage"	Lantana camara
8	Kans grass	Saccharum spontaneum
9	Bui	Aerva tomentosa

CONSERVATION MEASURES

Ecological restoration is about a broad set of activities (enhancing, repairing, or reconstructing degraded ecosystems and optimizing biodiversity returns). In essence, the restoration of mined land is based around ecosystem reconstruction. It is usually a question of the re-establishment of the capability of the land to capture and retain fundamental resources (energy, water, nutrients and species). With this view, it is proposed to plant the trees and undertake development of green belt in the project area at all possible places. As a trend, the faunal population is on decreasing trend in general. Arrangement of adequate funds has been made for enhancing, repairing, or reconstructing degraded ecosystems and optimizing biodiversity returns.

Suggestion for conservation of Threatened Species

Direct and indirect approach is required to provide effective conservation, which is suggested as under.

- Some provision of rewards for growing maximum threatened plant species.
- Aware the villagers and encourage them to grow threatened plant species in their farms by mentioning their medicinal and economic value.
- Other way to help preserve the endangered species is to create society dedication towards the ecological ethics. All the conservation measures will be

implemented with the help of and in the consultation of the state forest department.

- Organized workshop for conservation awareness of threatened plant species. A series of conservation awareness workshops for village and school children should be conducted in the different villages. Interactive discussion will be carried out participants.
- Encourage afforestation activities around by maintaining them.
- Suggest strategies to minimize negative impacts of changing environment in nearby area of promote conservation.

The lease is in the river bed and devoid of any vegetation. Mining activities will not cause any harm to riparian vegetation cover as the working will not extend beyond the offset left against the banks. It is proposed to have plantation on both sides of the roads & along the bank of river as greenbelt to provide cover against dust dissemination plantation will also be carried out as social forestry programmed in villages school and the areas allocated by the Panchayat / State authorities. Green belts are created not only for the purpose of protecting sensitive areas or to maintain ecological balance but also act as efficient biological filters. Green belt development provides an important tool to address the issue of mitigating the adverse effect of fugitive emission on surrounding environment.

CONCLUSION

The present study of Biological Impact Assessment (BIA) with the objective is to minimize adverse environmental impacts as discussed. It was observed that trees and herbs are quite better number in buffer zone then the core zone. The study covers all possible environmental issues involved in the project and the necessary mitigation measures. The present study reveals that only local and native species of plants (Trees, shrubs, herbs and grasses) were present at the buffer zone of mining site. No adverse impact of mining site was noticed on the flora and fauna present nearby area of mines.

Schedule I faunal species was observed nearby the mining area therefore, conservation plan is giving along this study. The habitats of human beings

were far from the mining site therefore the air pollution and other environmental Impact will be negligible. Taking appropriate mitigation measures for enhances the surrounding environment of the mining site and the nearby area is our sole responsibility for the "Sustainable Environment".

4.8 SOCIO-ECONOMIC ENVIRONMENT

The entire mine lease area lies within the revenue waste land in river bed, the project does not involve any loss of agriculture land. Some of the impacts would be directly beneficial to the socio-economic environment due to proposed employment potential.

Anticipate Impacts

- The adverse impacts on socio-economic environment due to mining activities in the region will affect to the local air environment and this dust will settle down on nearby agricultural fields and will affect the productivity of the land and increase in respiratory problems. Soil erosion and loss of fertility etc.
- There may be some conflict of utilization of local resources between project proponent and local communities. For avoidance of which the project proponent should maintain a good liaison and ensure cordial relation between staff and locals.
- Contamination of water, soil and air due to mining
- Increased use of existing public infrastructure i.e. road due to vehicular traffic involved in transportation of minerals may cause congestion on roads.

4.8.1 Mitigation Measures

In the buffer zone villages, this project will be one of the major economic activities resulting in generation of revenues to the state and central governments by way of royalty and taxes etc

The beneficial impacts due to the activities in the region would be:

- Employment Potential for 80 persons in the various categories as skilled/semiskilled/ un-skilled for carrying out mining activities.
- Indirect employment in transport sector.

- Amelioration of the general living standards of local persons employed in mining activities.
- The higher earnings will result in more purchase power.
- Improvement in the economic growth in the region by way of additional mineral availability.
- Various activities, such as livelihood and entrepreneurship through providing training in Self-employment and empowering women through education and training and Promoting their SHG (Self Helping Group), taken under corporate social responsibility Initiative will have a positive impact on socio economic fabric of the area.
- Benefit to the State and the Central governments through financial revenues by way of royalty, tax, duties, etc from this project directly and indirectly.

4.8.2 Rehabilitation and Compensation

The mine area does not cover any habitation due the mine lease area lies on river bed. Hence the mining activity does not involve any displacement of human settlement. No public buildings, places, monuments etc. exist within the lease area or in the immediate vicinity. The mining operations will not disturb/relocate any village or need resettlement. Thus no impact is anticipated. The manpower requirement for the proposed project will increase employment opportunities to the local population. This will improve their socio-economic status. Also, there will be indirect employment opportunities due to the mining activities. The project will have beneficial impacts at the local level by increase in transport and communication facilities, community welfare measures and improved trade activities.

4.9 MINE WASTE MANAGEMENT

No waste will be generated from river sand mining activity. All the material will be directly marketable.

4.9.1 SOLID WASTE GENERATION AND DISPOSAL NATURE OF MINERAL REJECTS

Nature of Waste : No waste will be generated from this mine.

Sub-grade Mineral

No sub grade will be generated at site.

4.9.2 Mitigation Measures

During excavation of river sand (Bajri), no waste will be generated as all the material is directly saleable/ marketable. No waste will be generated so there is no dump proposal at mine site.

- No stock piling of sand will be done in adjoining area.
- No liquid waste will be generated during mining and other associated activities.

4.10 Existing Traffic Scenario

The existing traffic scenario is given in **Table 4.5.**

Table 0-7 Existing Traffic Scenario & LOS

S.No.	Road	Volume (V)	Capacity (C)	Existing V/C Ratio	Level of Service (LOS)
1	Kaleri to Reodar and Rajgarh to Reodar (SH-27)	905.5	12500	0.07	A
2	Karonti to Anadra to Sirohi via Gulabganj (SH-27)	981	12500	0.18	A
3	Hathal to Abu via Anadra	783.5	5800	0.14	A
4	Gundwara to Mandar	725.5	5800	0.13	A
5.	Sukli Nadi to Bhatana via Goreli	683	5800	0.12	A
6.	Sipu river to Dhani via Dangrali	548	5800	0.09	A
7.	River to Jirawal	418	5800	0.07	A

V= Volume in PCU's/Day C=Capacity in PCU's/Day

The existing level of service at near village is "A" *i.e.* Excellent.

Table 0-8 Capacity as per IRC: 64 (1990)

Volume/ Capacity	Level of Services	Performance
0.0-0.2	A	Excellent
0.2-0.4	B	Very Good
0.4-0.6	C	Good/Average/Fair
0.6-0.8	D	Poor
0.8-1.0	E	Very Poor

Table 0-9Proposed Traffic Scenario during Operational Activity

S.No.	Road	Volume (V)	Capacity (C)	Existing V/C Ratio	Level of Service (LOS)
1	Kaleri to Reodar and Rajgarh to Reodar (SH-27)	1274.5	12500	0.10	A

2	Karonti to Anadra to Sirohi via Gulabganj (SH-27)	1350	12500	0.11	A
3	Hathal to Abu via Anadra	1152.5	5800	0.20	A
4	Gundwara to Mandar	1094.5	5800	0.19	A
5.	Sukli Nadi to Bhatana via Goreli	1052	5800	0.18	A
6.	Sipu river to Dhani via Dangrali	917	5800	0.16	A
7.	River to Jirawal	787	5800	0.14	A

4.10.1 During Mining Activity

Total Capacity of Mine : 2805000 Tonne Per Annum

Number of Working Days : 330 Days

Truck Capacity : 20 Tonne

Number of Trucks Deployed : 350 Trucks

Number of Trucks Deployed : 375 Trucks

Working Hours per day : 8 Hours

There will be 8500 TPD production @ 2805000 lac TPA. Increased traffic due to proposed production will be distributed to different routes to different cities because all blocks is treated as separate mine due to long starch of mine lease area.

Mineral will be transported by Trucks and Trolleys. It is assumed that mineral will be transported to local market by trolleys and tucks but major consumption of mineral will be in cities as Sirohi, Abu Road, Mandar and Jaswantpur and connecting via route SH-27, SH-11 and Reodhar-Jaswantpur District Road.

Details of vehicle on major roads observed during field study and increased load on routes are as follows.

Table 0-10Existing Traffic density of SH- 27 (Sirohi)

Design service volume PCU/Day (C)	Type of Vehicle	No. of vehicle / day	PCU Factor	No. of PCU/ Day (V)	Proposed V/C Ratio	Level of Service (LOS)
15000	Car/ jeep/ van	148	1.0	148	0.05	"A"
	Two wheelers	156	0.5	78		
	Truck	172	3.0	516		
	Tractor	78	1.5	117		
	Total	554		859		

Table 0-11Existing Traffic density of SH- 11 (Abu Road & Mandar)

Design service volume PCU/Day (C)	Type of Vehicle	No. of vehicle / day	PCU Factor	No. of PCU/ Day (V)	Proposed V/C Ratio	Level of Service (LOS)
15000	Car/ jeep/ van	345	1.0	345	0.11	"A"
	Two wheelers	265	0.5	132.5		
	Truck	357	3.0	1071		
	Tractor	98	1.5	147		
	Total	1065		1696		

Table 0-12Existing Traffic density of Reodhar Jaswantpur-MDR

Design service volume PCU/Day (C)	Type of Vehicle	No. of vehicle / day	PCU Factor	No. of PCU/ Day (V)	Proposed V/C Ratio	Level of Service (LOS)
5800	Car/ jeep/ van	54	1.0	54	0.06	"A"
	Two wheelers	68	0.5	34		
	Truck	78	3.0	234		
	Tractor	43	1.5	65		
	Total	243		387		

Impact on Carrying capacity of SH-27, SH-11and Reodhar Jaswantpur-MDR

About 2.8 million tonne of material / annum shall be transported through SH-27, SH-11and Reodhar Jaswantpur-MDR, this tantamount to 8500 tonne / day for transportation of which 350 trucks (20 tonne capacity) and 375 trolleys (4 tonne capacity) shall be deployed. T

he trucks shall make one loaded and unloaded journey every day. It is thus apparent that the additional traffic load due to mining shall be 2100 PCU/day which will be distributed to different roads to different destination. As per IRC: 64-1990, the design service volume for a two lane rural road in plain terrain for low curvature is 15000 PCU / day and for Intermediate lane rods is 5800 PCU/Day. The incremental rise in daily traffic at SH-27, SH-11and Reodhar Jaswantpur-MDR due to transportation of minerals is evaluated and shown in following tables thus the marginal incremental rise in the total PCU shall not be appreciable and adequate apportionment of total design service volume capacity shall be still available in post project scenario.

Table 0-13 Proposed Average Daily Traffic at SH-27

Design service volume PCU/Day (C)	Type of Vehicle	No. of vehicle / day	PCU Factor	No. of PCU/ Day (V)	Proposed V/C Ratio	Level of Service (LOS)
15000	Car/ jeep/ van	148	1.0	148	0.17	"A"
	Two wheelers	156	0.5	78		
	Truck	572	3.0	1716		
	tractor	405	1.5	608		
	Total	1281		2550		

Table 0-14Proposed Average Daily Traffic at SH-11

Design service volume PCU/Day (C)	Type of Vehicle	No. of vehicle / day	PCU Factor	No. of PCU/ Day (V)	Proposed V/C Ratio	Level of Service (LOS)
15000	Car/ jeep/ van	345	1.0	345	0.18	"A"
	Two wheelers	265	0.5	265		
	Truck	587	3.0	1761		
	tractor	312	1.5	468		
	Total	1509		2839		

Table 0-15Proposed Average Daily Traffic at Reodhar Jaswantpur-MDR

Design service volume PCU/Day (C)	Type of Vehicle	No. of vehicle / day	PCU Factor	No. of PCU/ Day (V)	Proposed V/C Ratio	Level of Service (LOS)
5800	Car/ jeep/ van	54	1.0	54	0.15	"B"
	Two wheelers	68	0.5	34		
	Truck	148	3.0	444		
	tractor	252	1.5	378		
	Total	522		910		

4.10.2 Results

Based on the above analysis, it is clear that the Volume/Capacity ratio is likely to change to 0.15 to 0.18 with LOS being "A" and "B"which is categorized as 'excellent' and 'very good' as per classification given in IRC: 64 (1990). So the additional load on the carrying capacity of the concerned road is not likely to have any significant adverse affect at all.

Production per day = 8500 TPD @ 330 days of working per annum

Since we assume trucks of 20 tones and Trolley of 4 tone carrying capacity. There are 7 blocks having starch of around 9 Km. There will be maximum trolley assumed per block is 50-55 and trucks per block will be about 50-55. Separate route for each block will be maintained so that congestion on any route does not take place.

4.10.3 Control Measures for Impact Due to Traffic

Following control measures have been suggested to prevent air pollution due to the transportation activitiesTransport trucks/tippers shall be properly maintained.

- Avoiding of overloading of trucks beyond stipulated capacity by installing weigh bridges at the check posts or near to it.
- Strict compliance of traffic rules and regulations.
- The Hon'ble High Court of Judicature for Rajasthan at Jaipur Bench, vide its interim order dated 14-08-2014, in S.B.Civil Miscellaneous Stay Application 8034/2014 in S.B.CWP No. 2372/2014 in the matter of overloading and illegal mining, had passed certain directions as interim measures, fixing responsibilities on LOI holders directed them to install weighing machines at the check post or close to the check post now existing. However, machine would remain under the supervision of Mining Department as well as Transport Department who will be responsible for proper upkeep of records and data for regulating the loading capacity of trucks. It has also directed Transport department to keep the records of trucks carrying bajri to avoid overloading and if found otherwise to take action as per Motor Vehicle Act and Rules made there under. It should not only take pecuniary action but take stringent action like seizure of the truck. Taking strong note in the matter of illegal mining the Hon'ble High Court had directed the Police Department specifically the concerned SHO where illegal mining is reported to register the case and cause seizure of the mining machinery.

4.11 Impact of sediment replenishment

Rivers of the state are seasonal in nature. Replenishment in these types of rivers is meager. Precipitation is a key factor to carrying sediment load from one place to another. Rivers in the state carrying maximum sediment load during rainy season. Climate of the area is semi-arid type. Rainy season starts from mid of June to mid of September in the area. Scanty, erratic and uneven nature of precipitation is common phenomenon in the state. In this instant case, sediment transported from catchment area to river comes out to be 114650.22 tons per year. The maximum targeted production of river sand in the instant case is @ 30 Lac TPA. Hence the annual replenishment of sediment comes out to be 3.82 % of the targeted production.

However actual amount of sediment replenishment may vary from computed sediment in view of catchment topography, lithology, soil erodibility, vegetation, land use, precipitation and river channel morphology.

4.12 Irreversible and Irretrivable Commitments of Environmental Components

There is no Irreversible and Irretrivable Components due to this project.

4.13 IMPACTS SUMMARY

The environmental attributes which are likely to have an impact due to the proposed River sand mining project at near village Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan Tehsil Reodar, District Sirohi (Rajasthan) are summarized in **Table 4.11.**

Table 4.11 Summary of Anticipated Impacts

S.No.	Proposed Activity/Parameters	Anticipated Impacts
1	**Air Environment**	
	PM_{10}	-
	SO_2	-
	NO_X	-
2	**Water Environment**	-
3	**Biological Environment**	
	Flora (Vegetation)	+ve
	Fauna (Wildlife)	-
	Plankton	-
4	**Noise Environment**	-
5	**Socio-economic Environment**	
	(a) Social Status	-
	(b) Economic Status	+ve
	(c) Generation of Employment	+ve
	(d) Infrastructure Resource Base	+ve
6.	**Traffic Environment**	-
7.	**Sediment Replenishment**	-

Note: (-) =No Impacts, (-ve) =Negative Impacts, (+ve) =Positive Impacts

CHAPTER-5

ANALYSIS OF ALTERNATIVES

5.1 GENERAL

The consideration of alternatives is most useful for the environmental impact assessment in the project cycle. Mining of mineral river sand (Bajri) is site specific project and there is no need to choose alternative. Analysis of alternatives is the most effective way of meeting the needs and purpose of the proposal either through enhancing the environmental benefits of the proposed developmental activity and or through minimizing or mitigating potentially significant negative impacts. Analysis of alternatives provides all feasible option with a holistic view of decision making in order to achieve the sustainable development of the area/ region. A comparative analysis has to be done for alternatives help to determine the best method of the project objectives with minimum environmental impacts.

5.2 THE FOLLOWING ALTERNATIVES HAVE TO BE SELECTED ON THEIR MERITS AND DEMERITS

- Energy demand shall be used efficiently but in this project the electric energy is not available so diesel energy is being used for operating mining machineries.
- For transportation of men and materials, public transport is being used near to mine site. The mineral is transported by Trucks/Tippers of adequate capacity.

5.3 OTHER FACTORS CONTRIBUTE TO THE SELECTION OF MINE SITE AND OTHERS

It is vital point to select mine site, choice of mining method, this is river sand (bajri) mining project where the material will be lifted by Poclain into Truck/Tippers. No new technology is involved. The mining shall be done as per laid down procedures given in the mining plan. Other mitigation measures will be taken to reduce the impacts on the environment during mining operation.

5.4 CRUSHER AND BENEFICIATION PLANTS, IF ANY

No mineral beneficiation processing of any kind will be undertaken at mine site. Mineral is directly saleable in the market.

5.5 CONCLUSION

However, after analysis of the various factors the most environmentally compatible alternative shall be selected. Selection of alternative may depend upon available technology, policy objectives, social attitude, environmental and site constraints & project economics.

CHAPTER-6

ENVIRONMENTAL MONITORING PROGRAMME

6.1 GENERAL

Monitoring schedules are ensured to keep all the environmental parameters of the project within statutory levels in respect of ambient air quality, water quality, socio-economic improvement, noise level standards, biological quality etc. Regular periodical returns are submitted to RSPCB, etc. in this respect.

In respect of the proposed river sand mining project, well planned mitigation measures and efficient environmental management plan will be implemented promptly and attentively to ensure that during the project operation, the various environmental parameters as described above are well within statutory limits. Environmental monitoring is a useful tool to assess the cumulative impacts of a project. The monitoring results help to judge the success of mitigation measures for environmental protection. They are also used to ensure compliance with environmental standards.

6.2 MONITORING PARAMETERS/ FREQUENCY ETC.

Table 0-1Monitoring Schedule for Environmental Parameters

Particulars	Monitoring Frequencies	Duration of Sampling	Monitoring Parameters
Ground water/ Surface water	Six monthly	Grab	As per IS:10500 & IS:2296
Ambient Air Quality	Quarterly	24 Hr.	PM10, SO2, and NO2.
Noise Pollution (Working environment)	Yearly	-	Level in dB (A) and dB (C)
Soil Analysis	Half Yearly / Yearly	-	pH, Electrical Conductivity, Available Nitrogen & Phosphorus, Potash and Texture.

6.2.1ENVIRONMENTAL MONITORING CELL

The monitoring shall be done by the supervisory officers of the mine. Any abnormalities shall be brought to the notice of management to take immediate corrective action to prevent any mishap. Following shall be the proposed environmental organization chart for this mine. Mine manager shall be in-charge of the environment cell. The mines owner will also frequently review the work and the managers of mine will overview the arrangements for effective functioning of environmental safeguards.

The environmental data shall be monitored initially by using an outside agency and later an in house monitoring cell shall be developed.

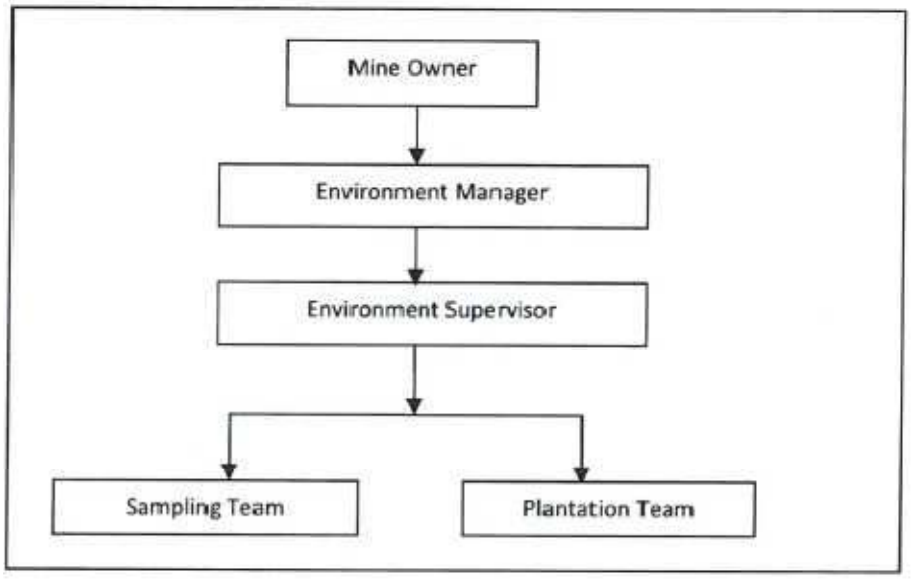


Figure 0-1 Chart of Environment Monitoring Cell (EMC)

6.3 FUNCTIONS OF THE MONITORING CELL

1. To carry out environmental monitoring at site for various environmental parameters as required either departmentally or through outside agencies. This will ensure that the environmental status of the core and buffer zone of the mine will be preserved in good status as per rules.
2. To observe the environmental control measures to be implemented.
3. To keep a watch on the flow patterns of drainage and keep vigil on the efficiency of water management system.
4. To study the effects of project activities on the environment.
5. To ensure implementation of plantation programme. Regular monitoring of survival rate of plants should also be carried out to achieve the desired result, for five years.
6. To keep records of monitoring etc. in a systematic way, so as to facilitate easy access, when needed by statutory agencies, etc.
7. Conducting environmental studies and reporting to SPCB.
8. To interact and liaise with State and Central Government Departments.
9. To ensure the availability of the necessary spares for the pollution control equipment all the times so as to keep the pollutants of the environment within the stipulated limits.

10. To identify the source of pollution and to take immediate action to prevent further pollution.
11. Conducting safety audits and programmes to create safety awareness in workers/ staff.
12. Conducting regular health audits to detect any health problems promptly to the workers/ staff. This will reduce occupational health problems.
13. Parting training on safety and conducting safety drills to educate employees.
14. Carrying out socio-economic study once in three years in the surrounding areas to find out the benefits derived by the society due to the project and also to fulfill the deficiency, if any, immediately.
15. To comply with all the condition mentioned in Environmental clearance letter.

The recorded data from monitoring of air, water and noise will be submitted half yearly by project proponent to Ministry of Environment and Forests (Regional office) and the SPCB, respectively.

6.4 ENVIRONMENTAL ADMINISTRATION

The mine manager at the project site will be directly responsible for various environmental activities. The mine owner will frequently review the monitoring activities. The advisor of the project will correlate and oversee the environmental activities and their effective implementation in consonance with the guideline in the Environment Management Plan (EMP). Environmental control measures span various factors like land degradation, soil, air, water quality, noise levels and afforestation measures etc.

In addition to the above participation by the executive level, staff support has to be provided by way of employing workers for carrying out the activities. As far as air, water and noise pollution is concerned, periodical monitoring has to be performed either by the project proponent or by external agencies, during the operational activities of mining. Air quality should be conforming to Central Pollution Control Board (CPCB) standards.

Ground Water for Drinking

Ground water for drinking will be monitored once in a month to ensure conformity with IS: 10500, including analysis of various physico-chemical parameters etc.

Ambient Noise Level Standards:

THE ENVIRONMENT (PROTECTION) RULES, 1986

Table 0-2Ambient Noise level Standards

Area Code	Category of Area	Limits in dB (A) Leq	
		Day Time	Night Time
(A)	Industrial area	75	70
(B)	Commercial area	65	55
(C)	Residential area	55	45
(d)	Silence Zone	50	40

6.5 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

The success of environmental management in an organization not only depends on involvement at all levels but also on the creation of an effective implementing organizational structure. Keeping this in view, organizational structure responsible for the implementation of environmental control and mitigatory measures as well as monitoring of such implementation has been discussed below in this Chapter. The management of environment shall be made an integral part of the major activities of mining.

6.6 IMPLEMENTATION OF ENVIRONMENT MANAGEMENT PLAN

The following system shall be followed to see that the scheme is implemented as per schedule. These measures are being observed in present working also.

1. Water table should be recharged by framing ground water recharge wells or sumps for direct recharge of ground water table during monsoon season.

2. Plantation should be carried out along the periphery of 7.5m riparian zone of river, along haul roads in consultation with local gram panchayat wherever possible.

3. Afforestation measures are attended by a crew on a regular basis for culturing, manuring and watering.

4. On an annual basis the quality of air, water, noise and soil will be tested to know their status *vis-a-vis* the baseline data. This will enable us to take any corrective measures, if required. The frequency of sampling shall be as prescribed by the Ministry of Environment & Forest (MoEF) guideline issued in this regard.

6.7 POST PROJECT MONITORING SCHEME

A well-defined environmental monitoring program would be employed with trained and qualified staff to ensure that the various environmental parameters maintained within the permissible limits of standards.

6.8 ENVIRONMENT POLICY

Environment Policy/Violations of Environment Norms/ Hierarchal System

Environment Policy

The project proponent (LOI Holder) has a laid down environmental policy and in furtherance of their business philosophy is committed to maintaining a clean and sustainable environment with concerted efforts towards improvement of environment performance in routine business. The project proponent shall strictly adhere to the central and the state rules and acts in context to the environment protection. The project proponent (would be lessee) shall comply with the environmental norms and conditions set forth in the main Environmental Clearance of the project and shall submit compliance to the MoEF periodically as warranted under the EC letter.

The environment policy is enclosed as Annexure10A.

6.9 Infringement / deviation of the environment or forest norms/conditions

The project proponent shall comply with the environmental norms set out by the Centre / State Government, which are being closely monitored by the MoEF, New Delhi and the State Pollution Control Board, Rajasthan, and Department of Mines and Geology, Rajasthan.

Any infringement / deviation / violation of the rules contained in various environment and other rules and acts such as Rajasthan State Environmental Policy, 2010, Rajasthan State Water Policy, 2010, Rajasthan State Forest Policy, 2010, Wildlife Protection Act, 1972, Air (Prevention and Control of Pollution) Act, 1981, 1987, Noise Pollution (Regulation & Control) Rule 2000

and the Rajasthan Minor Mineral Concession Rules, 1986 (amended up to 19 June, 2012), if and whenever brought to the notice of the lessee, the same shall be addressed by him in the light of the expressed non-compliance reporting system, Annexure 10B.

6.10 COST ON ENVIRONMENT MONITORING

The cost in respect of monitoring of environmental attributes, parameter to be monitored sampling/monitoring locations with frequency and cost provision as given in following table. The total cost of environmental plan works out to Rs. 3.0 lac as the recurring cost per year.

Table 0-3Budget for Environmental Monitoring

S.No.	Particulars	Capital Cost (In Lakhs)	Annual Recurring Cost (In Lakhs)
1.	Air Pollution Monitoring	-	0.7
1	Water Pollution monitoring	-	0.5
2	Soil sampling and analysis	-	0.5
3	Noise Monitoring	-	0.3
4	Ground water survey	-	0.4
5	Plantation monitoring	-	0.6
	Total	**-**	**3.0**

CHAPTER-7

ADDITIONAL STUDIES

7.1 GENERAL

The additional studies covered for the project will involve the following study.

7.2 PUBLIC CONSULTATION

Public consultation for this project was conducted on 01/09/2014 at 11:00 A.M. at Office – Subsection Officer, Tehsil - Reodar, District - Sirohi (Rajasthan) which was presided over by the District Collector-Sirohi and attended by officers of RSPCB, Pali. The public hearing was attended by various entities like local community in surrounding who may have any concern about the project or other specific person/organizations have to express any opinion in the project approval. Requisite publicity through local news papers/ media i.e. in Rajasthan Patrika dated 03.08.2014 and Hindustan Times Dated 03.08.2014 was given at least 30 days in advance of the date fixed for public hearing through the Collector and State Pollution Control Board official in the matter. The views and grievances were listened and resolved. The project proponent has given commitment to fulfill the environmental and social responsibility for development of community of nearby villages. In this report, public hearing proceedings and minutes of public hearing is included in the final EIA/EMP report and submitting to Expert Appraisal Committee (EAC), MoEF, New Delhi for Environment Clearance.

Table 0-1Public Hearing Compliance with budgetary allocation

S.No.	Issues raised by the Public	Response/Commitment of Project Proponents	Suggestions made by the Public Hearing Panel	Action (with budgetary allocation)
1.	Shri Govardhan Singh Devra resident of Sirohi, Said that problem will occur in construction work due to unavailability of Gravel. Amount that is being deposited to state govt. at the rate of 5/ton should be spent on plantation and their conservation.	Technical advisor said that plantation will be carried out on 7.5m safety zone and other suitable places.	-	A capital budget of Rs. 3.0 lacks with recurring cost of Rs. 6.5 lacks has been earmarked for plantation with protection. (Ref. Table 9.6 of EIA/EMP)
2.	Shri Ganpat Singh resident of Nimbora said that suggestion of plantation is good but who will provide water facility and care for them. And road should be constructed on river for transportation by tractor.	Project proponent said that we will develop plantation and taken care of it's for five year from the date of agreement.	Shri Virendra Singh Chaudhary, SDM, Tehsil- Reodar, said that gram pamnchayat make sure where the plantation has to be done.	A capital budget of Rs. 3.0 lacks with recurring cost of Rs. 6.5 lacks has been earmarked for plantation with protection. (Ref. Table 9.6 of EIA/EMP)
3.	Shri Bhupendra Singh resident of Reodar, said that evaluation committee should be formed for monotoring the		Shri V. Sarwan Kumar, District Collector, Sirohi said that taken care of plantation will be done	Agreed, PP will taken care of plantation upto five years.

	maintenance of plants,		by the PP upto five year and after that gram panchayat will look after the plantation.	
4.	Shri Ramsingh resident of Awada, said that there is provision for plantation upto 7.5 m on both side of river but due to non availability of land on many places plantation will be carried out on Khatedari Land or Encroachment, who will demarcate it?		Shri V. Sarwan Kumar, District Collector, Sirohi said that administration will taken care that plantation would carried out upto 7.5m on both side of river. In case of non availability of land in the area, plantation will be carried out on other suitable land.	Plantation will be carried out with the consultation of Gran Panchayat and not be done in khatedari land.

The Public Hearing proceeding with action plan is given in Annexure-6

7.3 RISK ASSESSMENT

Risk Assessment (RA) and Disaster Management Plan (DMP) in connection with mining and allied operations of the project should be spelt out in detail to cover likely dangers/risks/explosions/accidents, etc. likely to arise from the project operations, including onsite and offsite emergency plans to meet the disastrous situations.

7.4 RISK ANALYSIS & DISASTER MANAGEMENT PLAN

The possible risks in the case of River sand mining projects are erosion, inundation/floods, accidents due to vehicular movement, drowning, accident during sand loading and transporting etc. Mining and allied activities are associated with several potential hazards to both the employees and the public at large. A worker in a mine should be able to work under conditions, which are adequately safe and healthy. At the same time the environmental conditions should be such as not to impair his working efficiency. This is possible only when there is adequate safety in mines.

Hence, mine safety is one of the most essential aspects of any working mine. Safety of the mine and the employees is taken care of by the mining rules & regulations, which are well defined with laid down procedure for safety, which when scrupulously followed safety is ensured not only to manpower but also to machines & working environment.

7.4.1 Assessment of Risks & Mitigation Measures

7.4.1.1 Hazard Identification

Major Risks involved in River Bed Mining are following:

1. River Bed Inundation,
2. Dewatering,
3. Drowning ,if any
4. Possible risks due to failure of pit slope & its control
5. Soil Erosion,
6. Blanketing of River bed Suspended organic & Inorganic solids,
7. Uneven/ Irregular mining of sand or bajri
8. Accident due to Vehicular Movement
9. Accident during mineral loading and transportation
10. Failure of machinery

7.4.2 Mitigation Measures

A. Possible Risks Due to Inundation/Floods & Its Control

Mining will be done during the non monsoon periods; therefore problem of inundation/floods is not likely to happen. There was no incidence of inundation/floods reported from the area so far. River flows only in monsoon season.

B. Dewatering

Depth of mine is limited to 3m depth only from the surface of river channel whereas the ground water flows at 5m to 6m below from surface of river channel. Hence no dewatering is required. During mining, no ground water table will be intersected at all.

C. Drowning, if Any

There are no possibilities of drowning in the river, mining operation will be carried out in dry bed only. The mining operation will do under strict supervision and only during dry season. Deep water zones in the river will be identified. No go zone will be clearly marked and shall be aware to the mine workers.

D. Possible Risks Due to Failure of Pit Slope & Its Control

Pit will be created of limited depth only *i.e.* 3m thus the chance of failure of pit slope is marginal.

E. Soil Erosion

There is no top soil in the core zone. No mining will be done within 7.5 m from the either side of river banks to maintain its protection. Mining will

proceed along the river in the direction from downstream to upstream in each block. No mining will be done across the river's nalla's. However plantation will be carried out along river banks in safety zone to protect banks and prevent soil erosion.

F. Blanketing of River bed Suspended organic & Inorganic solid

River Bed mining causes blanketing of River by suspended organic & Inorganic solids in overlaying water. Slope stabilization and time to time slope stability monitoring along with slope failure study will avoid this.

G. Uneven/ Irregular mining of sand or bajri

Due to uneven/ irregular thickness of sand bed, river bed mining may result in ponds to develop. Excessive mining can change River direction & geometry altering recharging capacity of replenishment. Proper management of even excavation will overcome this.

H. Accident due to Vehicular Movement and their Mitigation Measures

- Possibilities of road accidents are possible due to rash driving.
- Possibility of overloading may injure the passerby public.
- The possibility of accident during vehicular movement in the mine in case pathway is not compacted or movement is at the embankment.
- All transportation within the mining lease working should be carried out directly under the supervision and control of the management.
- The vehicles will be maintained in good condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Road signs will be provided at each and every turning point up to the main road (wherever required).
- To avoid danger while reversing the equipments/ vehicles especially at the working place/loading points, stopper should be posted to properly guide reversing/spotting operating, otherwise no person should be there within 10m radius of machine.
- The maximum permissible speed limit should be ensured.

- Overloading of material will be avoided.
- A statutory provision of the fences, constant education, training etc will go a long way in reducing the incidents of such accidents.

I. Accident during Mineral Loading and Transportation

- The mineral will be load in the trucks mechanically *i.e.* by Poclain and JCB. There is a possibility of injury to the person during loading operation at mine.
- There is a possibility of riverbank collapse.
- There is a chance of falling of animals/human into pits in river bed by overlooking of fenced area near working.

J. Failure of machinery

- Records will be maintained and updated of all the machines used at the minesite.
- Periodic maintenance and conditioning of the machines will be carried out under expert supervision.

Other Possible Measures to Avoid Risks/Disaster Due To River sand Mining

- Unwanted material including mineral or spillage (if any) should not be stacked on the banks as it will hinder the flow of water in monsoon season.
- The minerals will be mined out in a uniform way so that the river flow/course will not be get disturbed.
- River bank areas, under operation will be protected by avoiding unauthorized gravel excavation along rivers as that may cause instability to the river bank.
- River banks will not be excavated to form access ramps.
- Only excavated river gravel should be used to deposit against the river bank to form access ramps.

7.5 Disaster Management Plan (DMP)

The Disaster Management Plan for the proposed river sand mining project will cover hazard identification due to various mining and allied activities, the risk involved due to the hazards and planning the necessary mitigation measures

for the same. The following natural/ industrial hazards as follows:

- Failure of pit slope
- Accident due to transportation & other equipment etc.

7.5.1Structure of the Disaster Management Plan

(i) Outline of Disaster Management Plan

The purpose of disaster management plan is to restore the normalcy for early resumption of mining operation due to an unexpected, sudden occurrence resulting to abnormalities in the course of mining activity leading to a serious danger to workers or any machinery or the environment. The following factors will play major role in the management strategy. The disaster management plan may be broadly divided into following steps as:

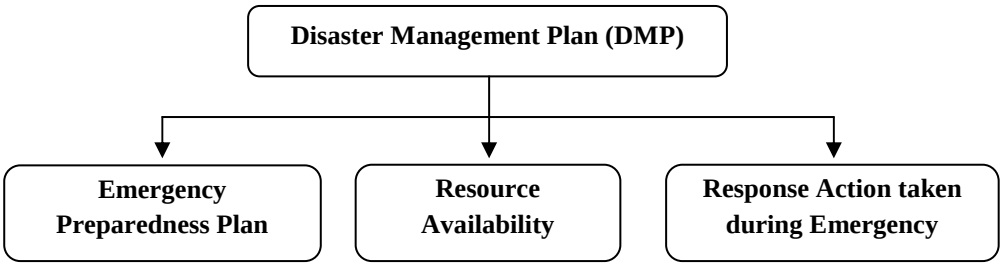


Figure 0-1Objectives of Disaster Management Plan

(ii) System of Communication

Where is an internal communication system for the department head and to their line of command with telephone. The telephone numbers and addresses of adjoining mines, rescue station, police station, fire service station, local hospital, electricity supply agency and standing consultative committee members are also maintained for any emergency requirement.

(iii) Consultative Committee

A standing consultative committee will be formed under the head of mines manager. The members consists of safety officer/medical officer/Asst. manager/ public relation officer/ Foreman/ and environmental engineer.

(iv) Facilities & Accommodation

Accommodation and facilities for medical centre, rescue room and for various working groups will be provided.

(v) First Aid & medical facilities

The mine management is having first aid/ medical centre for use in emergency

situation. All casualties would be registered and will be given first aid. The centre will have facilities for first aid & minor treatment, resuscitation, ambulance and transport. It will have proper telephone/wireless set for quick communication with hospitals where the complicated cases are to be sent.

(vi) Transport services

A well defined transport control system will be provided to deal with the situation.

(vii) Functions of Public Relations/ Responsibility of Mine Management

A. To make a cordial relation with government officials and other social service organization and working groups.

B. To liaise with representatives of the mine to ameliorate the situation of panic, tension, sentiments, grievances and misgivings created by any disaster.

C. To ameliorate the injured, survivors and family members of affected persons by providing material, moral support and establishing contact with relatives of victims.

(viii) Following infrastructure and operational system will be provided to meet any emergencies.

Emergency Control Room:

This will be situated near the mine site in such a way that response time is minimal at time of disaster. It will be provided with the following facilities:

a) Master plan of the mines.
b) First aid boxes.
c) Telephone line
d) Emergency lighting system.
e) Transport facility.

Emergency control room will function as control base.

7.5.2 Offsite Emergency Plan

Offsite emergency plan defining the various steps to tackle any offsite emergencies which may affect surrounding areas of the project has to be prepared after due final discussion with local panchayat and revenue officials. As per this offsite plan, actions have to be promptly initiated to deal with any offsite disastrous situation, with help of Collector and other officials.

CHAPTER-8

PROJECT BENEFITS

8.1 IMPORTANCE OF THE PROJECT TO THE REGION AND COUNTRY

Mining is one of the major industries which play a crucial role in the process of country's economic development. Mineral wealth of Rajasthan provides the employment opportunities to the people of the state as well as region. Most of the people in the region are directly or indirectly dependent on mining and allied activities. Due to the globalization and new ventures, the requirement for River Sand (Bajri) has been on the rise over the last few years. Mineral river sand is used mainly in construction sector. Sand is used as building material. Its strength and long life makes it suitable for a number of purposes. Mining industry play an important role in economic sector in India. Rajasthan is rich in mineral wealth. The state is endowed with major and minor mineral resources. The region, where the project is situated is mostly dependant on agriculture and mineral resources. The development of mining in the area provides direct and indirect employment opportunities, infrastructure development, communication and socio-economic infrastructure. The important benefits accruing from the project can thus be stated as-boost to local and regional economy, direct contribution to the state exchequer.

8.2 THE PROJECT GAINS FURTHER IMPORTANCE TO THE STATE/ COUNTRY ON ACCOUNT OF FACTORS MENTIONED BELOW

8.2.1 Economic Benefits

The project is expected to encourage industrial growth in the area/ region with proper utilization of local geological resources *i.e.* River sand. The project will further help by increased revenue to the State Government by way of royalty and taxes etc.

8.2.2 Environmental Benefits

Environmental benefits of river sand mining are as follows:

(i) To protect river banks

(ii) To control river channel

(iii) To protect from inundation/floods

(iv) Reducing submergence of adjoining agricultural lands

(v) Protection of crops being cultivated along the river bank

(vi) To increase its assimilative capacity *i.e.* hold more volume of water

8.2.3 Employment Opportunities

The employment to the local people of nearby villages for mine project directly will certainly increase per capita income of inhabitants of nearby localities.

8.2.4 Improved Educational Facilities

The project will help in better educational facilities in nearby area by providing financial assistance.

8.2.5 Infrastructure Development

The proposed project will facilitates clean drinking water facilities in nearby area. Maintenance of roads will be time to time.

8.2.6 Medical Assistance

Medical awareness campaign programmers will be organized time to time. The medical checkup camps will be organized in systematic manner for mine workers and nearby inhabitants.

8.2.7 Improvement in Physico-social Infrastructure

The proposed project of river sand mining will provide better living standards in nearby area with basic social amenities such as educational facilities, health care, road infrastructure and clean drinking water.

8.2.8 Improvement in Social Infrastructure

- There will be a positive impact in socio-economic area due to increased economic activities, creation of new employment opportunities, infrastructural development and better educational and health facilities.
- The project proponent (Lessee) will undertake awareness program and community activities like health, camps, medical aids, family welfare camps, AIDS awareness programme etc.
- Periodic medical check-ups as per Mines Act/ Rules and other social development and promotional activities will be undertaken. All this will assist to lift the general health status of the residents of the area around mines.
- A massive plantation has been done in the mine area so far and lot many are proposed to mitigate the ill-effects of mining and to improve the vicinity and

environment of mine and it surrounding area. The project proponent will give emphasis on plantation and will also motivate local persons for plantation during rainy season. This will also increase the consciousness in workers and near-by villagers for greenery. Fruit trees can contribute towards their financial gains.

8.2.9 Other Activities

The proposed project will contribute in various cultural activities in surroundings *i.e.* organization of religious functions, construction and repair of religious places, local fairs and social activities etc.

8.3 CONCLUSION

Thus the proposed project of river sand mining of ***M/s. Sher Singh Solanki*** benefits to all persons of nearby villages and State/Central Govt. by way of taxes & royalty. The local government body *i.e.* Panchayat Samiti/ blocks are also get some part of royalty which will ultimately be utilized for the development programmes of the region.

CHAPTER-9

ENVIRONMENTAL MANAGEMENT PLAN

9.1 GENERAL

Environment Management Plan (EMP) is aimed at mitigating the possible adverse impact of a project and for ensuring to maintain the existing environmental quality. The mining activities in the area involve excavation of mineral, machinery and movement of transport vehicles. These activities lead to generation of air borne dust, which can cause air pollution in and around the lease area. Other similar causes are land degradation, noise and water pollution etc. In order to minimize impacts of mining on different environmental parameters and keep air, noise, water quality within prescribed limits a comprehensive environmental management plan has to be prepared. It has been envisaged that the study area will not be adversely affected significantly and impacts will be confined to the project. The mining development in the study area needs to be intertwined with judicious utilization of natural resources within the limits of permissible assimilative capacity. The assimilative capacity of the study area is the maximum amount of pollution load that can be discharged in the environment without affecting the designated use and is governed by dilution, dispersion and removal due to natural physico-chemical and biological processes.

Environment management plan is required to ensure sustainable development in the area adopting proper safeguarding measures with the concept of sustainable and scientific mining practices. The project proponent will be implemented integrated environment management throughout various stages of mine. To mitigate the adverse impacts which are likely to be caused due to the mining operation, environment management plan has been formulated and integrated with mine plan. This chapter covers the genesis of pollution and the proposed measures required for meeting the prevailing statutory requirements of gaseous emissions, noise levels and water quality etc. for environmental management purpose in connection with the mining and related activities in the study area. For attaining the desired objective of good environmental quality in the study area, several management strategies in different phases are proposed and evaluated.

The Environmental Management Plan (EMP) is a site specific plan to ensure that the activities of the project are implemented in sustainable manner. EMP

also ensures that the project implementation is carried out taking appropriate mitigation measures to reduce adverse environmental impacts due to developing projects. The Environment Management Plan (EMP) aims to mitigate measures to restore and conserve the ecosystem of the possible adverse impacts due to proposed project. The mitigation steps are used to minimize negative impacts on environment due to proposed project of river sand mining. The EMP contains planned improvements with adopting some control measures *viz.* fugitive dust reduction on roads & measures to alleviate the problems in affected villages near project area and planning for the sustainable development of the area/region.

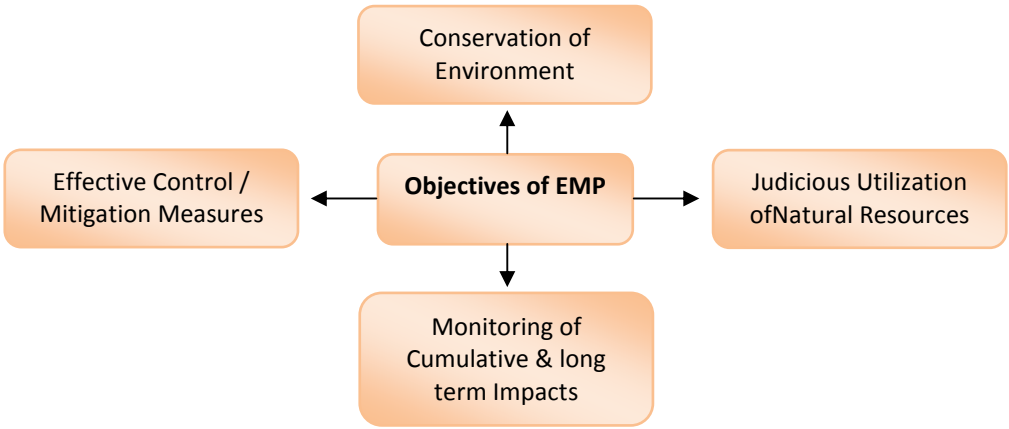


Figure 0-1 Objectives of Environment Management Plan (EMP)

This section discusses the management plan adopting various mitigation measures and enhancement of beneficial impacts due to proposed project of mining. The Environmental Management Plan (EMP) has been designed within the framework of various Indian legislative and regulatory requirements on environmental and socio-economic aspects. The aim of environment management plan is to ensure that all the safeguarding measures formulated with the concept of sustainable mining in the area/region. The proposed project in study area maintains its sustainable balance of natural resources. Environmental management plan giving the environmental protection measures at mine to meet the stipulated norms of Ministry of Environment & Forest (MOEF) are detailed below.

9.2 AIR POLLUTION CONTROL

The magnitude of air pollution in mining varies with methods of mining, type of mineral and level of mechanization involved. Mitigation measures

suggested for air pollution controls are based on the baseline ambient air quality of the area. In view of maintain or control ambient air quality in the area/ region, it is desirable that air quality is monitored on a regular basis to check compliance of standards as prescribed by CPCB. In case of non-compliance, appropriate mitigation measures needs to be checked.

As per the results of ambient air quality monitoring data, the background concentrations of PM_{10}, SO_2 and NO_2 should remain within the stipulated CPCB standards for all of the samples. The addition of gaseous pollutants due to the proposed mining activities is expected to be relatively high. Information of ambient air quality was studied and various modeling techniques predicted that the mining activity will not affect the air quality in a significant manner. During mining operations, loading and transportation may cause deterioration in air quality due to handling dry materials.

9.2.1 Prevention and Control of Air Pollution

- The only air pollution sources are the road transport network of the trucks. The dust suppression measures like water spraying will be done on the roads regularly.
- Care will be taken to prevent spillage by covering the carrying vehicles with tarpaulin.
- Overloading of material will be kept under check.
- Proper tuning of vehicles will be ensured to keep gas emission from the vehicles within prescribed limits/norms.
- Plantation of trees along the 7.5m of riparian zone to attenuate the impact of dust in the nearby villages.

9.3 WATER MANAGEMENT & POLLUTION CONTROL

9.3.1 Ground Water

Mining of sand within a streambed has a direct impact on the streams physical characteristics such as geometry, gradient, substrate composition and stability, depth, velocity and sediment transport. Flow and direction will not be altered by mining or any other way. Mine will not generate any toxic substance during 5 year period. Mining will be strictly restricted to 3m depth from surface of

river channel or above the ground water table whichever is less. So there will no negative impact anticipated on ground water regime of the area.

9.3.2 Surface Water

In view point of surface water, river itself a lotic ecosystem. Most of the rivers in the state of Rajasthan are seasonal in nature and flows only in monsoon season. The mining from river bed does not have any impact on topography and natural drainage of surrounding area as no part of land outside river bed is disturbed. During mining no other water channel or natural drainage will be obstructed. All the measures will be adopted to avoid surface water pollution in and around the study area. No toxic waste will be generated by mining or any other way. Mine will maintain zero discharge status. In order to mitigate the likely impacts, the following measures have been proposed:

- It is not proposed to divert or truncate any part of the stream mining will be restricted to riverbed only.
- No natural drainage/passage will be obstructed due to mining or any other way.

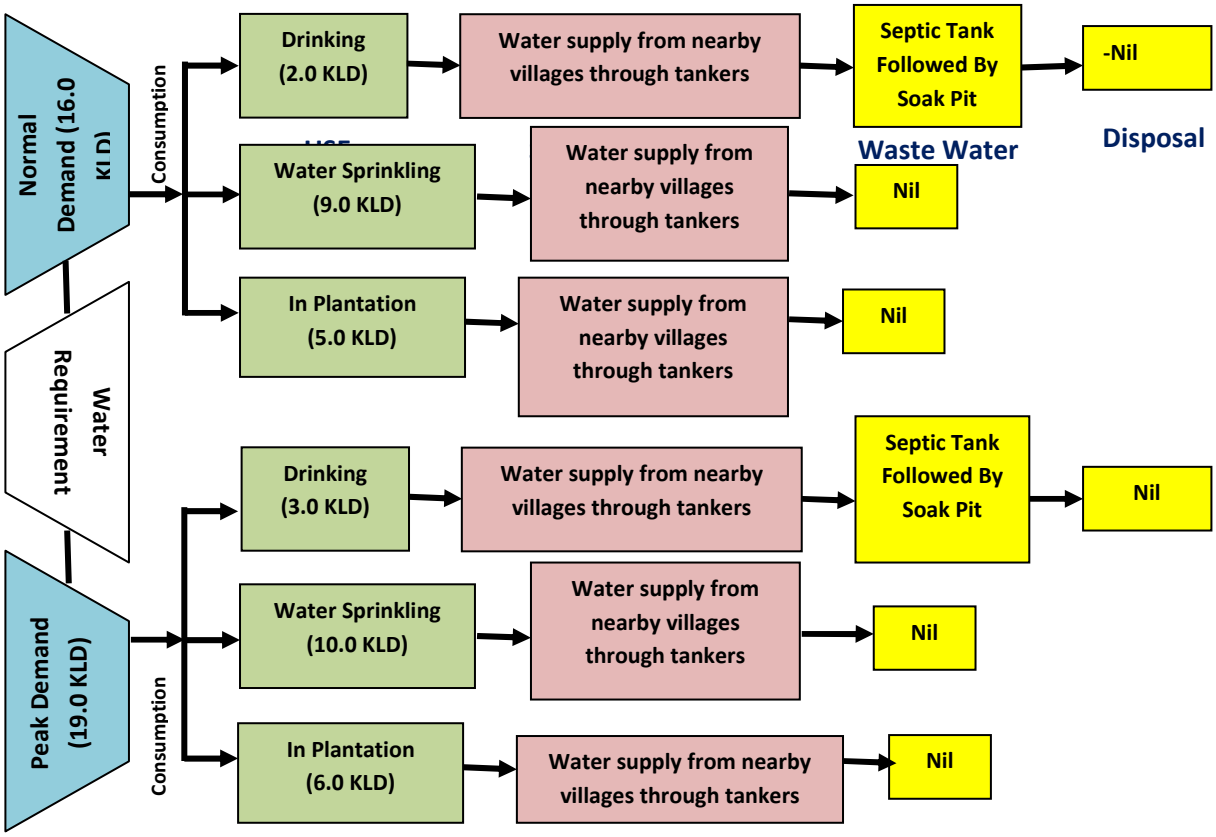


Figure 0-2 Water Flow Diagram

9.3.3 Geo-Hydrology

In view of the facts that the mining activity does not intersect the ground water table, no impact on the quality of ground water is anticipated. Beside this the sand and bajri are nontoxic in nature and therefore percolated water from the pits shall not impact the ground water quality. The extraction of sand and bajri from river channel shall lead to change in its cross-sectional profile and cause increasing the bed slope / gradient. During flow of water in monsoon season, the river channel creates a new channel path through the pit where it will deposit all bed sediments. During monsoon, rivers are flooded and carry bed load and deposit in excavated pits will recharge ground water table.

9.4 CONTROL OF NOISE & VIBRATION

The ambient noise level monitoring has been carried out in and around the mine shows that the ambient noise levels are well within the stipulated norms of Central Pollution Control Board (CPCB). Within an operational mine, major source of noise are transportation of materials by trucks and movement of machineries. There will not be any major impact on noise level due to proposed mining and allied activities. Blasting will not be practiced as the mineral is loose and soft in nature hence there will not be any possibility of land vibration. It was found that the mining activity will not have any significant impact on the noise environment of the region. To keep noise generation in control, latest sophisticated technology and equipment will be use. The only impact will be due to the transportation of materials by trucks & excavation of material with excavator/poclain.

The equipment systems will include cabins to ensure that the operators and other work persons in and around the operating equipment have comfortable work stations. To keep the ambient noise levels within the permissible limits of 75dB (A), the following measures will be taken to minimize noise are as:

- Plantation of trees along the 7.5m riparian zone of the river will be done to dampen the noise.
- The vehicles will be maintained in good running condition so that noise will be reduced to minimum possible level.

- Timely maintenance of vehicles and their silencers to minimize vibration and sound.
- Phasing out of old and worn out trucks.
- Trucks drivers will be instructed to make minimum use of horns at the village area.
- Care will be taken to produce minimum sound during loading/excavation activities.

9.4.1BIOLOGICAL MANAGEMENT

The proposed project is only of extraction of mineral *i.e.* river sand (bajri) from the river bed. Mining will confined to river bed only no other land will be disturbed due to proposed mining operations. No ecologically important species of flora and fauna such as rare/endangered/threatened/vulnerable are existing within river and 10km radius study area. Proposed afforestation measures will provide aesthetic beauty and environmental protection in the area.

- There will be no significant impact of the river bed mining project on the biological diversity found in the 10 km radius of the project site.
- The mining lease area is in non-forest land where presence of fauna is very rare. No endangered species of fauna is found in and around lease area. As such, there will be no adverse impact of the mining activity on fauna found in the study area.
- No adverse impacts will be envisaged on the existing aquatic phytoplankton and zooplankton on downstream side of the river.
- A detailed biological study has been conducted in core and buffer zone of study area to represent the existing scenario of flora and fauna. Based on the study made of the core and buffer zone of study area, there is no impact envisaged on flora and fauna due to proposed project of river sand mining in the area.

9.5 SOLID WASTE MANAGEMENT

During excavation of river sand (Bajri), no waste will be generated as all the material is directly saleable/marketable. No waste will be generated so there is no dump proposal at mine site.

- No stock piling of sand will be done in adjoining area.
- No liquid waste will be generated during mining and other associated activities.

9.6 LAND ENVIRONMENT

Excavations of river bed mineral and allied activities are the main sources of environmental degradation. Mining will not be done beyond the stipulated limit/norms, so the chance of river channel widening, bank widening and natural gradient will be negligible. Mining at concave side of the river channel will not be done to prevent further bank erosion. Details are as follows:

(i) Damage of river bank due to access ramps to river bed, causing damage to vegetation, soil erosion, micro-disturbance to ground water etc.

(ii) Riparian vegetation losses standing along the bank due to making roads connecting successive access to river bed.

Following measures to stop further degradation of land environment are as follows:

(i) Number of access roads to river bed shall be provided minimum for which cutting of river banks will be avoided and ramps are to be maintained.

(ii) Mining schedule is synchronized with the river flow direction and gradient of the land.

(iii) Haulage roads parallel to the river bank roads connecting access to river bed will be made away from the bank.

(iv) Access point to the river bed will be decided basis on least steepness of river bank and least human activity.

(v) Access roads from public roads and upto river bank will be aligned in such a way that it would cause least environmental damage in the area.

(vi) Proper care will be taken to ensure that ponds are not formed in the river bed.

(vii) Proposed afforestation measures along the banks of the river and along the road side of the approach roads to arrest soil erosion and strengthening of banks.

(viii) Mining will not be done during monsoon season.

9.6.1BIOLOGICAL ENVIRONMENT

River sand (Bajri) mining operations will be managed to minimizes damage to river and riparian habitats in the area. In view point of biological environment, afforestation measures will be adopted for a healthy ecosystem in and around the project area. This will lead to minimize the soil erosion, dust pollution and noise abatement in the core and buffer zone. For this, plantation activities will be carried out in phased manner at different places *i.e.* riparian zone (erosion prone zone), along haul roads and suitable places *i.e.* (In Panchayat bhawans, schools, parks etc.) During plantation programme, local species of plants will be given preferences. Vegetation covers in the area generally helps in:

(i) Stabilizing erodible slopes to minimize pollution.

(ii) To increases the mine site stability by strengthening their bank.

(iii) Control of dust.

(iv) Enhancement of aesthetic value.

(v) Noise abatement.

(vi) Conservation of biodiversity in the area.

It is recommended to plant fast growing local plant species, which can adapt to the local climate.

Table 0-1 Ecology: Stage wise Cumulative Plantation

Year	Fresh Plants	Replace of Dead Plants (20%)
I Year	2216	444
II Year	2660	532
III Year	3192	639
IV Year	3830	766
V Year	4596	-

Green belt development Plan

Green belts can help in reducing the impact of fugitive emissions and pollutants released at ground levels.

Total 14113 Plants are proposed to be planted in Core zone and Buffer zone. Core zone is having linear stretch so plants will be planted on periphery of River bank where river bank erosion is most likely to be encountered.

The selection of plant species for greenbelt development should be according to CPCB guideline for greenbelt development and on the basic of climatic

condition, soil fertility status etc of region. The plant species for greenbelt described below in Table which can be sustained in local climatic condition.

Table 0-2 Plant Species for greenbelt development

TREE		
S. No	**Species name**	**Binomial name**
1	Shisham	*Delbergia sisso*
2	Ardu or Mahaneem	*Ailanthus excelsa*
3	Khejri	*Prosopis cineraria*
4	Indian Elm	*Holoptelea integrifolia*
5	Siris tree	*Albizia lebbeck*
6	Rohira	*Tecomell undulata*
7	Imli	*Tamarindus indica*
8	Babool	*Acacia nilotica*
9	Jungle Jalebi	*Pithecellobium dulce*
10	Ronj	*Acacia leucophloea*
11	Neem	*Azadirachta indica*
12	Ber	*Zizyphus mauritiana*
SHRUBS / HERBS		
1	Munja grass	*Saccharum munja*
2	Peeli Kaner	*Thevetia peruviana*
3	Vilayati Babool	*Prosopis juliflora*
4	Arandi	*Ricinus cummunis*
5	Kaner	*Nerium Indicum*
6	Sarphonka	*Tephrosia hamiltonii*
7	"Red (Yellow, Wild) Sage"	*Lantana camara*
8	Kans grass	*Saccharum spontaneum*
9	Bui	*Aerva tomentosa*

The plant shall meet the environmental and economic requirements like soil improvement, timber, noise attenuation, avenue and aesthetic. The survival rate has been considered 80% for the study area. The dead plants will be replaced by fresh plants in the next year, proper earthwork, water and manuring is being done for healthy growth of the trees. The trees will be protected from cattle menace.

9.6.2 Post Mining Land Use-Conceptual

Mining will be started at various points within the river channel confined to lease area @ 28.05 Lac Tonne per year. Lease will be worked for five year period for 3 mtr working depth as it is prescribed for mining. Since river sand is

replenished in every rainy season hence the life of mine is unlimited and cannot be ascertained.

Afforestation along 7.5 mtr buffer zone will be carried out in Phased manner with local species in the Govt. land only as riparian vegetation so that erosion of slopes of boundary is protected during monsoon season and environment is protected. Lease is granted for Five year period so that progressive Plantation @ 2216 trees along river bank and haul roads in buffer zone (erosion prone zone) will be carried out so at the end of lease period, Mining lease area will be improved by plantation.

Table 0-3 Post Mining (Conceptual) Land Use of Core Zone

Area in (Ha.)

S.No.	Particular	Present	End of 5 Year
1.	Area excavated	3.5 Ha	299 Ha.
2.	Storage of Top Soil	Nil	Nil
3.	Overburden/ Dump	Nil	Nil
4.	Mineral Storage	Nil	Nil
5.	Infrastructure (Workshop, administration building etc)	Nil	Nil
6.	Roads	4.5 Ha.	4.5 Ha.
7.	Railways	Nil	Nil
8.	Green Belt	-	12.5 Ha
9.	Tailing Pond	Nil	Nil
10.	Effluent Treatment Plant	Nil	Nil
11.	Mineral Separation Plant	Nil	Nil
12.	Township Area	Nil	Nil
13.	Undisturbed land	1278	970
Total land		**1286 Ha.**	**1286 Ha.**

9.7 OCCUPATIONAL HEALTH & SAFETY

The working conditions in the mines are governed by the enactments of the Directorate General of Mines Safety (DGMS). As per the guidelines of the Mines Act, the management will take all necessary precautions. Normal sanitary facilities will be provided within the lease area. The major health concerning areas in riverbed mining includes dust & noise and hygiene. The management will carry out periodic health check up of workers.

9.7.1 Anticipated Occupational & Safety Hazards:

- Health Impact due to

- ✓ Physical activity
- ✓ Extremes of age, poor physical condition, fatigue
- ✓ Cardiovascular diseases
- ✓ Skin disorders

- Dust exposure
- Noise

9.7.2 Mitigation measures to ensure OH&S

Following points will be taken care of during mine operation for assuring safety of workers:

1. Regular Health Awareness Programmes and camps will be organized.
2. Regular maintenance and testing of the machines and equipments. Best available techniques to be employed in mining.
3. The mine workers will be provided all necessary Personal Protective Equipment (Dust Masks & Boots) for their physical safe guard from dust & hygiene.
4. Speed of vehicles will be restricted to below 25km/hr to mitigate dust generation while transporting of sand (bajri).
5. The fresh employees when taken will be thoroughly medically examined under initial medical examination including chest X-ray, Blood pressure etc, and thereafter during continuation of employment; the periodic medical examination will be conducted.
6. Under initial vocational training, the workers will be given training related to all safety and health aspects pertaining to sand mining and thereafter every quarter, special training courses/ Awareness programme for Malaria eradication, HIV and health effects on exposure to mineral dust will be organized for employed person as well as for nearby villagers.
7. The Occupational Health Surveillance Programme: A team of qualified doctors and nurses will visit periodically for health check up of all the workers, team and its records is maintained properly.

NOISE:-

1. Since mining operations do not include any major source of generation of noise in the working area thus, noise levels are not of significant levels.
   However, ear plugs will be provided to all workers in the area.

2. Audiometery test of the workers shall be done regularly & medical health provided wherever required.

9.7.3 EMP for the Occupational Safety & Health hazards

The health of workers can be protected by adopting the following measures:

- Good Housekeeping practices
- Enclosure of core zone to prevent unauthorized access.
- Enforcement of usage of Personal Protective Equipments.
- Regular Work Environment Monitoring
- Air emission control systems such as water sprinklers

Frequency of Periodical Examination:

- ❖ For employees - <30 years once in a year
- ❖ Between 31-40 years once in a year
- ❖ Between 41-50 years twice in a year
- ❖ Above >50 years twice in a year

9.7.3.1 Plan for pre-placement and periodical health status of workers:

Pre-employment checkup will be made mandatory and following tests will be conducted for all employees:

1. Plan of evaluation of health of workers
2. Chest x-rays
3. Audiometry
4. ECG
5. Haemogram (examination of the blood)
6. Urine (Routine and Microscopic)
7. Complete physical examination
   - ➢ Musculo-skeletal disorders (MSD)
   - ➢ Backache
   - ➢ Pain in minor and major joints
   - ➢ Fatigue, etc.

9.7.3.2 Budget allocation for OH&S in EMP:

- ❖ Insurance cover to all workers engaged in mines shall be provided
- ❖ A recurring budget of Rs 7.50 lac per annum for OH&S is proposed in EMP.

Table 0-4 budgetary provisions for OHS

S.No.	Provisions	Budget (Recurring Cost) In Lakh
1.	Regular health check up camps for the workers engaged in mines shall be organized	0.5
2.	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;	0.5
3.	Insurance cover to all workers engaged in mines shall be provided;	2.0
4.	Common vocational training center shall be setup at district level;	1.50
5.	Local needs of habitant like school, crèche, hospital, veterinary hospital, sanitation, drinking water etc. shall be considered positively.	3.0
	Total	**7.50 Lakh**

9.8 PUBLIC HEALTH AND SAFETY

The Health check up and other measures are proposed for the project affected peoples. The provisions are given below:-

S.No	Impact	Mitigation	Amount (In Lacs) Per Year
1.	Health and Safety for villagers	• Health Checkup camps shall be organized.	0.5
		• Support to primary Health center.	1.0
		• Sign board shall be displayed for road safety	0.5
Total			**Rs. 2 Lacs**

9.8.1SOCIO-ECONOMIC CONDITIONS OF THE REGION

Mining activities have invariably brought a drastic change in the physical and socio-economic environment. Mostly remote areas tucked away from urbanization and influence of modern civilization fall within the limits of mine development. A natural corollary to this the socio economic aspects of the local inhabitants who have dwelling this region for generations, get suddenly and probably a radical change, consequent to their abrupt exposure to the mining activities. The impact of this mining project will be positive. Majority of the work force shall be local people coming from and within the district. The local people will get employment, better medical and educational facilities etc., mainly due to the proposed mining project. In addition to this the literacy rate and better living standards shall increase due to the enhanced earning capacity of villagers. This area will also have better medical, educational, transportation and communication facilities, which are also

directly linked with the establishment of the mining project. In the buffer zone villages, this project will be one of the major economic activities resulting in generation of revenues to the state and central governments by way of royalty and taxes etc. There is no resettlement or rehabilitation involved in this project as the project lies on the river bed. Mining will be confined to river bed only.

9.8.2 Developmental Activities to be undertaken

In order to enhance the contribution of mining industry and share a greater responsibility not only towards its employees but also for the community residing around lease area. Hence, it is considered necessary to provide basic facilities to the surrounding villages for upliftment of their livelihood in the area/region.

9.8.3 Contribution regarding the Social Development of the nearby residents:

There are no other mines of river sand in vicinity of area. Looking towards upliftment of living standard and earning, people generally goes outside for earning their livelihood. This area will provide direct employment opportunities as an additional employment to the local residents. Hence earning of the people will increase and will help to uplift of socio-economic status of the area, which will improve their living standard. Besides this, Lessee is ready to do help at their level best for surroundings.

9.8.4 Details of Health Checkup and Insurance of the entire Employed Person (for Existing Lease):

Fund allocation for CSR: Budgetary provision for CSR has been allocated as 23.50 lakhs per year and also detailed in **Table 9.5**.

Provisions of CSR measures: It is proposed that the regular health checkup camps for the workers engaged in mines will be organized. It is also proposed that insurance cover to all workers engaged in mines will be provided. Following measures will be adopted to cover under Rajasthan minor mineral concession rules (Second amendment 2012) Rule 37U (9) of Corporate Social Responsibility:-

1. Regular health check up camps for the workers engaged in mines shall be organized;
2. 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;

3. Insurance cover to all workers engaged in mines shall be provided;
4. Common vocational training center shall be setup at district level; and
5. Local needs of habitant like school, crèche, hospital, veterinary hospital, sanitation, drinking water etc. shall be considered positively.

Table 0-5Budgetary provisions for corporate social responsibility

S.No.	Particulars	Annual Recurring Cost (In Lakhs)
1	School function, furniture, prize distribution and provision of scholarship for meritorious students in nearby villages.	5.50
2	Community functions *i.e.* Dusshera, Holi and sports activities in villages.	3.50
3	Training and awareness campaign	4.00
4	Community hall development, renovation of structure such as temple, school buildings, make drinking water structures etc. in nearby villages	10.00
5	Health Check up camps in villages	0.50
	Total	**23.50**

9.9 ENVIRONMENTAL CONTROL & MONITORING PROGRAMME

For successful implementation of an Environmental management plan (EMP), it is important that an effective environmental monitoring cell should be set up whose role would be to check the efficiency of the organizational set up responsible for implementation of EMP.

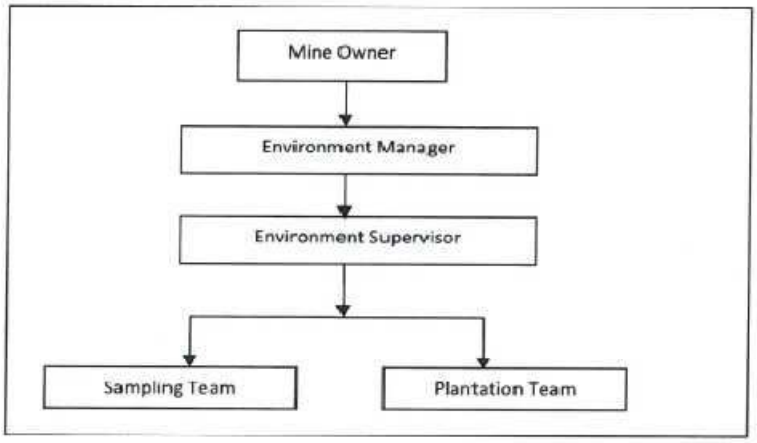


Figure 0-3Organizational Structure of Environment Monitoring Cell (EMC)

9.9.1 Budget Provision for EMP

It is necessary to include the environmental cost as a part of the budgetary cost component. It is proposed to take up measures like maintenance of haul road, pollution monitoring, pollution control measures, plantation activities nearby villages etc. The haul roads both within the lease and outside the mining lease are being watered and good drainage system would be maintained. The project

authorities propose to undertake the following environmental works to achieve the environmental quality as desired. Adequate budgetary provision has been made by the company for execution of environmental management plan. The detail of budget is given in **Table 9.6.**

Table 0-6Budget for Environmental Protection Measures

S.No.	Particulars	Capital Cost (In Lakhs)	Annual Recurring Cost (In Lakhs)
1	Pollution Monitoring Air,water,noise	-	3.00
2	Pollution Control Measures (Water Sprinkling & Others)	-	5.00
3	Plantation including protection	3.00	6.00
4	Rainwater harvesting in nearby villages	-	3.00
5	Maintenance of Haul Road	-	2.00
	Total	**3.00**	**19.00**

9.9.2Monitoring Schedule

Table 0-7Monitoring Schedule for Environmental Parameters

Particulars	Monitoring Frequencies	Duration of Sampling	Monitoring Parameters
Ground water/ Surface water	Six monthly	Grab	As per IS:10500 & IS:2296
Ambient Air Quality	Six monthly	24 Hr.	PM_{10}, SO_2 and NO_2.
Noise Pollution (Working environment)	Six monthly	-	Level in dB (A) and dB (C)
Soil Analysis	Half Yearly/Yearly	-	pH, Electrical Conductivity, Available Nitrogen, Phosphorus, Potash and Texture.

9.9.3 Environmental Management Cell (EMC)

Environment management department should be developed with qualified and experienced persons. It is recommended to monitor noise and air quality in and around the plant site to know the quality of surrounding environment as per SPCB/CPCB guidelines and as mentioned in consent order. The general maintenance department should do general and preventive maintenance undertakes the following environmental works to achieve the environmental quality as desired. Adequate budgetary provision has been made by the lessee for execution of Environment Management Plan (EMP).

9.9.4 Compliance to Statutory Requirement

During mining all the statutory norms from the concerned department will be strictly followed. Mining will be done in scientific manner and fulfills all the condition given in approved mining plan. Apart from the above, project

proponent is abide by Rules and Regulations of various concerned agencies/bodies/department (Mines/SPCB/CPCB/MOEF). These are as follows:

(i) The Mines Act., 1952

(ii) The Mines and Mineral (Development and Regulation) Act, 1957

(iii) Mines Rules, 1955

(iv) Mineral Conservation and Development Rules, 1988

(v) Rajasthan Minor Mineral Concession Rules (RMMCR), 1986; Amended on 19th June, 2012.

(vi) The Water (Prevention and Control of Pollution) Act, 1974

(vii) The Air (Prevention and Control of Pollution) Act, 1981

(viii) The Forest (Conservation) Act, 1980

(ix) The Wildlife (Protection) Act, 1972

(x) The Environment (Protection) Act, 1986.

9.10 CONCLUSION

River has an assimilative capacity to retain some amount of sand in their bed but slowly river channel will get shallower due to continuous deposition of sediment which will lead to widening of the channel and resultant effects could be seen in the form of submergence of the nearby/adjacent areas. So the river sand mining is essential in view point of environment as well as life. Based on the environment impact assessment study, it is observed and concluded that there will be an insignificant increase in the dust pollution, which will be controlled by adopting various mitigative measures like sprinkling of water, green belt development at riparian zone, along haul roads and other unworked areas. Afforestation measures will be done at riparian zones, along haul roads and other unworked areas so that there will be insignificant impact on ambient air environment and ecology due to proposed mining activities while on the other hand mining operation will lead to direct and indirect employment opportunities in the area. This will fulfills basic amenities in nearby villages and play a vital role in betterment of life. Hence, it can be summarized that the proposed project of river sand (Bajri) mining of ***M/s. Sher Singh Solanki*** will have positive impact on the environment, socio-economics of the area and lead to sustainable development of the region.

CHAPTER-10

SUMMARY & CONCLUSIONS

10.1 INTRODUCTION

M/s. Sher Singh Solanki, having its residence cum office S/o Shri Mangal Singh Solanki 13, Shiv Nagar, Jaipur, Rajasthan has a mining lease (M.L.Area-1286 Ha.) of River sand (Bajri) under Rajasthan minor minerals concession rules 1986, near village- Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan, Tehsil - Reodar, District - Sirohi (Rajasthan). The area of this lease is 1286 hectares. As per EIA Notification 2006 project proponent has to obtain Environmental Clearance from MoEF, New Delhi for production of River sand (Bajri) 28.05 TPA

Name of Project Proponent	:	M/s. Sher Singh Solanki
Residance cum office Address:		S/o Shri Mangal Singh Solanki
		13, Shiv Nagar, Jaipur, Rajasthan
E-Mail Address	:	shershingsolanki1286@gmail.com
Contact No.	:	0141-2333907

10.2 Project Location (Mine site)

The area has been marked on Toposheet No. 45 D/6, 45 D/10, including the mining lease location. This comprises the mining lease near village - Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan, Tehsil - Reodar, District - Sirohi (Rajasthan).

Table 0-1Salient Features of the Mine Site & Surrounding

S.No	Particulars	Details
A.	**Project Details**	
	Nature of project	River sand mining project
	Date of Grant of LOI	27/02/2013
	Validity of applied lease period	5 Years from agreement of lease
B.	**Size of Project**	
	Lease area	1286 Ha.
	Current production capacity	Nil

<table>
<tr><td></td><td>Proposed production capacity</td><td>28.05 Lac TPA</td></tr>
<tr><td>C.</td><td>Project Location</td><td></td></tr>
<tr><td></td><td>Near Village</td><td>Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan</td></tr>
<tr><td></td><td>Tehsil</td><td>Reodar</td></tr>
<tr><td></td><td>District</td><td>Sirohi</td></tr>
<tr><td></td><td>State</td><td>Rajasthan</td></tr>
<tr><td></td><td>Lease area Coordinates</td><td>
<table>
<tr><td>Latitudes</td><td>24°41’27.02”N</td><td>24°31’13.65”N</td></tr>
<tr><td>Longitudes</td><td>72°42’27.86”E</td><td>72°25’04.32”E</td></tr>
</table>
</td></tr>
<tr><td></td><td>Toposheet No. Core zone</td><td>45 D/6 and 45 D/10</td></tr>
<tr><td></td><td>Toposheet No Buffer Zone</td><td>45 D/5,45 D/7, 45 D/9 and 45 D/11</td></tr>
<tr><td></td><td>Khasra Nos. allotted by state govt. for forming mine lease area</td><td>Details of village wise Khasra details are as:
<table>
<tr><th>S.No.</th><th>Village Name</th><th>Khasra No.</th><th>Total nos. of Khasras</th><th>Area in Ha.</th></tr>
<tr><td>1.</td><td>Awada</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>212, 213, 214, 234, 282, 2, 3, 11, 13, 17, 19, 24, 53, 59, 65, 87, 89, 154, 92</td><td>19</td><td>354.52</td></tr>
<tr><td>2.</td><td>Bhamera</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>3, 11, 11/593, 26, 29, 36, 41, 33, 164, 168, 170, 179, 242, 303, 342, 360, 383, 384, 407, 415, 458, 481, 508, 538, 564, 576, 582, 588, 574,</td><td>29</td><td>162.24</td></tr>
<tr><td>3.</td><td>Bootri</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>28, 159, 172, 215, 218, 158, 219, 158/228</td><td>8</td><td>141.51</td></tr>
<tr><td>4.</td><td>Chhapol</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>16, 17, 19, 20, 21</td><td>5</td><td>42.78</td></tr>
<tr><td>5.</td><td>Dangrali</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>13, 99, 112, 162, 45, 58, 67, 92, 96, 97, 156, 159, 171, 178, 201, 268, 284, 286, 288, 290, 295, 296, 298/642, 298/655, 298/669, 298/674, 307, 307/628, 308/697, 380/627, 376, 380, 390, 395, 402, 405, 418, 422, 438, 447, 471, 478, 486, 528, 586, 617</td><td>47</td><td>253.04</td></tr>
<tr><td>6.</td><td>Derol</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>88, 89, 95, 96, 120, 3, 6, 7, 26, 32, 36, 48, 61, 71, 81, 82, 91, 92, 247, 262, 270, 272, 280, 283</td><td>24</td><td>128.14</td></tr>
<tr><td>7.</td><td>Gulabganj</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>132, 106/2, 130, 131/1, 133/9, 204/971, 214/972, 98/1, 161, 163, 177, 200, 216, 449, 457/8, 466/01, 468, 472/3, 472/7, 472/09, 472/11, 619, 620, 778, 807/38, 881, 897, 465/1029</td><td>28</td><td>372.23</td></tr>
<tr><td>8.</td><td>Gundwara</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>104, 173</td><td>2</td><td>25.11</td></tr>
<tr><td>9.</td><td>Hathal</td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>480, 508, 509, 737, 791, 861, 94, 100, 102, 133, 162, 167, 169, 237, 244, 342, 375, 403, 476, 478, 526, 528, 584, 1117, 1195, 1205, 1206, 1208, 1209, 1211, 1289</td><td>31</td><td>675.09</td></tr>
<tr><td>10.</td><td>Jamta</td><td></td><td></td><td></td></tr>
</table>
</td></tr>
</table>

				14,16,19,20,21,99/361,84,91,122,137,152,161,172,179,183,218, 238,240,243,261,286,154/367, 253/380	23	424.26
		11.	**Jawal**			
				1,271,134,147,150,166, 168,170,172,180,182,194,221, 223,227,247,272,316,329, 127/344,256	21	362.18
		12.	**Jeerawal**			
				18/811,32,52/1,52/3,67/8,72, 105/1,312,320,345,346,360,409/1,409/2,410/1,507,508,509,514/1, 522,526/1,527/1,542,730/1,731, 734,741,742,814/384,155/973, 512/916,56,57,171,173,192, 228/821,274,283,368,465,469, 487,520,523,627/1,675,676, 820/164,485/1	50	497.63
		13.	**Juadara**			
				1/258,2/259,47,54,57,59,70,82,94,99,100,105,159,181,183,193,198,203,205,207,218,224,227	23	307.71
		14.	**Kareli**			
				8, 2, 21, 74, 76, 81, 83, 85, 92, 99, 104, 136, 156, 207, 207/255, 216, 220, 221, 222, 224, 226, 239, 4	23	114.46
		15.	**Karoti**			
				1, 35, 61, 72, 102, 105, 112, 114, 127, 145, 169, 171, 173, 184, 210, 212, 217	17	23.43
		16.	**Leelora**			
				58, 81, 94, 143, 157, 178, 185, 228, 230, 281	10	88.05
		17.	**Loonol**			
				202/959, 96/972, 14/922, 133, 134, 157, 159, 164, 368, 402, 416, 550, 560, 604, 612, 613, 682, 736, 757, 798, 842, 855, 866, 870/883, 873	25	50.57
		18.	**Makawal**			
				28,29,55,61,64,69,73,124,137, 166,169,172,189,190,195,446, 447,449,483,518,520,541,559, 578,623,635,642,684,690,695, 717,718,739,794,798,809,816, 830,33,566/876,689,687,795	41	255.17
		19.	**Malawa**			
				412, 414	3	59.41
		20.	**Maalgaon**			
				1,18,192,193,196,98/1,295,295/484,297,299,302,304,695,699,711,743	16	334.32
		21.	**Marol**			
				9,10/1094,53,53/196,53/197,289,373,374,10,2,187,267,348, 370,387,397,398,414,418,440, 447,515,519,573,586,628,640, 643,645,646,653,660,769,781, 784,904,915,996,1000,1003,1004,1032,1034,1057	45	649.171
		22.	**Meetan**			
				267,340,11,81,96,116,119,132,201,210,242,246,248,266	14	132.22
		23.	**Nimbora**			
				1,1/531	2	182.21
		24.	**Padroo Khera**			
				1,5,8,55,59,60,78,87,89,90,92, 94	12	75.78
		25.	**Peepaliya**			
				5,39,53,67,69,82,86,92,94,95, 98,103,108,110,118,179,194,199,200,210,214,215,218,77	24	83.28

		26.	**Rajgarh**			
				84/268,262,35,35/267,36,38,40,50	8	39.3
		27.	**Rampura**			
				1,3,10,26,27,42,58,61,66,67,75,121,123,40/306,70/309,87/318	16	307.42
		28.	**Reodar**			
				237,377,124,229,232,331,366, 407,471,502,556,562,570,632, 634,638,647,660,708,710,775, 778,801/1262,900,940,1203/1263,303	27	321.21
		29.	**Selwada**			
				406, 407, 409, 10, 411, 567, 1082, 408, 4, 5, 8, 10, 16, 17, 35, 46, 56/1280, 57, 65, 68, 71, 77, 79, 83/1523, 84, 85/1236, 88, 94, 95/1447, 96, 123, 138, 141, 143, 151, 173, 174, 186, 188, 216, 248, 256, 257, 259, 265, 271, 273, 276, 282, 284, 292, 306, 326, 327, 328/1439, 330/1422, 333, 343/1301, 348, 350, 403/1359, 403/1380, 404, 416, 445, 447, 531, 532, 533, 534, 535, 598, 756, 758, 772, 777, 782, 804, 809, 814, 817, 835, 839, 847, 858,860, 864, 866, 868, 877, 886, 892, 895, 897, 900, 929, 933, 943, 955, 958, 975, 983, 993, 997, 1016, 1025, 1032, 1040, 1049, 1050, 1083, 1087, 1089, 1090, 1091, 1092, 1094, 1097, 1098, 1110, 1113, 1129	122	586.2
		30.	**Thal**			
				14, 16, 28, 30, 34, 43, 45, 56, 58, 558, 578, 579, 597, 602, 640, 869, 917/1008, 240, 363, 373, 384, 384/1007, 869, 999	22	86.04
		31.	**Vikanwas**			
				66, 81,101, 115, 109, 419, 421, 422, 423, 424, 425, 501	12	390.34
		32.	**Wasan**			
				632, 4, 6, 9, 10, 11, 14, 15, 20, 23, 26, 31, 37, 63, 98, 102, 105, 106, 109, 117, 119, 121, 123, 201, 207, 216, 231, 233, 235, 236, 237, 239, 241, 246, 248, 250, 257, 278, 283, 295, 312, 316, 398, 418, 423, 428, 432, 441, 443, 451, 461, 463, 467, 496, 501, 518, 525, 603, 634, 635, 665, 717, 736, 739, 771, 801, 817, 825, 828, 843, 845, 847, 851, 853, 870, 923, 946, 957, 966, 1045, 1047, 1060, 1065, 1068, 1073, 1083, 1101, 1107, 1117, 1123, 1129, 472/1234, 7, 703/1244, 720/1247	95	416.64
		Total	**Village=32**		**844**	**Area = 1286Ha**
D.	**Land Details**					
	Gair Mumkin Nadi(Govt. land)	1286 Ha.				
	Agriculture land	Nil				
	Forest Land	Nil				
E.	**Mining Details**					
	Stripping Ratio (Mineral in tonne : OB in cubic meter)	Nil				
	Method of Mining	Open cast semi - mechanized				
	Operational days/year	330 days				

	Source of water	Purchasing water from of nearby villages
	Total water requirement	16 KLD
	Man power requirement	53 Persons
	Maximum and Minimum R.L of lease area	River Sipu -264 mRL to 205 mRL River Sukri is 279 mRL to 248 mRL.
F.	**Project Site vicinity Details**	
	Nearest Industry	Nil
	Nearest Highway	3. SH 11 from Abu Road to Sildar is passes through the lease area near village Loonol. 4. SH 27 also passes through the lease near village Loonol.
	Nearest Railway Station	There is no Railway Station within 10 km radii.
	Nearest Village	Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan
	Nearest City/Town	Nearest town is Reodar is 1.0 km in East direction from Sill Nadi.
	Nearest Air Port	Dabok Air Port Udaipur is 123 km in East from lease area
G.	**Environment Setting(Within 10Km Radius)**	
	Ecological Sensitive Areas (Wild life Sanctuaries, National Parks, Biosphere Reserves, Reserve/ Protected Forest etc.)	Mount Abu Wildlife Sanctuary at a distance of 7.1km in East of Sipu River.
	Nearest Forest	3. Balda Bir Reserve forest at a distance of 8.3km in NE direction from Dior River. 4. Maila God Reserve forest at a distance of 5.0km in East direction from Sipu Nadi.
	Historical places/ Heritage	There is no Heritage within 10 km radius.
	Surface water body	Tokara Dam is located about 500 meters East of Lease area.
	Topography	Almost flat with gently sloping
	Seismic Zone	Seismic Zone-III

10.3 NEED OF THE PROJECT

Due to new ventures, the requirement for River Sand (Bajri) has been on the rise over the last few years. Mineral river sand is used mainly in construction sector. Sand is used as building material. Its strength and long life makes it suitable for a number of purposes. Mining industry play an important role in economic sector in India. Rajasthan is rich in mineral wealth. The state is endowed with major and minor mineral resources. The region, where the project is situated is mostly dependent on agriculture and mineral resources. The development of mining in the area provides direct and indirect

employment opportunities, infrastructure development, communication and socio-economic infrastructure. The important benefits accruing from the project can thus be stated as-boost to local and regional economy, direct contribution to the state exchequer.

10.4 LOCAL GEOLOGY

Geologically, Sirohi district comprises of meta sediments of Ajabgarh Group of Delhi Super Group namely, Phyllite, Schist, Gneisses, Marble and Amphibolite carrying post-Delhi intrusives and extrusives such as Erinpura granite, Jalor Granite, Malani Rhyolite, Dolerite and Basalt which in turn over lane by sand and alluvium of recent to sub recent age.

10.5 METHOD OF MINING

River Sand Mining

Mining will be carried at five blocks assuming each block as single unit. Each block will have its own route and all facilities of mining. Mining will be confined to river channel linked by separate ramps for purpose of evacuation of mineral. Lease will be worked for five year period for 3 mtr working depth as it is prescribed for mining. Since river sand is replenished in every rainy season to some extent hence the life of mine is unlimited and cannot be ascertained.

Blasting: River sand is in loose form so there is no requirement of Blasting.

The ground water in this area gets intersected at a depth of more than 10-15 m bgl in riverbed and more than 20-25 m in surrounding agricultural fields as seen during field survey. No mining work will be carried out below the water table. As such there shall be no need of or any pumping operations. A drain on the up-slope side of pit will be made so that rainwater does not go into pit during mining operations. No water pollution is envisaged during the five years working of lease period since the working will not go deep below 3mtr. The details of conceptual plan of the mine are given in table below:

Salient Points on Scientific mining of River Sand (Bajri) are:

1. Mining will be carried out only in one bench formation of maximum 3 mtr height and formation of haul roads will be within pits and joined to nearest approach roads. Bench height will not be more than 3mtr at any site.
2. Mineral will be directly filled into tippers, trolleys and trucks.

3. Mining will be carried under supervision of competent person not less than second class mines manager certificate of competency holder.
4. 7.5 mtr un-worked buffers will be maintained along the river bank boundary (riparian zone) and vegetation growth generated on meandering boundary to protect further erosion during flooding of water in the River during monsoon.
5. There will be 45mtr unworked zone where any bridges & Anicuts and any other permanent structure as per RMMCR, 1986, Second Amendment 2012.
6. No drilling and blasting will be carried for mining of mineral river sand (Bajri) as the mineral is loose in nature. Mining will be carried by Poclain–Dumper combination as shown below **Figure 10.1**.

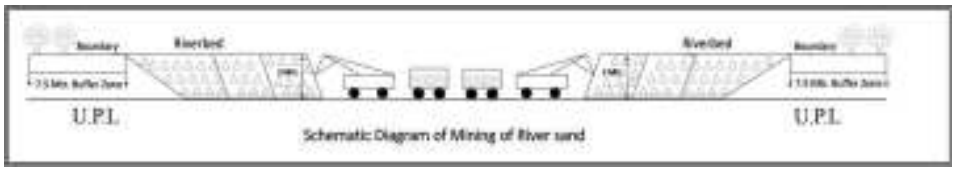


Figure 0-1Schematic Diagram of river sand mining

Table 0-2 Proposed Mechanization at Mine Site

Type	Nos.	Size / Capacity	Motive Power
Back Hoe Excavator	6	Bucket capacity (1.5 cum)	Diesel
Front End Loaders	2	-	Diesel
Water Sprinklers	2	4000Ltr Capacity	Diesel
Jeep	1	For Supervision	Diesel
Road Grader/Compactor	1	For compactness of Haul roads	Diesel
Van cum Ambulance	1	For emergency services	Diesel
Mobile Store Room with necessary tools	1	For maintenance of machinery at site	Diesel
Tippers/Trucks/Dumpers	-	20 Tonne	Diesel

10.6 CONCEPTUAL MINING PLAN

Mining will be started at various points within the river channel confined to lease area @ 28.05 Tonne per year. Lease will be worked for five year period for 3 mtr working depth as it is prescribed for mining. Since river sand is replenished in every rainy season hence the life of mine is unlimited and cannot be ascertained.

Afforestation along 7.5 mtr buffer zone River boundary of lease will be carried out in Phased manner with local species in the Govt. land only as riparian vegetation so that erosion of slopes of boundary is protected during monsoon season and environment is protected. Lease is granted for Five year period so that progressive Plantation @ 1000 trees along river bank and haul roads in buffer zone (erosion prone zone) will be carried out so at the end of lease period, Mining lease area will be improved by plantation.

Table 0-3 Land: Stage Wise Land use Operational and Post Operational Reclamation Area (Ha.)

S.No.	Particular	Present	End of 5 Year
1.	Area excavated	3.5 Ha.	299 Ha.
2.	Storage of Top Soil	Nil	Nil
3.	Overburden/ Dump	Nil	Nil
4.	Mineral Storage	Nil	Nil
5.	Infrastructure (Workshop, administration building etc)	Nil	Nil
6.	Roads	4.5 Ha.	4.5 Ha.
7.	Railways	Nil	Nil
8.	Green Belt	-	12.5 Ha
9.	Tailing Pond	Nil	Nil
10.	Effluent Treatment Plant	Nil	Nil
11.	Mineral Separation Plant	Nil	Nil
12.	Township Area	Nil	Nil
13.	Undisturbed land	1278	970
Total land		**1286**	**1286**

10.7 EIA METHODOLOGY

The environmental impacts from the proposed mining activity on different environmental parameters *viz.* air, water, noise, land, biological and socio-economic conditions has been assessed through rapid Environmental Impact Assessment (EIA) studies in winter Season of (December 2013 to February 2014) within the impact zone of 10 Km radius. The area has been distinctly divided into core zone (which forms the actual mining lease area of 1286 Ha) and the buffer zone encompassing a radius of 10 km from the periphery of the lease.

10.8 BASELINE ENVIRONMENTAL DATA

Environment baseline studies have been conducted during the winter Season of (December 2013 to February 2014) in respect of micrometeorology, air quality, ambient noise levels, biological environment (flora & fauna), water quality, soil quality & socio-economics in the core and buffer zone of 10 km radius.

10.8.1 Ambient Air Quality

The ambient air quality monitoring of study area comprising core and buffer zone for the winter Season of (December 2013 to February 2014) was conducted and all the parameters SO_2, NO_2 and PM_{10} were found within the specified limit of CPCB standards.

10.8.2 Water Quality

Surface Water

Surface water resources are meager in the state. In the buffer zone, some of the seasonal surface water bodies located i.e. Devangan Nadi, Sili Nadi, Sipu River & Thandawara Nadi. All the above water bodies are seasonal in nature.

Ground Water

Ground water quality in Sirohi significantly influenced by semi-arid climate and hydro-geologically diversity-salinity, sodicity and fluoride are the major factors affecting the ground water quality. Ground water is the major source of irrigation in the district.

10.8.3 Noise Environment

Sound levels during day (6 A.M to 10 P.M) and Night (10 P.M to 6 A.M) at 10 stations covering three in core zone and seven in buffer zone villages have been monitored.

Table 0-4Environmental Baseline Data
(December 2013 to February 2014)

S.No.	Parameters	Details
A.	**Ambient Air Quality**	
1.	PM_{10}	46.9 µg/m^3-69.0 µg/m^3
2.	SO_2	5.6 µg/m^3-8.7 µg/m^3
3.	NO_2	9.8 µg/m^3 -13.9 µg/m^3
B.	**Noise Level**	
1.	At Day time	53.5 dB (A)– 56.4 dB (A)
2.	At Night time	43.8 dB (A) – 54.7 dB(A)
C.	**Water Quality(Surface &Ground water)**	
1.	pH	7.8 to 8.2
2.	Total Dissolved Solid	478 mg/l -982 mg/l
3.	Nitrate	22.5 mg/l-182.05 mg/l
D.	**Soil Quality**	
1.	Organic Carbon	0.12 % - 0.26 %

10.8.4 Biological Environment

Flora: The floral species observed in the mine lease area are bushes, shrubs and few trees like. *Azadirachta indica, Acacia nilotica, Saccharum munja, Cenchurs ciliaris, Prosposis spicegera.*

Fauna

Commonly found animal in the study area are Hare *(Lepus nigricolles),* Gilhari *(Funambulus pennanti),* House Sparrow *(Passer domesticus),*Corvus splendens (*House crow),* Oriental Garden Lizard *(Calotes versicolor)etc.* The area does not support any kind of flora & fauna of ecologically importance.

10.8.5 Land Use Pattern

Core Zone: of this project consists of mining lease near Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan with an area of 1286 Ha. The lease area falls in government waste land.

Buffer Zone: Buffer zone comprises of agriculture land, scrub land, open land & waste land. Dry agriculture and wet agriculture crops are being raised in the buffer zone. The lease area will be used for mining and allied activities, including a green belt development.

10.8.6 Socio-Economics

Population in these villages is mainly dependent on dry agriculture depending on the rainfall. The mining activity provides some job opportunities to the local villagers either by way of direct or indirect employment.

10.8.7 Demographic Profile

Total population of Reodar is about 113552 as per 2011 census in the study area. Out of the total population, 36.42% is scheduled caste and 13.22% is scheduled tribes. Literacy status in Reodar depicts that the area have 39.84% literates and 60.16% illiterates.

10.8.8 Statutory Facilities Available at Mine

First Aid Station: A first aid station is to be made available with all necessary medical kit. All engineers and supervisors are being trained in first-aid

treatment to take care of any emergency. An Ambulance is also present for this purpose.

Canteen/Rest Shelter: A good canteen-cum-rest shelter is to be made available in the mine complex.

Blasting Shelter: These are to be made available in the mining area.

Ablution Block: Appropriate number of Urinals & lavatories is to be made available at the mine office, rest shelter.

10.9 ENVIRONMENTAL IMPACT ASSESSMENT

The effect of mining on the environment will be marginal. From the baseline study it could be seen that all the values of ambient air, noise, water, soil etc. are well within the prescribed limits. However, proper management measures will be taken to minimize the impacts on the environment. The management of mine has already initiated the following steps to control pollution and the same shall be continued vigorously in future also.

10.10 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

10.10.1 Air Quality

- The only air pollution sources are the road transport network of the trucks. The dust suppression measures like water spraying will be done on the roads.
- Dust mask provided to the workers engaged at dust generation points like excavations, loading and unloading points.
- Overloading will be avoided. The trucks/tippers/tractor trolley will be covered by tarpaulin covers.
- Plantation of trees along the 7.5m of riparian zone to help reduce the impact of dust in the nearby villages.

10.10.2 Water Quality

- The deposit will be worked from the top surface to 3m bgl or above the ground water table whichever is less.
- Thus no ground water pollution is expected, as mining will not intersect ground water.
- It is not proposed to divert or truncate any part of the stream and at no

point of time mining will be done from the stream.

10.10.3 Land Management

- Minimum number of access roads to river bed for which cutting of river banks will be avoided and ramps are to be maintained.
- Access points to river bed will be decided basing on least steepness of river bank and least human activity.
- Mining will be avoided during the monsoon season.
- Vegetation development is proposed along the road sides of the approach roads, to arrest soil erosion. While selecting the plant species, preference will be given for planting native species of the area.

10.10.4 Noise Control

- Well maintained vehicle will be used which will reduced the noise level.
- Plantation: Plantation of trees along the 7.5m riparian zone of the river will be done to dampen the noise, if possible.
- Hearing Protection: No hearing protection is generally needed for River sand mining projects.
- The vehicles will be maintained in good running condition so that noise will be reduced to minimum possible level.
- Phasing out of old and worn out trucks.
- Trucks drivers will be instructed to make minimum use of horns at the village area.

10.10.5 Socio-Economic development

Table 0-5 budgetary provisions for corporate social responsibility

S.No.	Particulars	Annual Recurring Cost (In Lakhs)
1	School function, furniture, prize distribution and provision of scholarship for meritorious students in nearby villages.	5.50
2	Community functions *i.e.* Dusshera, Holi and sports activities in villages.	3.50
3	Training and awareness campaign	4.00
4	Community hall development, renovation of structure such as temple, school buildings, make drinking water structures etc. in nearby villages	10.00
5	Health Check up camps in villages	0.50
	Total	**23.50**

10.11 POST PROJECT ENVIRONMENTAL QUALITY IMPLEMENTATION & MONITORING PROGRAMMES

10.12 Monitoring Schedule

The monitoring schedule will include the following:

- Noise Control: Quarterly measurement of noise levels at sensitive locations would bring out the efficacy of maintenance schedules.
- Monitoring (One 8-hr sample) of ambient air quality at sensitive locations at regular intervals.
- Monitoring of water quality from appropriate stations at regular intervals.

10.13 ENVIRONMENTAL COST

The annual cost for environmental measures would be Rs. 20.50 lakh.

Table 0-6Budget for Environmental Protection Measures

S.No.	Particulars	Capital Cost (In Lakhs)	Annual Recurring Cost (In Lakhs)
1	Pollution Monitoring Air,water,noise	3.00	2.00
2	Pollution Control Measures (Water Sprinkling & Others)	3.00	6.00
3	Plantation including protection	3.00	6.50
4	Rainwater harvesting in nearby villages	-	4.00
5	Maintenance of Haul Road	4.00	2.00
	Total	**13.00**	**20.50**

10.14 CONCLUSION

M/s. Sher Singh Solanki had a River sand mine Area 1286 Ha. is seeking environmental clearance for proposed production capacity of River sand (Bajri) @ 28.05 Lac TPA). The baseline of air, water, soil and noise levels are found to be normal and are well within the permissible limits. The expected increase in the levels of the environmental pollution parameters would be marginal as per the impact assessment made. Continuation of the project will have the following benefits:

- Increased employment opportunities
- Increased Revenue to the Govt. in terms of Taxes & Royalty.
- Improved socio–economic conditions of nearby villagers

Disclosure
of
Environmental Consultant

Perfact Enviro Solutions Pvt Ltd.
5th Floor, Front Wing, NN Mall
Sector- 3, Rohini, New Delhi - 110085
Phone: +91-11-47528467/47021086/65280483
Fax: +91-11-47528434

About Environmental Consultant

➢ INTRODUCTION:

Perfact Enviro Solutions Pvt Ltd, established by experienced environmental and related experts, provides specialized services in the field of Environment and Pollution Control for all types of **Industrial, Construction, Nuclear Sciences, Bio-diversity Mining, Aerial Ropeway and other related fields**. Our transparent and professional approach, commitment to excellent quality and service, timely deliveries have contributed to create a name in the field of environment. We have a core group of highly qualified experts from various fields like Environment, Forestry, Chemistry, Civil Engineering, Geology, Social Sciences, Electronics and Telecommunication with rich and diversified experience in the field of environment and pollution control.

Perfact Enviro Solutions Pvt Ltd is headed by **Mr. Praveen Bhargava**, Managing Director who has an experience of 27 years in the field of Environment and **Mrs. Rachna Bhargava**, Director &C.E.O, who has an experience of 21 years in the field of Environment.

Perfact Enviro Solutions Pvt Ltd management, experience, excellence, professionalism and ultimate satisfaction has helped in achieving the heights of success in their specialized field of environment.

➢ ACCREDIATATIONS OBTAINED:

- ISO-9001:2008 Certification
- ISO-14001:2004 Certification
- QCI – NABET Scheme for Accreditation of EIA Consultant Organization

KEY PERSONS:

S. No	Brief Description of Key Persons (NABET Approved)
	Mr. Praveen Bhargava is M.Phil in Chemistry, M.Sc in Inorganic Chemistry, P.G. Diploma in Ecology & Environment with overall experience of more than 27 years and currently the Director & Technical Head of Perfact Enviro Solutions Pvt. Ltd **EIA Coordinator:** ➢ "Mining of minerals including Opencast / Underground mining - (1)" ➢ "Leather/Skins/hide processing Industry – (15)" ➢ "Distilleries – (22" ➢ "Textile – Cotton and Man Made fibres – (19)" **Functional Area Expert (FAE)** ❖ AP – Air Pollution Monitoring, Prevention & Control ❖ WP – Water Pollution Monitoring, Prevention & Control ❖ SHW – Solid & Hazardous Waste Management

	❖ SC – Soil Conservation
	Mrs. Rachna Bhargava, M.Sc in Environmental Science, M.Sc in Mathematics & MA in Geography having more than 21 years of experience in the field of Environment is the Head / Team Leader of EIA Preparation Team. She is also a certified Advance EMS Auditor (ISO-14001:2004) & Laboratory Management & Internal Auditor (ISO 17025:2005) from CII and had undergone Training program on EIA, SIA, Air Dispersion Modelling, Air Quality, CSR, Advanced Training Programme on Green Building Rating System, etc. **EIA Coordinator:** ➢ "Industrial estates/ parks/ complexes/areas, export processing Zones(EPZs), Special Economic Zones(SEZs), Biotech Parks, Leather Complexes – (31)" ➢ "Aerial Ropeways – (35)" ➢ "Building and large construction projects including shopping malls, multiplexes, commercial complexes, housing estates, hospitals, institutions – (38)" ➢ "Townships and Area development projects – (39)"
	Mr. Santosh Pant is M.Tech in Applied Geology having an overall experience of more than 39 years in the field of Hydrology, Geology, Mining, GIS based Landuse & Env. **EIA Coordinator:** ➢ "Mining of minerals including Opencast / Underground mining - (1)" **Functional Area Expert (FAE)** ❖ HG – Hydrology, Ground Water & Water Conservation ❖ GEO – Geology
	Mr. U.S. Pandey is B.sc Engineering (Mining) from Banaras Hindu University (BHU having more than 43 years of experience in the field of Mining & Mineral Beneficiation **EIA Coordinator:** ➢ "Mining of minerals including Opencast / Underground mining - (1)" ➢ "Mineral beneficiation including pelletisation – (7)"
	Dr. Purba Chatterjiis Doctorate (Ph.D) in Environmental Science, certified Laboratory Management & Internal Auditor (IS/ISO/IEC 17025:2005), P.G certified in Industrial Environmental Mgmt., Microbiology & Biotechnology and trained in Environmental Mgmt. & ISO 14000/14001 having a total work experience of over 9 years in the field of Environment, Ecology & Biodiversity. **EIA Coordinator:** ➢ "Building and large construction projects including shopping malls, multiplexes, commercial complexes, housing estates, hospitals, institutions – (38)" ➢ "Townships and Area development projects – (39)" **Functional Area Expert (FAE)** ❖ WP – Water Pollution Monitoring, Prevention & Control ❖ EB – Ecology & Biodiversity
S. No	**Brief Description of Key Persons (NABET Approved)**
	Dr. R.P. Mathur is Doctorate (PhD) in Environment Science & Microbiology with vast experience in the Field of Environment & Microbiology and currently mentoring young aspirants in Air Quality Modelling Meteorology and other Environmental related topics/subjects.

	Mentor: AP – Air Pollution Monitoring, Prevention & Control
	Dr. S.P. Nigam is Doctorate (PhD) in Mechanical Engineering with vast experience in the Field of Environment & Mechanical Engineering and currently mentoring young aspirants in the areas of Noise & Vibration. He is member of **NBA AICTE, Govt. of India** as well as **Chairman Selection Committees/ Assessment Boards, DRDO, Govt. of India.** **Mentor:** NV – Noise & Vibration
	Mr. Anant Kishore Khareis holding a Master'sDegree in Economics & Post Graduate Diploma in Rural Development, with an overall of approx. 20 years of work experience in the field of Socio Economic studies & Social Welfare **Functional Area Expert (FAE)** ❖ SE – Socio Economic Aspects
	Mr. Rajveer Singh is M. Sc in Remote Sensing, certified in Remote Sensing and Digital image Processing having an overall work experience of more than 9 years. **Functional Area Expert (FAE)** ❖ LU – Landuse
	Mr. S.C. Gupta is M.E. (Chemical) with Specialization in Industrial Pollution Abatement with an experience of over 19 years in the field of Chemical Engineering, Risk Management & EIA **Functional Area Expert (FAE)** ❖ RH – Risk & Hazards Management

➢ Associate Functional Area Experts (AFAE) with area of expertise:

S. No	AFAEs	Functional Areas	Abbreviation
1	Mr. Nipun Bhargava Mr. Rakesh Kumar Pandey	Air Pollution Monitoring, Prevention & Control	AP
2	Mr. Nipun Bhargava	Meteorology, Air Quality Modelling& prediction	AQ
3	Mr. Nipun Bhargava Ms. Neha Aggarwal	Water Pollution Monitoring, Prevention & Control	WP
4	Mr. Sandeep Kumar	Ecology & Biodiversity	EB
5	Mr. Maheep Singh	Noise &Vibration	NV
6	Mrs. Rachna Dogra Mr. Chandrashekhar Jha	Soil Conservation	SC

The EIA report of **River Sand Mine (minor mineral)** located at Tehsil- Reodhar, District - Sirohi (Rajasthan) with Lease area- 1286 ha & Production Capacity 30 Lac TPA owned by **M/s Sher Singh Solanki**, is prepared by M/s Perfact Enviro Solutions Pvt. Ltd., New Delhi.

➢ **Team (EIA Coordinators, FAEs, AFAEs & Team Members) involved in the Project:**

- **EIA Coordinators:** Mr. U.S.Pandey
- **Assistant to EIA Coordinator:** Mr. M.K. Gupta
- **Team :**

Functional Area	Approved FAE	Approved AFAE	Team Members
LU	Rajveer Singh	---	Sunita Dadarwal
AQ	Dr. RP Mathur (Mentor)	---	Jay Prakash Kumar C.M. Yadav
AP	Praveen Bhargava	---	M.K. Gupta Jay Prakash Kumar
WP	Praveen Bhargava	---	Dr. Alok Pandey Jay Prakash Kumar
EB	Dr. Purba Chatterji	---	C.M. Yadav Jitendra Prajapat
SE	Anant Kishore Khare	---	Sunita
NV	Dr. SP Nigam (Mentor)	---	U.S. Pandey Pawan Sut Sharma
GEO	Santosh Pant	---	Satish Chand Sharma
HG	Santosh Pant	---	PL Vaya
SC	Praveen Bhargava	---	Akta Chugh Shimbhu Singh
RH	SC Gupta	---	Dr Alok Pandey MK Gupta
SHW	Praveen Bhargava	---	M.K. Gupta Jitendra Prajapat
Other Technical persons involved	Mr. Rajiv Kumar ex IFS (Forestry & Wild Life)		

- **The list of approved EIA Coordinators & FAEs is also available on the official website of NABET on page 7 of the Minutes of Meeting No 020 / 2014 : 09 May 2014**

➢ Technical Man Power of the Organization:

S. No.	Name	Qualification	Experience (years)
1	Mr. Praveen Bhargava	Pursuing Ph.D, M.Sc, PG Diploma in Ecology & Environment	27
2	Mrs. Rachna Bhargava	MSc, Advance EMS Auditor	21
3	Mr. Rajiv Kumar (ex I.F.S)	M.Sc (Botany), A.I.F.C	25

4	Mr. Santosh Pant	M.Tech (Mining)	35
5	Mr. U.S. Pandey	B.Sc. Engineering (Mining)	38
6	Mr. Rajaa Chatterji	B. Tech, M.B.A	16
7	Dr. Purba Chatterji	Ph.D. (Env. Sc.)	8
8	Mr. Manoj Kumar Pant	M.A (Geography)	20
9	Mrs. AktaChugh	M.Sc	9
10	Dr. Abdul Rahman	Ph.D (Geology)	37
11	Mr. Nipun Bhargava	M.E (Chemical Engineering)	2
12	Mrs. Rachna Dogra	M.Sc (Chemistry), M.Phil (Chemistry)	2
13	Ms. Charu Sharma	M. Tech (Environmental Engg.)	3
14	Ms. Neha Aggarwal	B.E. (Environmental Engineering)	2
15	Mr. AkshayChauhan	M.Sc	2
16	Mr. Chandra Shekhar	B.Sc (hon.) Physics, M.Sc (Chemistry)	3
17	Ms. Charu Tyagi	M. Sc (Env. Management) & Pursuing Ph. D	2
18	Mr. Lokesh Kumar	M.Sc	2
19	Mr. Maheep Singh	M.Sc	2
20	Mr. RakeshPandey	M.Sc	2
21	Ms. Kamna Srivastava	M. Tech (Env. Science & Technology)	1
22	Ms. Nandni Joshi	M. Tech (Energy & Env. Management)	1
23	Mr. Anant Kishore Khare	M.A (Economics)	21
24	Ms. Supriya Tiwari	M.Sc. (Applied Microbiology & Bio-technology)	1
25	Mr. Dharmendra Kumar	M.Sc	2
26	Mr. Rajneesh Mourya	M. Sc. (Goelogy)	8
27	Mr. Sandeep Kumar	M.Sc, M.Tech	1
28	Ms. Shaimael Fatima	M. Tech (Env. Engg)	1
29	Mr. Vinay Kr. Singh	M. Tech (Env. Science & Engg)	1
30	Mr. Deepak Bhandari	B. Tech (Environmental Engg.)	1
31	Mr. RajnishChoudhary	B. Tech (Environmental Engg.)	1
32	Mr. Gopal Kumar	B.Tech	1

ANNEXURES

ANNEXURE-1

(Letter of intent for sanction of mine lease)

राजस्थान सरकार
खान (ग्रुप–2) विभाग

क्रमांक प.8(16)खान/ग्रुप–2/2013 जयपुर, दिनांकः–

27 FEB 2013

श्री शेरसिंह सोंलकी पुत्र
श्री मंगल सिंह सोंलकी,
13, शिव नगर, अजमेर रोड,
जयपुर (राजस्थान)।

विषयः–खनन पट्टा क्षेत्र 1286 है0 क्षेत्र जिला सिरोही की तहसील रेवदर के राजस्व गावों में गैर मुमकिन नदी, नालों, बालों से (खसरे के अनुसार) निकलने वाला खनिज बजरी का श्री शेरसिंह सोंलकी पुत्र श्री मंगल सिंह सोंलकी, 13, शिव नगर, अजमेर रोड, जयपुर (राजस्थान)।

महोदय,

उपरोक्त विषय में राजस्थान खनिज रियायत नियमावली, 1986 के अन्तर्गत राज्य सरकार आपको 1286 हैक्टेयर क्षेत्र के लिये खनिज बजरी का खनन पट्टा 5 वर्ष के लिये जारी की जाने की मंशा रखती है। अतः निम्न पूर्तियां एक वर्ष में पूर्ण करे :–

1. माईनिगं प्लान तैयार करा एवं सक्षम अधिकारी से अनुमोदित करा प्रस्तुत करे।
2. पर्यावरण क्लीयेंरेंस भारत सरकार के वन एवं पर्यावरण मंत्रालय से प्राप्त कर प्रस्तुत करे।
3. नियम 37(जे) अनुसार वित्तीय आश्वासन प्रस्तुत किये जाने का शपथ पत्र प्रस्तुत करे।

भवदीय

संयुक्त शासन सचिव

प्रतिलिपिः–निदेशक, खान एवं भू–विज्ञान विभाग, उदयपुर को उनके पत्र कमांक निदे/प–2(ए.3)सिरो/बजरी/2012/275 दिनांक 28.01.2013 के क्रम में आवश्यक कार्यवाही हेतु प्रेषित है।

सहायक शासन सचिव

ANNEXURE-1A

(Allotted Khasra details of mine lease)

तहसील सदर	खसरा नं०	कुल खसरा	रकबा / कुल फसल	कुल रकबा
रामपुरा	1 / 3, 10, 26, 27, 42, 58, 61, 66, 67, 75, 121, 123, 40 / 306, 70 / 309, 87 / 318	16	194.11, 6.16, 3.19, 4.03, 5.5, 3.18, 2.15, 14.18, 7.16, 6.06, 22.01, 3. 15, 3.19, 15.18, 18.06, 0.12 बीघा	307.42
[illegible]	1 / 258, 1 / 259, 47, 54, 57, 59, 70, 82, 94, 99, 100, 105, 159, 181, 183, 193, 195, 203, 205, 207, 218, 224, 227	23	183, 94.03, 0.12, 1.11, 0.08, 0.04, 1, 1.02, 2.15, 0.14, 1.0[illegible], 0.[illegible], 0. 02, 0.19, 9.05, 0.06, 4.01, 0.04, 1.17, 3.09, 1, 1.16, 4.04 बीघा	307.71
जामदा	14, 16, 19, 20, 21, 99 / 361, 84, 91, 122, 137, 152, 161, 172, 179, 183, 218, 238, 240, 243, 261, 286, 154 / 367, 253 / 380	23	0.16, 6.04, 6.10, 1.11, 3.18, 349.15, 0.10, 0.17, 3, 7.14, 0.12, 4.01, 3.04, 3.16, 0.17, 2.01, 11.12, 3.11, 5.03, 5.02, 2.18, 4.02, 5.11	424.26
जावल	1, 271, 134, 147, 150, 166, 168, 170, 172, 180, 182, 194, 221, 223, 227, 247, 272, 316, 329, 127 / 344, 256	21	263.02, 40.04, 13.05, 1.03, 6.03, 2.04, 1.10, 1, 0.05, 0.10, 0.04, 2. 10, 6.02, 1.02, 1.07, 2.08, 12.04, 1.15, 0.15, 5.05	362.18
नवाडा	212, 213, 214, 234, 282, 2, 3, 11, 13, 17, 19, 24, 53, 59, 65, 87, 89, 154, 92	19	40.10, 33, 102.17, 6.08, 113, 1.06, 0.19, 2.05, 2.06, 4.08, 1.15, 24. 10, 4.03, 5.08, 7.04, 1.02, 4.04, 4.18, 0.11	354.52
पाचोल	9, 10 / 1094, 53, 53 / 196, 53 / 197, 289, 373, 374, 10, 2, 167, (267), 348, 370, 387, 397, 398, 414, 418, 440, 447, 515, 519, 573, 586, 628, 640, 643, 645, [illegible], 652, 660, 769, 781, 784, 904, 915, 996, 1000, 1002, 1004, [illegible], 1034, 1057, 1062	45	118.12, 97.12, 57.01, 6.11, 7.16, 40.17, 93.04, 40.10, 110.05, 1.17, 0.07, 0.07, 0.12, 0.17, 4, 0.14, 2.12, 0.13, 0.15, 5.06, 1.[illegible], 0.[illegible], 0. 11, 2.07, 3.02, 1.05, 0.14, 0.04, 1.07, 22.13, 0.10, 0.07, 0.12, 0.08, 1.04, 1.17, 0.15, 10.16, 2.14, 2.06, [illegible], 1.0, [illegible], 0.[illegible], [illegible], 0.[illegible] बीघा	649.171
मिठन	267, 340, 11, 81, 96, 116, 119, 132, 201, 210, 242, 246, 248, 266	14	45.0, 39.0, 7.14, 5.14, 2.07, 3.16, 8.02, 7.16, 1.04, 1.10, 4.15, 5.08, 4.15, 2.10	132.22
निसोडा	1, 1 / 531	2	38.10, 144.11 बीघा	182.21

Annexure - 9

करोली 35, 61, 72, 102, 105, 112, 114, 127, 145, 169, 171, 173, 184, 210, 212, 217	17	[illegible] 24.16, 2.06, 1.11, 1, 1.05, 3, 5.16, [illegible] 2.08, 3.14	15	[illegible]
राजगढ 84/268, 262, 35, 35/267, 36, 38, 40, 50	[illegible]	[illegible] 9.01, 5.18, 3.02, 0.19, 9.02, 5.19		[illegible]
·पोल 202/959, 96/972, 14/922, 133, 134, 157, 159, 164, 368, 402, 416, 550, 560, 604, 612, 613, 682, 736, 757, 798, 842, 855, 866, 870/883, 873	25	[illegible] 0.12, 43, 8.01, 0.12, 1.12, 0.16, 0.04 [illegible] 8.07, 17.12, 2.03, 3.05, 8.14, 40.17, 21.1[illegible] 10.09 [illegible]		50.57
·पोल 16, 17, 19, 20, 21	5	[illegible] 26.15, 81.95, 22.05 बीघा		42.78
सेलवाडा 406, 407, 409, 410, 411, 567, (182) [1082] 408, 4, 5, 8, 10, 16, 17, 35, 46, 56/1280, 57, 65, 68, 71, 77, 79, 83/1523, 84, 35/1236, 88, 94, 95/1447, 96, 123, 138, 141, 143, 151, 173, 174, 186, 188, 216, 248, 256, 257, 259, 265, 271, 273, 276, 282, :4, 292, 306, 326, 327, 328/1439, 330/1422, 333, 343/1301, 348, 350, 403/1359, 403/1380, 404, 416, 445, 447, 531, 532, 533, 534, 535, 598, 756, 758, 772, 777, 782, 804, 809, 814, 817, 835, 839, 847, 858, 860, 864, 866, 868, 877, 886, 892, 895, 897, 900, 929, 933, 943, 955, 958, 975, 983, 993, 997, 016, 1025, 1032, 1040, 1049, 1050, 1083, 1087, 1089, 1090, 091, 1092, 1094, 1097, 1098, 1110, 1113, 1129	122	[illegible] 10.19.18.17.10, 58.15, 57.12, 6.17, [illegible] 0.07, 7.17, 0.19, 0.17, 12.12, 13, [illegible] 5.09, [illegible] 0.08, 22.03, 0.06, 3.18, 2.18, 0.11, [illegible] 4.06, 0.06, 0.10, 4.05, 6.09, 5.10, [illegible] 1.09, 4.04, 0.18, 0.11, 3.14, 0.08, [illegible] 0.14, 21.03, 1.08, 5.17, 2.09, 4.06, [illegible] 0.18, 1.08, 0.19, 5.03, 8.14, 0.08, [illegible] 0.06, 0.14, 5.17, 1.01, 1.06, 2.05, [illegible] 0.18, 0.13, 0.09, 10.06, 0.14, 10.02, [illegible] 3.03, 0.17, 0.16, 2.11, 0.15, 1.04, [illegible] 2.11, 3.13		586.2
·थल 480, 508, 509, (537) [737] 791, 861, 94, 100, 102, 133, 162, 67, 169, 237, 244, 342, 375, 403, 476, 478, 526, 528, 584, 117, 1195, 1205, 1206, 1208, 1209, 1211, 1289	31	[illegible] 3.14, 98.14, 31.05, 81.12, 0.06, 0.12, [illegible] 7.19, 1.17, 4.07, 2.15, 2, 2.15, 34[illegible] 14.03, 3.02, 4.0[illegible] 02, 1.18	15	675.09

आलगॉव 1, 16, 192, 193, 196, 98/1, 295, 295/484, 297, 299, 302, 304, 695, 699, 711, 743	16 ✓	36.11, 2.17, 34.04, 20.14, 62.05, 127.07, 7.05, 7.10, 0.08, 2.05, 0.12, 1.16, 1.05, 32.11, 1, 1.02	334.32
गुलाबगंज 132, 106/2, 130, 131/1, 133/19, 204/971, 214/972, 98/1, 161, 163, 177, 200, 216, 449, 457/8, 466/01, 468, 472/3, 472/7, 472/09, 472/11, 619, 620, 778, 807/38, 881, 897, 465/1029	28 ✓	49.18, 70.17, 2.16, 11.01, 10.13, 71.10, 86.19, 6.16, 2.05, 11.05, 6.15, 0.16, 0.18, 1.17, 0.18, 1.01, 0.11, 0.12, 0.19, 1.01, 4.1, 4, 1.13, 0.06, 2.15, 3.11, 9.06, 19.14	372.23
करेली 8, 2, 21, 74, 76, 81, 83, 85, 92, 99, 104, 136, 156, 207, 207/255, 216 220, 221, 222, 224, 226, 239, 4	23 ✓	51.19, 2.19, 2.10, 2.07, 6.13, 5.19, 1.13, 3.02, 1.07, 1.04, 0.15, 1.09, 0.09, 6.14, 0.19, 0.03, 7, 8.19, 9, 3.17, 3.10, 0.16, 1.02	114.46
खरसन 632, 4, 6, 9, 10, 11, 14, 15, 20, 23, 26, 31, 37, 63, 98, 102, 105, 106, 109, 117, 119, 121, 123, 201, 207, 216, 231, 233, 235, 236, 237, 239, 241, 246, 248, 250, 257, 278, 283, 295, 312, 316, 398, 418, 423, 428, 432, 441, 443, 451, 461, 463, 467, 496, 501, 518, 525, 603, 634, 635, 665, 717, 736, 739, 771, 801, 817, 825, 828, 843, 845, 847, 851, 853, 870, 923, 946, 957, 966, 1045, 1047, 1060, 1065, 1068, 1073, 1083, 1101, 1107, 1117, 1123, 1129, 472/1234, 7, 703/1244, 720/1247	95 ✓	22.12, 1, 0.05, 7.04, 0.04, 1.11, 0.16, 12.04, 0.19, 0.19, 4.11, 1.02, 33.13, 6.05, 1.19, 0.09, 11.15, 4.13, 1.15, 0.13, 1.06, 0.06, 2.05, 24 06, 1.07, 3.18, 37.10, 2.05, 0.04, 0.15, 1.15, 2.05, 3, 5.05, 1.01, 0.15, 6.06, 2.05, 0.15, 0.7, 11.07, 28.16, 9.05, 12.05, 3.09, 8.03, 2.16, 13.04, 0.11, 2, 4.03, 0.07, 7.09, 2.17, 3.15, 16.13, 0.11, 2.10, 1.11, 1, 0.06, 1.09, 11.05, 3.11, 0.09, 1.11, 2.09, 0.09, 0.17, 0.11, 1.03, 2.03, 4.11, 4.13, 0.09, 2.05, 1.09, 1.09, 1.14, 0.19, 3.17, 0.15, 0.13, 0.15, 2.09, 0.11, 3.11, 0.09, 0.14, 1.03, 0.16, 27.09, 15.12, 4.03, 0.15	416.64
खेवरा 237, 377, 124, 229, 232, 331, 366, 407, 471, 502, 556, 562, 570, 632, 634, 638, 647, 660, 708, 710, 775, 778, 801/1262, 900, 940, 1203/1263, 303	27 ✓	174.12, 18.04, 4.13, 8.09, 6.11, 1, 1, 0.13, 2.05, 7.07, 3.12, 9.18, 18.13, 2.10, 16.02, 5.01, 4.04, 4.07, 1.05, 7.07, 1.21, 0.12, 5.06, 3.17, 2.13, 4.08, 14.11	321.21
केरोल 88, 89, 95, 96, 120, 3, 6, 7, 26, 32, 36, 48, 61, 71, 81, 82, 91, 92, 247, 262, 270, 272, 280, 283	24 ✓	1.10, 5, 0.17, 18.15, 10.03, 8.18, 3.18, 1.13, 1.03, 0.09, 1.15, 1, 3, 15, 1.12, 12.08, 3.13, 2.08, 0.12, 4.06, 13.03, 10.06, 0.16, 15, 11.02	128.14

सोरावली 18/811, 32, 52/1, 52/3, 67/8, 72, 105/1, 312, 320, 345, 346, 360, 409/1, 409/2, 410/1, 507, 508, 509, 514/1, 522, 526/1, 527/1, 542, 730/1, 731, 734, 741, 742, 814/384, 155/973, 512/916, 56, 57, 171, 173, 192, 628/821, 274, 283, 368, 465, 469, 487, 520, 523, 627/1, 675, 676, 820/164, 485/1	50	13.07, 3.14, 39.04, 1.08, 0.01, 0.04, 22.09, 4.10, 4.15, 0.15, 41.06, 49.10, 0.12, 0.03, 0.13, 10.16, 74.05, 40.11, 0.10, 13.15, 1.04, 1.10, 11.11, 1, 17, 1.07, 1.03, 10.03, 5.12, 4.16, 34.14, 38.19, 0.11, 0.13, 3.07, 0.14, 0.18, 0.19, 23.05, 9.06, 1.15, 0.12, 0.06, 2.01, 2.03, 0.08, 4.04, 2.06, 0.03, 1.01, 1.17, 7.03, 1.01	497.63
सोरावली 13, 99, 112, 162, 45, 58, 67, 92, 96, 97, 156, 159, 171, 178, 201, 268, 284, 286, 288, 290, 295, 296, 298/642, 298/655, 298/669, 298/674, 307, 307/628, 308/697, 308/627, 376, 380, 390, 395, 402, 405, 418, 422, 438, 447, 471, 478, 486, 528, 586, 617	47	7.06, 18.08, 14.05, 64.05, 0.16, 2, 0.09, 0.05, 3, 7, 0.10, 0.12, 2, 11.18, 18.12, 0.08, 0.06, 0.09, 0.14, 2.09, 11.05, 0.12, 0.09, 7.03, 4.06, 2.01, 0.11, 15.12, 2.18, 1.05, 1.10, 2.13, 0.04, 8.01, 3.01, 5.12, 0.15, 13.14, 4.09, 2.15, 0.17, 5.08, 4.07, 9.12, 3.08, 0.16	253.04
पादरखेडा 1, 5, 8, 55, 59, 60, 78, 87, 89, 90, 92, 94	12	39.09, 8.12, 2, 0.08, 0.1, 2.04, 7.04, 1.03, 1, 14.03, 0.13, 1.12	75.78
[illegible] 212, 213, 214, 234, 282, 2, 3, 11, 13, 17, 19, 24, [illegible] 56, 85, 87, 88, 154, 92	[illegible]	[illegible] 10, 4.03, 6.08, 7.04, 1.02, 4.04, 4.18, 6.11	794
पीपरी 9, 10/1094, 53, 53/196, 53/197, 289, 373, 374, 10, 2, 187, 267, 348, 370, 387, 397, 398, 414, 418, 440, 447, 515, 519, 525, 586, 628, 640, 643, 645, 646, 663, 669, 761, 781, 784, 904, 911, 938, 1051, 1062, 1004, [illegible] 1056, 1057, 1060	45	118.12, 97.12, 57.01, 6.11, 7.16, 40.17, 93.04, 40.10, 110.05, [illegible] 0.07, 0.07, 0.12, 0.17, 4, 0.14, 2.13, 0.13, 0.15, 8.06, 12.08, [illegible] 11, 2.07, 3.02, 1.05, 0.14, 0.04, 1.07, 22.13, 0.10, 0.07, 0.12, 0.08, 1.04, 1.17, 0.15, 10.16, 2.14, 2.06, [illegible] 0.09, 0.06, [illegible]	649.17
मिढा 267, 340, 11, 81, 95, 116, 119, 132, 201, 216, 242, 246, 248, 266	14	45.0, 39.0, 7.14, 3.14, 2.07, 3.16, 8.02, 7.10, [illegible] 1.04, 1.10, 4.36, [illegible] 4.15, 2.10	132.22
निम्बोडा 1, 1/531	2	38.10, 144.11 बीघा	182.21

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[illegible] 11, 11/593, 26, 29, 36, 41, 43, 164, 168, 170, 179, 347, 365, 342, 360, 383, 384, 407, 415, 458, 481, 508, 536, 564, 576, 582, 588, 574	29	14.19, 17.16, 9.16, 9.11, 6.19, 1.04, 6.02, 9.03, 2.05, 0.15, 5.09, 5.18, 11.04, 3.03, 0.15, 1.13, 1.16, 13.04, 6.19, 2.02, 15.05, 3.17, 0.18, 12.16, 4.16, 4.03, 0.12, 0.08, 2.16	59.41 162.24
दवाडा 104,173	2	16.10, 9.01 नीमा	
लिलोरा 58, 81, 94, 143, 157, 178, 185, 226, 230, 281	10	4.12, 25.16, 12.18, 6.09, 10.12, 6.13, 1.04, 4.07, 5.11, 14.03	25.11 88.05
वेल 14, 16, 28, 30, 34, 43, 45, 56, 58, 558, 578, 579, 597, 602, 840, 869, 917/1008, 240, 363, 373, 384, 384/1007, 869, 999,	22	0.13, 1.10, 1.11, 1.11, 1, 0.19, 1.15, 1.13, 0.02, 1.14, 10.01, 2.06, 7, 1.10, 1.03, 6.02, 3.15, 1.14, 22.01, 2.15, 11.14, 5.03, 6.02, 0.10	86.04
पलिया 5, 39, 53, 67, 69, 82, 86, 92, 94, 95, 98, 103, 108, 110, 118, 179, 194, 199, 200, 210, 214, 215, 218, 77	24	4.18, 3.19, 3.03, 0.17, 1.05, 1.04, 1.06, 3.09, 2.13, 0.01, 2.10, 6.08, 0.10, 14.05, 2.16, 4, 7.18, 5.05, 3.12, 3.03, 6.10, 3.18, 2.01, 6.17	83.28
कावल 28, 29, 55, 61, 64, 69, 73, 124, 137, 166, 169, 172, 189, 190, 195, 446, 447, 449, 483, 518, 520, 541, 559, 578, 623, 635, 642, 684, 690, 695, 717, 718, 739, 794, 798, 809, 816, 830, 3, 566/876, 689, 687, 795	41	2.13, 4.10, 4.12, 0.18, 1.18, 1.14, 1.03, 0.08, 2.18, 1.05, 1.01, 1.17, 1.01, 3.14, 0.07, 0.12, 2.01, 3.16, 105.01, 29, 0.05, 1.13, 2.11, 0.15, 18.12, 1.19, 1.05, 0.12, 4, 2.12, 0.15, 10.11, 10.10, 0.13, 3.17, 2.07, 4, 1.03, 2.1, 4.04, 25.15, 10.09, 2.00, 1.01	255.17
28, 159, 172, 215, 218, 158, 219, 158/228	8	19.08, 14.03, 86.13, 1.04, 2.09, 3, 1.11, 2, 14.03	141.51
धारा 66, 81, 101, 115, 109, 419, 421, 422, 423, 424, 425,	12	31.19, 66.19, 50.02, 64.16, 7.17, 32.02, 62.11, 2.13, 0.15, 64.01, 10.04, 3.15	390.34

ANNEXURE-2

(Hon’ble Supreme Court order of temporary working permission)

Annexure - (2)

ITEM NO.310 COURT NO.6 SECTION XVII

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

CIVIL APPEAL NO(s). 9703-9706 OF 2013

CHIEF SECY.GOVT. OF RAJASTHAN Appellant (s)

VERSUS

NATIONAL GREEN TRIBUNAL BAR ASSN.& ORS. Respondent(s)

(With application for permission to place additional documents on record, exemption from filing certified copy of the impugned judgment and office report)

WITH SLP(C) NO. 34134 of 2013
[STATE OF RAJASTHAN & ORS. V. NATURE CLUB OF RAJASTHAN (NGO)]
(With prayer for interim relief and office report)
SLP(C) NO. 34811 of 2013
[NAVEEN SHARMA V. STATE OF RAJASTHAN & ORS.]
(With prayer for interim relief and office report)

Date: 25/11/2013 These Appeals were called on for hearing today.

CORAM :
HON'BLE MR. JUSTICE A.K. PATNAIK
HON'BLE MR. JUSTICE SURINDER SINGH NIJJAR
HON'BLE MR. JUSTICE FAKKIR MOHAMED IBRAHIM KALIFULLA

For Appellant(s) IN SLP 34134 & Appeal
Mr. Harish N. Salve, Sr. Adv.
Dr. Manish Singhvi, AAG.
Mr. Amit Lubhaya, Adv.
Ms. Pragati Neekhra, Adv.

in SLP 34811
Mr. Huzefa Ahmadi, Sr. Adv.
Mr. Yashvardhan, Adv.
Mr. Merusagar Samantaray, Adv.

For Union of India
Mr. Mohan Parasaran, SG.
Mr. Harris Beeran, Adv.
Mr. Mushtaq Salim, Adv.

For Respondent(s)
Mr. Ashok Kumar Gaur, Sr. Adv.
Mr. Sandeep Singh Shekhawat, Adv.

Mr. Lal Ppratap Singh, Adv.
Mr. Umesh Pratap Singh, Adv.
Ms. Ruchi Kohli, Adv.
Mr. Ram Niwas, Adv.

In SLP 34134

Mr. C.A. Sundaram, Sr. Adv.
Mr. Nimanshu Shekhar, Adv.

For RR No. 1

Mr. Raj Panjwani, Sr. Adv.
Mr. Rahul Choudhary, Adv.
Ms. Anitha Shenoy, Adv.

UPON hearing counsel the Court made the following

O R D E R

Pursuant to orders passed by this Court on 11th November, 2013, the learned Solicitor General has submitted a status note on behalf of the Ministry of Environment and Forests on the applications for environmental clearance in respect of mining lease of bajri in the State of Rajasthan which is pending before the Ministry of Environment and Forests.

From the aforesaid status note it appears that the time period prescribed under Environmental Impact Assessment Notification 2006 for processing the applications of 82 letter of intent holders/project proponents received from the State of Rajasthan will expire some time in February, 2014. Obviously the mining activity with regard to the bajri lease in the State of Rajasthan cannot be totally kept in abeyance till February, 2014.

We, therefore, direct that till the end of February, 2014, the letter of intent holders who

have submitted their applications to the Ministry of Environment and Forests for clearance (numbering 82 only) can carry on mining operations in accordance with the Notification dated 21st June, 2012 of the Mines (Act 2) Department, Government of Rajasthan issued under Rule 65A of the Rajasthan Mines and Mineral Concession Rules, 1986.

We make it clear that the orders that will be passed by the Ministry of Environment and Forests on the 82 applications will be in accordance with the Notification, Environmental Impact Assessment 2006 dated 14th September, 2006.

The State of Rajasthan will ensure that this interim order is not violated in any manner.

It has been mentioned by Mr. Raj Panjwani, learned counsel appearing for the National Green Tribunal Bar Association that besides the Rajasthan matters, other matters are pending before the Tribunal. We make it clear that the other matters may go on in the Tribunal if there are no specific orders of this Court staying the proceedings in the particular matter.

[KALYANI GUPTA]
COURT MASTER

[INDU POKHRIYAL]
COURT MASTER

ANNEXURE-3

(Analysis report of sand and its quality)

Annex with No. 3

Certificate No.: L130627C-03

MANTEC ENVIRONMENTAL LABORATORY
{Recognized by Ministry of Environment & Forests}
D-36, SECTOR-VI, NOIDA-201 301, U. P.

Identification No.	:	L13062703
Name & Address of the Customer	:	M/s Ramji mine Enviroteh , J-3 , Subhash Marg , C-Sheme, Jaipur-3022001(Rajasthan)
Date of Sampling	:	24.06.2013
Date of Receipt	:	27.06.2013
Sample Description	:	River Sand
Sample Condition	:	Ok
Date of Analysis	:	29.06.2013
Sample Location	:	Seepu River, Karoti, (Reodhan) Dist- Sirohi , Rajasthan

RESULTS

Sl. No.	Parameter	Units of Measurements	Value	Protocol
1.	pH	-	8.11	IS:2720
2.	Bulk Density	gm/cm^3	1.56	IS:2720
3.	Specific Gravity	gm/cm^3	2.20	IS:2720
4.	Texture	Class	Sandy	IS:2720
5.	Sand	%	84	IS:2720
6.	Clay	%	6	IS:2720
7.	Silt	%	10	IS:2720
8.	Water Holding Capacity	%	26.17	IS:2720

Analyzed by: Seal of Lab: Authorized Signatory:

Notes:

- The results relate only to the sample tested.
- This Test Report shall not be reproduced wholly or in part without prior written consent of the laboratory.
- The samples received shall be destroyed after two weeks from the date of issue of the Test Report unless specified otherwise.
- This Test Report shall not be used in any advertising media or as evidence in the court of Law without prior written consent of the laboratory.

ANNEXURE-4

(Approved mine plan with approval letter)

Government of Rajasthan
Department of Mines and Geology
Jodhpur Circle, Jodhpur.

6-West Patel Nagar,
Circuit House Road,
Jodhpur 342001

No.SME/JO/CC/Sirohi/Minor/Bajri/M.L. No- 12/2012/ **Dated:**

From:-
SUPDTG. MINING ENGINEER,
Department of Mines and Geology,
Jodhpur Circle, Jodhpur.

To,

Shri Shersingh Solanki,
S/o- Shri Mangal Singh Solanki,
R/o.- 13, Shiv Nagar,
Jaipur (Raj.).

Sub: Approval of **Mining Plan with Progressive Mine Clousre Plan** in respect of yours Mining Lease for Mineral Bajri (**M.L. No- 12/2012**) Tehsil: Reodar District: Sirohi over an area of 1286 Hect. Submitted under rule 37 E of RMMCR 1986.

Dear Sir,

In exercise of the powers conferred by Rule 37 B / 37 G of The RMMCR 1986 and with Government of Rajasthan vide Notification no. No. F-14(I)/Mines/Gr.II/2011 dated 24.07.2012; I hereby APPROVE the above said **Mining Plan with Progressive Mine Clousre Plan**. This approval is subject to the following conditions:-

(i) This **Mining Plan with Progressive Mine Clousre Plan** is approved without prejudice to any other laws applicable to the mine/area from time to time whether made by the Central Government, State Government or any other authority.

(ii) It is clarified that the approval of your aforesaid **Mining Plan with Progressive Mine Clousre Plan** does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Regulations and Development) Act, 1957 or the R.M.M.C.R. 1986, or any other laws including Forest (Conservation) Act, 1980, Environment Protection Act, 1986 and the rules made there under.

(iii) It is further clarified that approval of the **Mining Plan with Progressive Mine Clousre Plan** is subject to the provisions of Forest (Conservation) Act, 1980, Forest (Conservation) Rules, 1981 and other relevant statutes, orders and guidelines as may be applicable to the lease from time to time.

(iv) The **Mining Plan with Progressive Mine Clousre Plan** is approved without prejudice to any order or direction from any Court of competent jurisdiction.

(v) The approval of proposed mining operations and associated activities is restricted to the mining lease area only.

(vi) The execution of **Mining Plan with Progressive Mine Clousre Plan** shall be subjected to vacation of prohibitory orders/notices, if any.

(vii) If anything found concealed as required by the mines Act/Rules in the contents of **Mining Plan with Progressive Mine Clousre Plan** and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.

(viii) At any stage, if it is observed that the information furnished in the document are incorrect or misrepresent facts, the approval of the document shall be revoked with immediate effect.

(ix) The lessee/applicant should deposit Financial Assurance to the concerned Mining Engineer/Assistant Mining Engineer, as required under Rule 37 J of The Rajasthan Minor Mineral Concession Rules 1986.

Two copies of the approved **Mining Plan with Progressive Mine Clousre Plan** are being sent to your RQP as advised in consent letter.

Yours Faithfully,

SUPDTG. MINING ENGINEER,
Jodhpur Circle, Jodhpur
Dated: 22-7-13

No. 14720
Copy forwarded for kind information to:

1. The Regional Controller of Mines, Ajmer Region, IBM, Makhuqpura Industrial Estate, Ajmer 305008.
2. The Director of Mines Safety, Directorate General of Mines Safety, Ajmer.
3. M.E. Mines and geology Department Sirohi with one copie of approved **Mining Plan with Progressive Mine Clousre Plan**.
4. Shri M.K. Gupta (RQP) R/o Ramji Mine Envirotech, J-3, Subhash Marg, C-Scheme, Jaipur Along with two copies of approved **Mining Plan with Progressive Mine Clousre Plan**.
5. Guard file.

SUPDTG. MINING ENGINEER,
Jodhpur Circle, Jodhpur

MINING PLAN

खनन् योजना

(INCLUDING PROGRESSIVE MINE CLOSURE PLAN)

मय उत्तरोत्तर खान बन्द करने की योजना

Mining has been approved vide
Letter No : 19712-14/12)
SME/JDR Dt. 24/10/13
CDR/1988/MCR 1960

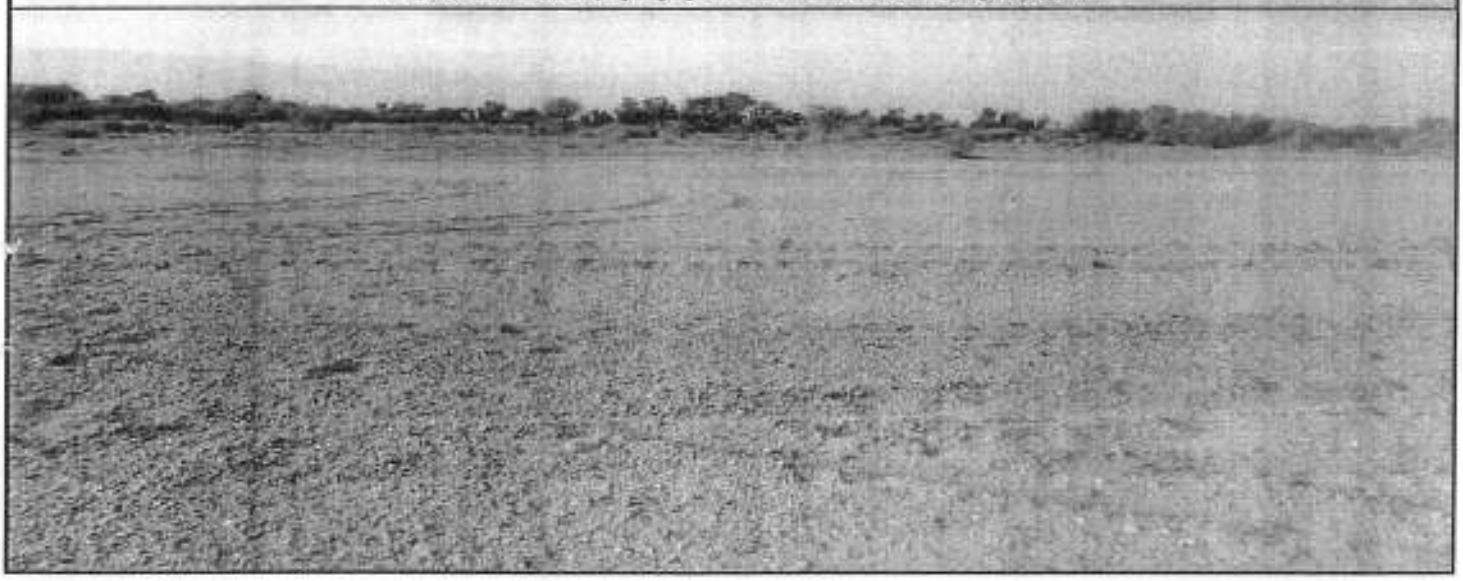
FOR

RIVER SAND

M.L No-12/12

NEAR VILLAGE	**(AWADA, BHAMRA, BOOTRI, CHHAPOL, DANGRALI, DEROL, GULAB GANJ, GUNDWARA, HATHAL, JAMTHA, JAWAL, JEERAWAL, JUADARA, KARELI, KAROTI, LEELORA, LOONOL, MAKAWAL, MALAWA, MALGAON, MAROL, MEETAN, NIMBORA, PADROO KHERA, PEEPALIYA, RAJGARH, RAMPURA, REODAR, SELWADA, THAL, VIKANWAS, WASAN)**
TEHSIL	**REODHAR**
DISTRICT	**SIROHI**
STATE	**RAJASTHAN**
LEASE AREA	**1286 HACTARES**
LAND STATUS	**NON-FOREST LAND**
WORKING	**SEMI-MECHANIZED OPENCAST MINING**
WORKING PERIOD	**5 YEARS**

Submission Under Rule 37E of Minor mineral concession rules & Progressive mine Closure Plan under Rule 37J (VI) (Second amendment) 2012



APPLICANT
SHRI SHERSINGH SOLANKI S/O
SHRI MANGAL SINGH SOLANKI
13, SHIV NAGAR, JAIPUR,
RAJASTHAN

PREPARED BY
M. K. GUPTA
RAMJI MINE ENVIROTECH
RQP/AJM/269/2005/A
J-3, SUBHASH MARG, C-SCHEME,
JAIPUR, RAJASTHAN
PH.- 0141-4036199, 9799744347

CERTIFICATE

1. AUTHORIZATION LETTER AND DECLARATION FROM LESSEE
2. UNDERTAKING FROM LESSEE
3. CERTIFICATE FROM RQP
4. CERTIFICATE ABOUT MINERS HEALTH
5. CERTIFICATE FROM LESSEE FOR PROGRESSIVE MINE CLOSURE PLAN
6. RQP CERTIFICATE

ANNEXURES

1. Letter of Intent for issue of mine lease with Mines and Geology Department.
2. Details of Khasra wise record of mine lease area.
3. Laboratory testing report of Mineral.
4. Demographic details of revenue village of River and mining Lease area.
5. Jamabandi details of Revenue Villages.
6. Photo of Mine Site Area

Certificate-1

SHERSINGH SOLANKI

AUTHORIZATION LETTER FROM APPLICANT

I **Shersingh Solanki**, Applicant of River sand mining Lease intended for grant, Location Near Village **– Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan Mining Lease area 1286Ha. Tehsil - Reodhar, District - Sirohi, Rajasthan hereby authorize Shri M.K.Gupta** registration number is **RQP/AJM/269/2005/A for Preparation of mining Plan including progressive mine closure plan under Rule 37E of Rajasthan Minor Mineral concession rules 1986, second amendment 2012.** Mining Plan **under Rule 37E of Minor Mineral concession rules 1986, Second amendment 2012** has been prepared for approval and Grant of Lease.

I request the **Superintending Mining Engineer, Jodhpur** of Deptt. of mines and geology to make further correspondence regarding Approval//modification/resubmission and to collect the approved copies of the mining Plan with the said recognized person on his following address:

Sh. M. K. Gupta
J-3, Subhash Marg, C-Scheme, Jaipur, Rajasthan, Pin-302001
0141-4036199 (Off.), Mobile 9799 -744347

I hereby undertake that all the modifications so made in the aforesaid mining Plan and other said works by the recognized person to be deemed to have been made with my knowledge and consent and as such shall be acceptable to me and binding on me in all respects.

Place – Jaipur
Date – 27.09.2013

SHER SINGH S/O MANGAL SINGH
13, Shiv Nagar, Ajmer Road, Jaipur
Proprietor

Shersingh Solanki
(Applicant)
Authorised Signatory

DECLARATION

This mining Plan has been prepared in full consultation with me and I understand its Contents and agree to implement the same in accordance with law. In case of default the approval would be withdrawn.

SHER SINGH S/O MANGAL SINGH
13, Shiv Nagar, Ajmer Road, Jaipur
Proprietor

Shersingh Solanki
(Applicant)
Authorised Signatory

Certificates-2

SHERSINGH SOLANKI

DECLARATION & UNDERTAKING FROM APPLICANT

This Mining Plan complies all statutory rules, regulations, orders made by the Central Government or State Government, statutory organizations, Court, etc have been taken into consideration and whereas any specific permission is required then I will approach the concerned authorities.

Shersingh Solanki
(Applicant)

SHER SINGH S/O MANGAL SINGH
13, Shiv Nagar, Ajmer Road, Jaipur
Proprietor
Authorised Signatory

UNDERTAKING

I **Shersingh Solanki** applicant for **River Sand Mining lease area in Tehsil -Reodhar District - Sirohi Location near village - Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan** of Rajasthan hereby undertake that all the measures proposed in the mining Plan will be implemented in time bound manner as proposed.

M.L.No-1611/2

Date- 27.09.2013

SHER SINGH S/O MANGAL SINGH
13, Shiv Nagar, Ajmer Road, Jaipur
Proprietor

Shersingh Solanki
(Applicant)
Authorised Signatory

Certificate-3

MUKESH KUMAR GUPTA

CERTIFICATE FROM RQP

"THIS IS TO CERTIFY THAT THE PROVISION OF **RAJASTHAN MINOR MINERAL CONCESSION RULES 1986 & Second amendment in RMMCR 2012** HAVE BEEN OBSERVED IN THIS MINING PLAN FOR RIVERSAND MINING LEASE Intended to be granted at LOCATION near village – **Awada, Bhamra, [illegible]ri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan** Mining Lease area for **1286Hectares** Tehsil - **Reodhar,** DISTRICT - **Sirohi** OF RAJASTHAN STATE LOI ISSUED IN FAVOUR OF **SHRI Shersingh Solanki** AND WHEREEVER SPECIFIC PERMISSIONS ARE REQUIRED, THE APPLICANT WILL APPROACH THE CONCERNED AUTHORITIES OF DEPARTMENT OF MINES AND GEOLOGY FOR GRANTING THE PERMISSIONS."

(A.) Certified that provision of 'Mines Act', Rules and Regulations made hereunder have been observed in the mining Plan and wherever specific permissions are required the applicant will approach the Director General of Mines Safety.

(B.) It is further certified that the aforesaid mining plan is prepared as per the records, Documents provided by APPLICANT and information given as per discussion with him and his representative. Accordingly survey of mine was carried and mining Plan is prepared for submission.

(C.) It is also certified that the information furnished in the above mining Plan are true and correct to the best of my knowledge. I can say of any default the approval would be withdrawn.

Place:-Jaipur

Date: 27.09.2013

M. K. Gupta

M. K. GUPTA
RQP/AJM/269/2005/A

RQP/AJM/269/2005/A

Certificate-4

SHERSINGH SOLANKI

CERTIFICATE ABOUT MINER'S HEALTH

I, **Shersingh Solanki**, Applicant for River sand mining Lease Located Near Village - **Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Ledora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan Tehsil - Reodhar** District - Sirohi, Lease area for 1286Hectares hereby certify that the provision of Mines Act, Rules and Regulations made there under have been observed in the mining Plan.

Wherever specific permission are required the applicant will approach the Director General Mines Safety. Further standards Prescribed by DGMS in respect of Miners Health will be strictly implemented.

Place - Jaipur

Date – 27.09.2013

SHER SINGH S/O MANGAL SINGH
13, Shiv Nagar, Ajmer Road, Jaipur
Proprietor

Shersingh Solanki
(Applicant)
Authorised Signatory

Certificate-5

SHERSINGH SOLANKI

CERTIFICATE FOR PROGRESSIVE MINE CLOSURE PLAN

The progressive mine closure plan complies all statutory rule, regulations, orders made by the state Govt. or central govt., statutory organizations, Court etc. have been taken into consideration and whereas any specific permission is required the APPLICANT will approach the concerned authorities.

Place: - Jaipur

Date:- 27.09.2013

SHER SINGH S/O MANGAL SINGH
13, Shiv Nagar, Ajmer Road, Jaipur
Proprietor Authorised Signatory

Shersingh Solanki

(Applicant)

UNDERTAKING

I Shersingh Solanki Applicant for River Sand Mining Lease area **1286 Ha.** for mineral River Sand Located **near village – Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan Tehsil – Reodhar District - Sirohi** (Rajasthan) hereby Undertake that all the measures proposed in this Closure Plan will be implemented in a time bound manner.

Place: - Jaipur

Date: - 27.09.2013

SHER SINGH S/O MANGAL SINGH
13, Shiv Nagar, Ajmer Road, Jaipur
Proprietor Authorised Signatory

Shersingh Solanki

(Applicant)

Annexure-6

खान योजना तैयार करने हेतु
योग्य व्यक्ति का रूप में
मान्यता का प्रमाणपत्र

(खनिज रियायत नियमावली 1960 के नियम 22(बी) के अंतर्गत)

श्री मुकेश कुमार गुप्ता

पुत्र श्री सुरेश चन्द्र पनगोत्रिया

निवासी 315 बी. शांति नगर, दुर्गापुरा, जयपुर

द्वारा अपनी योग्यताओं और अनुभव का संतोषप्रद प्रमाण प्रस्तुत करने के फलस्वरूप खनिज रियायत नियमावली, 1960 के नियम 22(बी) के अंतर्गत उन्हें एतद्द्वारा खनन योजना तैयार करने हेतु योग्य व्यक्ति के रूप में मान्यता प्रदान की जाती है।

उनका पंजीयन क्रमांक ROP/AJM/269/2005/A है।

यह मान्यता दिनांक 23 मार्च 2015 को समाप्त होने वाली दस वर्षों की अवधि के लिए वैध है।

स्थान अजमेर
दिनांक : 24 मार्च 05

खान नियंत्रक
भारतीय खान ब्यूरो

PART-I
MINING PLAN

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प्रभारी खान अभियन्ता
खान एवं भू-विज्ञान विभाग,
जोधपुर बूरा, जोधपुर

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PROGRESSIVE MINE CLOSURE PLAN



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MINING PLAN

(Under rule 37E of Rajasthan Minor Mineral concession rules, 1986, Second amendment 2012)

PREFACE

Rajasthan Government under its Notification and amendment in Rajasthan minor mineral concession rules 2012 vide order Government of Rajasthan Mines (Gr.II) Department No. F-14(1) Mines /Gr.II/2011 Jaipur Dated 23-05-2012 notified to provide mining lease for Bajri mining by tender or auction. It was Gazette notified by MINES (Gr.II) Department Notification, Jaipur dated June 21, 2012.

1.0 GENERAL INTRODUCTION ABOUT LESSEE

1.1 Name & Address of the lessee

Shri Shersingh Solanki
S/O Shri Mangal Singh Solanki
13, Shiv Nagar, Jaipur,
Rajasthan

1.2 Status of the Lessee (Individual/firm/company):-Individual

1.3 Name and address of the authorized person, who prepared the mining plan.

Mukesh Kumar Gupta
Registration No. - RQP/AJM/269/2005/A
(Valid up to 23-03-2015, enclosed as Certificate No. 5)
Address: C/o J-3,Subhash Marg, C-Scheme, Jaipur- 302001
Phone no. 0141-4036199(O.), Mobile 9799-744347
Email – mkguptarqp@gmail.com, rme.envirotech@gmail.com

2.0(A) Details of mining lease:

In view of this Mining proposal for **Revenue Villages** Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan **(List of Khasra no. enclosed as annexure no.2)** measuring Mining Lease area **1286 Ha.** for mining of river sand mineral is submitted for approval. M-L No 5A 12/12

अधीक्षण खनि अभियन्ता
खान एवं भू-विज्ञान विभाग,
जोधपुर परि, जोधपुर

2.0(B) M.L.No.:

L.O.I. has been issued for following Revenue Villages in following Khasra nos. of Tehsil - Reodar

Table 2.1 Location of Villages and Khasra nos. with Area

S.No.	Village Name	Khasra No.	Total nos. of Khasras	Area in Bigha.
1.	Awada			
		212,213,214,234,282,2,3,11,13,17,19,24 ,53,59,65,87,89,154,92,	19	354.52
2.	Bhamera			
		3,11,11/593,26,29,36,41,33,164,168,170 ,179,242,303,342,360,383,384,407,415, 458,481,508,538,564,576,582,588,574,	29	162.24
3.	Bootri			
		28,159,172,215,218,158,219,158/228	8	141.51

4.	Chhapol			
		16,17,19,20,21	5	42.78
5.	Dangrali			
		13,99,112,162,45,58,67,92,96,97,156,159,171,178,201,268,284,286,288,290,295,296,298/642,298/655,298/669,298/674,307,307/628,308/697,380/627,376,380,390,395,402,405,418,422,438,447,471,478,486,528,586,617	47	253.04
6.	Derol			
		88,89,95,96,120,3,6,7,26,32,36,48,61,71,81,82,91,92,247,262,270,272,280,283	24	128.14
7.	Gulab Ganj			
		132,106/2,130,131/1,133/`9,204/971,214/972,98/1,161,163,177,200,216,449,457/8,466/01,468,472/3,472/7,472/09,472/11,619,620,778,807/38,881,897,465/1029	28	372.23
8.	Gundwara			
		104,173	2	25.11
9.	Hathal			
		480,508,509,737,791,861,94,100,102,133,162,167,169,237,244,342,375,403,476,478,526,528,584,1117,1195,1205,1206,1208,1209,1211,1289	31	675.09
10.	Jamta			
		14,16,19,20,21,99/361,84,91,122,137,152,161,172,179,183,218,238,240,243,261,286,154/367,253/380	23	424.26
11.	Jawal			
		1,271,134,147,150,166,168,170,172,180,182,194,221,223,227,247,272,316,329,127/344,256	21	362.18
12.	Jeerawal			
		18/811,32,52/1,52/3,67/8,72,105/1,312,320,345,346,360,409/1,409/2,410/1,507,508,509,514/1,522,526/1,527/1,542,730/1,731,734,741,742,814/384,155/973,512/916,56,57,171,173,192,228/821,274,283,368,465,469,487,520,523,627/1,675,676,820/164,485/1	50	497.63
13.	Juadara			
		1/258,2/259,47,54,57,59,70,82,94,99,100,105,159,181,183,193,198,203,205,207,218,224,227	23	307.71
14.	Kareli			
		8,2,21,74,76,81,83,85,92,99,104,136,156,207,207/255,216,220,221,222,224,226,239,4	23	114.46
15.	Karoti			
		1,35,61,72,102,105,112,114,127,145,169,171,173,184,210,212,217	17	23.43
16.	Leelora			

		58,81,94,143,157,178,185,228,230,281	10	88.05
17.	Loonol			
		202/959,96/972,14/922,133,134,157,159,164,368,402,416,550,560,604,612,613,682,736,757,798,842,855,866,870/883,873	25	50.57
18.	Makawal			
		28,29,55,61,64,69,73,124,137,166,169,172,189,190,195,446,447,449,483,518,520,541,559,578,623,635,642,684,690,695,717,718,739,794,798,809,816,830,33,566/876,689,687,795	4	255.17
19.	Malawa			
		412, 414		30.46
20.	Maalgaon			
		1,18,192,193,196,98/1,295,295/484,297,299,302,304,695,699,711,743	16	334.32
21.	Marol			
		9,10/1094,53,53/196,53/197,289,373,374,10,2,187,267,348,370,387,397,398,414,418,440,447,515,519,573,586,628,640,643,645,646,653,660,769,781,784,904,915,996,1000,1003,1004,1032,1034,1057	45	649.171
22.	Meetan			
		267,340,11,81,96,116,119,132,201,210,242,246,248,266	14	132.22
23.	Nimbora			
		1,1/531	2	182.21
24.	Padroo Khera			
		1,5,8,55,59,60,78,87,89,90,92,94	12	75.78
25.	Peepaliya			
		5,39,53,67,69,82,86,92,94,95,98,103,108,110,118,179,194,199,200,210,214,215,218,77	24	83.28
26.	Rajgarh			
		84/268,262,35,35/267,36,38,40,50	8	39.3
27.	Rampura			
		1,3,10,26,27,42,58,61,66,67,75,121,123,40/306,70/309,87/318	16	307.42
28.	Reodar			
		237,377,124,229,232,331,366,407,471,502,556,562,570,632,634,638,647,660,708,710,775,778,801/1262,900,940,1203/1263,303	27	321.21
29.	Selwada			
		406,407,409,10,411,567,1082,408,4,5,8,10,16,17,35,46,56/1280,57,65,68,71,77,79,83/1523,84,85/1236,88,94,95/1447,96,123,138,141,143,151,173,174,186,188,216,248,256,257,259,265,271,273,276,	122	586.2

		282,284,292,306,326,327,328/1439,330/1422,333,343/1301,348,350,403/1359,403/1380,404,416,445,447,531,532,533,534,535,598,756,758,772,777,782,804,809,814,817,835,839,847,858,860,864,866,868,877,886,892,895,897,900,929,933,943,955,958,975,983,993,997,1016,1025,1032,1040,1049,1050,1083,1087,1089,1090,1091,1092,1094,1097,1098,1110,1113,1129		
30.	Thal			
		14,16,28,30,34,43,45,56,58,558,578,579,597,602,640,869,917/1008,240,363,373,384,384/1007,869,999	22	86.04
31.	Vikanwas			
		66, 81,101, 115, 109, 419, 421, 422, 423, 424, 425, 501	12	390.34
32.	Wasan			
		632, 4, 6, 9, 10, 11, 14, 15, 20, 23, 26, 31, 37, 63, 98, 102, 105, 106, 109, 117, 119, 121, 123, 201, 207, 216, 231, 233, 235, 236, 237, 239, 241, 246, 248, 250, 257, 278, 283, 295, 312, 316, 398, 418, 423, 428, 432, 441, 443, 451, 461, 463, 467, 496, 501, 518, 525, 603, 634, 635, 665, 717, 736, 739, 771, 801, 817, 825, 828, 843, 845, 847, 851, 853, 870, 923, 946, 957, 966, 1045, 1047, 1060, 1065, 1068, 1073, 1083, 1101, 1107, 1117, 1123, 1129, 472/1234, 7, 703/1244, 720/1247	95	416.64
Total	Village=32		844	Area = 1286Ha.

Table: 2.2 Mining Lease & Surrounding area details

S.No.	Particulars	Details
1.	Date of Survey	10/06/2013, 11/06/2013, 12/06/2013
2.	Name of Mineral	River sand(Bajri)
3.	Status of Khasra Land in revenue record	Gair Mumkin Nadi, Nalla (Govt. Land)
4.	Mine Lease Area	**1286 Ha.**
5.	Near Village	Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan
6.	Tehsil	Reodar
7.	District	Sirohi
8.	State	Rajasthan
9.	Toposheet No.	45 D/6, 45 D/10
10.	Description report of Lease area	Khasra of Revenue Villages which is Gair mumkin Nadi & Nallah is granted for mining lease falling in Tehsil Reodar. **List from Department of mines &**

		Geology is annexed as annexure no.2. Latitude 30°24'N to 45°24'N and Longitude 72°25'E to 72°45'E
11.	Nearest Railway Station	There is no Railway Station within 10 km radii.
12.	National Park	Not Any in 5 Km radii **(Refer Plate no.2)**
13.	Biosphere Reserve	Not Any in 5 Km radii.**(Refer Plate no.2)**
14.	Heritage	There is no Heritage within 10 km radii.
15.	Forest in Buffer zone	1. Mount Abu Forest is located 3.15 km SE of lease area. 2. Silari Forest is located 4.25 kms NW of the lease area.
16.	National Highway/State Highway	1. SH 11 from Abu Road to Sildar passes through the lease area near village Loonol. 2. SH 27 also passes through the lease near village Loonol.
17.	Water Bodies in Buffer zone(5 Km)	Tokara Dam is located about 500 meter East of Lease area.
18.	Population and nearest village River area	

S.No.	Name	Population	River Area (Sq.mtr.)
1	Awada	1733	567232
2	Bhamera	862	259584
3	Butdi	616	226416
4	Chapol	1192	68448
5	Dangrali	953	404864
6	Derol	554	205024
7	GulabGanj	3664	595568
8	Gundwara	1199	40176
9	Hathal	1431	1080144
10	Jamata	892	678816
11	Jawal	1149	579488
12	Jeerawal	3419	796208
13	Juadara	625	492336
14	Kareli	889	183136
15	Karoti	971	37488
16	Leelora	1048	140880
17	Loonol	2719	80912
18	Makawal	2472	408272
19	Malawa	1137	95056
20	Malgaon	2312	534912
21	Marol	2080	1038674
22	Meethan	1337	211552
23	Nimbora	1657	291536
24	Padroo Khera	172	121248
25	Peepaliya	340	133248
26	Rajgarh	956	62880
27	Rampura	626	491872
28	Reodar (CT)	8117	513936
29	Selwada	2200	937920
30	Thal	2833	137664
31	Vikanwas	1089	624544
32	Wasan	4592	666624
Total		**55836**	**12706658**

2.0(C) Description report of mining lease

As per para 2.0, Table2.1, Gair Mumkin Nadi and Nallah extending between **Latitude 30°24'N to 45°24'N and Longitude 72°25'E to 72°45'E** in Revenue villages Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan **Revenue villages of Tehsil - Reodar measuring lease area 1286 Ha.**

(Enclosed copy as LOI as annexure no.1). Details of Khasra wise area is granted for mining is annexure no.2).

RQP was assigned for Mining Plan work of this area thereafter field Survey of this area was carried dated 10/6/2013, 11/6/2013 & 12/6/2013 with Instruments D.G.P.S. (Geomax ZGP800A model no.) & Total station (Leica model no.TS02).

2.0(D) Key Plan of lease area: lease area of 5KM Radius showing prominent features **such as road, drainage, Type of land, Ponds, Hutments, topography, Forest land** etc. is shown as Key Plan Plate no. 2.

2.0(E) LOCATION OF THE MINING LEASE AREA

Location of the mining lease area

The mining lease area for mineral riversand (Bajri) near villages Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan Tehsil **Reodar, District Sirohi** extending between **Latitude 30°24'N to 45°24'N and Longitude 72°25' E to 72°45'E** granted in favour of **Shri Shersingh Solanki.**

LOCATION AND APPROACH

The district headquarter Sirohi can be approached from Pali through NH 14 which runs from Pali to Palanpur, Gujrat through Sirohi, Pindwara and Abu Road. From Udaipur, Pindwara can be approached through NH 76 than

following NH 14 up to Sirohi. Sirohi-Jalore is connected through State Highway No. 38. Sirohi is connected from Deesa in Gujrat through State Highway No. 27. State Highway No.11 joins Sanchor to Mandar, Revadr, Moongthala and Abu Road. State Highway No. 10 joins Kalandari, Nitaura, Rohera, Bhoola and Kotra, District Udaipur. State Highway No.62 joins Pali and Pindwara. The distrct headquarter Sirohi does not have any rail connection but metergage line of North Western Railway from Marwar Junction to Palanpur in Gujrat passes through Pindwara and Abu Road towns of Sirohi district. River area is bounded by following Latitude and Longitude.

Latitude: 30°24'N to 45°24'N

Longitude: 72°25.'E to 72°45'E

Location of the River is shown in as under:

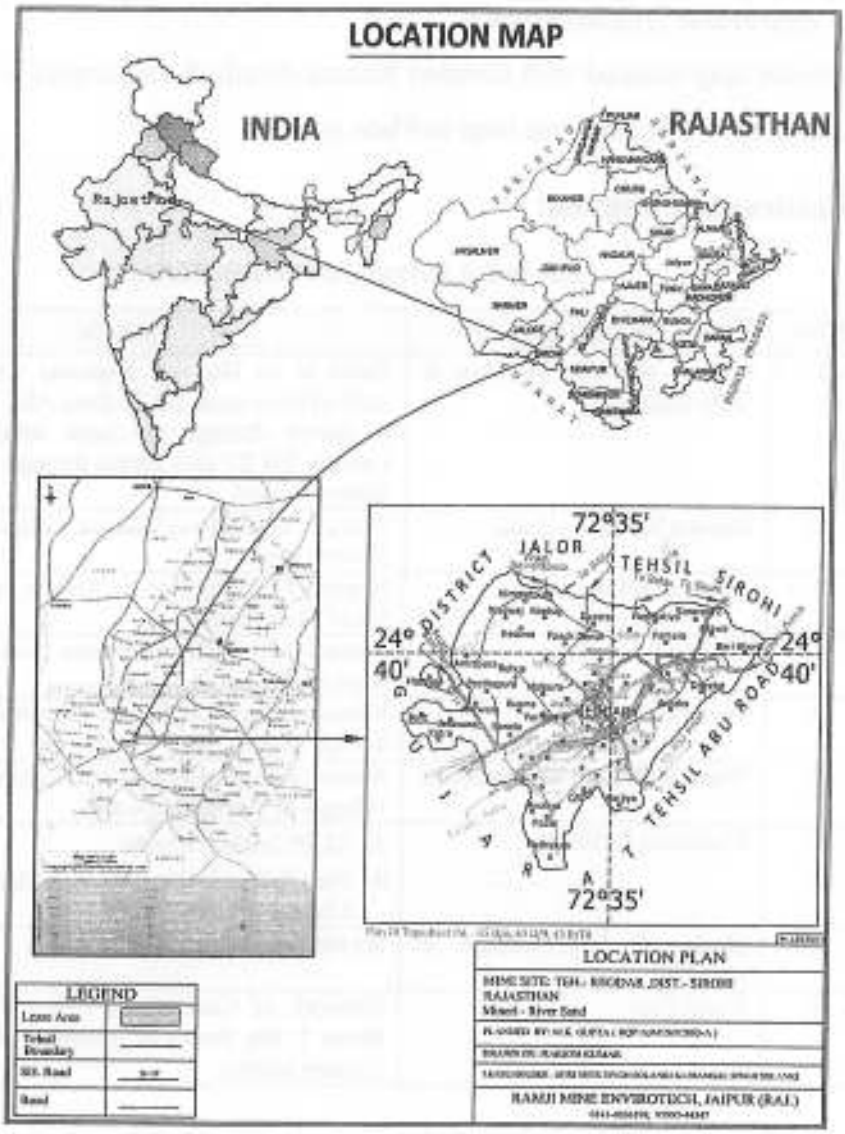


Fig. 1.1 Location Map of Mining Lease

2.0(F) Details of mining Lease area

LOI for grant of mining lease has been issued by Government Letter. (Annexed as annexure no.1)

Table 2.3 Details of Mining lease

Location Near Village	Tehsil	District & State	Status Of Land	Total Lease Area	Period
Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Wasan, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Thal, Selwada, Vikanwas,	**Reodar**	Sirohi Rajasthan	Gair Mumkin Nadi,Nallah	1286 Ha.	5 Years

2.0(G) Superimposed map of sanctioned area on revenue map, duly attested by the concerned tehsildar/SDO:

Revenue map marked with Granted Khasra details & Jamabandi is annexed as annexure no. 5 & Revenue map as Plate no.9

2.0(H) Infrastructure facilities:

Table 2.4 Infrastructure facilities

S.No.	Particulars	Details
1.	Nearest National highway & State Highway	There is no National Highway within the 5km radii of lease area. SH 11 from Abu Road to Sildar is passes through the lease area near village Loonol. SH 27 also passes through the lease near village Loonol.
2.	Nearest Railway station	There is no Railway Station within the 5km radii of lease area.
3.	Nearest Police station	Nearest Police station is Reodar located 0.9 km SE of lease area.
4.	Nearest Post office	Nearest Post Office is Reodar located 1km SE of lease area.
5.	Medical facilities	Nearest Hospital is Reodar Hospital located at 1.5 km SE of lease area.
6.	Water and Electricity facilities	Water and electricity is available in nearby villages of mining lease area.
7.	Education facilities	i. SKD College, Reodar ii. Umesh Singh Bhasti Sjiksha Samiti Nurse and Compounder college
8.	Mode of transportation of mineral	By trucks, Tractor trolleys
9.	Canal/Port	Network of Canal from Tokra Dam is located about 1 km South of Lease area in the North Eastern portion.

3.0(A) No. of Existing mining pits, their dimension and Locations, Plan and Section of the Pits, Brief geology of the area

Old mining pits of river sand (Bajri) is revealed in the lease area at places. Some pits has been worked in part without lease.

3.0(A) (i) PHYSIOGRAPHY AND DRAINAGE PATTERN

Topography and Drainage

The large part of the district Sirohi is a vast semi desert plain, marked by isolated hills and chain of hillocks forming the eastern and south western part of the district Aravalli hill ranges expands in the East. Abu- Sirohi ranges divides the district into two parts. In the western portion, scattered hills are available in each in Reodar tehsil.

Detached hills of the Aravalli range are situated in the south east of the district; Mount Abu is situated at about 1219metre above sea level. Another important plateau is Oriya in Abu Road tehsil and lies below the main peak of Guru Shikhar which is 1722 meter above the mean sea level.

In general, the district as a whole reveals dendritic drainage pattern which shows general flow direction towards NW and SE respectively. South Easterly flowing streams feeds run off to the Banas River. North Westerly flowing streams feeds run off to River Jawai, Khari, Kapalganga and Krishnawati whereas, River Sipu receives run off from streams flowing towards North West as well as towards South Easterly.

Jawai is the longest and largest river of North West which eventually joins Luni River. Other important rivers of Sirohi District are Banas, Khari, Sukri, Badi, Kapal Ganga & Krishnawati. All the aforesaid rivers are seasonal rivers i.e., water flows in rivers during rainy season and becomes dry during summer season.

3.0(A) (ii) RAINFALL & CLIMATE

The district has a dry climate with a hot season. Generally cold season starts from December and last till February followed by hot season continues up to middle of June, while the period from mid June to mid September is of the South West monsoon, next remaining period till winter is post monsoon. Maximum, minimum and mean temperatures recorded are 37° C, 6° C and 25.5° C respectively. The normal annual Rainfall is 638.4mm.

HYDROGEOLOGY

Depth of ground water level varies from 10 to 30 meters. Parts of Reodar block is either critical or over exploited from ground water view point. Abu road block is semi critical from underground point of view. In other parts of the district situation in terms of ground water resources is safe and satisfactory. Important aquifers are alluvium occupying about 982 sq.km areas in the district. Calk Schist and Gneiss covering 525sq.km area in Pindwara block. Phyllites and Schist covering 1543 sq.km area in Abu Road, Pindwara,

3.0(A) (iii) LOCAL HYDROGEOLOGY :

Reodar, Shivganj and Sirohi blocks and Granite occupying 1550sqkm area in Abu Road, Pindwara, Reodar, Shivganj and Sirohi blocks.

In various aquifers rate of discharge of ground water varies from 90 to150 cu.mts per day. The area between Sirohi and Reodar shows steep depletion in water level ranging from 10 to 18 meters.

The ground water of the district shows low to medium salinity. The chemical character of ground water in a district also varies from primary bi carbonate type to tartary chloride type. Fluoride is an important toxic element present in ground water. Nearly 33 percent water samples of the district have fluoride concentration more than 1.5mg/L. At many places, viz., Anthala in abu Road; Sangwan in Pindwara; Jirawal and Nimbaj in Reodar; Bithura, Gola, Mochal and Sugarliyain Shivgang and Belagiri, Mirpur and Mahabatnagar in Sirohi block, fluoride concentration has been found to be more than 5.0mg/L. The maximum fluoride value is observed as 11.6mg/L at Gola in Shivganj block. High fluoride is not confined to shallow aquifers but in deep tubewells too. Many of the tube wells and piezometers drilled under agriculture development programme (ADP) show fluoride value of 3.0mg/L and above. These waters show high fluoride content despite of low salinity.

3.0(B) GEOLOGY OF THE AREA

3.0(C) GEOLOGY

Geologically, Sirohi district comprises of meta sediments of Ajabgarh Group of Delhi Super Group namely, Phyllite, Schist, Gneisses, Marble and Amphibolite carrying post-Delhi intrusives and extrusives such as Erinpura

granite, Jalor Granite, Malani Rhyolite, Dolerite and Basalt which in turn over lane by sand and alluvium of recent to sub recent age.

A generalized stratigraphic succession of Sirohi District after GSI is enumerated here under:

Stratigrapic Succession of Sirohi District, Rajasthan

Age	Lithology	
Recent To Sub Recent	Sand, Alluvium etc.	
Post Delhi	Dolerite, Basalt, Amphibolite etc. Malani Rhyolite Jalor Granite Erinpura Granite	Intrusive & Extrusives
Delhi Super Group	Ajabgarh Group: Phyllite, Schist, Gneisses, Marble etc.	

3.0(D) Local Geology of the area:

LOCAL GEOLOGY OF THE LEASE AND ADJOINING AREA

The river and surrounding area is by and large undulating plain covered under soil and Alluvium of Recent to Sub-recent age, obscuring the Subsurface geology of the area However in the surrounding area of river, few isolated hillocks are revealed which comprises of Limestone of Delhi Super group intruded by Granite of Post Delhi Age.

3.0(E) METHODS OF RESERVE ESTIMATION

Estimation of Geological Reserves

River sand is an incoherent mass of uneven grains deposited by water currents from upstream side to downstream side and is naturally deposited when the water current in the River slows down. Mineralization is found in the entire river channel. Based on field survey geological reserves of river sand has been computed for each block village wise by plan area method i.e., surface area has been taken on the basis of revenue Khasra map, **to convert the area given in bighas into hectare, conversion factor 6.5 has been used to divide the given area. So that area in hectare may be obtained. Area obtained in hectare has been multiplied by 10000 to get the area in sq. meters** Rajasthan Government under its circulars and Notification and amendment in Rajasthan minor mineral concession rules vide order

Government of Rajasthan Mines (Gr. II) Department No. F-14(1) Mines/ Gr.II/2011 Jaipur Dated 23-05-2012 issued permission for bajri mining upto 3 mtr depth from Surface level of River bed. It was Gazette notified by MINES (Gr.II) Department Notification; Jaipur dated June 21, 2012 and bulk density has been taken as 1.56 as revealed by physical testing. Proved reserves have been computed upto a depth of 3 meters down from the surface of the river channel. Below the limits of proved reserves 5 meter depth has been considered for computing the probable category reserve of mineral river sand (bajri).

The computation of river sand reserves are enumerated here under:

Computation of Geological Reserves (Proved Category) of Mineral River sand, Tehsil Reodar, District Sirohi, Rajasthan						
S.No.	Village Name	Area of River or Nala (sq.mtr.)	Mineable Thickness of River Sand (mtr.)	Volume of River sand (m3) (3x4)	Bulk Density	Reserves of River Sand (Tons) (5x6)
1	2	3	4	5	6	7
1	Rampura	491872	3	1475616	1.56	2301960.96
2	Juadara	492336	3	1477008	1.56	2304132.48
3	Jamata	678816	3	2036448	1.56	3176858.88
4	Jawal	579488	3	1738464	1.56	2712003.84
5	Aaawada	567232	3	1701696	1.56	2654645.76
6	Marol	1038673.6	3	3116020.8	1.56	4860992.448
7	Mithan	211552	3	634656	1.56	990063.36
8	Nimbora	291536	3	874608	1.56	1364388.48
9	Karoti	37488	3	112464	1.56	175443.84
10	Rajgarh	62880	3	188640	1.56	294278.4
11	Lunol	80912	3	242736	1.56	378668.16
12	Chapol	68448	3	205344	1.56	320336.64
13	Selwara	937920	3	2813760	1.56	4389465.6
14	Hathal	1080144	3	3240432	1.56	5055073.92
15	Maalgaon	534912	3	1604736	1.56	2503388.16
16	Gulabganj	595568	3	1786704	1.56	2787258.24
17	Kareli	183136	3	549408	1.56	857076.48
18	Vasan	666624	3	1999872	1.56	3119800.32
19	Reodar	513936	3	1541808	1.56	2405220.48
20	Derol	205024	3	615072	1.56	959512.32
21	Malava	95056	3	285168	1.56	444862.08
22	Bhamera	259584	3	778752	1.56	1214853.12
23	Gundwara	40176	3	120528	1.56	188023.68
24	Lilora	140880	3	422640	1.56	659318.4
25	Thal	137664	3	412992	1.56	644267.52
26	Peepliya	133248	3	399744	1.56	623600.64
27	Makawal	408272	3	1224816	1.56	1910712.96
28	Butdi	226416	3	679248	1.56	1059626.88
29	Vikanwas	624544	3	1873632	1.56	2922865.92

30	Jeerawal	796208	3	2388624	1.56	3726253.44
31	Dangrali	404864	3	1214592	1.56	1894763.52
32	Padrukhera	121248	3	363744	1.56	567440.64
TOTAL		**12706657.6**		**38119972.8**		**59467157.57**

Computation of Geological Reserves (Probable Category) of Mineral Riversand, Tehsil Revdar, District Sirohi, Rajasthan

S.No.	Village Name	Area of River or Nala (sq.mtrs.)	Mineable Thickness of River Sand (mtr.)	Volume of River sand (m^3) (3x4)	Bulk Density	Reserves of River Sand (Tonnes) (5x6)
1	2	3	4	5	6	7
1	Rampura	491872	5	2459360	1.56	3836601.6
2	Juadara	492336	5	2461680	1.56	3840220.8
3	Jamata	678816	5	3394080	1.56	5294764.8
4	Jawal	579488	5	2897440	1.56	4520006.4
5	Aaawada	567232	5	2836160	1.56	4424409.6
6	Marol	1038673.6	5	5193368	1.56	8101654.08
7	Mithan	211552	5	1057760	1.56	1650105.6
8	Nimbora	291536	5	1457680	1.56	2273980.8
9	Karoti	37488	5	187440	1.56	292406.4
10	Rajgarh	62880	5	314400	1.56	490464
11	Lunol	80912	5	404560	1.56	631113.6
12	Chapol	68448	5	342240	1.56	533894.4
13	Selwara	937920	5	4689600	1.56	7315776
14	Hathal	1080144	5	5400720	1.56	8425123.2
15	Maalgaon	534912	5	2674560	1.56	4172313.6
16	Gulabganj	595568	5	2977840	1.56	4645430.4
17	Kareli	183136	5	915680	1.56	1428460.8
18	Vasan	666624	5	3333120	1.56	5199667.2
19	Revdar	513936	5	2569680	1.56	4008700.8
20	Derol	205024	5	1025120	1.56	1599187.2
21	Malava	95056	5	475280	1.56	741436.8
22	Bhamera	259584	5	1297920	1.56	2024755.2
23	Gundwara	40176	5	200880	1.56	313372.8
24	Lilora	140880	5	704400	1.56	1098864
25	Thal	137664	5	688320	1.56	1073779.2
26	Peepliya	133248	5	666240	1.56	1039334.4
27	Makawal	408272	5	2041360	1.56	3184521.6
28	Butdi	226416	5	1132080	1.56	1766044.8
29	Vikanwas	624544	5	3122720	1.56	4871443.2
30	Jeerawal	796208	5	3981040	1.56	6210422.4
31	Dangrali	404864	5	2024320	1.56	3157939.2
32	Padrukhera	121248	5	606240	1.56	945734.4
	TOTAL	**12706657.6**		**63533288**		**99111929.28**

Geological Reserves of river sand

i. Proved Geological Reserves of River Sand are **59467157.57** Tons.

ii. Probable Geological Reserves of River Sand are **99111929.28** Tons

Mineable reserves of river sand

i. Proved Mineable Reserves of River Sand are= Geological reserves x 80%
= 59467157.57x 80% = **47573726** Tons

ii. Probable Mineable Reserves of River Sand are= Geological reserves x 80%
= 99111929.28 x 80% = **79289543.424** Tons

3.0(F) (i) Targeted Production from mining lease

Since river sand will be un-worked during water flooding in River bed in monsoon season. 330 working days assumed in a year. Assuming targeted production 8500 Tons, **daily Trips will be 350 trucks & 200 Tractors. Annual targeted production comes out to be about 28,05,000 Tons per annum**. During the five years lease period the total targeted production of river sand would be about 1,40,25,000 Tons.

3.0(F) (ii) Life of Mine

Since lease has been granted for a period of five years and sand mining would be carried out @28,05,000 Because River sand is such a mineral which is replenished after every monsoon season, therefore quantity of mineral taken out every year will be replenished to some extent and will be again mined in the ensuing year at the same rate of production.

3.0(F) (iii) End Use Grade

The sand found in the river bed has been found very useful for medium to high quality construction work. The granular coarse grained variety is suitable for concrete work. (Physical analysis report from laboratory is annexed as annexure no.3)

4.0 Details of Production and dispatches of last 5 years:

This is applied mining lease for grant for River sand mining and now under process of fresh grant after commencement of Rajasthan minor mineral concession rule, second amendment 2012. This lease is under process of

finally sanctioned in favour of applicant after approval of mining Plan & getting Environment Clearance from MoEF.

5.0 Physical properties of river sand:-

Grains are fine to coarse grained. The general size of constituent particles of River sand varies from 0.5MM to 3 MM and is not uniform. The grains in all sizes, small or large are rounded in shape. The color of sand is grayish. These deposits are of good quality and can be used for building industries. SiO_2 are the main constituents. As per Laboratory testing report of Sample tested of river shows Physical tested **pH 8.11, Bulk density 1.56, Silt content around 10%, Sand content 84%, Clay content 6%. Water holding capacity of sand was found about 26.17%. (Laboratory analysis report is attached as annexure no.3)**

5.1 Geological Properties of River sand: River sand found in the area is fluvial deposit formed as result of transportation of sediments originated from upstream side hills of Aravalli in **Tehsil-Reodar**. Sand particles get deposited under gravity during course of transportation of sediments. Sand is geologically formed by disintegration of boulders, pebbles during flow of water by mechanical wear and tear through collision among the rock debris and by traction on the river bed during motion and get deposited in the riverbed and are mainly comprises of Quartz particles and other accessory particles.

5.1.2 Origin and Control of Mineralization: The Sediments are River Borne and have been formed as a result of mechanical wear and tear of Rock debris. The sizes of sediments are variable within very wide limits. Gravitational Forces during flowing motion of river, act on sediments so that sand particles get deposited during receding of Water. In every monsoon season, this River flows hence River will replenish the sand which will be mined out.

6.0 Details of the Mining Machinery to be deployed and their detailed specifications:

Conventionally in Past mining has been carried from this river as manually. Now in present case, Mining will be fully Mechanized with use of men and machinery. Tractor with trolley attachment will also be deployed for

transportation of Bajri in addition to trucks and trailers. Mining is proposed as opencast method with use of Poclain and tippers. There is no requirement of Drilling and Blasting as there is no hard rock is to be mined out. Working will be carried out at different locations in the lease area at a time as per Development Plan **(Plate no.5).**Connectivity to nearest transportation will be carried by nearest haul road available. Requirement of machinery vary according to production Schedule which is as under as per Production target as Table no. 6.1.

Table 6.1 Production Schedule:

Years	Proposed Production in Metric Tons
First	28,05,000 Tons
Second	28,05,000 Tons
Third	28,05,000 Tons
Fourth	28,05,000 Tons
Fifth	28,05,000 Tons
Total	**1,40,25,000 Tons**

Production schedule during 1st to 5 year is shown as above. The production from Ist to V year will be @ 28,05,000 TPA. Depending on the demand and supply situation of market, production limit may vary to 20%.

Extent of Mechanization:

Various equipments to be used are proposed ahead —

(1) Drilling Machines: Not required for River sand mining.

(2) Blasting: Not required

(3) Loading Equipment

An excavator of about 2.5 cum bucket capacity normally loads 1000MT to 1500 MT per day per machine.

Loading per day is assumed by one machine : 1000MT to 1500 MT per machine (Average loading 1250 Tons).

Loading with 1 machine per year assuming 330 working days: 412500 MT Targeted production is about 28,05,000 Tons so no. of Excavators required is 7 machines would be deployed at different locations in the lease area and one excavator will be kept as standby use. Hence in all 8 pock lane machines will be required.

Type	Nos.	Bucket capacity in Cu.m.	Make	Motive Power	H.P.
Back-hoe	8	2.5 cum	Poclain	Hydraulic	200

(3) Haulage and Transport Equipments

The Excavators will work within the pits and trucks will come to point of working so that Excavator will fill directly into 6 tire tippers. It is expected that these tippers will carry a load of about 20MT. Tractor with trolley attachment will also be deployed for transportation of Bajri from mine.

Tonnage hauled by 1 haul unit : T, 20MT

No. of Average Tippers required carrying @ 15000 TPM, 00 Tractors with trolly attachment and 650 trips of trucks per day.

However these units are customer's trucks and also deployed by lessee on hire basis which is directly filled by Poclain.

As mentioned earlier that the Run-off-mines will be transported to directly to users and outside of River area.

(4) Other Equipments

The other equipment mainly includes the trucks for transport of consumables like diesel, lubes, spares etc.

Table 6.2 Proposed Mechanization at Mine Site

Type	Nos.	Size / Capacity	Make	Motive Power
Excavator	8	Bucket capacity (2.5 cum)	As per availability on hire basis	Diesel
Water Sprinklers	2	5000Ltr Capacity	On Hire Basis	Diesel
Jeep	1	For Supervision	On Hire Basis	Diesel
Road Grader/Compactor	1	For compactness of Haul roads	On Hire Basis	Diesel
Van cum Ambulance	1	For emergency services	On Hire Basis	Diesel
Mobile Store Room with necessary tools	1	For maintenance of machinery at site	On Hire Basis	Diesel

6.1 Exploration

No specific method of exploration is required as the river borne sediments are deposited all along the riverbed and are very well exposed on the surface. Moreover, these sediments are accumulated /replenished every year during rainy season by flood waters to almost the same level depending on the

intensity of rains on the upstream side. Adequate quantity of sand reserves is available for meeting consumer demand.

7.0 Method of Mining

River Sand Mining

Conventionally the river sand mining is carried out manually but in the present case fully Mechanized mining with simultaneous afforestation and pollution free mining will be adopted.

Salient Points on Scientific mining of River sand are:

1. First thing is to ascertain depth of mining which has been fixed by state Govt. as 3 mtr or above water table whichever is shallower. This is safe working depth for River sand mining as fixed by state govt.
2. Mining will be carried out only in one bench formation of maximum 3 mtr height and formation of Haul roads will be extended within pits and joined to nearest approach roads. Bench height will not be more than 3mtr at any site and width of Bench will be up to 40 to 50mtr.
3. Main Haul road as center line joining all pits will be formed before starting for movement of Heavy duty vehicles with width of Haul road. Then it will be connected to nearest village road then to nearest Highway.
4. Mining will be carried as per Development Plan & Section development Plan (**Plate no.5.).**
5. Mineral will be directly filled into tippers, trolleys and trucks.
6. Mining will be carried without harm to surrounding environment with measures of the regular water sprinkling on haul roads if winds are high .
7. There will be strictly followed norms or conditions mentioned in bid and Provisions of Rajasthan minor mineral concession rules 1986, second amendment 2012 & Lease agreement made with Govt. authorities.
8. Mining will be carried under supervision of competent person not less than Second class manager of competency holder.

9. 7.5 mtr un-worked buffers will be maintained along the River bank boundary and vegetation growth generated on meandering boundary to protect further erosion during flooding of water in the River during monsoon.

10. There will be 45mtr unworked Zone where any Bridge & Annicuts and any other permanent structure as per RMMCR, Amendment 2012,

11. Mining will be carried by Poclain–Dumper combination. No drilling and Blasting will be carried for mining.

7.0(A) Proposed year wise development for five years:

The proposed method of mining will be fully mechanized "Open Cast" mining with use of Poclain and Dumper combination. There is no requirement of drilling and blasting for excavation of sand. This sand is loose in nature can directly filled in Customers trucks with use of Excavators. Working points are simultaneously worked as per availability and supply of sand by nearest selected revenue villages granted for mining. Some Bajri pits had been worked in past in this area without lease. Now Lease is granted in favour of **Shri Shersingh Solanki** for **five years** period.

For the systematic working of open cast mines, there will be only one working bench of 3 mtr depth from surface level of Riverbed and Bench width will be up to around 40-50mtr. Center level haul road will be primarily formed at the site and will be connected to nearest haul road to state highway. Backhoe Excavator machine of 2.5Cum bucket Capacity in one reach will excavate easily for 3 mtr depth. Maximum permissible depth for digging is 3 mtr from Surface level of river bed as per RMMCR Second Amendment 2012.

Working of mine lease is assumed for 11 months with 30 working days in one month. Total 330 working days are considered for working. Working will not be carried during Rainy days when River is flooded with water and Water flows in river.

7.0(A) (i) Surface Transport: Mode of Transport to the dispatch Sand is by trucks & Tractor Trolleys to the dispatch points.

7.0(B) Proposed Rate of Production when the mine is fully developed:

Proposal for next five year Production is as Follows:

Years	Proposed Production in Metric Tons
First	28,05,000 Tons
Second	28,05,000 Tons
Third	28,05,000 Tons
Fourth	28,05,000 Tons
Fifth	28,05,000 Tons
Total	**1,40,25,000 Tons**

7.0(C) Mineable reserves and Anticipated life of mine

7.0(C) (i) The Mineable reserves are as follows:

Total mineable reserves = Demonstrated reserves (Proved) - 20% Reserves Locked in Boundary Buffer zone, other Physical features such as annicut, Bridges, Wells, Culverts and permanent structures etc.= 5,94,67,157.57-20% = 4,75,73,726 Tons i.e., Mineable reserves are 80% of the Proved Geological Reserves

7.0(C) (ii) Targetted Production from mining lease:

Since River sand will be worked for working days 330. Assuming targeted production @ 8500 TPD. Per annum targeted production comes out to be 8500 x 330 = 28,05,000 Tons

7.0(C) (iii) Life of Mine

Period of Anticipated life of mine in each village cannot be estimated accurately in the riverbed since the quantum of sand replenished every year. Flood water of River replenishes 3mtr zone River sand of excavation every year so life cannot be ascertained. Mining lease is granted for Five year period from date of agreement and its registration. **So lessee will work for five year period with Targeted production @28,05,000 Tons per annum.**.

7.0(D) Proposed Method of mining

The mining will be fully Mechanized with Opencast mining method using only one working bench of 3 mtr depth and the mechanization will be using Hydraulic excavator with customer's truck. There will be temporary stack of mineral near pit side for required to stack mineral if It has more demand than Supply in nearby area. The working will be done Top downwards with connecting approach roads to River for transportation of Bajri. Haul roads within mine site will be stretched accordingly of pit Widening. Maximum

depth for mining will be 3 mtr from Surface level of River bed. Haul roads will be created as well as within pit and outside pit area. If during mining, water level come before 3mtr depth then that part of mining will be left un-worked.

No degradation or mining will be carried except granted area. The proposals of mining for the next five-year workings are given for maximum 3mtr depth from surface Level. Haul road will be proposed for gradient not more than 1 in 16 for transportation of sand from Quarried area.

7.0(E) Conceptual Mining Plan

Mining will be started at various points within the river channel confined to lease area **@28,05,000 Tons per annum**. Lease will be worked for five year period for 3 mtr working depth as it is prescribed for mining. Since river sand is replenished in every rainy season hence the life of mine is unlimited and cannot be ascertained.

Afforestation along 7.5 mtr buffer zone River boundary of lease will be carried out in Phased manner with local species in the Govt. land only as Riparian vegetation so that erosion of slopes of boundary is protected during monsoon season and environment is protected **(Plate no.7).** Lease is granted for Five year period so that progressive Plantation along river bank and haul roads in buffer zone will be carried out. Mining lease area will be improved by plantation as shown in **Plate No. 7** (Conceptual Plan).

7.0(F) Blasting: River sand is in loose form so there is no requirement of Blasting.

7.0(G) Mine Drainage:

The ground water in this area gets intersected at a depth of more than 10-15 mtr below ground level in riverbed and more than 20-25 m in surrounding agricultural fields as seen during field survey. No Mining work will be carried out below the water Table. As such there shall be no need for any pumping operations. A drain on the up-slope side of pit will be made so that rainwater does not go into pit during mining operations. No water problem is envisaged during the five years working of lease period.

7.0(H) Surface Geological Plan & Section:

Surface geological plan & section is attached as plate No. 4.

8.0 Year wise annual program of mining for next five years:

Table 8.1 Production Schedule:

Years	Proposed Production in Metric Tons
First	28,05,000 Tons
Second	28,05,000 Tons
Third	28,05,000 Tons
Fourth	28,05,000 Tons
Fifth	28,05,000 Tons
Total	**1,40,25,000 Tons**

Production schedule during 1st to 5 year is shown as above. The production from Ist to V year will be @ 28,05,000 TPA. Depending on the demand and supply situation of market, production limit may vary to ±20%.

Development Plan is given in Plate no.5

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 follows:

Table 9.1 Staff Details of Mine Site

S.No.	Designation	Qualification	Requirement
1	Mines Manager	Second or First Class Certificate of Competency holder	1
2	Mine Foreman	Foreman Certificate of Competency	1
3	Mine Mate	Mate certificate holder	2
4	Time Keeper & Chowkidar	Matriculate	2
5	other supervisory staff	Literate	4
Total			**10**

For desired annual production of sand, desired Excavation will have to be mined out daily. About 8 **skilled labours and 15 Unskilled labours, 10 Supervision Staff** is sufficient for mining. **Additional 10 labours** for maintenance of road, afforestation, Potable water arrangement and miscellaneous works is required.

It is proposed to construct and provide temporary site services as tin shed as mine office cum rest shelter; first aid station; toilet etc.

Skilled labours –8 Operators of Poclain machine with 8 Helpers and Unskilled – 17 labours. Additional 10 persons for other work. 10 supervisory staff so Total persons per day will work around 53 persons. Labours deployment will be given priority to nearby villagers.

10.0 Measures taken and to be taken for Land Restoration, Reclamation and Plantation in/or nearby M.L. area:

- ✓ Conventionally the river sand mining is carried out manually but in present case, fully Mechanized mining will be carried out. River sand is available in the river.
- ✓ Sand is minor mineral and falls under the purview of Department of mines and geology, Govt. of Rajasthan. The state Govt. through its office has intended for grant of Lease in **Tehsil -Reodar** for River sand mining.
- ✓ Despite of proposed mining in large quantities from River bed, there is no degradation of land is anticipated. The mined out area is replenished with River sand every year by flow of Flood water during monsoon season.
- ✓ However proper afforestation in Progressive manner is proposed on Buffer zone as left 7.5 mtr from River bank.
- ✓ 3mtr will be Ultimate depth of mining. If water level above this depth is encountered then that part of location will be left as Unworked.
- ✓ There will be no mining within 45mtr radius around Bridges, permanent structures, Culverts, Annicuts, etc. in the mining lease area.
- ✓ The sand is filled by river every year hence by river sand mining; River will come in its natural forms, River will hold more volume of water during rainy season, this makes situation better in the area to make availability of drinking water through percolation further enhances groundwater table in the area.

11.0 Measures taken and to be taken for Protection of Environment in and around ML area:

Restoration of flora:-

1. There is no tree is affected due to mining activity as proposed. However to improve plantation at mine site and buffer zone will be carried.
2. Effective measures shall be taken for plantation in the area earmarked site. Phased manner plantation shall be carried regularly before onset of monsoon.
3. The earmarked site(s) for plantation shall be fenced and proper planning of watering and caring the plants shall be implemented.
4. Suitable trees/grasses shall be planted along riparian zone or erosion prone zone, on both sides of river.
5. Take all Precautionary measures will be taken during mining operation for conservation and protection of endangered flora and fauna of the area.
6. Survival Rate as per location is assumed 80% of Local species of such as Neem,Babool,Ber, Shahtoot, Shisham,etc.

Table No.-11.1 Year wise cumulative Plantation

Year	Fresh Plants	Replace of Dead Plants (20%)
I Year	1000	-
II Year	1000	1200
III Year	1000	1240
IV Year	1000	1250
V Year	1000	1250

12.0 Measures taken and to be taken for Protection of Environment in and around ML area:

- ✓ By planting trees along transportation roads, buffer zone of the mining area along river bank side, dust, smoke and gaseous emission will be kept under permissible limits of environment laws.
- ✓ For erosion control measures, plantation will be done on banks or margins at about few meter distance to check further stream bank erosion problems during monsoon season.
- ✓ Choice of species like ***Azadirachta indica, Acacia nilotica, Saccharum munja, Cenchurs ciliaris, Prosposis Spicegera*** *and* good sand binders

species of plants should be selected. Rate of survival percentage of tree species, in all the places is expected around 80% in the area.

- ✓ Local plant species will be preferred in plantation program in consultation with forest officials.
- ✓ Proper watering and manuring measures adopting is taken care of plants.
- ✓ The impacts of sand mining on the stability of riverbanks and on natural habitats can be minimized by the provision of buffer zones between the mining site and surrounding area.

Environmental Safeguarding Measures:

1. Every holder of mining lease shall:

- ✓ Obtain consent to establish and consent to operate from the Rajasthan State Pollution Control Board prior to start of mining operation and implement the condition of consent to operate strictly;
- ✓ Ensure that no natural watercourse and / or water resources are obstructed due to any mining operation. Adequate measures shall be taken for protection of the older-streams, if any, emanating / passing through the mining lease, during the course of mining operation;
- ✓ Keep mine working restricted to above ground water level till approval of State Ground Water Department is obtained;
- ✓ Temporarily store the top soil, at the place earmarked in environment management plan / mine plan / scheme;
- ✓ Dump over burden (OB) generated during the mining operations at earmarked dump site/s in environment management plan / mine plan/ scheme';
- ✓ Take effective safeguard measures, such as regular water sprinkling in critical areas prone to air pollution and having high level of particulate matter such as haul roads, loading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It shall be ensured that the Ambient Air Quality parameters conforming to the norms prescribed by the State Pollution Control Board is maintained throughout;

- ✓ Ensure that personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety, environment and health aspects;
- ✓ Keep vehicular emissions under control and regularly monitor the same. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles shall not be overloaded;
- ✓ Take measures for control of noise levels below 85 dBA in the work environment.

2. The above conditions shall be enforced inter-alia, under the provisions of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India / High Court of Rajasthan and any other Court of Law relating to the subject matter.
3. Mine working shall be strictly as per the condition of approved mining plan.

13.0 Measures taken and to be taken for Dumping of Overburden, Stacking of Top soil and Utilization of Top soil:

(i) No waste obtained will be obtained hence no waste dump has been proposed at mine site. The total mined out is marketable.

(ii) No waste dump proposal at end of life of mine or lease period.

13.1 Measures taken and to be taken for Control of Water, Noise and Air Pollution:

(i) Water:

(a) Surface Water

The mining activities have been so planned to prevent any of the disturbance to natural flow of water and also the drainage system of the area not to be affected. During mining natural flow of river will not be diverted at all. Six monthly monitoring will be carried in buffer zone.

(b) Ground Water

The water table is around 10-15m in core and surrounding area. The proposed mining activities will not intersect groundwater table at any stage of mining because the mining will be carried above 3 meter depth or Water table whatever is earlier.

(c) Quality of water

There will be no impact of mining on quality of ground water. Mineral is inert in nature. Quality of water will not be altered by mining or any other way. Mining operation will be confined to 3 m depth only. Mining activities will not intersect ground water table. Mineral is non toxic in nature so there will no chance to alter the quality characteristics of ground water/ surface water of the area of region.

Six monthly monitoring of ground water/surface water from mine site and surroundings and will be regular reporting to the concern department such as State Pollution Control Board/Concerning Mining Department.

(ii) Noise:

There will be sound of the mining machineries such as Poclain, JCB's, and excavator and due to movement of trucks/Jeep/tractors nearby the road. Except this there will be no sound. Proper maintenance of the m/c will be carried out and Plantation along river boundary will be carried to protect surrounding environment. Overloading will be avoided. The earplugs shall be provided to the drillers/operators. Noise arising out of mining operations for mineral at the source shall be controlled so as to keep it within the permissible limit. Periodical examination of noise pollution shall be monitored & results shall be intimated to concern mining engineer/Assistant mining engineer as well as regional officer of the State Pollution Control Board.

(iii) Air:

Major source of air pollution is vehicles movement for loading. This will affect the air environment. Other than this, there will be no major impact on quality of air. Plying of trucks may generate some dust, which will be kept under limit by proper maintenance of machinery and Afforestation around

haul road and River bank side. The lessee shall provide dust mask to the operator.

1. Air pollution due to dust, exhaust emissions or fumes during, mining or processing operations for mineral and related activities shall be controlled and kept within permissible limits as specified under any environmental law for the time being in force. Main haulage roads of mine shall be kept wet by sprinkling of water; and
2. Six monthly examination of air quality shall be monitored and results shall be intimated to concerned Mining Engineer /Assistant Mining Engineer as well as regional officer of the State Pollution Control Board.

14.0 Contribution regarding the Social Development of the nearby residents:

There are no other mines of river sand in vicinity of area. Looking towards upliftment of infrastructure and earning, people generally goes outside for earning their livelihood. This area will provide direct employment opportunities as an additional employment to the local residents. Hence earning of the people will increase and will help to upliftment of socio-economic status of the area, which will improve their living standard. Besides this, Licensee is ready to do help at their level best for upliftment in the surroundings.

15.0 Details of Health Checkup and Insurance of the entire Employed Person (for Existing Lease):

It is proposed that the regular health checkup camps for the workers engaged in mines will be organized. It is also proposed that insurance cover to all workers engaged in mines will be provided. Following measures will be adopted to cover under RMMCR 37U (9) of Corporate Social Responsibility:-

1. Regular health check up camps for the workers engaged in mines shall be organized;
2. 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;

3. Insurance cover to all workers engaged in mines shall be provided;
4. Common vocational training center shall be setup at district level; and
5. Local needs of habitant like school, crèche, hospital, veterinary hospital, sanitation, drinking water etc. shall be considered positively.

15.1 Fund Provision for Environmental Management:

Fund Provision for environmental protection will be as per RMMCR 1986 (Second amendment 2012)

अधीक्षण खनि अभियन्ता
खान एवं भू-विज्ञान विभाग,
जोधपुर वृत, जोधपुर

PART-II

PROGRESSIVE MINE CLOSURE PLAN

(Under Rule of RMMCR 37E (VI) Second Amendment 2012,)

1.0 Introduction

This progressive mine closure plan is an additional chapter of the mining plan for River Sand mining M.L.No-12/12 located near villages Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan **(List of Khasra no. enclosed as annexure no.2)** measuring Mining Lease area **1286 Ha.** for mining of river sand mineral is submitted for approval.

M.L. Area for mining of mineral River Sand (bajri) in Gairmumkin Nadi and Nala in Tehsil Reodar, District Sirohi LOI Granted in favour of Shri Shersingh Solanki, S/o Shri Mangal Singh Solanki lies on survey Toposheet 45 D/6 and 45 D/10 extends between **Latitude 30°24'N to 45°24'N and Longitude 72°25'E to 72°45'E**

LOI for grant of mining lease has been issued by DMG **Annexed as annexure no. 1**

The area falls in Gair mumkin nadi & Nallah which is Govt. land as per Revenue record. (Revenue map attached as **Plate no.9)**

अन्वेषण खनि अभियन्ता।
खान एवं भू-विज्ञान वि भाग,
जोधपुर वृत, जोधपुर

Table 1.1 Existing Land use pattern in M.L. area

Present Land Use Pattern

(In Hectare)

	Forest Land	Private Land	Grazing Land	Govt. Waste Land (Gair Mumkin Nadi)	Others	Total	Land Acquired Outside Lease Area (if any)
	In Hectares						
Pits & Quarries	-		-	3.5	-	3.5	-
Dumps of Ore Waste & Over burden	-	-	-	-	-		-
Infrastructure (Office & Workshop)	-	-	-	-	-		-
Township	-	-	-	-	-		-
Roads, (Annicuts etc.) with 45 mtr safety unworked zone etc	-		-	4.5	-	4.5	-
	-			-			-
Others structures as Culverts etc with 45 mtr Unworked zone	-	-	-	5.5		5.5	-
67Rest area	-	-	-	1272.5			
Area back filled, If any	Not So Far						
Area proposed to be afforested by mine owner	-						

1.1 Reason for Closure

The mine closes either due to depletion of mineable reserves or due to uneconomic mining or due to more economic substitute for mining product. This progressive mine closure plan is submitted as a statuary requirement for the mining lease under RMMCR Amendment 2012. Hence the aforesaid reasons for closure are not applicable at this stage.

1.2 Statutory Obligations

All legal obligations imposed by Department of mines and Geology, MoEF, RSPCB, RMMCR Second amendment 2012,MMR 1961,Mines Act 1952 will be taken into consideration by Lease holder.

1.3 Closure Plan Preparation

1.3.1 Name and Address of the Licensee

Shri Shersingh Solanki S/O
Shri Mangal Singh Solanki
13, Shiv Nagar, Jaipur,
Rajasthan

1.3.2 Name, Address and Registration Number of the Authorized Persons who prepared the Progressive Mine Closure Plan

M.K.Gupta
Registration No. - RQP/AJM/269/2005/A
(Valid up to 23-03-2015, enclosed as Certificate No.5)
Address— C/o C/o J-3,Subhash Marg,C-Scheme, Jaipur- 302001
Phone no. 0141-4036199(O.), Mobile 9799-744347
Email – mkguptarqp@gmail.com, rme.envirotech@gmail.com

1.3.3 Name of Executing Agency

Shri Shersingh Solanki
S/O Shri Mangal Singh Solanki
13, Shiv Nagar, Jaipur,
Rajasthan

2.0 Mine Description

Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera,

Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan **(List of Khasra no. enclosed as annexure no.2)** measuring Mining Lease area **1286 Ha.**

The Tehsil headquarter Reodar is located 0.9 kms South East of the lease area and District headquarter Sirohi is located 50 kms NE of Reodar.

Tehsil headquarter Reodar can be approached from district headquarter Sirohi through State Highway No. -27.

3.0 Review of Mining Plan

This is fresh grant of mine lease for river sand mining hence this is first mining plan.

4.0 Progressive Mine Closure Plan

4.1 Mined Out Land

The details of land use of the area at present and at the end of five year given below: -

Table 4.1 Land use Pattern at the end of five year

S.No.	Particular	Present	End of 5 Year
1.	Area excavated	3.5	299Ha.
2.	Storage of Top Soil	Nil	Nil
3.	Overburden/ Dump	Nil	Nil
4.	Mineral Storage	Nil	Nil
5.	Infrastructure (Workshop, administration building etc)	Nil	Nil
6.	Roads	4.5 Ha.	4.5 Ha.
7.	Railways	Nil	Nil
8.	Green Belt	-	12.5 Ha
9.	Tailing Pond	Nil	Nil
10.	Effluent Treatment Plant	Nil	Nil
11.	Mineral Separation Plant	Nil	Nil
12.	Township Area	Nil	Nil

The mine is a A class mine.

As per **plate no. 6**, the mineral reserves at working place will not exhausted during next five years or say the mine-able reserves will not deplete fully during the period of this progressive mine closure plan.

However with water flowing during rainy season replenish the extracted bed hence there is no reclamation of land is adopted except plantation on both sides of river channel which is necessary to prevent erosion of sides of agriculture farms.

4.2 Water Quality Management

The proposed deepest working is far above the general ground water table. The ground-water table of the Core zone area is about 10-15 mtr deep at the mine lease area. Surrounding area is having 20-25 mtr deep of water table. No toxic mineral is present, which pollute the quality of ground water. No tailing pond is proposed, which pollute the quality of ground water. The proposed deepest working is above the ground water table thus quality of water will not decrease by proposed mining.

4.3 Air Quality

The source of air pollution is vehicular movement but regular road maintenance and water sprinkling on haul roads will be carried out to minimize impact. Loading of mineral also creates air pollution. Overloading of mineral is also source of more gaseous emissions which will be avoided. Often river sand is in moist condition at deeper level. Water sprinkling system is proposed on haul road once in a day especially during dry seasons if dust creates due to transportation. Plantation is also proposed along riparian zone. The plantation will suppress the dust which may spread in nearby area. Proposed mining will be fully Mechanized open cast mining. No processing/grinding unit is proposed in the area; hence the air pollution will remain in permissible limit. Regular Air Quality monitoring will be carried.

4.4 Waste Management

No waste generated at mine site during mining. No waste dump proposal at mine site at end of life of mine so no impact is anticipated.

4.5 Top Soil Management

In River sand mining, mining activity remains confined to River channel only where no topsoil do exists hence River sand mining involves no removal and management of Topsoil.

4.6 Tailing Dam Management

No tailing dam is proposed hence this paragraph is not applicable.

4.7 Infrastructure

Infrastructure facility such as temporary office building of Tin Shed , first aid center, Rest shelter, Mobile workshop, are proposed for working in the area, will be temporary structures only build up with the help of tin sheds. So no environmental management required in this regard.

4.8 Disposal of Mining Machineries

Mining machineries will be on hire basis. Some machineries will be purchased by Licensee. Machineries will be kept for future use. The big machineries will be deployed on hire basis. Thus disposal of mine machineries are not come across during the period of this progressive mine closure plan.

4.9 Safety and Security

All the safety measures as per mines act will be provided. For safety proposed the following proposals are also proposed: temporary barbed wire fencing will be proposed around the workings to check the inadvertent entry of human and livestock working pit. Watchmen are proposed for ward and watch duty for security propose. The watchman will not allow any general public person and livestock near the mine workings. The safe workings are proposed in the supervision of technical and qualified supervisory staff.

Following measures should be taken for Safety measures:-

1. While loading and unloading with trucks and dumpers, proper warning system should be adopted for alarming of working men.
2. Overloading of mineral should be avoided.
3. Ramp for transportation of mineral should be gradient of not less than 1 in 10.
4. Silencers in transporting vehicles should be in good condition.
5. There should be clear distance for working shovel and no men should enter in its periphery while shovel is working.
6. Competent person for supervision should be deployed as per DGMS regulations.

7. Mines act and Rules should be complied while operation of mine.

4.10 Disaster Management and Risk Assessment

It will be an opencast fully mechanized mine. The proposed workings will be fully Mechanized mining method hence due to Human negligence, there are some accidents which occurs.

Important aspect of disaster management is to recognize first the causes of accidents, assessing the consequences of such accidents and deciding emergency procedure both on ON-Site and OFF-Site that would need to be implemented in the event of an emergency.

ON-Site action is the responsibility of mine management and OFF-Site responsibility lies elsewhere outside the management.

Objective: the overall objective of the emergency plan will be:

- To Localize the emergency and if possible to eliminate it and to minimize the effects of the accident on people and property.
- Elimination will require prompt action by operations staff.
- Minimizing the effect by rescue, first aid, evacuation, rehabilitation.
- ON-Site: fix and onsite control who shall assess the size and nature of events at site.
- Formulate the Plan with outside authorities.
- Raise an alarm by blowing an emergency Siren.
- Assess the requirement of rescue and recovery equipment.

Action on Site:-

Evacuate non-essential persons from the incident area.

Keep records as per mines act of accidents at site.

Thus high-risk accident like land slide, subsidence, flood, inundation, fire, seismic activities etc. not come across. In past no such cases/ incidences was reported in the area so far. Private and Government buses are the mode of transport available nearby the mine site.

To deal with sudden causalities the nearest medical facilities are available in the village. Nearest police station is also in village & fire station is in the

district. There will be charts printed in Hindi & English displaying telephone numbers, addresses and distances of nearby police station, hospital, fire station etc made available at most easily approachable sight of workers, which should be maintain in good condition always. The Licensee is capable to meet any type of risk. The Walky-Talky or mobile phone will be [illegible] of inter-Communication between supervisors and technical staff observing working in Site.

4.11 Care and Maintenance during Temporary Discontinuance

In case of temporary discontinuance or if mine closes temporarily, then the mines working 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 labour into mine workings/ faces the workings proposed to inspect by Mines Manager for safety purpose as per Mines Act.

5.0 Economic Repercussion of Closure of Mine and Manpower Retrenchment

5.1 Number of Local Residents Employed

Skilled labours –8 Operators of Poclain machine with 8 Helpers and Unskilled – 17 labours. Additional 10 persons for other work. 10 supervisory staff so Total persons per day will work around 53 persons. Labours deployment will be given priority to nearby villagers.

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 Industry

The satellite occupations is connected with this mine directly and indirectly i.e. mineral trading & job on various mining activities, transportation of mineral etc.

5.4 Continued Engagement of Employment in the Rehabilitated Status of ML 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 this progressive mine closure plan.

6.0 Time Scheduling for Abandonment

Mining lease is yet to be grant and mine is not proposed to abandoned.

7.0 Abandonment Cost

Mining lease is yet to be grant and mine is not proposed to abandoned.

8.0 Financial Assurance

As per rule 37(J) of Rajasthan Minor Mineral Concession Rules 1986, (Second amendment 2012) the licensee will submit the financial assurance as acceptable by the officer authorized by the state government in this behalf.

9.0 Certificate

The certificate no.5 is enclosed.

10.0 Plan and Section

All relevant plans & sections have been enclosed.

SHER SINGH S/O MANGAL SINGH
13, Shiv Nagar, Ajmer Road, Jaipur
Proprietor Authorised Signatory

(Shri Sher Singh Solanki)
(Applicant for Lease)

(M.K.Gupta)
RQP/AJM/269/2005/A

M.K. GUPTA
RQP/AJM/269/2005-A

22.10.13

Annexure No. 1

राजस्थान सरकार
खान (ग्रुप–2) विभाग

क्रमांक प.8(16)खान/ग्रुप–2/2013 जयपुर, दिनांक:– 27 FEB 2013

श्री शेरसिंह सोंलकी पुत्र
श्री मंगल सिंह सोंलकी,
13, शिव नगर, अजमेर रोड,
जयपुर (राजस्थान)।

विषयः–खनन पट्टा क्षेत्र 1286 है0 क्षेत्र जिला सिरोही की तहसील रेवदर के राजस्व गावों में गैर मुमकिन नदी, नालो, बालों से (खसरे के अनुसार) निकलने वाला खनिज बजरी का श्री शेरसिंह सोंलकी पुत्र श्री मंगल सिंह सोंलकी, 13, शिव नगर, अजमेर रोड, जयपुर (राजस्थान)।

महोदय,

उपरोक्त विषय में राजस्थान खनिज रियायत नियमावली, 1986 के अन्तर्गत राज्य सरकार आपको 1286 हैक्टेयर क्षेत्र के लिये खनिज बजरी का खनन पट्टा 5 वर्ष के लिये जारी की जाने की मंशा रखती है। अतः निम्न पूर्तियां एक वर्ष में पूर्ण करे :–

1. माईनिंग प्लान तैयार करा एवं सक्षम अधिकारी से अनुमोदित करा प्रस्तुत करे।
2. पर्यावरण क्लीयेरेंस भारत सरकार के वन एवं पर्यावरण मंत्रालय से प्राप्त कर प्रस्तुत करे।
3. नियम 37(जे) अनुसार वित्तीय आश्वासन प्रस्तुत किये जाने का शपथ पत्र प्रस्तुत करे।

भवदीय

संयुक्त शासन सचिव

प्रतिलिपिः–निदेशक, खान एवं भू–विज्ञान विभाग, उदयपुर को उनके पत्र कमांक निदे/प–2(ए.3)सिरो/बजरी/2012/275 दिनांक 28.01.2013 के कम में आवश्यक कार्यवाही हेतु प्रेषित है।

सहायक शासन सचिव

तहसील सदर	खसरा नं०	कुल खसरा	रकबा / कुल जमा फसल	कुल योग
रामपुरा	1 / 3, 10, 26, 27, 42, 58, 61, 66, 67, 75, 121, 123, 40 / 306, 70 / 309, 87 / 318	16	194.11, 6.16, 3.19, 4.03, 5.5, 3.18, 2.15, 14.18, 7.16, 6.06, 22.01, 3 15, 3.19, 15.18, 18.06, 0.12 बीघा	307.42
[illegible]	1 / 258, 1 / 259, 47, 54, 57, 59, 70, 82, 94, 99, 100, 105, 159, 181, 183, 193, 195, 203, 205, 207, 218, 224, 227	23	183, 94.03, 0.12, 1.11, 0.08, 0.04, 1, 1.02, 2.15, 0.14, 1.0[illegible], 0.[illegible], 0 02, 0.19, 9.05, 0.06, 4.01, 0.04, 1.17, 3.09, 1, 1.16, 4.04 बीघा	307.71
जामटा	14, 16, 19, 20, 21, 99 / 361, 84, 91, 122, 137, 152, 161, 172, 179, 183, 218, 238, 240, 243, 261, 286, 154 / 367, 253 / 380	23	0.16, 6.04, 6.10, 1.11, 3.18, 349.15, 0.10, 0.17, 3, 7.14, 0.12, 4.01, 3.04, 3.16, 0.17, 2.01, 11.12, 3.11, 5.03, 5.02, 2.18, 4.02, 5.11	424.26
जावल	1, 271, 134, 147, 150, 166, 168, 170, 172, 180, 182, 194, 221, 223, 227, 247, 272, 316, 329, 127 / 344, 256	21	263.02, 40.04, 13.05, 1.03, 6.03, 2.04, 1.10, 1, 0.05, 0.10, 0.04, 2 10, 6.02, 1.02, 1.07, 2.08, 12.04, 1.15, 0.15, 9.05	362.18
पलाडा	212, 213, 214, 234, 282, 2, 3, 11, 13, 17, 19, 24, 53, 59, 65, 87, 89, 154, 92	19	40.10, 33, 102.17, 6.08, 113, 1.06, 0.19, 2.05, 2.06, 4.06, 1.15, 24 10, 4.03, 5.08, 7.04, 1.02, 4.04, 4.18, 0.11	354.52
पावेल	9, 10 / 1094, 53, 53 / 196, 53 / 197, 289, 373, 374, 10, 2, 167, (267), 348, 370, 387, 397, 398, 414, 418, 440, 447, 515, 519, 573, 587, 628, 640, 643, 645, [illegible], 652, 660, 769, 781, 784, 904, 915, 996, 1000, 1002, 1004, [illegible], 1034, 1057, 1062	45	116.12, 97.12, 57.01, 6.11, 7.16, 40.17, 93.04, 40.10, 110.05, 1.17 0.07, 0.07, 0.12, 0.17, 4, 0.14, 2.12, 0.13, 0.15, 5.06, 1.[illegible], 0.07, 0 11, 2.07, 3.02, 1.05, 0.14, 0.04, 1.07, 22.13, 0.10, 0.07, 0.12, 0.09, 1.04, 1.17, 0.15, 10.16, 2.14, 2.04, [illegible], 1.0, [illegible], 0.15, [illegible] बीघा	649.171
मिठन	267, 340, 11, 61, 96, 116, 119, 132, 201, 210, 242, 246, 248, 266	14	45.0, 39.0, 7.14, 5.14, 2.07, 3.16, 8.02, 7.16, 1.04, 1.10, 6.15, 5.08, 4.15, 2.10	132.22
निसोडा	1, 1 / 531	2	38.10, 144.11 बीघा	182.21

Annexure - 9

कोदरी 35, 61, 72, 102, 105, 112, 114, 127, 145, 169, 171, 173, 184, 210, 212, 217	17	78-17 2-12 10 2-17	24.16, 2.06, 1.11, 1, 1.05, 3, 5.16, 1.17, 2.08, 3.14		15	0 23.28
भजगढ 84/268, 262, 35, 35/267, 36, 38, 40, 50	8	103-0	9.01, 5.18, 3.02, 0.19, 9.02, 5.19			39.3
कृणोल 202/959, 96/972, 14/922, 133, 134, 157, 159, 164, 368, 402, 416, 550, 560, 604, 612, 613, 682, 736, 757, 798, 842, 855, 866, 870/883, 873	25	9-19 2-15 4-9	0.12, 43, 8.01, 0.12, 1.12, 0.16, 0.04, 8.07, 17.12, 2.03, 8.09, 8.14, 40.17, 21.1		12	1001 50.57
छापोल 16 17, 19, 20, 21	5	28-02	126.15, 81.95, 22.05 बीघा			42.78
सेलवाडा 406, 407, 409, 410, 411, 567, 182 408, 4, 5, 8, 10, 16, 17, 35, 46, 56/1280, 57, 65, 68, 71, 77, 79, 83/1523, 84, 35/1236, 88, 94, 95/1447, 96, 123, 138, 141, 143, 151, 173, 174, 186, 188, 216, 248, 256, 257, 259, 265, 271, 273, 276, 282, 284, 292, 306, 326, 327, 328/1439, 330/1422, 333, 343/1301, 348, 350, 403/1359, 403/1380, 404, 416, 445, 447, 531, 532, 533, 534, 535, 598, 756, 758, 772, 777, 782, 804, 809, 814, 817, 835, 839, 847, 858, 860, 864, 866, 868, 877, 886, 892, 895, 897, 900, 929, 933, 943, 955, 958, 975, 983, 993, 997, 1016, 1025, 1032, 1040, 1049, 1050, 1083, 1087, 1089, 1090, 1091, 1092, 1094, 1097, 1098 1110, 1113, 1129	22	17-05 1-1 2-15 3-16 1-15 2-09 1-16	5.10,19.18,17.10, 58.15, 57.12, 6.17, 9.0 5, 0.07, 7.17, 0.19, 0.17 12.12, 13 0.08, 22.03, 0.06 3.18, 2.18, 0.11, 4.06, 0.06, 0.10, 4.05, 6.09, 5.10, 1.09, 4.04, 0.18, 0.11, 3.14, 0.08, 2, 0.14, 21.03, 1.08, 5.17, 2.09, 4.06, 11, 0.18, 1.08, 0.19 5.03, 8.14, 0.08, 0.06, 0.14, 5.17, 1.01, 1.06 2.05, 17, 0.18, 0.13, 0.09, 10.06, 0.14, 10.02, 18, 3.03, 0.17, 0.16, 2.11, 0.15, 1.04, 2.11, 3.13	1.05	15	586.2
मोथरा 480, 508, 509, 537 791, 861, 94, 100, 102, 133, 162, 167, 169, 237, 244, 342, 375, 403, 476, 478, 526, 528, 584, 1117, 1195, 1205, 1206, 1208, 1209, 1211, 1289	31	80-17 2-1 14-00	3.14, 98.14, 31.05, 81.12, 0.06, 0.12, 7.19, 1.17, 4.07, 2.15, 2, 2.15, 3.17, 14.03, 3.02, 4.08, 4.02, 1.15	0.05	10	15 675.09

आलगाँव 1/16, 192, 193, 196, 98/1, 295, 295/484, 297, 299, 302, 304, 695, 699, 711, 743	16 ✓	36.11, 2.17, 34.04, 20.14, 62.05, 127.07, 7.05, 7.10, 0.08, 2.05, 0 12, 1.16, 1.05, 32.11, 1, 1.02	334.32
गुलाबगंज 132, 106/2, 130, 131/1, 133/19, 204/971, 214/972, 98/1, 161, 163, 177, 200, 216, 449, 457/8, 466/01, 468, 472/3, 472/7, 472/09, 472/11, 619, 620, 778, 807/38, 881, 897, 465/1029	28 ✓	49.18, 70.17, 2.16, 11.01, 10.13, 71.10, 86.19, 6.16, 2.05, 11.05, 6. 15, 0.16, 0.18, 1.17, 0.18, 1.01, 0.11, 0.12, 0.19, 1.01, 4.1, 4, 1.13, 0.06, 2.15, 3.11, 9.06, 19.14	372.23
करेली 8, 2, 21, 74, 76, 81, 83, 85, 92, 99, 104, 136, 156, 207, 207/255, 216 220, 221, 222, 224, 226, 239, 4	23 ✓	51.19, 2.19, 2.10, 2.07, 6.13, 5.19, 1.13, 3.02, 1.07, 1.04, 0.15, 1. 09, 0.09, 6.14, 0.19, 0.03, 7, 8.19, 9, 3.17, 3.10, 0.16, 1.02	114.46
बरसन 632, 4, 6, 9, 10, 11, 14, 15, 20, 23, 26, 31, 37, 63, 98, 102, 105, 106, 109, 117, 119, 121, 123, 201, 207, 216, 231, 233, 235, 236, 237, 239, 241, 246, 248, 250, 257, 278, 283, 295, 312, 316, 398, 418, 423, 428, 432, 441, 443, 451, 461, 463, 467, 496, 501, 518, 525, 603, 634, 635, 665, 717, 736, 739, 771, 801, 817, 825, 828, 843, 845, 847, 851, 853, 870, 923, 946, 957, 966, 1045, 1047, 1060, 1065, 1068, 1075, 1083, 1101, 1107, 1117, 1123, 1129, 472/1234, 7, 703/1244, 720/1247	95 ✓	22.12, 1, 0.05, 7.04, 0.04, 1.11, 0.16, 12.04, 0.19, 0.19, 4.11, 1.02, 33.13, 6.05, 1.19, 0.09, 11.15, 4.13, 1.15, 0.13, 1.06, 0.06, 2.05, 24 06, 1.07, 3.18, 37.10, 2.05, 0.04, 0.15, 1.15, 2.05, 3, 5.05, 1.01, 0. 15, 6.06, 2.05, 0.15, 0.7, 11.07, 28.16, 9.05, 12.05, 3.09, 8.03, 2.16, 13.04, 0.11, 2, 4.03, 0.07, 7.09, 2.17, 3.15, 16.13, 0.11, 2.10, 1.11, 1, 0.06, 1.09, 11.05, 3.11, 0.09, 1.11, 2.09, 0.09, 0.17, 0.11, 1.03, 2. 03, 4.11, 4.13, 0.09, 2.05, 1.09, 1.09, 1.14, 0.19, 3.17, 0.15, 0.13, 0 15, 2.09, 0.11, 3.11, 0.09, 0.14, 1.03, 0.16, 27.09, 15.12, 4.03, 0.15	416.64
अचंत 237, 377, 124, 229, 232, 331, 366, 407, 471, 502, 556, 562, 570, 632, 634, 638, 647, 660, 708, 710, 775, 778, 801/1262, 900, 940, 1203/1263, 303	27 ✓	174.12, 18.04, 4.13, 8.09, 6.11, 1, 1, 0.13, 2.05, 7.07, 3.12, 9.18, 18.13, 2.10, 16.02, 5.01, 4.04, 4.07, 1.05, 7.07, 1.21, 0.12, 5.06, 3 17, 2.13, 4.08, 14.11	321.21
करोल 88, 89, 95, 96, 120, 3, 6, 7, 26, 32, 36, 48, 61, 71, 81, 82, 91, 92, 247, 262, 270, 272, 280, 283	24 ✓	1.10, 5, 0.17, 18.15, 10.03, 8.19, 0.18, 1.13, 1.03, 0.09, 1.15, 1, 3, 15, 1.12, 12.08, 3.13, 2.08, 6.12, 4.06, 13.03, 10.06, 0.16, 15, 11.02	128.14

[illegible] 18/811, 32, 52/1, 52/3, 67/8, 72, 105/1, 312, 320, 345, 346, 360, 409/1, 409/2, 410/1, 507, 508, 509, 514/1, 522, 526/1, 527/1, 542, 730/1, 731, 734, 741, 742, 814/384, 155/973, 512/916, 56, 57, 171, 173, 192, 228/821, 274, 283, 368, 465, 469, 487, 520, 523, 627/1, 675, 676, 820/164, 485/1	50	13.07, 3.14, 39.04, 1.08, 0.01, 0.04, 22.09, 4.10, 4.15, 0.15, 41.06, 49.10, 0.12, 0.03, 0.13, 10.16, 74.05, 40.11, 0.10, 13.15, 1.04, 1.10, 11.11, 1, 17, 1.07, 1.03, 10.03, 5.12, 4.16, 34.14, 38.19, 0.11, 0.13, 3.07, 0.14, 0.18, 0.19, 23.05, 9.06, 1.15, 0.12, 0.06, 2.01, 2.03, 0.08, 4.04, 2.06, 0.03, 1.01, 1.17, 7.03, 1.01	497.63
[illegible] 13, 99, 112, 162, 45, 58, 67, 92, 96, 97, 156, 159, 171, 178, 201, 268, 284, 286, 288, 290, 295, 296, 298/642, 298/655, 298/669, 298/674, 307, 307/628, 308/697, 308/627, 376, 380, 390, 395, 402, 405, 418, 422, 438, 447, 471, 478, 486, 528, 586, 617	47	7.06, 18.08, 14.05, 64.05, 0.16, 2, 0.09, 0.05, 3, 7, 0.10, 0.12, 2, 11.18, 18.12, 0.08, 0.06, 0.09, 0.14, 2.09, 11.05, 0.12, 0.09, 7.03, 4.06, 2.01, 0.11, 15.12, 2.18, 1.05, 1.10, 2.13, 0.04, 8.01, 3.01, 5.12, 0.15, 13.14, 4.09, 2.15, 0.17, 5.08, 4.07, 9.12, 3.08, 0.16	253.04
[illegible]दरूखेडा 1, 5, 8, 55, 59, 60, 78, 87, 89, 90, 92, 94	12	39.09, 8.12, 2, 0.08, 0.1, 2.04, 7.04, 1.03, 1, 14.03, 0.13, 1.12	75.78
[illegible]डा 212, 213, 214, 234, 282, 2, 3, 11, 13, 17, 19, 24, [illegible] 56, 65, 87, 89, 154, 92	[illegible]	[illegible] 10, 4.03, 5.08, 7.04, 1.02, 4.04, 4.18, 6.11	794
[illegible]ोली 9, 10/1094, 53, 53/196, 52/197, 289, 373, 374, 10, 2, 187, 267, 348, 370, 387, 397, 398, 414, 418, 440, 447, 515, 519, 525, 586, 628, 640, 643, 645, 646, 663, 660, 750, 781, 784, 904, 915, 938, 959, 1002, 1004, [illegible] 1056, 1057, [illegible]	45	118.12, 97.12, 57.01, 6.11, 7.16, 40.17, 93.04, 40.10, 110.05, [illegible] 0.07, 0.07, 0.12, 0.17, 4, 0.14, 2.11, 0.13, 0.15, 8.06, 12.08, [illegible] 11, 2.07, 3.02, 1.05, 0.14, 0.04, 1.07, 22.13, 0.10, 0.07, 0.12, 0.08, 1.04, 1.17, 0.15, 10.16, 2.12, 2.08, [illegible] 0.06, [illegible]	649.17
[illegible]मोरा 267, 340, 11, 81, 95, 116, 119, 132, 201, [illegible] 242, 246, 248, 266	14	45.0, 39.0, 7.14, 3.14, 2.07, 3.16, 8.02, 7.10, [illegible] 4.15, 2.10	132.22
निम्बोडा 1, 1/531	2	38.10, 144.11 मीमा	182.21

मोगरा 11, 11/593, 26, 29, 36, 41, 43, 164, 168, 170, 179, 342, 360, 342, 360, 363, 384, 407, 415, 458, 481, 508, 536, 564, 576, 582, 588, 574	29	14.19, 17.16, 9.16, 9.11, 6.19, 1.04, 6.02, 9.03, 2.05, 0.15, 5.09, 5 18, 11.04, 3.03, 0.15, 1.13, 1.16 13.04 6.19, 2.02, 15.05, 3.17, 0 18, 12.16, 4.16, 4.03, 0.12, 0.08, 2.16	59.41 / 162.24
गुंदवाडा 104,173	2	16.10, 9.01 दोनों	25.11
लिलोरा 58, 81, 94, 143, 157, 178, 185, 226, 230, 281	10	4.12, 25.16, 12.18, 6.09, 10.12, 6.13, 1.04, 4.07, 5.11, 14.03	88.05
देवी 14, 16, 28, 30, 34, 43, 45, 56, 58, 558, 578, 579, 597, 602, 840, 869, 917/1008, 240, 363, 373, 384, 384/1007, 869, 999,	22	0.13, 1.10, 1.11, 1.11, 1, 0.19, 1.15, 1.13, 0.02, 1.14, 10.01, 2.06, 7, 1.10, 1.03, 6.02, 3.15, 1.14, 22.01, 2.15, 11 14, 5.03, 6.02, 0.10	86.04
अमलिया 5, 39, 53, 67, 69, 82, 86, 92, 94, 95, 98, 103, 108, 110, 118, 179, 194, 199, 200, 210, 214, 215, 218, 77	24	4.18, 3.19, 3.03, 0.17, 1.05, 1.04, 1.06, 3.09, 2.13, 0.01, 2.10, 6.08, 0.10, 14.05, 2.16, 4, 7.18, 5.05, 3.12, 3.03, 5.10, 3.18, 2.01, 6.17	83.28
कावल 28, 29, 55, 61, 64, 69, 73, 124, 137, 166, 169, 172, 189, 190, 195, 446, 447, 449, 483, 518, 520, 541, 559, 578, 623, 635, 642, 684, 690, 695, 717, 718, 739, 794, 798, 809, 816, 830, 3, 566/876, 689, 687, 795	41	2.13, 4.10, 4.12, 0.18, 1 18, 1.14, 1.03, 0.08, 2.18, 1.05, 1.01, 1.17, 1.01, 3.14, 0.07, 0.12, 2.01, 3.16, 105.01, 29, 0.05 1.13, 2.11, 0 15, 18 12, 1.19, 1.05, 0.12, 4, 2.12, 0.15, 10.11, 10.10, 0.13, 3.17, 2.07 4, 1.03, 2.1 4.04, 25.15, 10.09, 2.00 1.01	255.17
डी 28, 159, 172, 215, 218 158, 219, 158/228	8	19.08, 14.03, 86.13, 1.04 2.09, 3, 1.11, 2, 14.03	141.51
गवरा 66, 81, 101, 115, 109 419, 421, 422, 423, 424, 425,	12	31.19, 60.19, 50.02 64 16 7.17, 32.02 62.1 2 13 0.15, 64.01, 10, 04, 3.15	390 34

Annex VI-No. 3

Certificate No.: L130627C-03

MANTEC ENVIRONMENTAL LABORATORY
{Recognized by Ministry of Environment & Forests}
D-36, SECTOR-VI, NOIDA-201 301, U. P.

Identification No.	:	L13062703
Name & Address of the Customer	:	M/s Ramji mine Enviroteh , (J-3 , Subhash Marg , C-Sheme, Jaipur-3022001(Rajasthan)
Date of Sampling	:	24.06.2013
Date of Receipt	:	27.06.2013
Sample Description	:	River Sand
Sample Condition	:	Ok
Date of Analysis	:	29.06.2013
Sample Location	:	Seepu River, Karoti, (Roadhan) Dist- Sirohi , Rajasthan

RESULTS

Sl. No.	Parameter	Units of Measurements	Value	Protocol
1.	pH	-	8.11	IS:2720
2.	Bulk Density	gm/cm^3	1.56	IS:2720
3.	Specific Gravity	gm/cm^3	2.20	IS:2720
4.	Texture	Class	Sandy	IS:2720
5.	Sand	%	84	IS:2720
6.	Clay	%	6	IS:2720
7.	Silt	%	10	IS:2720
8.	Water Holding Capacity	%	26.17	IS:2720

Analyzed by: Seal of Lab: Authorized Signatory:

Notes:

- The results relate only to the sample tested.
- This Test Report shall not be reproduced wholly or in part without prior written consent of the laboratory.
- The samples received shall be destroyed after two weeks from the date of issue of the Test Report unless specified otherwise.
- This Test Report shall not be used in any advertising media or as evidence in the court of Law without prior written consent of the laboratory.

Annexure No. - 4

Table 1.1
Demographic Profile of Study Area

S. No.	Name	Population	SC	ST	Literates	Illiterates	Household	Literacy Rate
1	Awada	1733	1403	44	434	1299	318	25.04
2	Bhamra	862	285	139	307	555	162	35.61
3	Bootri	616	127	96	276	340	117	44.81
4	Chhapol	1192	358	284	506	686	212	42.45
5	Dangrali	953	125	0	489	464	183	51.31
6	Derol	554	223	4	283	271	109	51.08
7	Gulab Ganj	3664	816	354	1776	1888	681	48.47
8	Gundwara	1199	86	211	434	765	210	36.20
9	Hathal	1431	808	77	652	779	283	45.56
10	Jamtha	892	339	347	322	570	161	36.10
11	Jawal	1149	637	22	418	731	227	36.38
12	Jeerawal	3419	520	1276	1250	2169	626	36.56
13	Juadara	625	96	449	157	468	103	25.12
14	Kareli	889	816	0	320	569	150	36.00
15	Karoti	971	328	0	422	549	186	43.46
16	Leelora	1048	975	0	366	682	213	34.92
17	Loonol	2719	1114	155	1190	1529	518	43.77
18	Makawal	2472	570	301	891	1581	470	36.04
19	Malawa	1137	166	242	481	656	207	42.30
20	Malgaon	2312	453	76	1222	1090	451	52.85
21	Marol	2080	687	132	945	1135	405	45.43
22	Meethan	1337	693	19	541	796	274	40.46
23	Nimbora	1657	1369	0	532	1125	339	32.11
24	Padroo Khera	172	154	0	72	100	31	41.86
25	Peepaliya	340	272	0	147	193	67	43.24
26	Rajgarh	956	80	42	448	508	166	46.86
27	Rampura	626	226	0	262	364	121	41.85
28	Reodar (CT)	8117	2538	574	4634	3483	1682	57.09
29	Selwada	2200	434	388	760	1440	440	34.55
30	Thal	2833	1815	587	912	1921	494	32.19
31	Vikanwas	1089	193	149	396	693	217	36.36
32	Wasan	4592	1710	639	1720	2872	873	37.46
Total		**55836**	**20416**	**6607**	**23565**	**32271**	**10701**	**40.42**

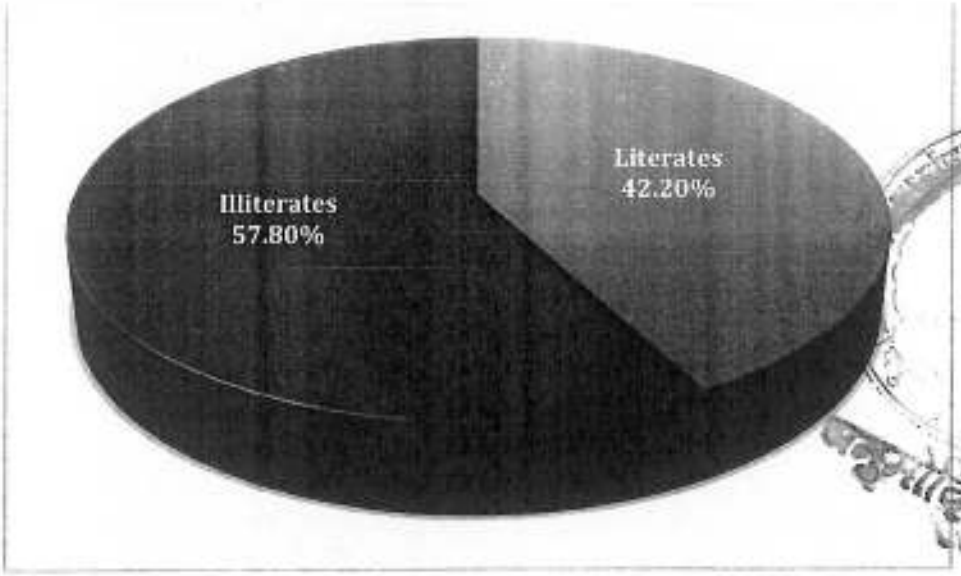
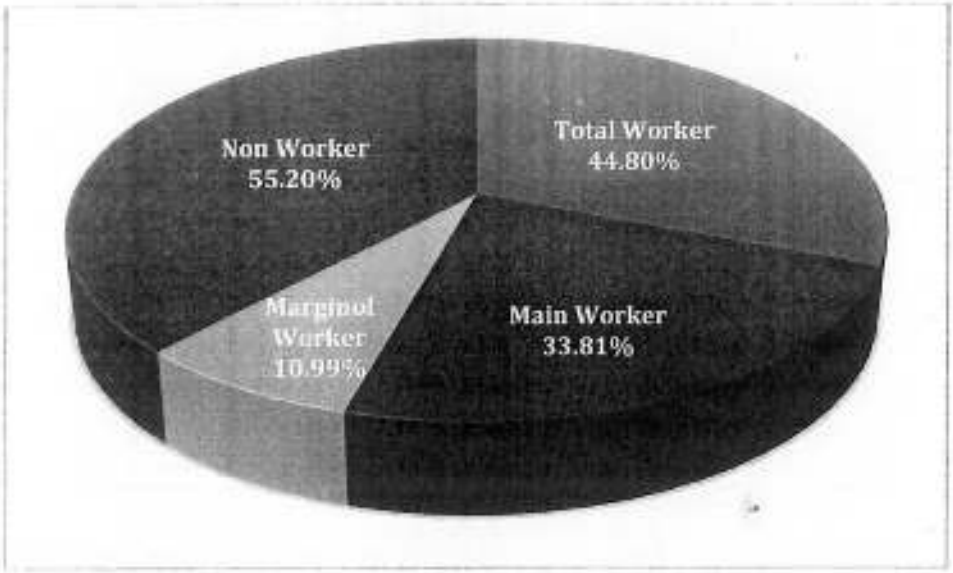


Table 1.2

Occupational Structure of Study Area

S. No.	Name	Population	Total Worker	Main Worker	Marginal Worker	Non Worker
1	Awada	1733	901	784	117	832
2	Bhamra	862	446	380	66	416
3	Bootri	616	269	269	0	347
4	Chhapol	1192	447	235	212	745
5	Dangrali	953	401	367	34	552
6	Derol	554	282	156	126	272
7	Gulab Ganj	3664	1820	1203	617	1844
8	Gundwara	1199	665	503	162	534
9	Hathal	1431	610	563	47	821
10	Jamtha	892	432	374	58	460
11	Jawal	1149	722	636	86	427
12	Jeerawal	3419	1539	1161	378	1880
13	Juadara	625	344	180	164	281
14	Kareli	889	379	202	177	510
15	Karoti	971	409	262	147	562
16	Leelora	1048	554	422	132	494
17	Loonol	2719	1121	731	390	1598
18	Makawal	2472	1111	1076	35	1361
19	Malawa	1137	530	478	52	607

20	Malgaon	2312	873	851	22	1439
21	Marol	2080	896	746	150	1184
22	Meethan	1337	588	438	150	749
23	Nimbora	1657	680	386	294	977
24	Padroo Khera	172	114	114	0	58
25	Peepaliya	340	209	115	94	131
26	Rajgarh	956	511	335	176	445
27	Rampura	626	361	211	150	265
28	Reodar (CT)	8117	2552	2226	326	5565
29	Selwada	2200	1040	695	345	1160
30	Thal	2833	1449	1117	332	1384
31	Vikanwas	1089	508	309	199	581
32	Wasan	4592	2254	1353	901	2338
Total		**55836**	**25017**	**18878**	**6139**	**30819**



मन्धारी, जोधपुर

केवल नकल उपयोग के लिए

जमाबन्दी गांव रामपुरा पटवार क्षेत्र गुन्दवाड़ा भू-अभिलेख निरीक्षक क्षेत्र तहसील फेरवर जिला सिरोही राजस्थान सम्वत् 2068 से 2071 तक क्षेत्रफल बीघा/बिस्वा/हेक्टर में

खेमट (खतौनी) संख्या		भूमि धारकों का नाम	खातेदार का नाम, पिता जाति तथा निवास स्थान के पता सहित तथा कृषि काल	खसरा नं.	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	देय लगान		नामान्तरकरण आदेश नं. तथा तारीख	भूमि व्यौरा विशिष्टियां जिसके पक्ष में भूमि अन्तरित हो	टिप्पणियां
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1	1	खाता अस्फाल	नदिया तथा नाले (खराबाह) क्षेत्र)	1	194-11	नदी						
				3	6-16	नदी						
				10	3-19	नदी						
				26	4-03	नदी						
				27	5-05	नदी						
				40/306	15-18	नदी						
				42	3-18	नदी						
				58	2-15	नदी						
				61	14-18	नदी						
				66	7-16	नदी						
				67	6-06	नदी						
				70/309	18-06	नदी						
				75	22-01	नदी						
				87/318	0-12	नदी						
				121	3-15	नदी						
				123	3-19	नदी						

1- खाय प्रतिलिपि 4
2- 35 no पटवी 1

सहायक भू-अभिलेख निरीक्षक फेरवर

Annexure No. 35

भण्डारी, गोपपुर

केवल नकल उपयोग के लिए

जमाबन्दी साल जुआढ़ा पटवार क्षेत्र गुन्दाड़ा भू-अभिलेख निरीक्षक माडकर तहसील देलवरा जिला सिरोही राजस्थान संम्वत् 20 ७८ से 2069 तक क्षेत्रफल बीघा/बिस्वा/बैस्वटर में

खेवट (खतौनी) संख्या		भूमि धारकों का नाम	खातेदार का नाम, पिता जाति तथा निवास स्थान के पता सहित तथा कृषि काल	खसरा नं.	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लेय लगान		नामान्तरकरण आदेश नं. तथा तारीख	भूमि भौरा विशिष्टियां जिसके पक्ष में भूमि अन्तरित की	टिप्पणियां
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1	1	खाता खातेदार	नदियां तथा नाले (खाराखाई खेड़ा)	1/258	183.00	गै.मु.नदी						
				2/257	94-03	गै.मु.नदी						

जमाबन्दी (आंशिक प्रतिलिपि)

ग्राम का नाम :- सुआसरा | पटवार हल्का :- दूल्हासरा | भू.अभि.नि.क्षेत्र :- सरदार | पृष्ठ संख्या 1 of 2

तहसील :- रेवदर | जिला :- सिरोही | दिनांक :- 01/04/2013

सम्वत :- 2066 - 2069 | वास्तविक सम्वत :- 2066

क्षेत्रफल :- बीघा-बिस्वा

खेवट(अतोनी) नया	खेवट(अतोनी) पुराना	भूमि धारक का नाम	कब्जेदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि अथवा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज. सरकार	नोरेतों तथा नाले (चारागाह हेतु)	1/258	183	गै.मु.नदी	183						
				2/259	94-03	गै.मु.नदी	94-03						
				47	0-12	गै.मु.नाला	0-12						
				54	1-11	गै.मु.नाला	1-11						
				57	0-08	गै.मु.नाला	0-08						
				59	0-04	गै.मु.नाला	0-04						
				70	1	गै.मु.नाला	1						
				82	1-02	गै.मु.नाला	1-02						
				94	2-15	गै.मु.नाला	2-15						
				99	0-14	गै.मु.नाला	0-14						
				100	1-03	गै.मु.नाला	1-03						
				105	0-16	गै.मु.नाला	0-16						
				159	0-02	गै.मु.नाला	0-02						
				181	0-19	गै.मु.नाला	0-19						
				183	9-05	गै.मु.नाला	9-05						
				193	0-06	गै.मु.नाला	0-06						
				198	4-01	गै.मु.नाला	4-01						
				203	0-04	गै.मु.नाला	0-04						
				205	1-17	गै.मु.नाला	1-17						
				207	3-09	गै.मु.नाला	3-09						
				216	1	गै.मु.नाला	1						
				224	1-16	गै.मु.नाला	1-16						
				227	4-04	गै.मु.नाला	4-04						

कुल खसरा : 23 | कुल क्षेत्रफल : 314-11 | कुल प्रकार के अनुसार क्षेत्रफल

गै.मु.नाला 277-03

गै.मु.नाला 37-08



कुल

कुल खसरा : 23 | कुल क्षेत्रफल : 314-11 | कुल प्रकार के अनुसार क्षेत्रफल

गै.मु.नदी 277-03

अमाबन्दी (आंशिक हदोबस्त)

प्रपत्र पी-26(बी)

ग्राम का नाम :- रामपुरापि. | पटवार हल्का :- पुनचाडा | कानूनगो हल्का :- बरवर | पृष्ठ संख्या 1 of 1

तहसील :- रेवदर | जिला :- सिरोही | दिनांक :- 01/04/2013

वर्षफल :- 2066 - 2071 | वास्तविक वर्षफल :- 2068

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	अधिकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रुपये	नामान्तरण आदेश सं. तथा तारीख	भूमि जोत विवरणिका जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज सरकार	गोचर्मा तथा नाले (चारागाह हेतु)	1	194-11	नदी	194-11						
				3	6-16	नदी	6-16						
				10	3-19	नदी	3-19						
				26	4-03	नदी	4-03						
				27	5-05	नदी	5-05						
				40/306	15-18	नदी	15-18						
				42	3-18	नदी	3-18						
				58	2-15	नदी	2-15						
				61	14-18	नदी	14-18						
				66	7-16	नदी	7-16						
				67	6-06	नदी	6-06						
				70/309	18-06	नदी	18-06						
				75	22-01	नदी	22-01						
				67/318	0-12	नदी	0-12						
				121	3-15	नदी	3-15						
				123	3-19	नदी	3-19						

कुल खसरा : 16 | कुल क्षेत्रफल : 314-18 | कृषि प्रकार के अनुसार क्षेत्रफल
नदी 314-18

कुल. | कुल खसरा : 16 | कुल क्षेत्रफल : 314-18 | कृषि प्रकार के अनुसार क्षेत्रफल
नदी 314-18

प्रतिलोप संख्या: 10

प्रमाणित किया जाता है कि यह प्रतिलिपि मे लिखा [illegible] के समक्ष परिलक्षित प्रमाणित पाए लिये गये है।

प्रतिलोप क्रमांक :- 1863409-4847

प्रतिलोप जारी करने का दिनांक :- 01/04/2013

तहसील रेवदर दिनांक 10 दिनांक 1-4-13
प्रमाण प्रति मूल से जारी एवं तामदीक की।
[illegible]
तहसील रेवदर

जमाबन्दी (आंशिक प्रतिलिपि)

प्रपत्र पी-36(बी)

ग्राम का नाम :- मुआवरा पटवार हल्का :- बुन्दवाडा भू.अभि.नि.क्षेत्र :- सण्डार पृष्ठ संख्या 4 of 7

उपखण्ड :- रेवदर जिला :- सिरोही दिनांक :- 01/04/2013

सम्वत :- 2066 - 2069 वास्तविक सम्वत :- 2066

क्षेत्रफल :- बीघा-बिस्वा

खेड़ (खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि अथवा विशिष्टियों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

से सूपत्रा 37-06

डाक्यांसेप शुल्क 20/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक 13/09/2011 तक के समस्त परिवर्तन समाविष्ट कर दिये गये हैं।

डाक्यांसेप क्रमांक:- 1903338-4848

डाक्यांसेप जारी करने का दिनांक- 01/04/2013

प्रपत्र प्रतिलिपि
प्रतिलिपि रजिस्टर क्रमांक 11 दिनांक 1/4/13
उपखण्ड अधिकारी, अपील सहायक केस

उपखण्ड अधिकारी रेवदर

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जमाबन्दी (आंशिक प्रतिलिपि)

फार्म नं.-26(ii)

ग्राम का नाम :- बामठा | परगना हल्का :- गुन्दवाडा | उ.प.नि.ति. क्षेत्र :- गण्डार | पृष्ठ संख्या 1 of 2

इकाई :- रेवदर | जिला :- सिरोही | दिनांक :- 01/04/2013

सम्वत :- 2066 - 2069 | वास्तविक सम्वत :- 2066

क्षेत्रफल :- बीघा-बिस्वा

क्षेत्रफल(अंतीनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		कानूनानुसार आदेश व तथा तारीख	भूमि अथवा विशिष्टियों जिसके पक्ष में भूमि अन्तरित हुई	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज सरकार	गोचर तथा नाले (जारगाह ज़ेत)	14	0-16	चरी	0-16						
				16	6-04	नदी	6-04						
				19	8-10	चरी	8-10						
				20	1-11	नदी	1-11						
				21	3-16	नदी	3-16						
				84	1-10	नाला	1-10						
				91	0-17	नाला	0-17						
				99/361	349-16	नदी	349-16						
				122	3	नाला	3						
				137	7-14	नाला	7-14						
				152	0-12	नाला	0-12						
				154/357	4-02	नाला	4-02						
				161	4-01	नाला	4-01						
				172	3-04	नाला	3-04						
				179	3-16	नाला	3-16						
				183	0-17	नाला	0-17						
				216	2-01	नाला	2-01						
				238	11-12	नाला	11-12						
				240	3-11	नाला	3-11						
				249	5-05	नाला	5-05						
				253/380	5-11	नाला	5-11						
				261	5-02	नाला	5-02						
				288	2-16	नाला	2-16						

कुल खसरा : 23 कुल क्षेत्रफल : 434-06 भूमि सिंचाई के अनुसार क्षेत्रफल

चरी 369-15

नाला 64-11

कुल | कुल खसरा : 23 | कुल क्षेत्रफल : 434-06 | भूमि सिंचाई के अनुसार क्षेत्रफल

चरी 369-15

जमाबन्दी (आंशिक प्रतिलिपि)

प्रपत्र पी-26(बी)

ग्राम का नाम :- बामठा | परगना इलका :- गुन्दलाव | यू.आई.नि.क्षेत्र :- सरकार | पृष्ठ संख्या :- 2 0 2

तहसील :- रेवदर | जिला :- सिरोही | दिनांक :- 01/04/2013

सम्वत :- 2066 - 2069 | बारखाबेक सम्वत :- 2066

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी)		भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		परिवर्तन आदेश सं. तथा तारीख	भूमि और/या विशिष्टियां जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
						गलत	66-11					

पारोक्षांश शुल्क 20/-

प्रमाणित किया जाता है कि यह प्रतिलिपि में दिनांक 13/08/2011 तक के समस्त परिवर्तन समाविष्ट कर दिये गये है

पारोक्षांश क्रमांक:- 19033315-4850

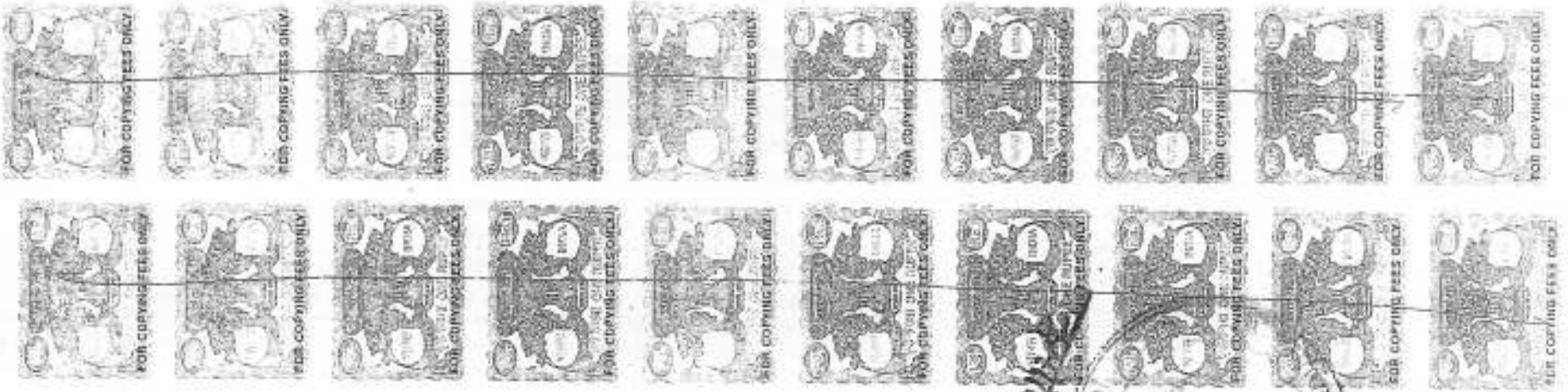
पारोक्षांश जारी करने का दिनांक- 01/04/2013

प्रतिलिपि रजिस्टर में क्रमांक 12 दिनांक 1/4/13

आपने खसरा नंबर से आगे हर्ष सम्मिलित प्रति।
प्रभारी, अपना खसरा केन्द्र

तहसील रेवदर

उप.जि.से. अधिकारी
सहसील, रेवदर



जमाबन्दी (आंशिक प्रतिलिपि)

प्रपत्र सी-28(डी)

ग्राम का नाम :- आवल | पटवार हल्का :- गमरीवाडा | पु.सर्वे.नि.क्षेत्र :- पण्डार | पृष्ठ संख्या 1 of 2

तहसील :- रेवदर | जिला :- सिरोही | दिनांक :- 01/04/2013

सम्वत :- 2068 - 2069 | वास्तविक सम्वत :- 2068

क्षेत्रफल :- बीघा-बिस्वा

क्षेत्रफल(बीघा-बी)		भूमि धारक का नाम	खातेदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		वसूलयोग्य आदेश नं. तथा तारीख	भूमि और विधिहितों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज. सरकार	नाडेयाँ तथा नाले (चारागाह हेतु)	1	283-02	नदी	283-02						नागा. ब.: 364 - दि.दि.: 05/08/2011
				127/344	9-05	नाला	9-05						- क्रय के द्वारा ख.न. 201 रकबा
				134	13-05	नाला	13-05						5.10 गांव डागरीयोक आधीन हेतु
				147	1-03	नाला	1-03						खुरबेज ख.न. 201/1 रकबा 3.00 क्षेत्र
				150	6-03	नाला	6-03						रकबा 3.10 ख.न. 201/2 बदस्तूर रहा।
				166	2-04	नाला	2-04						
				168	1-10	नाला	1-10						
				170	1	नाला	1						
				172	0-05	नाला	0-05						
				180	0-10	नाला	0-10						
				182	0-04	नाला	0-04						
				184	2-10	नाला	2-10						
				221	0-02	नाला	0-02						
				223	1-02	नाला	1-02						
				227	1-07	नाला	1-07						
				247	2-08	नाला	2-08						
				256	1-19	नाला	1-19						
				271	40-04	नदी	40-04						
				272	12-04	नाला	12-04						
				316	1-15	नाला	1-15						
				329	0-15	नाला	0-15						

कुल खसरा : 21 | कुल क्षेत्रफल : 386-17 | भूमि प्रकार के अनुसार क्षेत्रफल

नदी 303-06

नाला 83-11

कुल | कुल खसरा : 21 | कुल क्षेत्रफल : 386-17 | भूमि प्रकार के अनुसार क्षेत्रफल

नदी 303-06

नाला 83-11

जमाबन्दी (आंशिक प्रतिलिपि)

प्रपत्र बी-26(बी)

ग्राम का नाम :- आवाडा पटवार हल्का आवाडा भू.प्र.वि.केन्द्र रेवदर पृष्ठ संख्या 1 of 2

तहसील :- रेवदर जिला :- सिरोही दिनांक :- 01/04/2013

सम्वत :- 2067 - 2070 वास्तविक सम्वत :- 2067

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नम्बर		भूमि धारक का नाम	कारकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि क्षेत्र/या विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हुई	टिप्पणी
नया	पुराना												
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज. सरकार	तालाब तथा नाले (धारावाह ज्ञेय)	2	1-06	नाला	1-06						
				3	0-19	नाला	0-19						
				11	2-05	नाला	2-05						
				13	2-08	नाला	2-08						
				17	6-06	नाला	6-06						
				19	1-15	नाला	1-15						
				24	24-10	नाला	24-10						
				53	4-03	नाला	4-03						
				59	5-06	नाला	5-06						
				66	7-04	नाला	7-04						
				67	1-02	नाला	1-02						
				89	4-04	नाला	4-04						
				92	0-11	नाला	0-11						
				154	4-16	नाला	4-16						
				212	40-10	नदी	40-10						
				213	33	नदी	33						
				214	102-17	नदी	102-17						
				234	8-08	नदी	8-08						
				282	113	नदी	113						

कुल खसरा : 19 कुल क्षेत्रफल : 360-12 भूमि प्रकार के अनुसार क्षेत्रफल
नदी 295-15
नाला 64-17

कुल

कुल खसरा : 19 कुल क्षेत्रफल : 360-12 भूमि प्रकार के अनुसार क्षेत्रफल
नदी 295-15
नाला 64-17

जमाबन्दी (आंशिक प्रतिलिपि)

प्रपत्र पी-36(बी)

ग्राम का नाम :-	आवल	पटवार हल्का	मगरीवाडा	भू.प्रबं.नि.बोर्ड	सरूपार	पृष्ठ संख्या	2 of 2
तहसील :-	रेवदर	जिला :-	सिरोही	दिनांक :-	01/04/2013		
सम्वत :-	2056 - 2069	वास्तविक सम्वत :-	2068				
क्षेत्रफल :-	बीघा-बिस्वा						

खेड़ा(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि क्यों या विशेषतः किसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

प्रतिलिपि शुल्क: 20/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक 06/11/2013 तक के समस्त परिवर्तन समाविष्ट कर दिये गये हैं।

प्रतिलिपि क्रमांक:- 19033338-4851

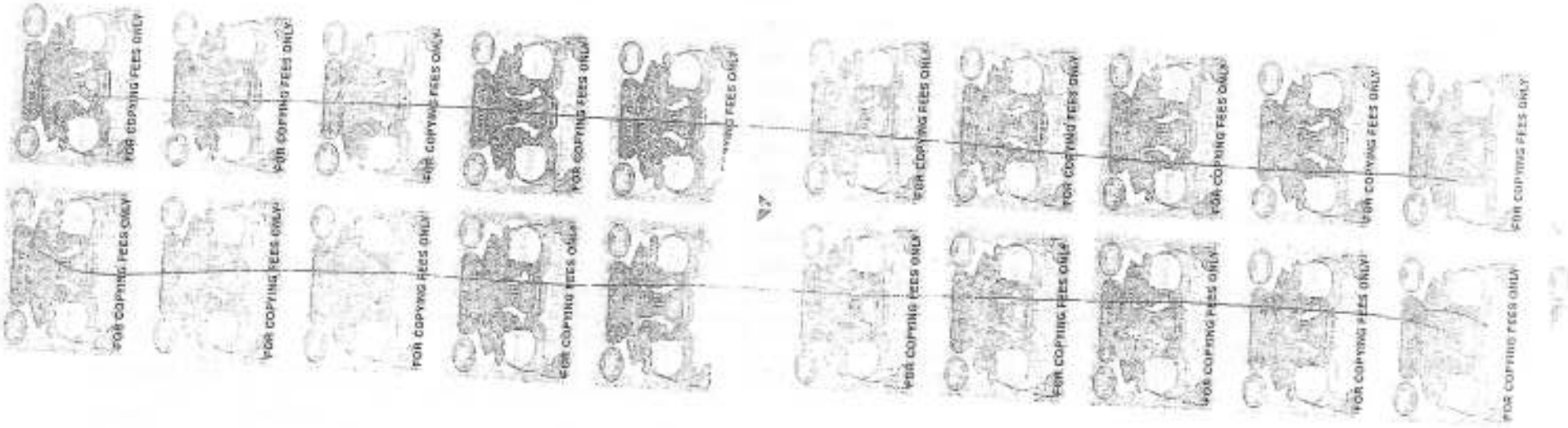
प्रतिलिपि जारी करने का दिनांक- 01/04/2013

[illegible] दिनांक 13 तक [illegible]

[illegible] दी जाती है जब [illegible]

हस्ताक्षर आवेदक

तहसील रेवदर



जमाबन्दी (आंशिक प्रतिलिपि)

फार्म नं-20(बी)

पृष्ठ संख्या 2 of 2

ग्राम का नाम :- खरवा
तहसील :- रेवदर
सन्वत :- 2067 - 2070
क्षेत्रफल :- बीघा-बिस्वा

पटवार हल्का :- खरवा
जिला :- सिरोही
वास्तविक सम्वत :- 2067

पु.आबि.लि.क्षेत्र रेवदर
दिनांक :- 01/04/2013

जेन्द(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा नंबर	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण खसरा नं. तथा तारीख	भूमि अथवा विशिष्टियों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

प्रतिलिपि परीक्षणकर्ता द्वारा दिनांक 14 दिसंबर 2023 को प्रमाणित की गई।

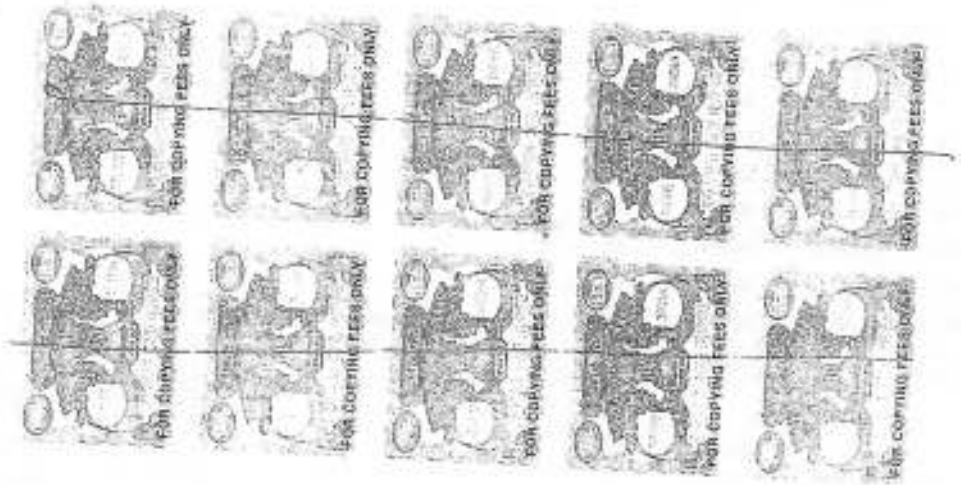
प्रतिलिपि शुल्क: 20/-
प्रमाणित किया जाता है कि यह प्रतिलिपि में दिनांक 18/11/2011 तक के समस्त परिवर्तन समाविष्ट कर दिये गये हैं।

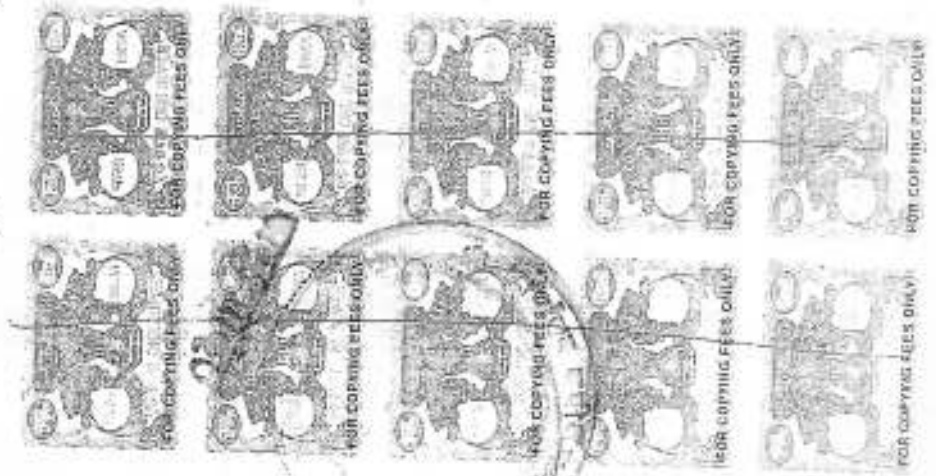
प्रतिलिपि क्रमांक :- 1903386-4852

प्रतिलिपि जारी करने का दिनांक- 01/04/2013

प्रभारी,अपना खाता केन्द्र
तहसील रेवदर

सहा.आर.ओ. रेवदर
तहसील, रेवदर





जमाबन्दी (आंशिक प्रतिलिपि)

प्रपत्र भी-3क(अ)

ग्राम का नाम :- सारोल | पटवार हल्का :- सारोल | भू.अभि.लि.केन्द्र :- रेवदर | पृष्ठ संख्या 1 of 2

तहसील :- रेवदर | जिला :- सिरोही | दिनांक :- 01/04/2013

सम्वत :- 2068 - 2071 | कार्यालयिक सम्वत :- 2068

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	सामान्यतया आक्षेप सं. तथा तारीख	भूमि अथवा विशिष्टियों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राव सरकार	नादेयों तथा नाले (खराबाह) हेतु	586	3-02	वे.मु.नाला	3-02				* नामा. स.: 983 - 1016 :		
				828	1-05	वे.मु.नाला	1-05				22/11/2012 - अवेदन द्वारा		
				840	0-14	वे.मु.नाला	0-14				ख.न.198/1 रकबा 2-00 बीघा सुनिश्चय		
				843	0-04	वे.मु.नाला	0-04				कार्यवाही हेतु सुपरविजन की गई।		
				845	1-07	वे.मु.नाला	1-07				शेष खाता बकाबूद।		
				846	22-13	वे.मु.नाला	22-13						
				853	0-10	वे.मु.नाला	0-10						
				860	0-07	वे.मु.नाला	0-07						
				769	0-12	वे.मु.नाला	0-12						
				781	0-09	वे.मु.नाला	0-09						
				784	1-04	वे.मु.नाला	1-04						
				804	1-17	वे.मु.नाला	1-17						
				915	0-15	वे.मु.नाला	0-15						
				966	10-16	वे.मु.नाला	10-16						
				1000	2-13	वे.मु.नाला	2-13						
				1003	2-06	वे.मु.नाला	2-06						
				1004	3-06	वे.मु.नाला	3-06						
				1032	1-08	वे.मु.नाला	1-08						
				1034	0-09	वे.मु.नाला	0-09						
				1057	0-06	वे.मु.नाला	0-06						
				1083	0-03	वे.मु.नाला	0-03						
			कुल खसरा : 21		कुल क्षेत्रफल : 56-08	भूमि प्रकार के अनुसार क्षेत्रफल							
						वे.मु.नाला	56-08						
कुल			कुल खसरा : 21		कुल क्षेत्रफल : 56-08	भूमि प्रकार के अनुसार क्षेत्रफल							
						वे.मु.नाला	56-08						

जमाबन्दी (आंशिक प्रतिलिपि)

प्रपत्र पी-2B(बी)

ग्राम का नाम :- मारोल पटवार हल्का मारोल भू.अभि.नि.क्षेत्र रेवदर पृष्ठ संख्या 1 of 2

तहसील :- रेवदर जिला :- सिरोही दिनांक :- 01/04/2013

सन्वत :- 2068 - 2071 वास्तविक सन्वत :- 2068

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी)		भूमि धारक का नाम	पट्टेदारकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश सं. तथा तारीख	भूमि और/या विशिष्टियों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1	राज	नांदणी तथा नाले (चारागाह हेतु)		2	1-17	गै.मु.नाला	1-17						
	सरकार			9	118-12	गै.मु.नदी	118-12						
				10	110-05	गै.मु.नदी	110-05						
				10/1094	97-12	गै.मु.नदी	97-12						
				53	57-01	गै.मु.नदी	57-01						
				53/1096	6-11	गै.मु.नदी	6-11						
				53/1097	7-16	गै.मु.नदी	7-16						
				187	0-07	गै.मु.नाला	0-07						
				289	40-17	गै.मु.नदी	40-17						
				349	0-12	गै.मु.नाला	0-12						
				370	6-17	गै.मु.नाला	6-17						
				373	93-04	गै.मु.नदी	93-04						
				374	40-10	गै.मु.नदी	40-10						
				387	4	गै.मु.नाला	4						
				397	0-14	गै.मु.नाला	0-14						
				398	2-10	गै.मु.नाला	2-10						
				414	0-13	गै.मु.नाला	0-13						
				418	0-15	गै.मु.नाला	0-15						
				440	8-06	गै.मु.नाला	8-06						
				447	13-08	गै.मु.नाला	13-08						
				516	0-07	गै.मु.नाला	0-07						
				519	0-11	गै.मु.नाला	0-11						
				573	2-07	गै.मु.नाला	2-07						

कुल खसरा : 23 कुल क्षेत्रफल : 615-12 दोनो प्रकार के अनुसार क्षेत्रफल

गै.मु.नदी 572-08

गै.मु.नाला 43-04

कुल

कुल खसरा : 23 कुल क्षेत्रफल : 615-12 दोनो प्रकार के अनुसार क्षेत्रफल

गै.मु.नदी 572-08

* नामा. सं.: 963 - 1012:
22/11/2012 - आदेश द्वारा
ख.नं.199/1 रकबा 2-00 बीघा मुक्तिल
अधिनियम हेतु सुरक्षित की गई।
शेष खाता बकलमूर।

जमाबन्दी (आंशिक प्रतिलिपि)

पत्रक बी-26(बी)

ब्लाक का नाम :-	गारोल	पटवार हल्का	गारोल	भू.बन्दो.नि.केन्द्र	रेवदर	पृष्ठ संख्या	2 of 2
तहसील :-	रेवदर	जिला :-	सिरोही	दिनांक :-	01/04/2013		
सम्वत :-	2066 - 2071	वास्तविक सम्वत :-	2068				
क्षेत्रफल :-	बीघा-बिस्वा						

क्षेत्रफल(रकबेनी)		भूमि धारक का नाम	खातेदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि क्यों या विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

* बकाया छोड़े हेतु उक्त नामान्तरण पोष प्रक्रिया में है।

प्रतिलिपि शुल्क: 20/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक 14/05/2012 तक के समस्त परिवर्तन समाविष्ट कर दिये गये है।

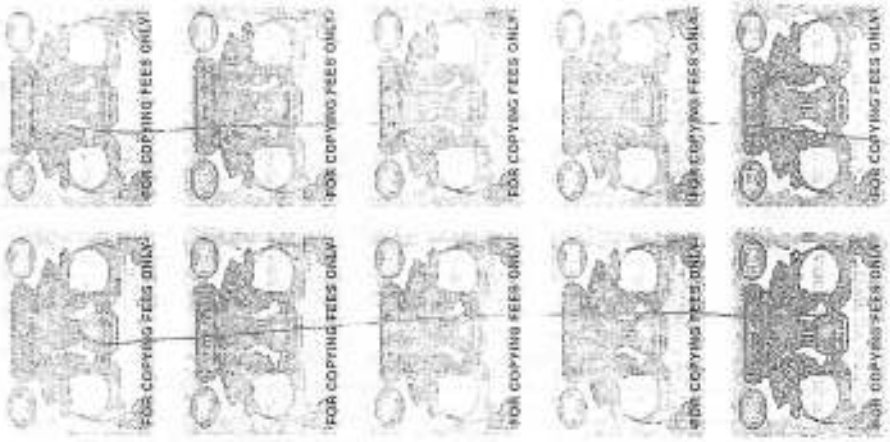
प्रतिलिपि क्रमांक:- 1903407-4859

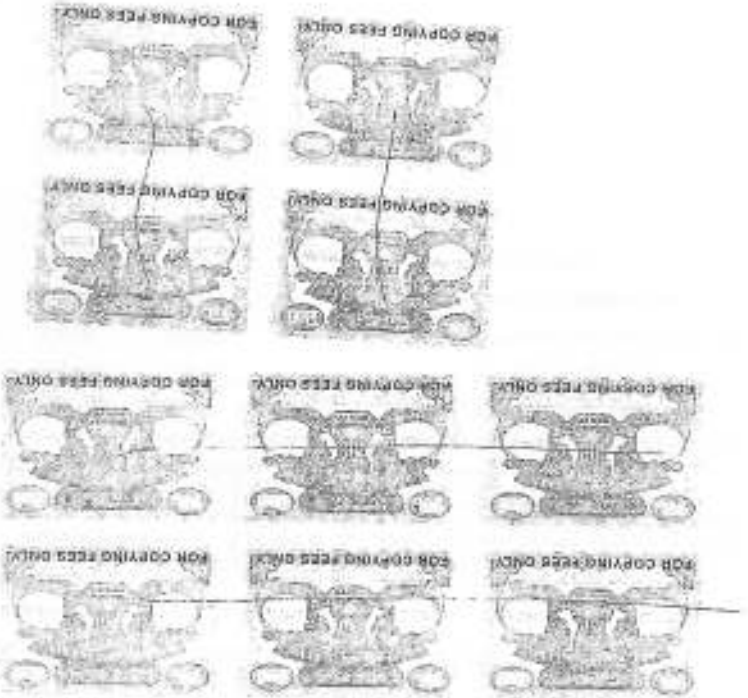
प्रतिलिपि जारी करने का दिनांक- 01/04/2013

मूल्य प्रतिलिपि 15 दिनांक 1.4.13
प्रतिलिपि रजिस्टर क्रमांक
अपना हस्ताक्षर मोहर से जारी एवं सत्यापित प्रति
प्रभारी अपना खाता नेम्बर

तहसील रेवदर

एस.डी.ओ. भटवाडा
सहायक कलक्टर





जमाबन्दी (आंशिक प्रतिलिपि)

प्रपत्र पी.आर(बी)

ग्राम का नाम :- मारोल | पटवार हल्का :- मारोल | भू.अभि.नि.क्षेत्र :- रेलवर | पृष्ठ संख्या 2 of 2

तहसील :- रेलवर | जिला :- सिरोही | दिनांक :- 01/04/2013

सम्वत :- 2068 - 2071 | वास्तविक सम्वत :- 2068

क्षेत्रफल :- बीघा-बिस्वा

खेत/खलोनी		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		तामील का आदेश सं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि हस्तांतरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

पै.भू.गाखा 43-04

* कोष्ठकों में दी गई प्रविष्टियाँ काटने योग्य हैं।

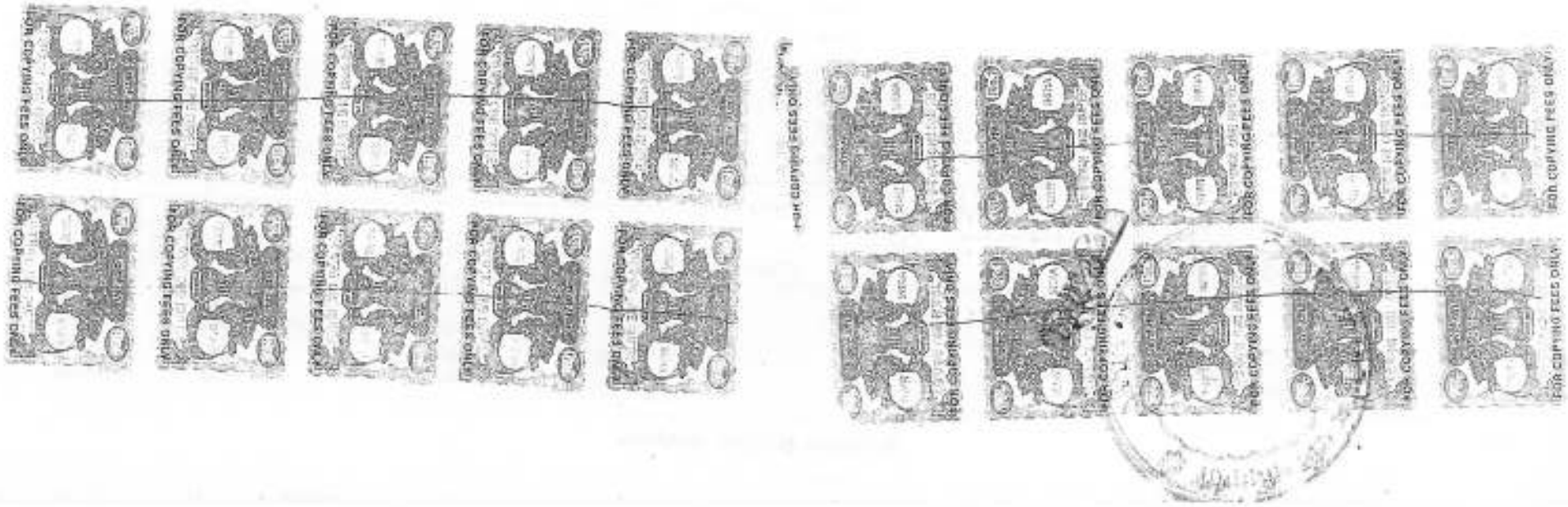
प्रतिलिपि शुल्क: 20/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक 14/05/2013 तक के समस्त परिवर्तन समाविष्ट कर दिये गये हैं।

प्रतिलिपि क्रमांक:- 1903407-4657

प्रतिलिपि जारी करने का दिनांक- 01/04/2013

सत्य प्रतिलिपि
दिनांक 15 महीना 4 13
तहसीलदार रेलवर
प्रभारी,भूमि अभिलेख केन्द्र



जमाबन्दी (आंशिक प्रतिलिपि)

परपत्र पी-26(बी)

ग्राम का नाम :- पीठण | पटवार हल्का :- मारोल | उ.अधि.वि.क्षेत्र :- रेवदर | पृष्ठ संख्या 1 of 1

तहसील :- रेवदर | जिला :- सिरोही | दिनांक :- 01/04/2013

सम्वत :- 2066 - 2069 | वास्तविक सम्वत :- 2066

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	रूपान्तरण आदेश सं. तथा तारीख	भूमि अथवा विशिष्टियाँ जिनके पक्ष में भूमि अन्तरित हुई	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज. सरकार	जोदमाँ तथा गाम (चारागाह तेा)	11	9-14	नक्शा	9-14						
				81	3-14	नक्शा	3-14						
				96	2-07	नक्शा	2-07						
				118	3-18	नक्शा	3-18						
				119	8-02	नक्शा	8-02						
				132	7-18	नक्शा	7-18						
				201	1-04	नक्शा	1-04						
				210	1-10	नक्शा	1-10						
				242	4-06	नक्शा	4-06						
				246	5-09	नक्शा	5-09						
				249	4-15	नक्शा	4-15						
				266	2-10	नक्शा	2-10						
				267	45	नक्शा	45						
				340	39	नक्शा	39						

कुल खसरा : 14 | कुल क्षेत्रफल : 139-02 | पूर्वे प्रकार के अनुसार क्षेत्रफल

नक्शा 84

नक्शा 55-02

कुल

कुल खसरा : 14 | कुल क्षेत्रफल : 139-02 | पूर्वे प्रकार के अनुसार क्षेत्रफल

नक्शा 84

नक्शा 55-02

प्रतिलिपि शुल्क 10/-

प्रमाणित किया जाता है कि यह प्रतिलिपि में दिनांक 14/05/2012 तक के नवीनतम परिवर्तन समाविष्ट कर दिये गये हैं।

प्रतिलिपि क्रमांक:- 1903353-698

प्रतिलिपि जारी करने का दिनांक:- 01/04/2013

यह प्रतिलिपि
प्रतिलिपि रजिस्टर क्रमांक 16 पृष्ठ 1-3/13
तक, जहां तक मेरे को ज्ञानी एवं जानकारी रही।

तहसील रेवदर

उप.खण्ड अ. रेवदर
जिला, सिरोही

जमाबन्दी (आंशिक प्रतिलिपि)

प्रपत्र पी-26(बी)

ग्राम का नाम :-	करौंदी	पटवार हल्का	सुगौल	भू.बन्धि.नि.क्षेत्र	बलावरा	पृष्ठ संख्या	1 of 2
तहसील :-	रेवदर	जिला :-	सिरोही	दिनांक :-	01/04/2013		
सम्वत :-	2065 - 2068	वास्तविक सम्वत :-	2065				
क्षेत्रफल :-	बीघा-बिस्वा						

खेत.(खतौनी)		भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1	राव.	नालेयाँ तथा नाले (पाराबाड़ हेतु)		1	78-17	नदी	78-17						
	बलावर			35	4-14	नाला	4-14						
				61	24-16	नाला	24-16						
				72	2-06	नाला	2-06						
				102	1-11	नाला	1-11						
				105	1	नाला	1						
				112	1-05	नाला	1-05						
				114	3	नाला	3						
				127	5-16	नाला	5-16						
				146	1-17	नाला	1-17						
				169	4-03	नाला	4-03						
				171	1-15	नाला	1-15						
				173	0-10	नाला	0-10						
				184	2-17	नाला	2-17						
				210	11-08	नाला	11-08						
				212	2-08	नाला	2-08						
				217	3-14	नाला	3-14						
			कुल खसरा : 17		कुल क्षेत्रफल : 151-17	भूमि प्रकार के अनुसार क्षेत्रफल							
						नदी	78-17						
						नाला	73						
कुल:			कुल खसरा : 17		कुल क्षेत्रफल : 151-17	भूमि प्रकार के अनुसार क्षेत्रफल							
						नदी	78-17						
						नाला	73						



जमाबन्दी (आंशिक प्रतिलिपि)

परिशिष्ट ग-26(डी)

ग्राम का नाम :- निम्बोरा
तहसील :- रेवदर
सम्वत :- 2067 - 2070
क्षेत्रफल :- बीघा-बिस्वा

पटवार हल्का :- गारोल
जिला :- सिरोही
वास्तविक सम्वत :- 2067

उ.अति.नि.क्षेत्र :- रेवदर
दिनांक :- 01/04/2013

पृष्ठ संख्या 1 of 1

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	भूमिधारक का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	भारसाधक अधिकार, आदेश व तारीख	भूमि और किसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
1	एक सरकार		नदियाँ तथा नाले (खातमाड़ हेतु)	1	38-10	वे.यु.नदी	38-10					
				1/531	144-11	वे.यु.नदी	144-11					
			कुल खसरा : 2		कुल क्षेत्रफल : 183-01	भूमि प्रकार के अनुसार क्षेत्रफल वे.यु.नदी 183-01						
कुल:			कुल खसरा : 2		कुल क्षेत्रफल : 183-01	भूमि प्रकार के अनुसार क्षेत्रफल वे.यु.नदी 183-01						

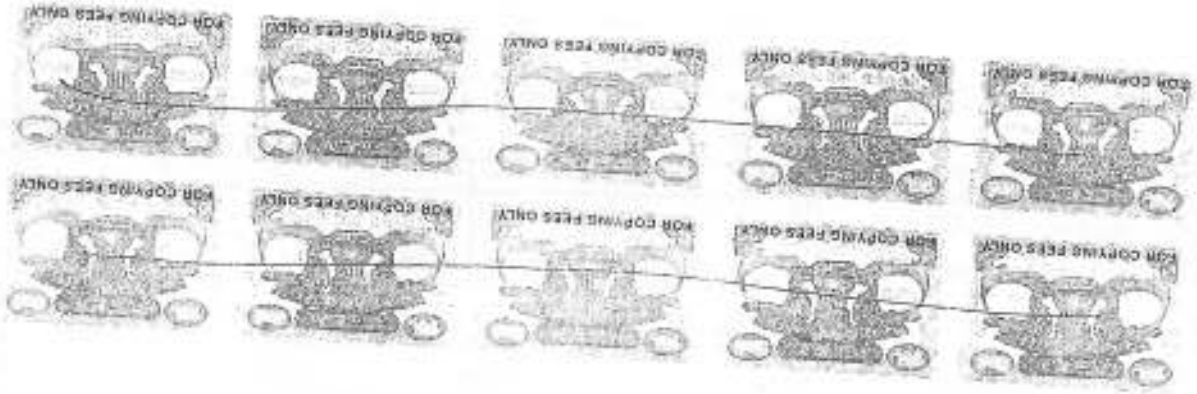
प्रतिलिपि शुल्क: 10/-

प्रमाणित किया जाता है कि इस प्रतिलिपि के दिनांक 14/03/2012 तक के समस्त परिवर्तन समाविष्ट कर दिये गये हैं।

प्रतिलिपि क्रमांक 1903383-4662

प्रतिलिपि जारी करने का दिनांक 01/04/2013

सहायक रेवदर



जमाबन्दी (आंशिक प्रतिलिपि)

फारम नं.-2क(ब)

ग्राम का नाम :- राजबज | पटवार हल्का :- सुगौली | भू.अभि.नि.क्षेत्र :- बलाहरा | पृष्ठ संख्या 1 of 1

तहसील :- रेवदर | जिला :- सिरोही | दिनांक :- 01/04/2013

सम्वत :- 2067 - 2070 | वास्तविक सम्वत :- 2067

क्षेत्रफल :- बीघा-बिस्वा

क्षेत्र(खतौनी) नया	पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि व्यौरा विसिहियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
1		राज्य सरकार	पगडियाँ तथा नाले (पारागाह हेतु)	35	9-01	गै.मु.बारानी	9-01					
				35/267	5-18	गै.मु.नाला	5-18					
				36	3-02	गै.मु.नाला	3-02					
				38	0-19	गै.मु.नाला	0-19					
				40	9-02	गै.मु.नाला	9-02					
				50	5-19	गै.मु.नाला	5-19					
				84/268	133	गै.मु.नदी	133					
			कुल खसरा : 7		कुल क्षेत्रफल : 167-01	भूमि प्रकार के अनुसार क्षेत्रफल						
						गै.मु.नदी	133					
						गै.मु.नाला	34-01					
			पगडोंडा तथा रास्ते (पारागाह के लिए नहीं)	282	78-15	नदी	78-15					
			कुल खसरा : 1		कुल क्षेत्रफल : 78-15	भूमि प्रकार के अनुसार क्षेत्रफल						
						नदी	78-15					
कुल:			कुल खसरा : 8		कुल क्षेत्रफल : 245-16	भूमि प्रकार के अनुसार क्षेत्रफल						
						नदी	78-15					
						गै.मु.नदी	133					
						गै.मु.नाला	34-01					

प्रतिलिपि शुल्क: 10/-

प्रमाणित किया जाता है कि यह प्रतिलिपि मे दिनांक तक के समस्त परिवर्तन समाविष्ट कर दिये गये है।

प्रतिलिपि क्रमांक:- 1903375-4865

प्रतिलिपि जारी करने का दिनांक- 01/04/2013

प्रतिलिपि प्राप्त हुई दिनांक 1-4-13

आवेदक व्यक्ति को जारी एवं डाकघर में डाक हेतु दिनांक 1-4-13

पटवारी/कानूनगो/लिपिक रेवदर

तह.गिर्दा. पालड़ी मालानी, रेवदर

जमाबन्दी (आंशिक प्रतिलिपि)

पत्रक बी-26(अ)

ग्राम का नाम :- कलौटी | पटवार हल्का :- सुभौज | भू.प्र.नि.क्षेत्र :- अलावरा | पृष्ठ संख्या 2 of 2

तहसील :- रेवाड़ी | जिला :- गिरोहड़ी | दिनांक :- 01/04/2013

वर्ष :- 2065 - 2068 | वास्तविक वर्ष :- 2065

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान एकम	नामान्तरण खाता नं. तथा तारीख	भूमि सम्बन्धी विशिष्टियाँ जिनके पक्ष में भूमि बन्धारित है	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13

प्रतिलिपि शुल्क: 20/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक 05/08/2011 तक के समस्त परिवर्तन समाविष्ट कर दिये गये हैं।

प्रतिलिपि क्रमांक:- 1903326-4983

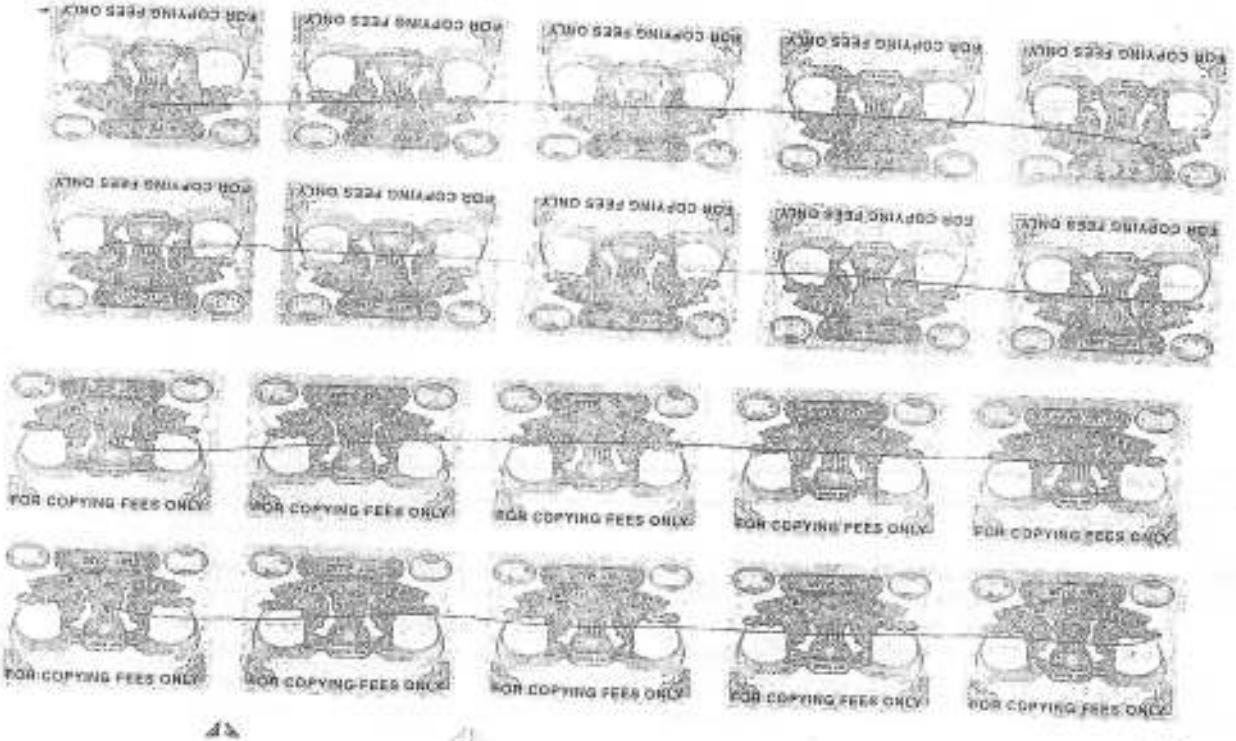
प्रतिलिपि जारी करने का दिनांक 01/04/2013

सहा. कलेक्टर रेवाड़ी

उपखण्ड अधिकारी रजिस्टर क्रमांक 18 दिनांक 1-4-13

आपकी सेवा हेतु यह प्रति एवं प्रमाणित प्रति।

उप.खण्ड.अ. रेवाड़ी
तहसील, रेवाड़ी



जमाबन्दी (आंशिक प्रतिलिपि)

ग्राम का नाम :- लूणोल पटवार हल्का लूणोल भू.अभि.नि.केन्द्र बगदरा पृष्ठ संख्या 1 का 2

तहसील :- रेवदर जिला :- सिरोही दिनांक :- 01/04/2013

वर्ष :- 2068 - 2071 वास्तविक सम्वत :- 2068

क्षेत्रफल :- बीघा-बिस्वा

खेड़ा(वर्तमान)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि व्यौरा जिसका पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1		राज. सरकार	नाडेयों तथा नालों (भारतमाल हेतु)	14/922	0-12	गै.मु.नाला	0-12					
				96/972	101-11	नदी	101-11					
				133	43	गै.मु.नाला	43					
				134	6-01	गै.मु.नाला	6-01					
				157	0-12	गै.मु.नाला	0-12					
				159	1-12	गै.मु.नाला	1-12					
				164	0-18	गै.मु.नाला	0-18					
				202/959	9-19	नदी	9-19					
				368	0-04	गै.मु.नाला	0-04					
				402	0-02	गै.मु.नाला	0-02					
				416	2	गै.मु.नाला	2					
				550	11-01	गै.मु.नाला	11-01					
				560	2-15	गै.मु.नाला	2-15					
				604	5-03	गै.मु.नाला	5-03					
				612	18-07	गै.मु.नाला	18-07					
				613	17-12	गै.मु.नाला	17-12					
				662	2-03	गै.मु.नाला	2-03					
				736	8-05	गै.मु.नाला	8-05					
				757	8-14	गै.मु.नाला	8-14					
				736	40-17	गै.मु.नाला	40-17					
				842	21-16	गै.मु.नाला	21-16					
				855	10-09	गै.मु.नाला	10-09					
				866	1-14	गै.मु.नाला	1-14					
				870/863	4-19	गै.मु.नाला	4-19					
				873	1-10	गै.मु.नाला	1-10					

कुल खातदार : 25 कुल क्षेत्रफल : 321-16 शासन सचिव के अनुसार क्षेत्रफल

जमाबन्दी (आंशिक प्रतिलिपि)

फार्म पी-36(बी)

पृष्ठ संख्या 2 of 2

ग्राम का नाम :- तुमोल
तहसील :- रेवर
वर्ष :- 2068 - 2071
खेतफल :- बीघा-बिस्वा

पटवार हल्का तुमोल
जिला :- सिरोही
वास्तविक वर्ष :- 2068

भू.प्रबं.नि.बोर्ड बनादरा
दिनांक :- 01/04/2013

खेसरा(खसरा नंबर)		भूमि धारक का नाम	धारणकर्ता का नाम	खसरा नंबर	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		सामान्तरण आदेश सं. तथा तारीख	भूमि क्षति विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हुई	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

कुल

कुल खातेदार : 25 कुल क्षेत्रफल : 321-16 भूमि प्रकार के अनुसार क्षेत्रफल

तरी 111-10

बे.सु.नाला 210-06

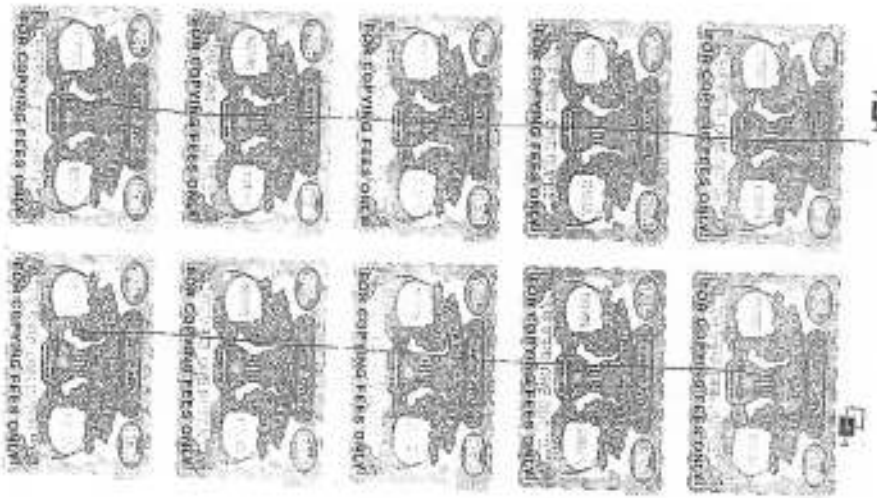
प्रतिलिपि शुल्क: 20/-

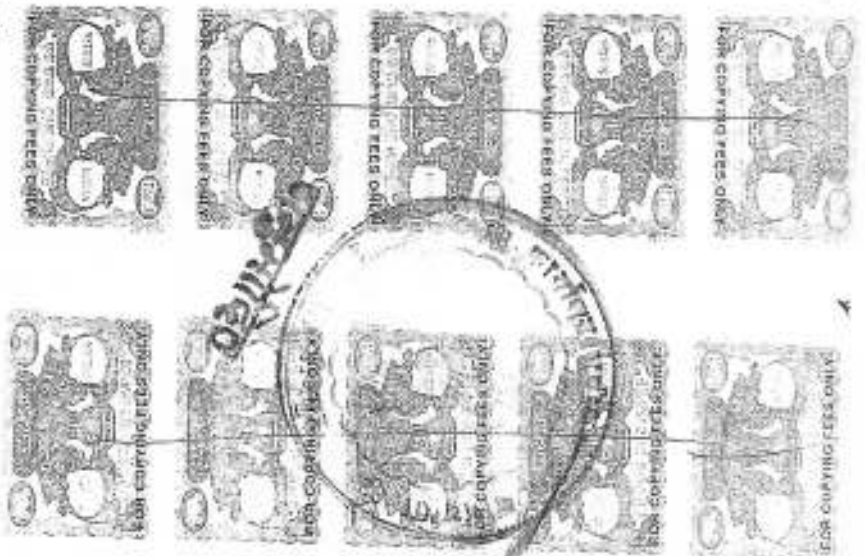
प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक तक के क्रमवार परिवर्तन सम्मिलित कर दिये गये हैं।

प्रतिलिपि क्रमांक:- 1903394-4867

प्रतिलिपि जारी करने का दिनांक 01/04/2013

कार्यालय रेवर





जमाबन्दी (आंशिक प्रतिलिपि)

ग्राम का नाम :- पैलाना | पटवार हल्का :- बवानी | भू.प्र.नि.क्षेत्र :- बनादरा | पृष्ठ संख्या :- 1 से 2

तहसील :- रेवदर | जिला :- सिरोही | दिनांक :- 01/04/2013

सम्वत :- 2068 - 2071 | वास्तविक सम्वत :- 2068

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	कारणकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1	राज. सरकार	नाडेयां हवा नाले (चारागाह हेतु)		308	0-18	गै.मु.नाला	0-18				नामा. स.: 1159 - सि.रे.		
				325	0-11	गै.मु.नाला	0-11				14/09/2011 - कायदन के द्वारा ख.न.		
				327	3-14	गै.मु.नाला	3-14				2 वेरो कायदन होने से ख.न. 2/1225		
				328/1439	0-08	गै.मु.नाला	0-08				रकबा 1.00 बीघा कर के लिखा गया		
				330/1422	0-08	गै.मु.नाला	0-08				बदावरा		
				333	4-11	गै.मु.नाला	4-11						
				343/1301	0-03	गै.मु.नाला	0-03						
				348	3-16	गै.मु.नाला	3-16						
				360	1-09	गै.मु.नाला	1-09						
				403/1359	1-12	गै.मु.नाला	1-12						
				403/1360	0-14	गै.मु.नाला	0-14						
				404	21-03	गै.मु.नाला	21-03						
				406	17-05	गै.मु.नदी	17-05						
				407	18-10	गै.मु.नदी	18-10						
				408	6-17	गै.मु.नदी	6-17						
				409	5-10	गै.मु.नदी	5-10						
				410	19-18	गै.मु.नदी	19-18						
				411	17-10	गै.मु.नदी	17-10						
				416	1-08	गै.मु.नाला	1-08						
				445	5-17	गै.मु.नाला	5-17						
				447	2-09	गै.मु.नाला	2-09						
				531	4-05	गै.मु.नाला	4-05						
				532	1	गै.मु.नाला	1						
				533	4-16	गै.मु.नाला	4-16						
				534	1-19	गै.मु.नाला	1-19						
				535	0-18	गै.मु.नाला	0-18						
				567	58-15	गै.मु.नदी	58-15						



ग्राम का नाम :- खापोज | पटवार हल्का :- दबाली | भू.अभि.नि.क्षेत्र :- मनादरा | पृष्ठ संख्या 1 of 1

तहसील :- रेवदर | जिला :- सिरोही | दिनांक :- 01/04/2013

वर्गीकरण :- बीघा-बिस्वा

वर्ष :- 2067 - 2070 | वास्तविक वर्ष :- 2067

क्षेत्र(खसरो) नया	क्षेत्र(खसरो) पुराना	भूमि धारक का नाम	पत्रवाचक का नाम	खसरा नंबर	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि अथवा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
1		राज. सरकार	जोहेमों बचा नाले (पाराचाड़ हेतु)	16	23-02	कै.सुनसी	23-02					
				17	11-12	कै.सुनसी	11-12					
				19	128-15	कै.सुनसी	128-15					
				20	81-05	कै.सुनसी	81-05					
				21	22-05	कै.सुनसी	22-05					

कुल खसरा : 5 | कुल क्षेत्रफल : 264-19 | भूमि प्रकार के अनुसार क्षेत्रफल

कै.सुनसी 264-19

कुल : कुल खसरा : 5 | कुल क्षेत्रफल : 264-19 | भूमि प्रकार के अनुसार क्षेत्रफल

कै.सुनसी 264-19

पोर्टलबोर्ड कुल्क: 104-

प्रमाणित किया जाता है कि इस प्रतिलिपि में लिखा [illegible] एक के सामने परिभाषित समाविष्ट कर दिये गये हैं)

पोर्टलबोर्ड क्रमांक :- 1803365-4068

पोर्टलबोर्ड जारी करने का दिनांक- 01/04/2013

अतिरिक्त पृष्ठ प्रतिलिपि 2-1 दिनांक 1/4/13

अपना जनता केन्द्र से मांगी गई सामग्री प्रति :

प्रभारी,अपना सेवा केन्द्र

सहायक रेवदर

वि.अधि.नि. पालनपुर

शिविर, रेवदर



जमाबन्दी (खंशिक प्रतिलिपि)

फार्म बी-26(सी)

ग्राम का नाम :-	पिंजराडा	पटवार हल्का	धनली	भू.प्रबि.नि.सेल	अबादरा	पृष्ठ संख्या	2 of 2
तहसील :-	रेवदर	जिला :-	सिरोही	दिनांक :-	01/04/2013		
सम्वत :-	2068 - 2071	वास्तविक सम्वत :-	2068				
क्षेत्रफल :-	बीघा-बिस्वा						

खेवट(खतौनी)		भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		तामलातरण आदेश सं. एवं तारीख	भूमि अथवा विशिष्टियों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नम्बर	पुरतान								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (सवड़ा)	राज			186	0-06	बे.सु.नाला	0-06						
	सरकार			216	0-10	बे.सु.नाला	0-10						
				248	4-05	बे.सु.नाला	4-05						
				256	6-09	बे.सु.नाला	6-09						
				257	5-10	बे.सु.नाला	5-10						
				259	0-13	बे.सु.नाला	0-13						
				265	0-17	बे.सु.नाला	0-17						
				271	1-05	बे.सु.नाला	1-05						
				273	2-16	बे.सु.नाला	2-16						
				278	0-07	बे.सु.नाला	0-07						
				282	2-04	बे.सु.नाला	2-04						
				284	1-09	बे.सु.नाला	1-09						
				292	4-04	बे.सु.नाला	4-04						
			कुल खसरा : 43		कुल क्षेत्रफल : 177-10	ग्राम पवार के अनुसार क्षेत्रफल							
						बे.सु.नाला	177-10						
कुल:			कुल खसरा : 43		कुल क्षेत्रफल : 177-10	ग्राम पवार के अनुसार क्षेत्रफल							
						बे.सु.नाला	177-10						

प्रतिलिपि शुल्क: 20/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक तक के समस्त परिवर्तन समाविष्ट कर दिये गये हैं

प्रतिलेख कमांक:- 1903619-4872

प्रतिलेख जारी करने का दिनांक- 01/04/2013

प्रतिलिपि लिपिक कमांक 22 दिनांक 1/4/13
कार्यालय तहसीलदार से कार्य हेतु आवंटित की।
हस्ताक्षर
पदनाम रेवदर

हस्ताक्षर
पदनाम
तहसील, रेवदर

ग्राम का नाम :-	सैलवाडा	पटवार हल्का	डबानी	भू.अभि.नि.सेल	अजाहरा	पृष्ठ संख्या	1	of	2
तहसील :-	रेवदर	जिला :-	सिरोही	दिनांक :-	01/04/2013				
संवत :-	2068 - 2071	वास्तविक संवत :-	2068						
क्षेत्रफल :-	बीघा-बिस्वा								

खेड़ा(आबादी)		भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि अौर विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1	छप.	नादेवी तथा गले (चारणगढ़ हो)		4	9-01	बे.मु.नाला	9-01				नामा. सं.: 1150 दि.16.		
	सरकार			5	1-05	बे.मु.नाला	1-05				14/09/2011 - आदेश के द्वारा ब.ग.		
				6	1-18	बे.मु.नाला	1-18				2 गांव जागल होने के ब.ग. 2/1235		
				10	11-12	बे.मु.नाला	11-12				रकबा 1.00 सोचर वर्ड विभाग द्वा		
				16	4-08	बे.मु.नाला	4-08				बकखरा		
				17	1-15	बे.मु.नाला	1-15						
				35	0-07	बे.मु.नाला	0-07						
				46	7-17	बे.मु.नाला	7-17						
				56/1280	0-19	बे.मु.नाला	0-19						
				57	0-17	बे.मु.नाला	0-17						
				65	12-12	बे.मु.नाला	12-12						
				66	13	बे.मु.नाला	13						
				71	3-05	बे.मु.नाला	3-05						
				77	9-09	बे.मु.नाला	9-09						
				79	11-05	बे.मु.नाला	11-05						
				83/1523	5-05	बे.मु.नाला	5-05						
				84	2-11	बे.मु.नाला	2-11						
				85/1236	0-08	बे.मु.नाला	0-08						
				88	22-03	बे.मु.नाला	22-03						
				94	0-08	बे.मु.नाला	0-08						
				95/1447	3-18	बे.मु.नाला	3-18						
				96	2-18	बे.मु.नाला	2-18						
				123	0-11	बे.मु.नाला	0-11						
				138	0-10	बे.मु.नाला	0-10						
				141	0-05	बे.मु.नाला	0-05						
				143	0-14	बे.मु.नाला	0-14						
				151	3-07	बे.मु.नाला	3-07						
				173	1-01	बे.मु.नाला	1-01						
				174	9-12	बे.मु.नाला	9-12						
				185	4-05	बे.मु.नाला	4-05						

जमाबन्दी (आंशिक प्रतिलिपि)

राज. सी.-26(सी)

ग्राम का नाम :- वेलावा | पटवार हल्का :- डबाणी | भू.प्र.नि.क्षेत्र :- बलादरा | पृष्ठ संख्या 1 of 2

तहसील :- रेवदर | जिला :- सिरोही | दिनांक :- 01/04/2013

वर्ष :- 2068 - 2071 | वास्तविक वर्ष :- 2068

क्षेत्रफल :- बीघा-बिस्वा

खेत(खसरा) नया	खेत(खसरा) पुराना	भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		लिखाई के साधन	लगान दर	लगान रकम	सामान्यतया आदेश नं. तथा तारीख	भूमि व्यौरा विशिष्टियों जिनके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज. सरकार	गोचरी तथा नाले (चारागाह हेतु)	858	2-06	गै.मु.नाला	2-06				नामा. प्र.: 1159 - नि.रे.;		
				860	0-06	गै.मु.नाला	0-06				14/09/2011 - आदेश के द्वारा ख.न		
				864	0-14	गै.मु.नाला	0-14				2 गांव खातदार होने के ख.न. 2/1235		
				866	5-17	गै.मु.नाला	5-17				रकबा 1.00 मीटर ऊंचे किनारा क्षेत्र		
				868	1-01	गै.मु.नाला	1-01				बदलगा		
				877	1-08	गै.मु.नाला	1-08						
				886	2-05	गै.मु.नाला	2-05						
				892	0-09	गै.मु.नाला	0-09						
				895	3-15	गै.मु.नाला	3-15						
				897	5-07	गै.मु.नाला	5-07						
				900	0-09	गै.मु.नाला	0-09						
				929	20-07	गै.मु.नाला	20-07						
				933	1-17	गै.मु.नाला	1-17						
				943	0-18	गै.मु.नाला	0-18						
				955	0-13	गै.मु.नाला	0-13						
				958	0-09	गै.मु.नाला	0-09						
				975	10-06	गै.मु.नाला	10-06						
				983	0-14	गै.मु.नाला	0-14						
				993	10-02	गै.मु.नाला	10-02						
				997	0-07	गै.मु.नाला	0-07						
				1016	9-05	गै.मु.नाला	9-05						
				1025	1-12	गै.मु.नाला	1-12						
				1032	5-11	गै.मु.नाला	5-11						
				1040	13	गै.मु.नाला	13						
				1049	7-18	गै.मु.नाला	7-18						
				1060	3-03	गै.मु.नाला	3-03						
				1083	0-17	गै.मु.नाला	0-17						

ग्राम का नाम :-	सेमचाडा	पटवार हल्का	दवली	भू.अभि.नि.क्षेत्र	बनादरा	पृष्ठ संख्या	2 of 2
तहसील :-	रेवाड़	जिला :-	रिवाड़ी	दिनांक :-	01/04/2013		
वर्ष :-	2068 - 2071	वास्तविक वर्ष :-	2068				
क्षेत्रफल :-	बीघा-बिस्वा						

खेत(कनोती)		भूमि धारक का नाम	कारकुन का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		विवाई के योग्य	भाग		पारस्परिक आदेश व तथा तारीख	भूमि और मिलिटियों जिसके पक्ष में भूमि कन्वेयित है)	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (अवर्षर)		राज.		772	1-08	बे.सु.सखरा	1-08						
		सरकार		777	0-19	बे.सु.सखरा	0-19						
				782	5-03	बे.सु.सखरा	5-03						
				804	8-14	बे.सु.सखरा	8-14						
				809	0-08	बे.सु.सखरा	0-08						
				814	0-10	बे.सु.सखरा	0-10						
				817	7-06	बे.सु.सखरा	7-06						
				835	3-07	बे.सु.सखरा	3-07						
				839	0-09	बे.सु.सखरा	0-09						
				847	3-17	बे.सु.सखरा	3-17						
			कुल खसरा : 40		कुल क्षेत्रफल : 261-19	कुल सकार के अनुसार क्षेत्रफल							
						बे.सु.सखरा	144-05						
						बे.सु.सखरा	117-14						
कुल			कुल खसरा : 40		कुल क्षेत्रफल : 261-19	कुल सकार के अनुसार क्षेत्रफल							
						बे.सु.सखरा	144-05						
						बे.सु.सखरा	117-14						

प्रमाणित कृपया 20/

प्रमाणित किया जाता है कि इस प्रतिलिपि में विवरण [illegible] के समस्त परिवर्तन प्रमाणित कर दिये गये हैं।

प्रमाणीकरण कमांक :- 1903419-4875

प्रमाणीकरण जारी करने का दिनांक :- 01/04/2013

कार्यालय तहसीलदार रेवाड़ी
दिनांक 22/1/13
[illegible]

तहसीलदार रेवाड़ी

उप.अधि.(सी.) पटवार
तहसील, रेवाड़ी

जमाबन्दी (आंशिक प्रतिलिपि)

प्रपत्र पी-26(डी)

ब्लाक का नाम :-	सेमलवारा	पटवार हल्का	बरानी	भू.अभि.वि.क्षेत्र	बनादरा	पृष्ठ संख्या	2 01 2
तहसील :-	पिंडवर	जिला :-	सिरोही	दिनांक :-	01/04/2013		
सम्वत :-	2068 - 2071	वास्तविक सम्वत :-	2068				
क्षेत्रफल :-	बीघा-बिस्वा						

खेवट(अतीनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (सबकुछ)	राज. सरकार			1091	1-04	वे.सु.नाला	1-04					
				1092	1-07	वे.सु.नाला	1-07					
				1094	8-01	वे.सु.नाला	8-01					
				1097	0-16	वे.सु.नाला	0-16					
				1098	0-13	वे.सु.नाला	0-13					
				1110	6-08	वे.सु.नाला	6-08					
				1113	2-11	वे.सु.नाला	2-11					
				1128	3-13	वे.सु.नाला	3-13					
			कुल खसरा : 38		कुल क्षेत्रफल : 137-09	भूमि प्रकार के अनुसार क्षेत्रफल						
						वे.सु.नाला	137-09					
कुल:			कुल खसरा : 38		कुल क्षेत्रफल : 137-09	भूमि प्रकार के अनुसार क्षेत्रफल						
						वे.सु.नाला	137-09					

प्रतिलिपि शुल्क: 20/-

प्रमाणित किया जाता है कि यह प्रतिलिपि से लिपिक द्वारा सम्पूर्ण तथा सही तैयार की गई है।

प्रतिलिपि क्रमांक:- 1903419-4677

प्रतिलिपि जारी करने का दिनांक- 01/04/2013



मूल प्रतिलिपि
दिनांक 22/04/13 को जारी की गई।

तहसीलदार
सेमलवारा, डेक्ट

प्रपत्र पी-26(बी)

ग्राम का नाम :-	नीमवाडा	पटवार हल्का	बवाणी	भू.अभि.नि.सेल	बवाडरा	पृष्ठ संख्या	1 of 1
तहसील :-	रेवदर	जिला :-	सिरोही	दिनांक :-	01/04/2013		
वर्ष :-	2068 - 2071	वास्तविक वर्ष :-	2068				
खेरपत्ता :-	बोया-बेरवा						

खेत(अधोनी) नया	खेत(अधोनी) पुराना	भूमि धारक का नाम	कारणकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि अथवा विशिष्टियों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
1		रजा सरकार	गोचरी तथा गावे (चारागाह हेतु)	1082	57-12	पी.कुनवी	57-12			रामा. स.:-1159 - सिरोहि.: 14/09/2011 - कलेक्टर के द्वारा ख.न. 2 पर से खसरो होने से ख.न. 2/1235 रकबा 1.00 बीघर वर्ग बिघा जोप बवाडरा		

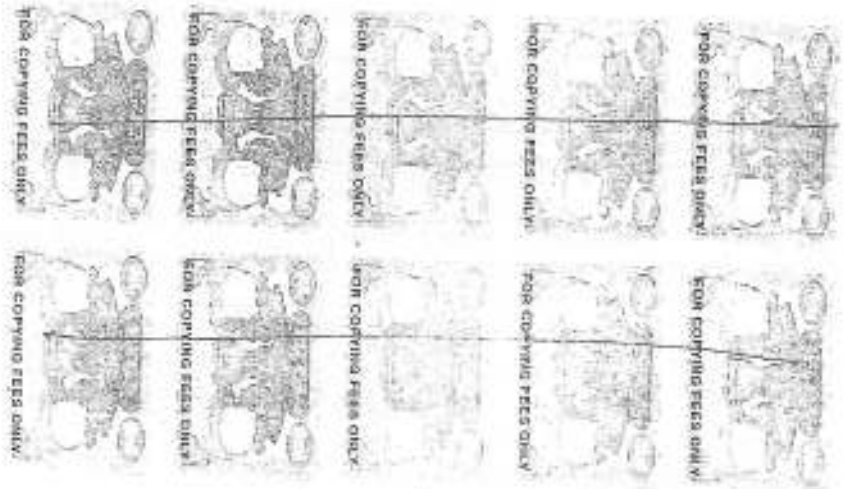
कुल खसरा : 1 कुल क्षेत्रफल : 57-12 भूमि प्रकार के अनुसार रकबा
पी.कुनवी 57-12

कुल: कुल खसरा : 1 कुल क्षेत्रफल : 57-12 भूमि प्रकार के अनुसार रकबा
पी.कुनवी 57-12

प्रतिलिपि क्रमांक :00-
प्रमाणित किया जाता है कि इस प्रतिलिपि में निम्न तक के समस्त परिवर्तन समाविष्ट कर दिये गये है

प्रतिलिपि क्रमांक:- 19034 19-4892

प्रतिलिपि जारी करने का दिनांक:- 01/04/2013



सत्य प्रतिलिपि
प्रतिलिपि रजिस्टर क्रमांक 2-2 दिनांक... 1/4/13
अन्य कार्य हेतु ही जारी की गई।

सहायक रेवदर

एस.आर.सी. पंवार
सहायक, रेवदर

जमाबन्दी (आंशिक प्रतिलिपि)

ग्राम का नाम :- डाभन | पटवार हल्का :- पोसीचरा | भू.बंदो.नि.क्षेत्र :- अजारा | पृष्ठ संख्या 2 of 2

तहसील :- रेवदर | जिला :- सिरोही | दिनांक :- 01/04/2013

वर्ष :- 2067 - 2070 | वास्तविक वर्ष :- 2067

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	परिवार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
1 (मनकूत)		राज. सरकार		1205	3-18	वे.सूनाबा	3-18					
				1208	14-03	वे.सूनाबा	14-03					
				1208	3-02	मे.सूनाबा	3-02					
				1209	4-08	गै.सूनाबा	4-08					
				1211	4-02	गै.सूनाबा	4-02					
				1289	1-18	वे.सूनाबा	1-18					
			कुल खसरा : 30		कुल क्षेत्रफल : 588-15	भूमि प्रकार के अनुसार क्षेत्रफल						
						गै.सूनाबी	442					
						वे.सूनाबा	146-15					
कुल:			कुल खसरा : 31		कुल क्षेत्रफल : 589-16	भूमि प्रकार के अनुसार क्षेत्रफल						
						वे.सूनाबी	442					
						गै.सूनाबा	146-15					
						गै.सूपाल	1-01					

प्रतिलिपि शुल्क: 20/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक 09/05/2011 तक के समस्त परिवर्तन समाविष्ट कर दिये गये हैं

प्रतिलिपि क्रमांक:- 1903359-4890

प्रतिलिपि जारी करने का दिनांक- 01/04/2013



इस प्रतिलिपि [illegible] 23 दिनांक 1-4-13 को केन्द्र से जारी की गयी।

[illegible] सेवा केन्द्र

सह.अजारा, भाखरी

तहसील, रेवदर

ग्राम का नाम :-	हाथन	परगना हल्का	चौगोडरा	भू.अभि.नि.क्षेत्र	अनादरा	पृष्ठ संख्या	1 of 2
तहसील :-	रेवदर	जिला :-	सिरोही	दिनांक :-	01/04/2013		
सम्वत :-	2067 - 2070	वास्तविक सम्वत :-	2067				
खतपत्र :-	बीघा-बिस्वा						

खेड़ा(खतौनी)		भूमि धारक का नाम	खसरा नम्बर	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	जमाबन्दी		नामान्तरण आदेश नं. तथा तारीख	भूमि अथवा विशेषाधिकार जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना						दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12
1	रबा. करकर	भूमि को मुनादी के लिए अनुपलब्ध	557	1-01	गै.मुपाल		1-01				

कुल खसरा : 1 कुल क्षेत्रफल : 1-01 भूमि प्रकार के अनुसार वर्गीकरण

गै.मु.योग 1-01

नालों द्वारा नाले (चारागाह हेतु)	94	0-08	गै.मु.नाला	0-08
	100	0-12	गै.मु.नाला	0-12
	102	0-16	गै.मु.नाला	0-16
	133	10	गै.मु.नाला	10
	162	0-15	गै.मु.नाला	0-15
	167	2-12	गै.मु.नाला	2-12
	169	0-05	गै.मु.नाला	0-05
	237	2-12	गै.मु.नाला	2-12
	244	7-19	गै.मु.नाला	7-19
	342	1-17	गै.मु.नाला	1-17
	375	4-07	गै.मु.नाला	4-07
	403	2-15	गै.मु.नाला	2-15
	476	2	गै.मु.नाला	2
	478	2-15	गै.मु.नाला	2-15
	480	307-02	गै.मु.नदी	307-02
	508	18-07	गै.मु.नदी	18-07
	509	3-14	गै.मु.नदी	3-14
	526	34-17	गै.मु.नाला	34-17
	528	4-05	गै.मु.नाला	4-05
	584	22-14	गै.मु.नाला	22-14
	791	31-05	गै.मु.नदी	31-05
	881	81-12	गै.मु.नदी	81-12
	1117	11-06	गै.मु.नाला	11-06
	1199	2-11	गै.मु.नाला	2-11

जमाबन्दी (आंशिक प्रतिलिपि)

अनुसूची बी-26(बी)

ग्राम का नाम :-	मालवानि	परगना हल्का	दुलाबचंन	पु.अभि.नि.केन्द्र	बनावरा	पृष्ठ संख्या	1 of 1
तहसील :-	रेबरर	जिला :-	सिरोही	दिनांक :-	01/04/2013		
सम्वत :-	2069 - 2072	वास्तविक सम्वत :-	2069				
खेवफल :-	बीघा-बिस्वा						

खेवट(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश सं. तथा तारीख	भूमि और/या सिंचाइयों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1	एवं. सरकार	नदी नाले (चारागाह हेतु)		1	38-11	नदी	38-11						
				16	2-17	नदी	2-17						
				98/1	127-07	नदी	127-07						
				192	34-04	नदी	34-04						
				193	20-14	नदी	20-14						
				256	7-05	नाला	7-05						
				295/784	7-10	नाला	7-10						
				297	0-08	नाला	0-08						
				299	2-05	नाला	2-05						
				302	0-12	नाला	0-12						
				304	1-16	नाला	1-16						
				685	1-05	नाला	1-05						
				669	32-11	नाला	32-11						
				711	1	नाला	1						
				743	1-02	नाला	1-02						

कुल खसरा : 15 कुल क्षेत्रफल : 277-07 भूमि प्रकार के अनुसार क्षेत्रफल

नदी	221-13
नाला	55-14

कुल: कुल खसरा : 15 कुल क्षेत्रफल : 277-07 भूमि प्रकार के अनुसार क्षेत्रफल

नदी	221-13
नाला	55-14

डायरेक्टर कुल्क 10/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक तक के समस्त परिवर्तन समाविष्ट कर दिये गये हैं।

सत्य प्रतिलिपि
प्रतिलिपि दिनांक सम्वत 24 मार्च 12

ग्राम का नाम :- डाकण पटवार हल्का पोसीना पृ.खनि.नि.क्षेत्र बनादरा पृष्ठ संख्या 1 of 1

तहसील :- रेवदर जिला :- सिरोही दिनांक :- 01/04/2013

खसरा :- 2067 - 2070 वास्तविक खसरा :- 2067

क्षेत्रफल :- बीघा-बिस्वा

क्षेत्रफल(बीघोंमें)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	विवादी के साक्षात	जमाबन्दी		नामान्तरण आदेश नं. तथा तारीख	भूमि जो कि निम्नलिखित जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1		राज. सरकार	नदियों तथा नाले (चारागाह हेतु)	737	98-14	गै.मुमकी	98-14					

कुल खसरा : 1 कुल क्षेत्रफल : 98-14 भूमि प्रकार के अनुसार क्षेत्रफल

गै.मुमकी 98-14

कुल कुल खसरा : 1 कुल क्षेत्रफल : 98-14 भूमि प्रकार के अनुसार क्षेत्रफल

गै.मुमकी 98-14

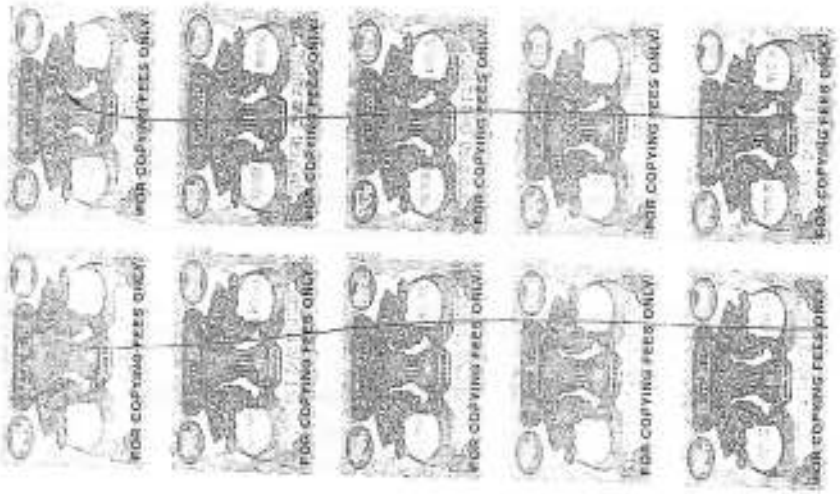
प्रतिलिपि शुल्क: 10/-

प्रमाणित किया जाता है कि यह प्रतिलिपि मे दिनांक 05/08/2011 तक के प्रभाव परिवर्तन प्रमाणित कर दिये गये है।

पटवारमंडल कमांक :- 1903359-0903

प्रतिलिपि जारी करने का दिनांक- 01/04/2013

सहायक रेवदर



जमाबन्दी (आंशिक प्रतिलिपि)

नमूना पी-26(बी)

ग्राम का नाम :- गुलाबगंज | पटवार हल्का :- गुलाबगंज | पु.अ.वि.नि. क्षेत्र :- बनादरा | पृष्ठ संख्या 2 of 2

तहसील :- रेवदर | जिला :- सिरोही | दिनांक :- 01/04/2013

सम्वत :- 2067 - 2070 | वास्तविक क्रमवत :- 2067

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	खातेदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	परिवर्तन आदेश सं. तथा तारीख	भूमि अथवा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हुई	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
			कुल खातेदार : 22		कुल क्षेत्रफल : 333-18	भूमि प्रकार के अनुसार क्षेत्रफल						
						नदी 279-04						
						नाला 54-01						
						रास्ता 0-13						
			पक्षकारों द्वारा दावा (खातेदार के लिए नहीं)	98/1	6-18	नदी 6-18						
				130	6-01	खास बहर 3-05						
						नदी 2-16						
				130/1	11-01	नदी 11-01						
			कुल खातेदार : 3		कुल क्षेत्रफल : 23-16	भूमि प्रकार के अनुसार क्षेत्रफल						
						खास बहर 3-05						
						नदी 20-13						
कुल			कुल खातेदार : 25		कुल क्षेत्रफल : 356-09	भूमि प्रकार के अनुसार क्षेत्रफल						
						खास बहर 3-05						
						नदी 310-10						
						नाला 54-01						
						रास्ता 0-13						

प्रतियोगिए शुल्क: 20/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक 15/03/2012 तक के समस्त परिवर्तन समाविष्ट कर दिये गये हैं।

प्रतियोगिए क्रमांक:- 1903388-4853

प्रतियोगिए जारी करने का दिनांक:- 01/04/2013

प्रमाणित प्रतिलिपि
[illegible] फर्नांक 25 दिनांक 1/4/13
[illegible]

सहायक रेवदर

खेवट(लावनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश व. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज. सरकार	खादर (पारम्पराह हेतु)	133/19	10-13	नही	10-13						

कुल खसरा : 1 कुल क्षेत्रफल : 10-13 भूमि प्रकार के अनुसार क्षेत्रफल

नही	10-13

	गोरेवा ढाला नाला (पारम्पराह हेतु)	1062	71-10	ढाला	0-13
				नही	70-17
		132	49-18	नही	49-18
		161	2-05	नाला	2-05
		163	11-05	नाला	11-05
		177	6-15	नाला	6-15
		200	0-16	नाला	0-16
		204/971	71-10	नही	71-10
		214/972	85-19	नही	85-19
		449	1-17	नाला	1-17
		457/6	0-18	नाला	0-18
		468/1	1-01	नाला	1-01
		468	0-11	नाला	0-11
		472/11	4-10	नाला	4-10
		472/3	0-12	नाला	0-12
		472/7	0-19	नाला	0-19
		472/9	1-01	नाला	1-01
		519	4	नाला	4
		520	1-13	नाला	1-13
		778	0-06	नाला	0-06
		880/36	2-15	नाला	2-15
		881	3-11	नाला	3-11
		897	9-06	नाला	9-06

जमाबन्दी (आंशिक प्रतिलिपि)

फार्म पी-26(बी)

ग्राम का नाम :- कोली पटवार हल्का आलाडा भू.प्र.नि.नि.क्षेत्र रेवदर पृष्ठ संख्या 2 of 2

तहसील :- रेवदर जिला :- सिरोही दिनांक :- 01/04/2013

सम्वत :- 2066 - 2069 वास्तविक सम्वत :- 2066

क्षेत्रफल :- बीघा-बिस्वा

खेत(खसरा) नया	खेत(खसरा) पुराना	भूमि धारक का नाम	खातेदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि अथवा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13

नाता 12-07

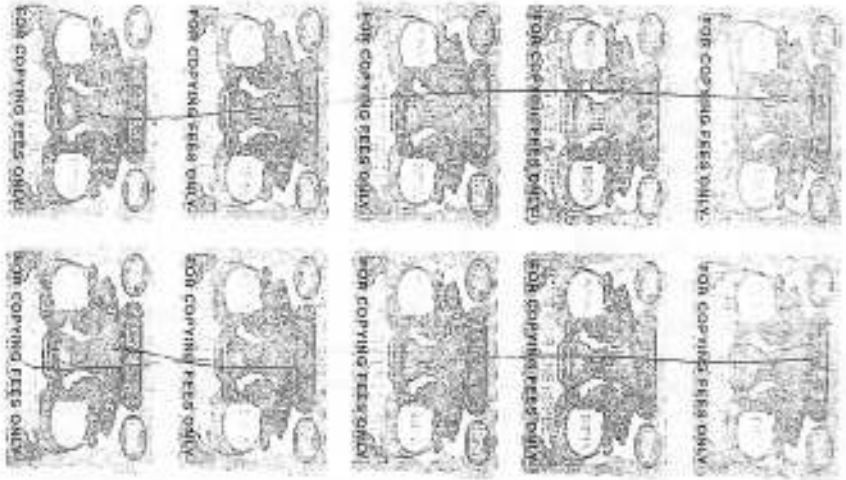
प्रतिलिपि शुल्क 20/-

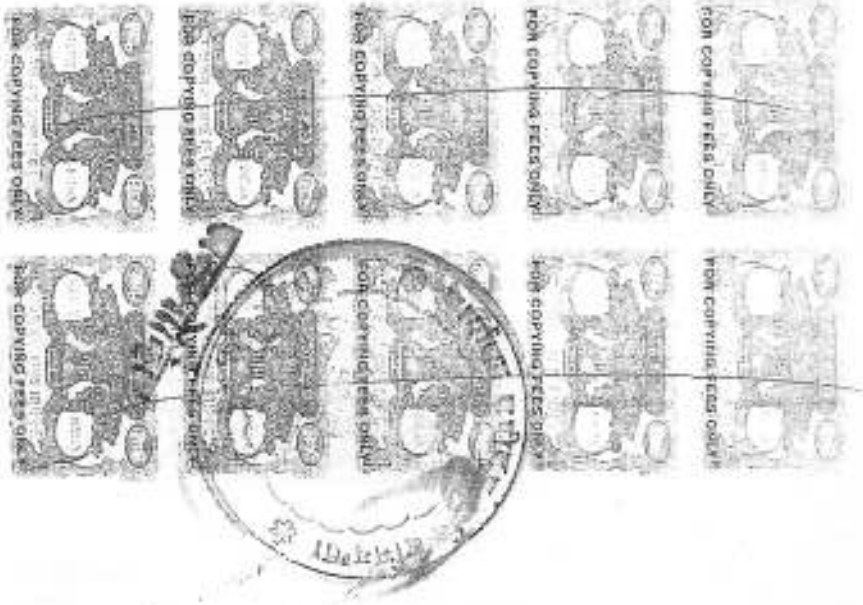
प्रमाणित किया जाता है कि इस प्रविष्टि में दिनांक 30/08/2011 तक के समस्त परिवर्तन इन्द्राजित कर दिये गये है

प्रतिलिपि क्रमांक :- 1903255-4864

प्रतिलिपि जारी करने का दिनांक 01/04/2013

प्रतिलिपि आवेदित 26 दिनांक 1/4/13
उक्त प्रति मेरे से आगे नहीं पहुंचाने की।
हस्ताक्षर आवेदक
पटवारी आलाडा सर्कल
तहसील रेवदर





लेवट(खतौनी) नया	लेवट(खतौनी) पुराना	भूमि धारक का नाम	धारकाधार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	सामान्तरण आदेश नं. तथा तारीख	भूमि अधि. विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज. सरकार	दोलतां इत्या सवो (पारावाड़ ढेढ़)	2	2-19	नक्शा	2-19						
				4	1-02	नाला	1-02						
				8	51-19	नदी	51-19						
				21	2-10	नाला	2-10						
				74	2-07	नाला	2-07						
				78	6-13	नाला	6-13						
				81	5-19	नाला	5-19						
				83	1-13	नाला	1-13						
				86	3-02	नाला	3-02						
				92	1-07	नाला	1-07						
				99	1-04	नाला	1-04						
				104	0-15	नाला	0-15						
				136	1-09	नाला	1-09						
				198	0-09	नाला	0-09						
				207	6-14	नाला	6-14						
				207/255	0-19	नाला	0-19						
				216	0-03	नाला	0-03						
				220	7	नाला	7						
				221	8-19	नाला	8-19						
				222	9	नाला	9						
				224	3-17	नाला	3-17						
				228	3-10	नाला	3-10						
				239	0-16	नाला	0-16						

कुल खसरा : 23 | कुल क्षेत्रफल : 124-06 | भूमि प्रकार के अनुसार क्षेत्रफल
नदी 51-19
नाला 72-07

कुल | कुल खसरा : 23 | कुल क्षेत्रफल : 124-06 | भूमि प्रकार के अनुसार क्षेत्रफल
नदी 51-19

जगाधन्धी (आंशिक प्रतिलिपि)

प्रपत्र पी-26(अ)

ग्राम का नाम :- बाखल पटवार हल्का :- बाखल भू.अभि.वि.क्षेत्र :- रेवदर पृष्ठ संख्या :- 2 of 3

तहसील :- रेवदर जिला :- सिरोही दिनांक :- 01/04/2013

खतदत :- 2069 - 2072 वास्तविक खतदत :- 2069

क्षेत्रफल :- बीघा-बिस्वा

खेतद(खतौनी) नया	खेतद(खतौनी) पुराना	भूमि धारक का नाम	खातेदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश सं. तथा तारीख	भूमि अर्हता विधिहियों विवरण पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1 (सबकूट)		राज. सरकार		870	0-09	नाला	0-09						
				923	2-05	नाला	2-05						
				946	1-09	नाला	1-09						
				957	1-09	नाला	1-09						
				968	1-14	नाला	1-14						
				1045	0-19	नाला	0-19						
				1047	3-17	नाला	3-17						
				1060	0-15	नाला	0-15						
				1065	0-13	नाला	0-13						
				1068	0-15	नाला	0-15						
				1073	2-09	नाला	2-09						
				1083	0-11	नाला	0-11						
				1101	3-11	नाला	3-11						
				1107	0-09	नाला	0-09						
				1117	0-14	नाला	0-14						
				1123	1-03	नाला	1-03						
				1129	0-16	नाला	0-16						

कुल खसरा : 41 कुल क्षेत्रफल : 133-04 भूमि प्रकार के अनुसार क्षेत्रफल
नाला 133-04

कुल : कुल खसरा : 42 कुल क्षेत्रफल : 133-18 भूमि प्रकार के अनुसार क्षेत्रफल
बंजर 0-14
नाला 133-04

क्षेत्र का नाम :-	बासल	परगना हल्का	बासल	भू.बंदो.नि.कार्य	रेवदर	पृष्ठ संख्या	1 of 3
तहसील :-	रेवदर	जिला :-	सिरोही	दिनांक :-	01/04/2013		
वर्ष्ण :-	2069 - 2072	वास्तविक वर्ष्ण :-	2069				
प्रारूप :-	बीघा-बिस्वा						

क्षेत्र(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		किस्तबंदी के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि श्रेणी विविधिकरण जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज. सरकार	भूमि जो खसरा के लिए उपलब्ध है	1074	0-14	बंजर	0-14						

कुल खसरा : 1 कुल क्षेत्रफल : 0-14 भूमि प्रकार के अनुसार क्षेत्रफल

बंजर	0-14

गोचरी तथा चारे (चारागाह हेतु)	7	15-12	नाला	15-12
	472/1234	27-09	नाला	27-09
	501	3-15	नाला	3-15
	516	16-13	नाला	16-13
	525	0-11	नाला	0-11
	533	2-10	नाला	2-10
	534	1-11	नाला	1-11
	535	1	नाला	1
	665	0-05	नाला	0-05
	703/1244	4-05	नाला	4-05
	717	1-09	नाला	1-09
	720/1247	0-15	नाला	0-15
	736	11-05	नाला	11-05
	739	3-11	नाला	3-11
	771	0-09	नाला	0-09
	801	1-11	नाला	1-11
	817	2-09	नाला	2-09
	825	0-09	नाला	0-09
	839	0-17	नाला	0-17
	843	0-11	नाला	0-11
	845	1-03	नाला	1-03
	847	2-03	नाला	2-03
	851	4-11	नाला	4-11
	853	6-13	नाला	6-13

जमाबन्दी (आंशिक प्रतिलिपि)

ग्राम का नाम :- बासन | पटवार हल्का :- बासन | भू.अभि.नि.सेवा :- रेवदर | पृष्ठ संख्या :- 1 of 2

तहसील :- रेवदर | जिला :- सिरोही | दिनांक :- 01/04/2013

सम्वत :- 2069 - 2072 | वास्तविक सम्वत :- 2069

क्षेत्रफल :- हैक्टा-बिस्वा

खेवट(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश सं. तथा तारीख	भूमि और/या विशिष्टियों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज. सरकार	गांवरी डबा वर्ती (पावधाह हेतु)	235	0-04	नाला	0-04						
				238	0-15	नाला	0-15						
				237	1-15	नाला	1-15						
				239	2-05	नाला	2-05						
				241	3	नाला	3						
				240	5-05	नाला	5-05						
				248	1-01	नाला	1-01						
				250	0-15	नाला	0-15						
				257	6-06	नाला	6-06						
				278	2-05	नाला	2-05						
				283	0-15	नाला	0-15						
				296	0-07	नाला	0-07						
				312	11-07	नाला	11-07						
				316	28-16	नाला	28-16						
				358	9-05	नाला	9-05						
				418	12-06	नाला	12-06						
				423	3-09	नाला	3-09						
				428	8-03	नाला	8-03						
				432	2-16	नाला	2-16						
				441	13-04	नाला	13-04						
				443	0-11	नाला	0-11						
				451	2	नाला	2						
				461	4-03	नाला	4-03						
				463	0-07	नाला	0-07						
				467	7-09	नाला	7-09						
				498	2-17	नाला	2-17						



ग्राम का नाम :- बासत | पटवार हल्का :- बासत | भू.प्र.नि.क्षेत्र :- रेवदर | पृष्ठ संख्या 3 of 3

तहसील :- रेवदर | जिला :- सिरोही | दिनांक :- 01/04/2013

वर्ष :- 2069 - 2072 | वास्तविक वर्ष :- 2069

क्षेत्रफल :- बीघा-बिस्वा

सेवर्स(खतौनी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश सं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

प्रतिलिपि शुल्क: 30/-

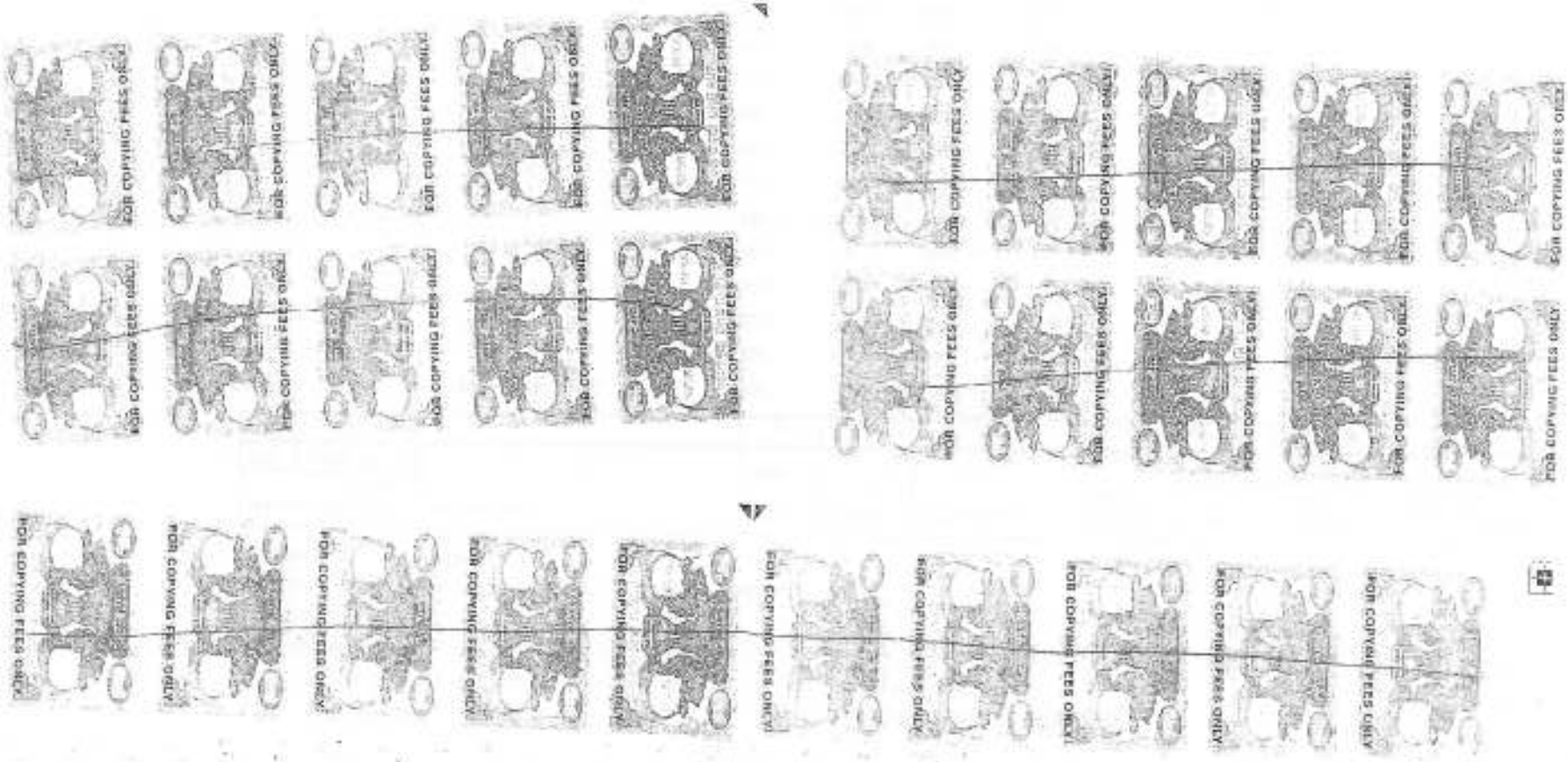
प्रमाणित किया जाता है कि इस प्रतिलिपि में निम्नांकित ... के उपरान्त परिवर्तन अन्तर्विष्ट कर दिये गये हैं।

प्रतिलिपि आवेदन संख्या:- 1903443-4864

प्रतिलिपि भारी करने का दिनांक:- 01/04/2013

उप तहसिलदार
प्रतिलिपि रजिस्टर संख्या 27 दिनांक 1/4/13
अपूर्ण स्थान होने से जारी पृष्ठ संख्यांकित नहीं।
प्रतिलिपि करना भारी करने

तहसील रेवदर



जमाबन्दी (आंशिक प्रतिलिपि)

ग्राम का नाम :- बासल
तहसील :- रेवदर
सम्वत :- 2069 - 2072
क्षेत्रफल :- बीघा-बिस्वा

पटवार हल्का :- बासल
जिला :- सिरोही
वास्तविक सम्वत :- 2069

भू.व.नि.नि.क्षेत्र :- रेवदर
दिनांक :- 01/04/2013

खेवट(अलोनी)		भूमि धारक का नाम	खातेदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		तारांकित्वरथ आदेश नं. तथा तारीख	भूमि व्योरा विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1		राज. सरकार	नदियाँ तथा नाले (चारागाह हेतु)	4	1	नाला	1					
				6	0-05	नाला	0-05					
				9	7-04	नाला	7-04					
				10	0-04	नाला	0-04					
				11	1-11	नाला	1-11					
				14	0-16	नाला	0-16					
				15	12-04	नाला	12-04					
				20	0-19	नाला	0-19					
				23	0-19	नाला	0-19					
				26	4-11	नाला	4-11					
				31	1-02	नाला	1-02					
				37	33-13	नाला	33-13					
				83	6-05	नाला	6-05					
				98	1-19	नाला	1-19					
				102	0-09	नाला	0-09					
				105	11-15	नाला	11-15					
				106	4-13	नाला	4-13					
				109	1-15	नाला	1-15					
				117	0-13	नाला	0-13					
				119	1-06	नाला	1-06					
				121	0-08	नाला	0-08					
				123	2-05	नाला	2-05					
				201	24-06	नाला	24-06					
				207	1-07	नाला	1-07					
				216	3-18	नाला	3-18					
				231	37-10	नाला	37-10					
				233	2-05	नाला	2-05					

ग्राम का नाम :- मासन | पटवार हल्का | बासल | भू.अभि.वि.क्षेत्र | रेवदर | पृष्ठ संख्या 2 of 2

तहसील :- रेवदर | जिला :- सिरोही | दिनांक :- 01/04/2013

सम्वत :- 2069 - 2072 | वास्तविक सम्वत :- 2069

क्षेत्रफल :- बीघा-बिस्वा

खेत(खसरा नं.) नया	खेत(खसरा नं.) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	मकान बर	मकान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि और विडिविधां जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
						नक्ष 22-12						
						खसरा 165						

कुल | कुल खसरा : 28 | कुल क्षेत्रफल : 187-12 | भूमि प्रकार के अनुसार क्षेत्रफल

नक्षे 22-12

खसरा 165

डोसाबोए कुलक 208-

प्रमाणित किया जाता है कि इस अभिलिपि में दिनांक | तक के सभस्त परिवर्तन प्रमाणित कर दिये गये है।

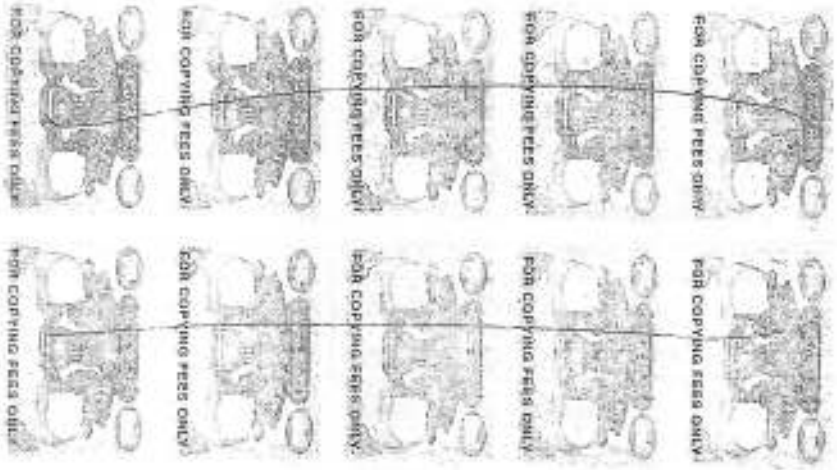
डोसाबोए प्रमाण 1903443-4658

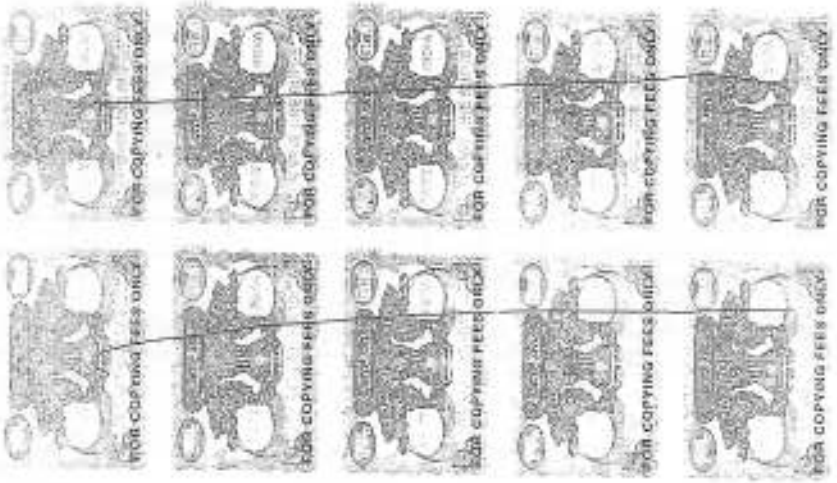
डोसाबोए जारी करने का दिनांक 01/04/2013

प्रतिलिपि तहसील रेवदर के...27...दिनांक 1...4...13 अनुसार साक्षा केस से सही एवं प्रमाणित प्रति।

हस्ताक्षरित अपना साक्षा केस

तहसील रेवदर





जमाबन्दी (आंशिक प्रतिलिपि)

प्रारूप सी.आर.(बी)

ग्राम का नाम :-	रेवदर	पटवार हल्का	रेवदर	भू.अभि.नि.क्षेत्र	रेवदर	पृष्ठ संख्या	1 of 2
तहसील :-	रेवदर	जिला :-	सिरोही	दिनांक :-	01/04/2013		
सम्वत :-	2068 - 2069	वास्तविक सम्वत :-	2068				
क्षेत्रफल :-	बीघा-बिस्वा						

खेत(खतौनी) नया	खेत(खतौनी) पुराना	भूमि धारक का नाम	खातेदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि ज्यों-का-त्यों विविरिहीं जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
1		राज. सरकार	गोडवाड़ शाखा नहर (चारणवाड़ शेड)	124	4-13	नाला	4-13			नामा. क्र.: 2297 - सि.16		
				229	8-09	नाला	8-09			19/01/2012 - खातेदार द्वारा		
				232	6-11	नाला	6-11			ब.नं.339/3 रकबा 3-05 बीघा सिरोह		
				237	174-12	रोड	174-12			सड़क में सार्वजनिक निर्माण विभाग		
				303	14-11	नाला	14-11			(PWD) दर्ज हुआ शेष ब.नं. 339/1		
				331	1	नाला	1			रकबा 1-15 सिरोह बारानी3 के		
				355	1	नाला	1			इन्तकाल समाअंकी बरखुर।		
				377	16-04	रोड	16-04			नामा. क्र.: 2297 - सि.16		
				407	0-13	नाला	0-13			19/01/2012 - खातेदार द्वारा		
				471	2-05	नाला	2-05			ब.नं.418/2 रकबा 10-00 बीघा सिरोह		
				502	7-07	नाला	7-07			सड़क सार्वजनिक निर्माण विभाग (PWD)		
				559	3-12	नाला	3-12			के नाम दर्ज हुआ शेष ब.नं.418/1458		
				562	9-18	नाला	9-18			रकबा 95-00 सिरोह सबरो के		
				570	18-13	नाला	18-13			इन्तकाल समाअंकी बरखुर।		
				632	2-10	नाला	2-10					
				634	16-02	नाला	16-02					
				638	5-01	नाला	5-01					
				647	4-04	नाला	4-04					
				660	4-07	नाला	4-07					
				708	1-05	नाला	1-05					
				710	7-07	नाला	7-07					
				775	1-01	नाला	1-01					
				778	0-12	नाला	0-12					
				801/1252	5-08	नाला	5-08					
				900	3-17	नाला	3-17					
				940	2-13	नाला	2-13					
				1330/1253	4-08	नाला	4-08					

ब्लाक का नाम :-	बासल	पटवार हल्का	बासल	उ.जलि.नि.क्षेत्र	रेवदर	पृष्ठ संख्या	2 of 2
तहसील :-	रेवदर	जिला :-	सिरोही	दिनांक :-	01/04/2013		
वर्ष :-	2069 - 2072	वास्तविक सम्वत :-	2069				
क्षेत्रफल :-	बीघा-बिस्वा						

खेत(खसरा नं.)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		सामान्यरूप आदेश सं. तथा तारीख	भूमि और मिट्टियों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

कुल: कुल संख्या : 20 कुल क्षेत्रफल : 131-05 कृषि प्रकार के अनुसार क्षेत्रफल

सकल 131-05

प्रतिलिपि शुल्क: 20/-

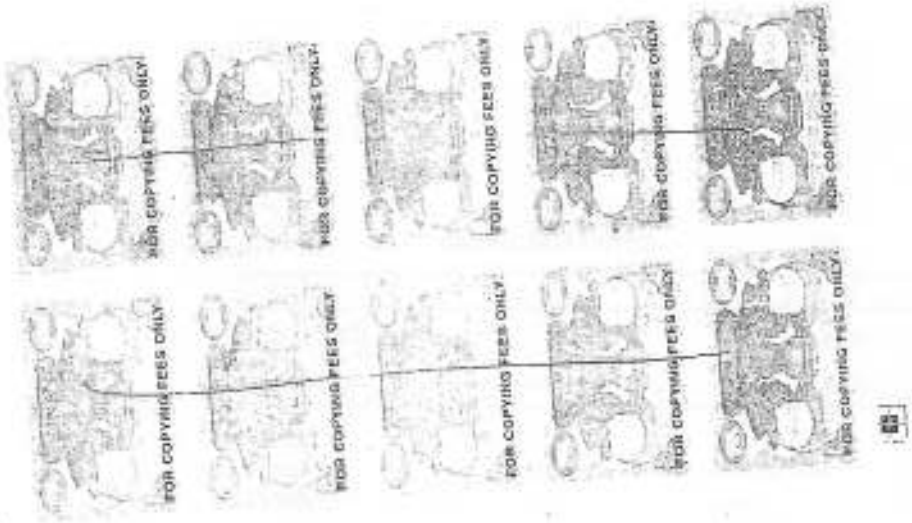
प्रमाणित किया जाता है कि इस प्रतिलिपि से लिये गये नक्शे के क्षतस्त परिवर्तन सम्मिलित कर दिये गये है।

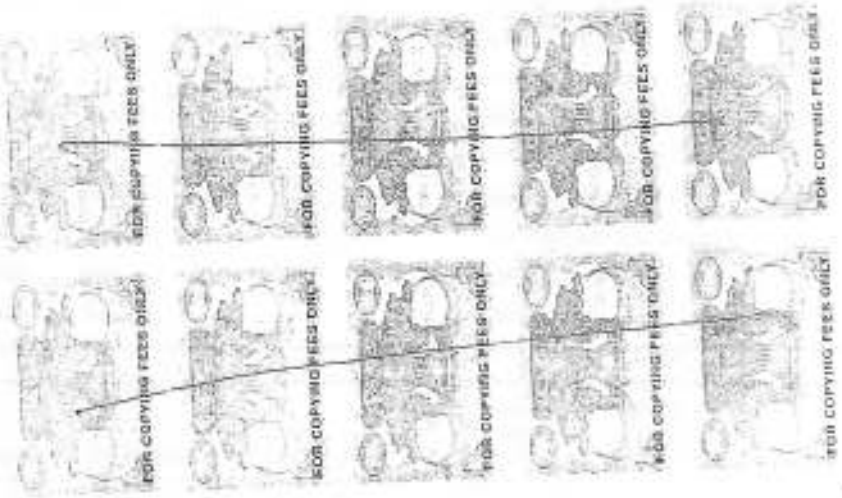
प्रतिलिपि प्राप्त करने का दिनांक:- 01/04/2013

प्रतिलिपि तैयार करने का दिनांक:- 01/04/2013

वरत प्रतिलिपि
प्रतिलिपि रजिस्टर क्रमांक 27 दिनांक 1/4/13
अपना सेवा केन्द्र से जारी एवं सत्यापित प्रति।
प्रभारी,अपना सेवा केन्द्र

तहसील रेवदर





जमाबन्दी (आंशिक प्रतिलिपि)

ग्राम का नाम :- देरोल | पटवार हल्का :- नोलपुर | भू.अभि.कि.क्षेत्र :- रेवदर | पृष्ठ संख्या 1 or 2

तहसील :- रेवदर | जिला :- सिरोही | दिनांक :- 01/04/2013

सम्वत :- 2068 - 2071 | वास्तविक सम्वत :- 2068

क्षेत्रफल :- बीघा-बिस्वा

खेड़द(खतौनी)		भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण आदेश दें का तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में प्रवि अन्तरित हो	टिप्पणी
नका	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1		राज. सरकार	नाडेयाँ तथा नाले (चारागाह हेतु)	3	0-10	गै.मु.नाला	8-10					
				6	0-18	गै.मु.नाला	0-18					
				7	1-13	गै.मु.नाला	1-13					
				26	1-03	गै.मु.नाला	1-03					
				32	0-09	गै.मु.नाला	0-09					
				38	1-15	गै.मु.नाला	1-15					
				49	1	गै.मु.नाला	1					
				61	3-15	गै.मु.नाला	3-15					
				71	1-12	गै.मु.नाला	1-12					
				81	12-08	गै.मु.नाला	12-08					
				82	3-13	गै.मु.नाला	3-13					
				88	1-10	गै.मु.नदी	1-10					
				89	5	गै.मु.नदी	5					
				91	2-08	गै.मु.नाला	2-08					
				92	8-12	गै.मु.नाला	8-12					
				95	0-17	गै.मु.नदी	0-17					
				98	18-15	गै.मु.नदी	18-15					
				120	10-03	गै.मु.नदी	10-03					
				247	4-06	गै.मु.नाला	4-06					
				262	13-03	गै.मु.नाला	13-03					
				270	10-06	गै.मु.नाला	10-06					
				272	0-16	गै.मु.नाला	0-16					
				280	15	गै.मु.नाला	15					
				283	11-02	गै.मु.नाला	11-02					

कुल खसरा : 24 | कुल क्षेत्रफल : 136-14 | भूमि प्रकार के अनुसार क्षेत्रफल

गै.मु.नदी 38-05

ग्राम का नाम :- रेवदर | पटवार हल्का :- रेवदर | उ.वि.नि.केन्द्र :- रेवदर | पृष्ठ संख्या 2 of 2

तहसील :- रेवदर | जिला :- सिरोही | दिनांक :- 01/04/2013

वर्षफल :- 2066 - 2069 | वास्तविक सम्वत :- 2066

खेतफल :- बोया-बिरखा

खेड़ा(चकोनी)		भूमि धारक का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण खातेदार न. तथा तारीख	भूमि क्यों व किसलिये जिसके पक्ष में भूमि बन्धरित हो	टिप्पणी
नया	पुराना						दर	रुकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
					बाकी	137-05					

कुल : कुल खसरा : 27 कुल क्षेत्रफल : 330-01 भूमि लगान के अनुसार क्षेत्रफल

तरी 192-16

बाकी 137-05

फोटोकॉपी शुल्क: 20/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक 28/02/2012 तक के समस्त परिवर्तन सम्मिलित कर दिये गये हैं।

फोटोकॉपी उत्पाद :- 1903344-4866

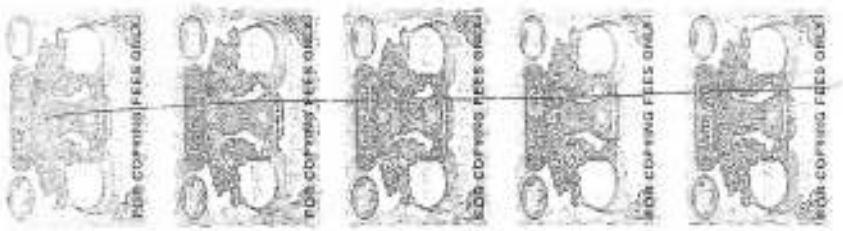
फोटोकॉपी करने वाले का दिनांक :- 01/04/2013

प्रस्तुत प्रतिलिपि 28 शीट्स
प्रतिलिपि तैयार करने वाले
प्रमाण शुल्क पेटे रु. लगते हुए वसूल किया गया
हस्ताक्षर एवं

उप.प्रशा.डी. पटवारी
तहसील, रेवदर







जमाबन्दी (आंशिक प्रतिलिपि)

फार्म पी-28(बी)

ग्राम का नाम :- बुल्लनवा पटवार हल्का :- बुल्लनवा कु.नगि.नि.क्षेत्र :- सम्बर पृष्ठ संख्या 1 से 1

कहसील :- रेवदर जिला :- सिरोही दिनांक :- 01/04/2013

सम्वत :- 2067 - 2070 वास्तविक सम्वत :- 2067

क्षेत्रफल :- बीघा-बिस्वा

खेड़ट(खतौनी) नया	खेड़ट(खतौनी) पुराना	भूमि धारक का नाम	धारकधर का नाम	संकेत	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि अथवा विशिष्टियों जिसके पक्ष में भूमि अन्तरित हुई	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
1		राज. सरकार	पक्की/कच्चा रास्ता (चारावाड़ के लिए नहीं)	104	0-06	रास्ता	0-06					

कुल खातेदार : 1 कुल क्षेत्रफल : 0-06 भूमि प्रकार के अनुसार क्षेत्रफल
रास्ता 0-06

कुल कुल खातेदार : 1 कुल क्षेत्रफल : 0-06 भूमि प्रकार के अनुसार क्षेत्रफल
रास्ता 0-06

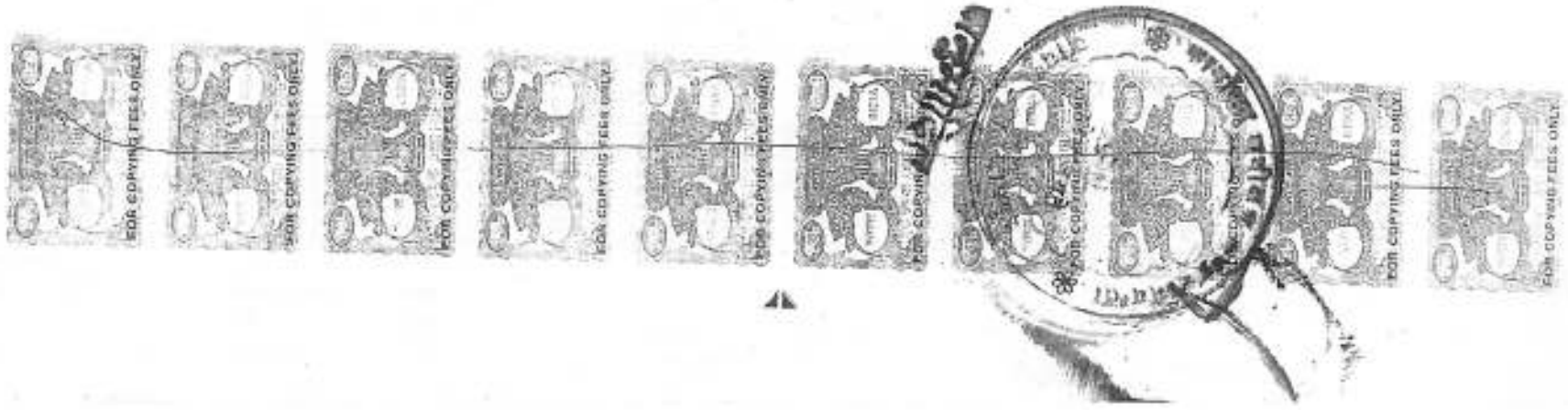
प्रतिलिपि शुल्क: 10/-

प्रमाणित किया जाता है कि यह प्रतिलिपि में दिनांक 13/05/2011 तक के समस्त परिवर्तन समाविष्ट कर दिये गये हैं।

प्रतिलिपिकार कमांक:- 1903382-4670

प्रतिलिपिकार जारी करने का दिनांक:- 01/04/2013

सहायक प्रशासनिक अधिकारी ग्रेड-3 दिनांक: 1/4/13
उक्त प्रति केन्द्र से जारी एवं प्रमाणित की
पटवारी,अपना सेवा केन्द्र
तहसील रेवदर



ग्राम का नाम :-	डेरौल	पटवार हल्का	भोलापुर	भू.अभि.वि.क्षेत्र	रेवदर
तहसील :-	रेवदर	जिला :-	सिरोही	दिनांक :-	01/04/2013
सम्वत :-	2068 - 2071	वास्तविक सम्वत :-	2068		
क्षेत्रफल :-	बीघा-बिस्वा				

नवीन	पुराना	भूमि धारक का नाम	अधिकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि क्रय/या विक्रिदियों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13

वै.भू.नवी	38-05
वै.भू.लगा	100-00

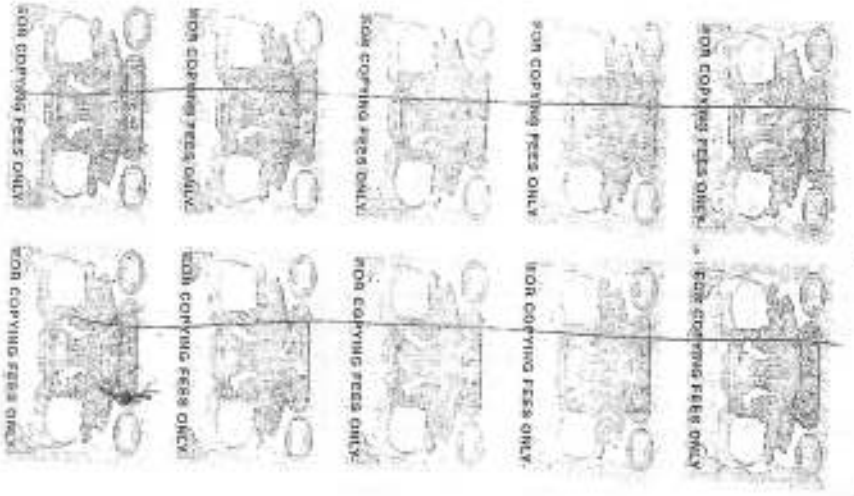
प्रतिलिपि शुल्क: 20/-

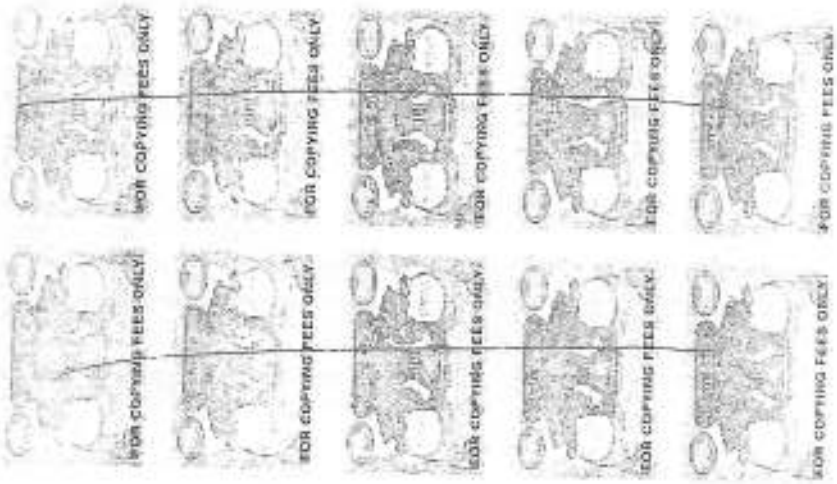
प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक तक के पश्चात परिवर्तन समाविष्ट कर दिये गये है

प्रतिलिपि जारी करने का दिनांक 01/04/2013

मुख प्रतिलिपि
प्रतिलिपि रजिस्टर क्रमांक 29 दिनांक 1-4-13
अपर कलक्टर रेवदर
प्रकरण अपना धारा किया
उपखण्ड रेवदर

उप.आर.डी. पालड़ी
रेवदर, सिरोही





जमाबन्दी (आंशिक प्रतिलिपि)

प्रपत्र सी.-26(बी)

ग्राम का नाम :- धन | पटवार हल्का :- बदानी | भू.प्र.नि.क्षेत्र :- अलवर | पृष्ठ संख्या 1 से 2

तहसील :- रेवाड़ | जिला :- रिवाड़ी | दिनांक :- 01/04/2013

सम्वत :- 2067 - 2070 | वास्तविक सम्वत :- 2067

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	रूपान्तरण आदेश सं. तथा तारीख	भूमि अथवा विशिष्टियों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज. सरकार	तालेयों तथा नाले (धाराबाह हेतु)	14	0-13	नाला	0-13				रूपा. सं.: 742 - 11.18.: 14/09/2011		
				16	1-10	पाल	1-10				- आयोग के द्वारा ख.न. 70 रकबा		
				28	1-11	नाला	1-11				2.05 धराबाह एवं निकास		
				30	0-11	नाला	0-11						
				34	1	नाला	1						
				43	0-19	नाला	0-19						
				45	1-15	नाला	1-15						
				56	1-13	नाला	1-13						
				58	0-02	नाला	0-02						
				240	1-14	नाला	1-14						
				383	22-01	नदी	22-01						
				373	2-15	नाला	2-15						
				384	11-14	नाला	11-14						
				384/1007	5-03	नाला	5-03						
				556	1-14	नाला	1-14						
				578	10-01	नाला	10-01						
				579	2-08	नाला	2-08						
				697	7	नाला	7						
				840	1-03	नाला	1-03						
				869	6-02	नदी	6-02						
				917/1008	3-15	नाला	3-15						
				950	0-10	नाला	0-10						

कुल खसरा : 22 | कुल क्षेत्रफल : 85-12

भूमि प्रकार के अनुसार क्षेत्रफल

नदी	28-03
नाला	55-19
पाल	1-10

क्षेत्र का नाम :-	सिरोही	पटवार हल्का	बलदरी	भू.प्र.वि.क्षेत्र	अबादरा	पृष्ठ संख्या	1 of 1
तहसील :-	रेवदर	जिला :-	सिरोही	दिनांक :-	01/04/2013		
सम्वत :-	2066 - 2069	वास्तविक सम्वत :-	2066				
क्षेत्रफल :-	बीघा-बिस्वा						

खेवट(खतौनी)		भूमि धारक का नाम	भागीदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		वाद/अपील/ आदेश नं. एवं तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में प्रविष्टि अवस्थित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1	0-0	सरकार	नाडवाँ तथा गाडे (चारागाह हेतु)	58	4-12	वे.मु.नदी	4-12				धारा. स.: 311 - पी.डी. : 23/08/2010		
				81	25-16	वे.मु.नदी	25-16				- अवेदक के द्वारा अ.ग. 145 रकबा		
				94	12-18	वे.मु.नदी	12-18				1.10 लगान 0.20 अलग दूध रखा		
				143	6-09	वे.मु.नदी	6-09				बाकि फोकी भा.देह कालबार वर्ष		
				157	10-12	वे.मु.नदी	10-12				किया		
				178	6-13	वे.मु.नदी	6-13						
				185	1-04	वे.मु.नदी	1-04						
				228	4-07	वे.मु.नदी	4-07						
				230	5-11	वे.मु.नदी	5-11						
				261	14-03	वे.मु.नदी	14-03						
			कुल खसरा : 10		कुल क्षेत्रफल : 92-05	भूमि प्रकार के अनुसार क्षेत्रफल							
						वे.मु.नदी	92-05						
कुल:			कुल खसरा : 10		कुल क्षेत्रफल : 92-05	भूमि प्रकार के अनुसार क्षेत्रफल							
						वे.मु.नदी	92-05						

पार्टीवाईज कुल: 10

प्रमाणित किया जाता है कि इस इंतिखिबि में दिनांक 02/08/2011 तक के समस्त परिवर्तन समाविष्ट कर दिये गये हैं

पार्टीवाईज कलाक: 1933346-4871

पार्टीवाईज जारी करने का दिनांक: 01/04/2013

कृत्य परिविति
असिस्टेंट कलेक्टर सरकार 31 दिनांक 1-4-13
उपरोक्त खसरा नं. में जोड़ा हुआ रकबा सम्मिलित है।
पटवारी, बलदरा पटवार हल्का

तहसील रेवदर

उप खण्ड अधिकारी, पोसालिया
रेवदर, सिरोही

जमाबन्दी (आंशिक प्रतिलिपि)

क्षेत्र का नाम :-	पिपलिया	पटवार हल्का	[illegible]	भू.बन्दो.नि.क्षेत्र	रेवदर	पृष्ठ संख्या	1 of 2
तहसील :-	रेवदर	जिला :-	सिरोही	दिनांक :-	01/04/2013		
सम्वत :-	2069 - 2072	वास्तविक सम्वत :-	2069				
क्षेत्रफल :-	बीघा-बिस्वा						

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	खातेदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश सं. तथा तारीख	भूमि और विशिष्टियों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज्य सरकार	नदियाँ तथा नाले (चारागाह हेतु)	5	4-18	नाला	4-18						
				39	3-19	नाला	3-19						
				53	3-03	नाला	3-03						
				67	0-17	नाला	0-17						
				69	1-05	नाला	1-05						
				77	6-17	नाला	6-17						
				82	1-04	नाला	1-04						
				86	1-06	नाला	1-06						
				92	3-09	नाला	3-09						
				94	2-13	नाला	2-13						
				95	0-01	नाला	0-01						
				98	2-10	नाला	2-10						
				103	6-08	नाला	6-08						
				108	0-10	नाला	0-10						
				110	14-05	नाला	14-05						
				118	2-16	नाला	2-16						
				179	4	नाला	4						
				194	7-16	नाला	7-16						
				199	5-05	नाला	5-05						
				209	3-12	नाला	3-12						
				210	3-03	नाला	3-03						
				214	6-10	नाला	6-10						
				215	3-18	नाला	3-18						
				218	2-01	नाला	2-01						

कुल खसरा : 24 कुल क्षेत्रफल : 92-08 चुंगी रेवदर के अनुसार क्षेत्रफल नाला 92-08

राज्य का नाम :- राज.
तहसील :- रेवदर
सम्वत :- 2067 - 2070
क्षेत्रफल :- बीघा-बिस्वा

परगना/इलाका :- वसानी
जिला :- सिरोही
वास्तविक सम्वत :- 2067

भू.प्र.नि.क्षेत्र :- अबादरा
दिनांक :- 01/04/2013

खेत(खतौनी) नया	खेत(खतौनी) पुराना	भूमि धारक का नाम	कास्तकार का नाम	खाता संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	न्यायालय आदेश न. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13

कुल खाता : 1 कुल क्षेत्रफल : 1-10 भूमि प्रकार के अनुसार क्षेत्रफल
बाग़ा 1-10

कुल कुल खाता : 23 कुल क्षेत्रफल : 87-02 भूमि प्रकार के अनुसार क्षेत्रफल
नदी 28-03
नाला 1-10
पत्थर 55-19
बाग़ा 1-10

फोलियो कुल: 20/

प्रमाणित किया जाता है कि यह प्रतिलिपि दि.दिनांक 25/10/2011 के पश्चात परिवर्तन अभिलेख कर दिये गये हैं

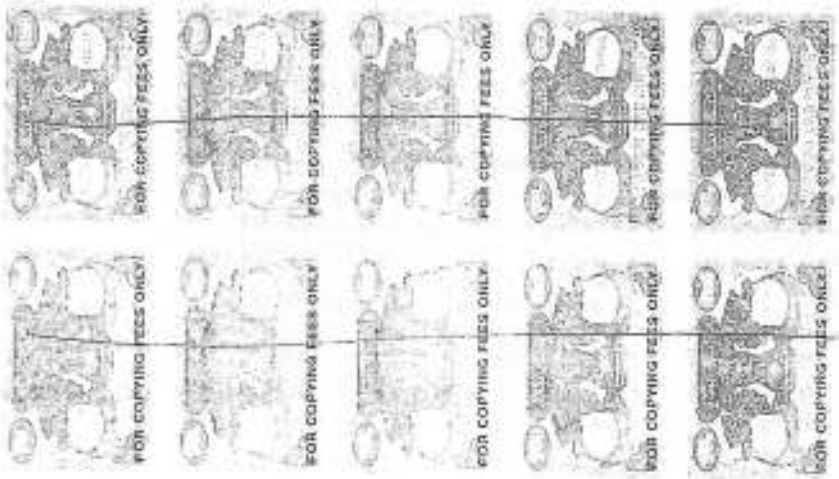
फोलियो क्रमांक:- 1903272-4873

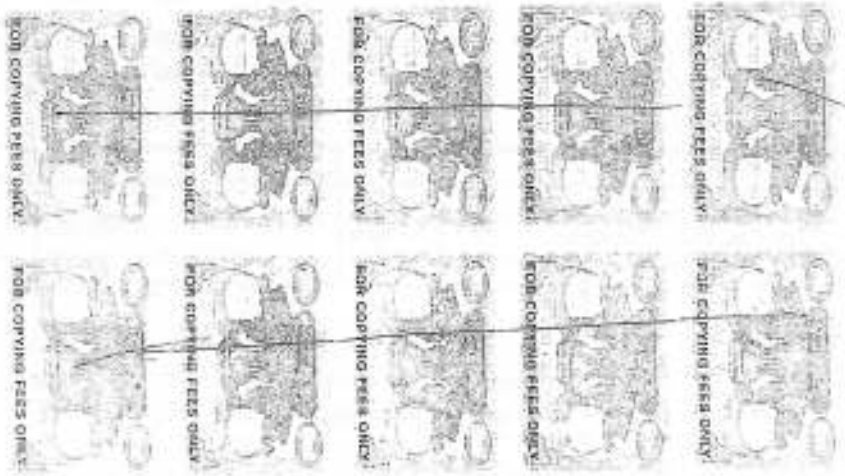
फोलियो जारी करने का दिनांक- 01/04/2013

प्रतिलिपि उपलब्ध कराई.....दिनांक 1/4/13
आवश्यक शुल्क से छोड़ी हुई कार्यवाही की।
हस्ताक्षर अपना आशय कर.

तहसील रेवदर

तहसील, रेवदर





जमाबन्दी (आंशिक प्रतिलिपि)

फार्म डी-28(अ)

ग्राम का नाम :- धकाधल पटवार इल्का धकाधल भू.प्र.वि.क्षेत्र रेवाड़ा पृष्ठ संख्या 1 of 2

तहसील :- रेवाड़ी जिला :- रिवेड़ी दिनांक :- 01/04/2013

वर्ष :- 2068 - 2069 वास्तविक वर्ष :- 2066

खसरा :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	कब्जाधारी का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश नं. तथा तारीख	भूमि/भौग विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हुई	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13
1		राष. सरकार	नांवधी डमा नजरे (पाराचाह हेतु)	28	2-13	नाला	2-13					
				29	4-10	नाला	4-10					
				55	4-12	नाला	4-12					
				61	0-18	नाला	0-18					
				64	1-18	नाला	1-18					
				66	1-14	नाला	1-14					
				73	1-05	नाला	1-05					
				124	0-05	नाला	0-05					
				137	2-18	नाला	2-18					
				166	1-05	नाला	1-05					
				169	1-01	नाला	1-01					
				172	1-17	नाला	1-17					
				189	1-01	नाला	1-01					
				190	3-14	नाला	3-14					
				195	0-07	नाला	0-07					
				446	0-12	नाला	0-12					
				447	2-01	नाला	2-01					
				469	3-16	नाला	3-16					
				483	105-01	नदी	105-01					
				518	29	नाला	29					
				520	0-05	नाला	0-05					
				541	1-13	नाला	1-13					
				569	2-11	नाला	2-11					
				566/576	25-15	नदी	25-15					
				575	0-15	नाला	0-15					
				623	18-12	नाला	18-12					
				635	1-19	नाला	1-19					



क्षेत्र का नाम :-	पिपलिया	पटवार हल्का	बड़ाणी	पु.अभि.नि.क्षेत्र	रेवदर	पृष्ठ संख्या 2 of 2
तहसील :-	रेवदर	जिला :-	सिरोही	तिथि :-	01/04/2013	
वर्ष :-	2069 - 2072	वास्तविक वर्ष :-	2069			
योजना :-	बीमा-रेवन्या					

खेत(अंतोनी)		भूमि धारक का नाम	खातेदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामांतरण आदेश क्र. तथा तारीख	भूमि/बीज विशिष्टियां जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

प्रतिलिपि शुल्क 20/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में निम्नांकित एक के समक्ष परिवर्तन समयांकित कर दिये गये हैं

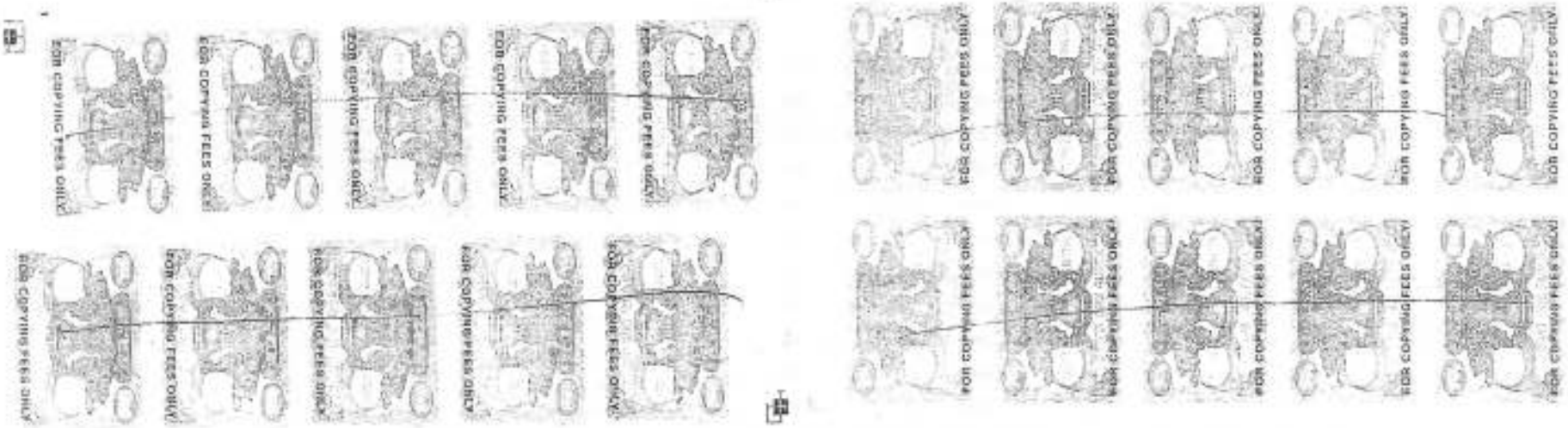
पोर्टलादेश क्रमांक 1903460-4874

पोर्टलादेश जारी करने का दिनांक 01/04/2013

मूल प्रतिलिपि 3 3 लिपिक 1 13
प्रतिलिपि रजिस्टर संख्या.....
अपना प्रमाण पत्र दे जाने पर तत्काल प्राप्त करें।
प्रभारी, अपना भारत केन्द्र.

सहायक रेवदर

ग्रा.आ.सी. पोर्टल
ग्रामीण, रेवदर



जमाबन्दी (आंशिक प्रतिलिपि)

भाग पी-26(बी)

ग्राम का नाम :- सूटली पटवार हल्का पटवार भू.अभि.रि.क्षेत्र रेवदर पृष्ठ संख्या 1 का 1

तहसील :- रेवदर जिला :- सिरोही दिनांक :- 01/04/2013

वर्ष :- 2068 - 2071 वास्तविक वर्ष :- 2068

खेवट :- बोचा-रेबेचा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	खातेदार का नाम	खसरा नंबर	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश सं. तथा तारीख	भूमि क्यों व किसलिये भू किसके पक्ष में भूमि अन्तरित हुई	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज. सरकार	गवेरवों वका नाले (चारागाह हेतु)	28	1-04	नाला	1-04						
				158	14-03	नदी	14-03						
				158/228	85-13	नदी	85-13						
				159	2-09	नाला	2-09						
				172	3	नाला	3						
				215	1-11	नाला	1-11						
				218	2	नाला	2						
				219	19-08	नदी	19-08						

कुल खसरा : 8 कुल क्षेत्रफल : 129-03 भूमि प्रकार के अनुसार क्षेत्रफल

नदी 119-04

नाला 10-04

कुल : कुल खसरा : 8 कुल क्षेत्रफल : 129-03 भूमि प्रकार के अनुसार क्षेत्रफल

नदी 119-04

नाला 10-04

सर्टिफिकेट कूलक 10/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक तक के क्रमवार परिवर्तन यथावित कर दिये गये है

प्रतिलिपि क्रमांक :- 1803389-4878

प्रतिलिपि जारी करने का दिनांक :- 01/04/2013



खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	खातेदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	सामान्यतया भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो वर्णित न. तथा तारीख	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11 12	13
1 (संयुक्त)		राज		687	1-01	नक्षा	1-01					
		सरकार		690	2-12	नक्षा	2-12					
				695	0-16	नक्षा	0-16					
				717	19-11	नक्षा	19-11					
				718	10-10	नक्षा	10-10					
				729	0-13	नक्षा	0-13					
				734	3-17	नक्षा	3-17					
				735	2	नक्षा	2					
				738	2-07	नक्षा	2-07					
				809	4	नक्षा	4					
				818	1-03	नक्षा	1-03					
				830	2-10	नक्षा	2-10					
				853	4-08	नक्षा	4-08					

कुल खसरा : 43 कुल क्षेत्रफल : 273-19 भूमि प्रकार के अनुसार क्षेत्रफल
नदी 130-16
नक्षा 143-03

कुल: कुल खसरा : 43 कुल क्षेत्रफल : 273-19 भूमि प्रकार के अनुसार क्षेत्रफल
नदी 130-16
नक्षा 143-03

डाटाशीट कुल: 2(2)

कार्यालय जिला कलक्टर के पि.एल.एस.सिरोही के दिनांक 15/09/2011 के ई-मेल द्वारा निर्धारित प्रारूपित कर दिये गये हैं।

डाटाशीट क्रमांक: 1983357-4578

डाटाशीट जारी करने का दिनांक: 01/04/2013

हस्ताक्षर पटवारी,सकावतन खालसा केन्द्र

पटवारी सर्कल

हस्ताक्षर, तहसीलदार

तहसील रेवदर

जमाबन्दी (आंशिक प्रतिलिपि)

ग्राम का नाम :- चीराबल | पटवार हल्का :- चीराबल | भू.प्र.वि.ति.क्षेत्र :- रैथल | पृष्ठ संख्या 1 से 2

तहसील :- रैथल | जिला :- तिरोही | दिनांक :- 01/04/2013

सन्धा :- 2068 - 2071 | वास्तविक सम्वत :- 2068

क्षेत्रफल :- बीघा-बिस्वा

खेवट(खतौनी) नया	खेवट(खतौनी) पुराना	भूमि धारक का नाम	कारतकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान दर	लगान रकम	नामान्तरण आदेश सं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज सरकार	गांदयाँ तथा नाले (पराबाह हेतु)	58	0-11	नाला	0-11					* नक्शा, ब.: 1325 - कि.वि.,	
				57	1-13	नाला	1-13					08/09/2011 - अवलन द्वारा खसरा	
				155/875	34-14	नदी	34-14					ह.378/906 रकबा 4-00 सिल्प	
				171	3-07	नाला	3-07					नियासत तथा खेत सिंचाई हेतु	
				173	0-14	नाला	0-14					ट्रान्सफोर्म पानीपक्ष सिंचाईकर रामदेव	
				192	0-18	नाला	0-18					नारायण की 99 वर्ष की लीज पर खापड़ा	
				228/821	0-19	नाला	0-19					यह बड़े खेत खसरा 379/905 रकबा 52-11	
				274	23-05	नाला	23-05					सिल्प पहाड़ यथावत रहा।	
				283	0-16	नाला	0-16					* नक्शा, ब.: 1326 - कि.वि.,	
				366	0-06	नाला	0-06					08/09/2011 - अवलन द्वारा खसरा	
				465	2-04	नाला	2-04					ह. 432/2 रकबा 3-01 में से भारत	
				469	2-03	नाला	2-03					निगोम रामलाल गांधी सेवा केन्द्र	
				485/1	1-01	नाला	1-01					ग्राम पंचायत चीराबल को खसरा	
				487	0-08	नाला	0-08					ह.432/3 रकबा 0-05 बीघा सिल्प	
				512/916	38-19	नदी	38-19					सेवा केन्द्र का दा.करण स्वीकृत	
				520	4-04	नाला	4-04					हुआ, शेष खाता यथावत् पजावयी,	
				523	2-08	नाला	2-08					432/2 रकबा 2-16 सिल्प खाल पहर	
				527/1	0-03	नाला	0-03					बदस्तूर	
				675	1-01	नाला	1-01					* नाला क [illegible] त है	
				676	1-17	नाला	1-17					15/03/2012 [illegible] के द्वारा	
				730/1	1	नदी	1					सेवा राहे सुन्दर [illegible] नदी	
				731	17	नदी	17					हा.वेह खतियार [illegible] ब.व.	
				736	1-03	नदी	1-03					736/1 रकबा 1 [illegible]	
				741	10-03	नदी	10-03						
				742	5-12	नदी	5-12						
				814/364	4-16	नदी	4-16						
				823/764	7-03	नाला	7-03						

गाम का नाम :-	विकलपास	परगना हल्का	गोरखपुर	भू.प्र.नि.,बीच	रेवदर	पृष्ठ संख्या	1 of 1
तहसील :-	रेवदर	जिला :-	सिरोही	दिनांक :-	01/04/2013		
सम्वत :-	2068 - 2071	वास्तविक सम्वत :-	2068				
खेवफल :-	बीघा-बिस्वा						

खेड़ा(बस्तीवी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा संख्या	खेवफल	भूमि वर्गीकरण		सिंचाई के साधन	बकाल		नामान्तरण आदेश नं. तथा तारीख	भूमि क्रीय विक्रिहियों जिसके पक्ष में भूमि अन्तरित हुई	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6			7	9	10	11	12	13
1		राज. सरकार	गोदवी डाबा नाले (जारायाड़ हेड)	88	31-19	ये भूनदी	31-19						
				91	50-19	नदी	50-19						
				101	50-02	नदी	50-02						
				109	7-17	नाला	7-17						
				115	64-16	नदी	64-16						
				419	32-02	नदी	32-02						
				421	62-11	नदी	62-11						
				422	6-13	नदी	6-13						
				423	0-15	नदी	0-15						
				424	64-01	नदी	64-01						
				425	10-04	नदी	10-04						

कुल खसरा : 11 कुल खेवफल : 391-19 भूमि प्रकार के अनुसार खेवफल

नदी	352-03
ये भूनदी	31-19
नाला	7-17

योग	कुल खसरा : 11	कुल खेवफल : 391-19	भूमि प्रकार के अनुसार खेवफल
		नदी	352-03
		ये भूनदी	31-19
		नाला	7-17

प्रमाणित कृपया :- [illegible]

[illegible] किसी व्यक्ति ने कि इस प्रतिलिपि में लिखित [illegible] को वे स्वयम् परिवर्तित अथवा मिटा दिये गये हैं।

प्रमाणित क्रमांक :- 1903400-4873

प्रतिलिपि प्राप्त करने का दिनांक- 01/04/2013

उप तहसीलदार 36 1-4-13
[illegible]
उपखण्ड अधिकारी रेवदर

उपखण्ड अधिकारी रेवदर

जमाबन्दी (आंशिक प्रतिलिपि)

ग्राम का नाम :- बीरगंज परगना इकाई बीरगंज भू.व.नि.ले.कोष रेवसर पृष्ठ संख्या 1 का 2

तहसील :- रेवसर जिला :- सिरोही दिनांक :- 01/04/2013

वर्तमान :- 2068 - 2071 वास्तविक वर्तमान :- 2068

बंदोबस्त :- बीसा-बिस्वा

खेत नं.(चतौनी)		भूमि धारक का नाम	अतिक्रमणकर्ता का नाम	क्षेत्रफल संख्या	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि सम्बन्धी विशिष्टियाँ जिसमें पक्षों पे भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1	राम.	नाहरों तथा तालों (पाराचड़ इसु)		18/611	3-14	नदी	3-14				* पमा. स.: 1326 - वि.वि.		
	सरकार			32	39-04	नदी	39-04				08/09/2011 - भवंडा द्वारा सरकार		
				52/1	1-08	नदी	1-08				के 379/906 रकबा 4-00 सिंचाई		
				52/3	0-01	नदी	0-01				विद्यालय तथा खेल मैदान हेतु		
				67/8	0-04	नदी	0-04				राजकीय प्राथमिक विद्यालय रेवसर		
				72	22-09	नदी	22-09				बीरगंज को 99 वर्ष की लीज पर आवंटन		
				105/1	4-10	नदी	4-10				की गई शेष जमा 379/905 रकबा 52-11		
				312	4-15	नदी	4-15				किया पहाड़ बचावड़ रद्दा।		
				320	0-15	नदी	0-15				* पमा. स.: 1326 - वि.वि.		
				345	41-06	नदी	41-06				08/09/2011 - भवंडा द्वारा सरकार		
				349	49-10	नदी	49-10				से 432/2 रकबा 3-01 में से भारत		
				360	0-12	नदी	0-12				निर्माण राजीव गांधी सेवा केन्द्र		
				409/1	0-03	नदी	0-03				ग्राम पंचायत बीरगंज को सरकार		
				409/2	0-13	नदी	0-13				से 432/3 रकबा 0-05 बीघा निर्माण		
				410/1	1	नदी	[illegible]				सेवा केन्द्र का नाम परिवर्तन स्वीकार		
				507	10-16	नदी	10-16				होकर, शेष खाता बरकरार बनावटी,		
				508	74-05	नदी	74-05				432/2 रकबा 2-16 सिंचाई खाल बहुर		
				509	40-11	नदी	40-11				[illegible]		
				514/1	0-10	नदी	0-10				[illegible] वि.वि.		
				522	13-15	नदी	13-15				15/03/201[illegible] के द्वारा		
				526/1	1-04	नदी	1-04				सीमा पार्क [illegible]		
				527/1	1-10	नदी	1-10				[illegible]		
				542	11-11	नदी	11-11				[illegible]		

कुल खसरा : 23 कुल क्षेत्रफल : 324-08 पूर्वे रकार के अनुसार क्षेत्रफल

नदी 324-08

ग्राम का नाम :- भीरावल पटवार हल्का भीरावल भू.अभि.नि.क्षेत्र रेवदर
तहसील :- रेवदर जिला :- सिरोही दिनांक :- 01/04/2013
सम्वत :- 2068 - 2071 वास्तविक सम्वत :- 2068
क्षेत्रफल :- बीघा-बिस्वा

खेत(कोनी) नया	खेत(कोनी) पुराना	भूमि धारक का नाम	खातेदार का नाम	खसरा नंबर	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	बकाया बर	बकाया रुपया	नामान्तरण आदेश नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके गर्भ में भूमि अन्तरित हो	टिप्पणी
1	2	3	4	5	6	7	8	9	10	11	12	13

नाला 94-19

कुल: कुल खसरा : 27 कुल क्षेत्रफल : 189-05 भूमि प्रकार के अनुसार क्षेत्रफल
नदी 113-07
नाला 94-19

* चतुर्थी खाद्य हेतु उक्त नामान्तरण चौथ वसूली में दी

प्रतिलिपि शुल्क 20/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में लिखित [illegible] किये गये हैं।

आवेदन क्रमांक:- 1903402-4886

आवेदन प्राप्त करने का दिनांक 01/04/2013

कार्य पर्यवेक्षित
तहसील रेवदर क्रमांक 32 दिनांक 1/7/13
[illegible]

आदेश रेवदर

उप खण्ड अधिकारी
रेवदर, सिरोही

जमाबन्दी (आंशिक प्रतिलिपि)

ग्राम का नाम :- सांवरादी | पटवार हल्का :- पीपोदरा | भू.अभि.वि.क्षेत्र :- कनारदा | पृष्ठ संख्या 1 of 2

तहसील :- रेलमगरा | जिला :- राजसमंद | दिनांक :- 01/04/2013

सम्वत :- 2066 - 2069 | वास्तविक सम्वत :- 2066

क्षेत्रफल :- बीघा-बिस्वा

खेड़ा(बस्ती)		भूमि धारक का नाम	खातेदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		सामान्य आदेश सं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
जमा	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13
1	राव धारसा	भूमि जो पुजारी के लिए अनुदत्तक		308/707	5	खाल बहर	5					

कुल खातेदार : 1 | कुल क्षेत्रफल : 5 | भूमि प्रकार के अनुसार क्षेत्रफल

खाल बहर 5

पोरवी तथा नाथी (पारणगढ़ हेतु)	307	15-12	नाला	15-12	
	307/805	2-10	नाला	2-10	
	308/697	1-05	नाला	1-05	
	376	1-10	नाला	1-10	
	380	2-13	नाला	2-13	
	384	0-04	नाला	0-04	
	395	8-01	नाला	8-01	
	402	3-09	नाला	3-09	
	405	5-12	नाला	5-12	
	419	0-15	नाला	0-15	
	422	13-14	नाला	13-14	
	438	4-09	नाला	4-09	
	447	2-15	नाला	2-15	
	471	0-17	नाला	0-17	
	478	5-08	नाला	5-08	
	486	4-07	नाला	4-07	
	528	9-12	नाला	9-12	
	586	3-08	नाला	3-08	
	617	0-16	नाला	0-16	

कुल खातेदार : 19 | कुल क्षेत्रफल : 87-05 | भूमि प्रकार के अनुसार क्षेत्रफल

ग्राम का नाम :-	चीरावल	पटवार हल्का	नीरावल	भू.अभि.रि.सेवा	रेवदर	पृष्ठ संख्या	2 of 2
तहसील :-	रेवदर	जिला :-	सिरोही	दिनांक :-	01/04/2013		
सम्वत :-	2068 - 2071	वास्तविक सम्वत :-	2068				
क्षेत्रफल :-	बीघा-बिस्वा						

खेड़ा(आबादी)		भूमि धारक का नाम	खातेदार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	किस्तों के दायित्व	लगान		नामान्तरण आदेश नं. तथा तारीख	भूमि ज्यों-का-त्यों विशिष्टियों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

* नक्शे में खेड़े का नक्शा नामान्तरण हेतु योजना में है।

प्रतिलिपि शुल्क 20/-

प्रमाणित किया जाता है कि इस प्रतिलिपि से दिनांक तक के समस्त परिवर्तन सम्मिलित कर दिये गये हैं।

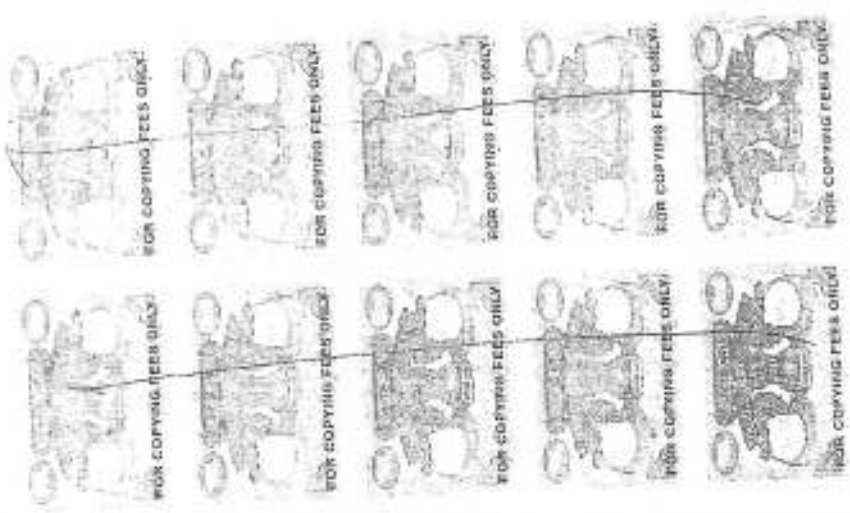
प्रतिलिपि क्रमांक:- 1903402-6852

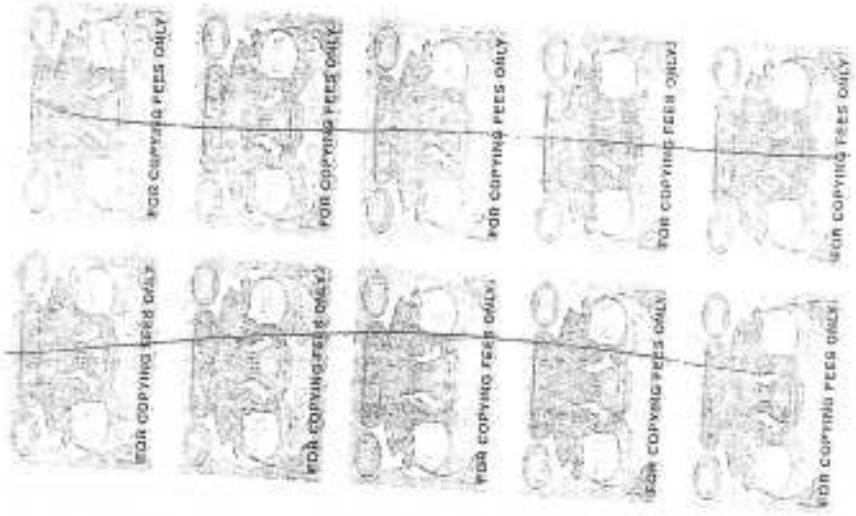
प्रतिलिपि जारी करने का दिनांक- 01/04/2013

अतिरिक्त प्रतिलिपि
प्रति.रि.रेवदर दर्ज नं. 32 दिनांक 1/4/13
सूचना आवेदक के पते से सादी डाक द्वारा/व्यक्तिगत रूप से दी गई।
हस्ताक्षर/अंगूठा निशान

कनिष्ठ लिपिक रेवदर

सहायक, रेवदर





जमाबन्दी (अंशिक प्रतिलिपि)

फारम नं.-28(ई)

ग्राम का नाम :- कंचराली परगना/हल्का :- पोंगीला भू.प्र.नि.के. बागेश्वर पृष्ठ संख्या 1 of 2

तहसील :- विज जिला :- पिथौरी दिनांक :- 01/04/2013

सन्/वर्ष :- 2068 - 2069 वास्तविक सन्/वर्ष :- 2068

क्षेत्रफल :- चौथा-पैंसठा

खेत(खसरा नं.)		भूमि धारक का नाम	खातदार का नाम	खसरा नंबर	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		दाखिलखारिज आदेश नं. तथा तारीख	भूमि संबंधित विशिष्टियों जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नदी	पुरवना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज. सरकार	नांदर्या डगा नाले (खराबाड़ हेतु)	13	7-06	नाला	7-06						
				45	2	नाला	2						
				58	0-09	नाला	0-09						
				87	0-06	नाला	0-06						
				92	3	नाला	3						
				96	7	नाला	7						
				97	0-10	नाला	0-10						
				98	18-08	नदी	18-08						
				112	14-05	नदी	14-05						
				156	0-12	नाला	0-12						
				159	2	नाला	2						
				162	64-05	नदी	64-05						
				171	11-18	नाला	11-18						
				176	18-12	नाला	18-12						
				201	0-08	नाला	0-08						
				259	0-06	नाला	0-06						
				264	0-08	नाला	0-08						
				266	0-14	नाला	0-14						
				268	2-09	नाला	2-09						
				280	11-05	नाला	11-05						
				295	0-12	नाला	0-12						
				296	0-09	नाला	0-09						
				296/642	7-03	नाला	7-03						
				296/655	4-06	नाला	4-06						
				296/674	0-11	नाला	0-11						

कुल खसरा : 25 कुल क्षेत्रफल : 179-02 भूमि प्रकार के अनुसार क्षेत्रफल

गाउ का नाम :-	बंगेरावली	पटवार हल्का	पोसीना	नु.अधि.नि.केन्द्र	अलवर	पृष्ठ संख्या	2	का	2
तहसील :-	रैनर	जिला :-	सिरोही	दिनांक :-	01/04/2013				
वर्ष्ण :-	2066 - 2069	खतौनी के वर्ष्ण :-	2066						
खेवट :-	बीघा-बिस्वा								

खेवट(खतौनी)		भूमि धारक का नाम	खातेदार का नाम	खसरा नंबर	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		नामान्तरण अनुमा नं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

आज तहर :-

रकबा :- 67-45

प्रतिलिपि शुल्क 20/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक 25/06/2011 तक के समस्त परिवर्तन समाविष्ट कर दिये गये हैं।

प्रतिलिपि क्रमांक :- 1903341-4093

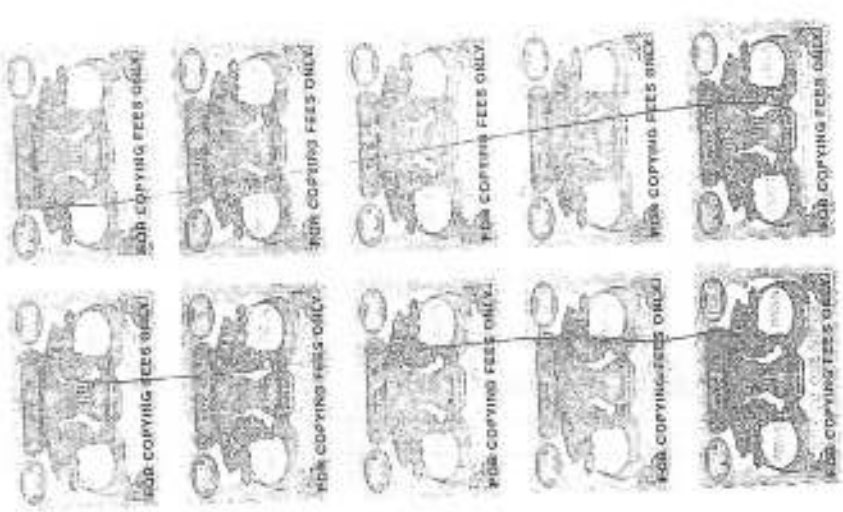
प्रतिलिपि जारी करने का दिनांक :- 01/04/2013

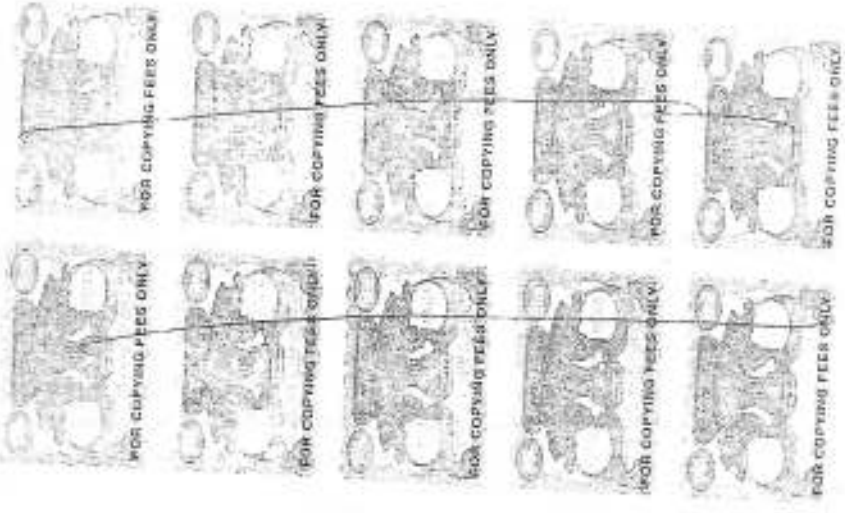
पत्र प्रतिलिपि 38 रुपये ... दिनांक 13

सहा. अभि. लेख से जारी एवं हस्ता. सी.1

इ.आर.ए. रामगढ़

सहायक रेकर्ड





जमाबन्दी (आंशिक प्रतिलिपि)

ग्राम का नाम :-	पारोंख	पटवार हल्का	पारोंख	भू.प्र.वि.नि.कें :-	रेवर	पृष्ठ संख्या	1 से 1
तहसील :-	रेवर	जिला :-	सिरोही	लिपिक :-	01/04/2013		
वर्ष :-	2006 - 2009	वास्तविक वर्ष :-	2006				
क्षेत्रफल :-	बीघा-बिस्वा						

खेवट(खतौनी)		भूमि धारक का नाम	कास्तकार का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण		लिखाई के साक्षम	लगान		नामान्तरण आदेश सं. तथा तारीख	भूमि और निविष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना								दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राज. सरकार	गांदयां डगा नाले (चारागाह हेतु)	1	39-09	पै.सु.नदी	39-09						
				5	8-12	पै.सु.नाला	8-12						
				8	2	पै.सु.नाला	2						
				55	0-08	पै.सु.नाला	0-08						
				59	0-10	पै.सु.नाला	0-10						
				60	2-04	पै.सु.नाला	2-04						
				78	7-04	पै.सु.नाला	7-04						
				87	1-03	पै.सु.नाला	1-03						
				89	1	पै.सु.नाला	1						
				90	14-03	पै.सु.नदी	14-03						
				92	0-13	पै.सु.नाला	0-13						
				94	1-12	पै.सु.नाला	1-12						

कुल खसरा : 12 कुल क्षेत्रफल : 78-18 कृषि प्रकार के अनुसार क्षेत्रफल

पै.सु.नदी 53-12

पै.सु.नाला 25-06

कुल: कुल खसरा : 12 कुल क्षेत्रफल : 78-18 कृषि प्रकार के अनुसार क्षेत्रफल

पै.सु.नदी 53-12

पै.सु.नाला 25-06

प्रतिलिपि शुल्क: 10/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक 28/03/2012 तक के समस्त परिवर्तन सम्मिलित कर दिये गये हैं

प्रतिलिपि क्रमांक:- 1903354-4886

प्रतिलिपि जारी करने का दिनांक- 01/04/2013

प्रमाणित प्रतिलिपि

तहसीलदार रेवर



ग्राम का नाम :-	डांवरली	पटवार हल्का	पोसीवरा	भू.अभि.वि.क्षेत्र	अनादरा	पृष्ठ संख्या	2 of 2
तहसील :-	रेवदर	जिला :-	सिरोही	दिनांक :-	01/04/2013		
सम्वत :-	2066 - 2069	वास्तविक सम्वत :-	2066				
वीपफसल :-	बीसा-बिस्वा						

खेत(प्रतीनी)		भूमि धारक का नाम	खातेदार का नाम	खाता संख्या	क्षेत्रफल	भूमि परिवर्तन	सिंचाई के साधन	लगान		नामान्तरण आदेश सं. तथा तारीख	भूमि अौर। विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
नया	पुराना							दर	रकम			
1	2	3	4	5	6	7	8	9	10	11	12	13

कुल कुल आदर : 25 कुल क्षेत्रफल : 179-02 भूमि क्षेत्रफल के अनुसार क्षेत्रफल

नये 96-18

सवा 82-04

प्रतिलिपि शुल्क: 20/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में दिनांक 20/06/2011 तक के संशोधन परिशोधन समाविष्ट कर दिये गये हैं।

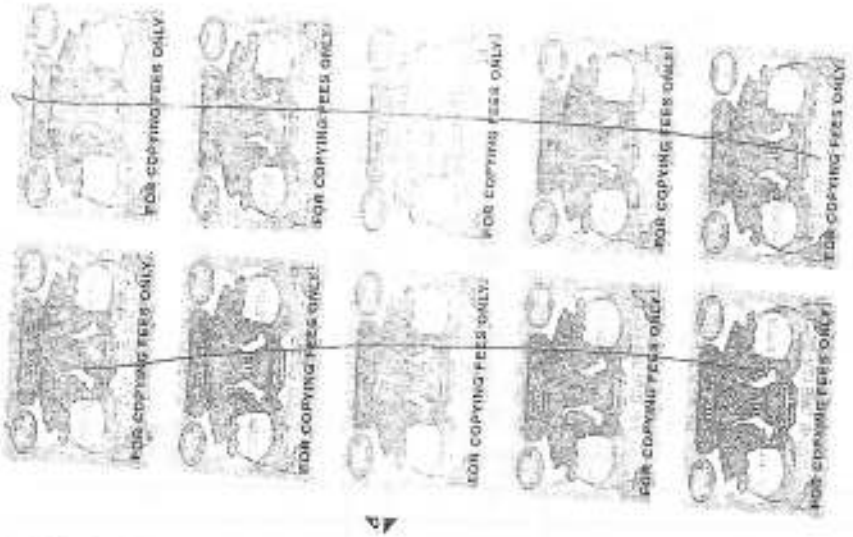
पंजीयन क्रमांक:- 1903341-4890

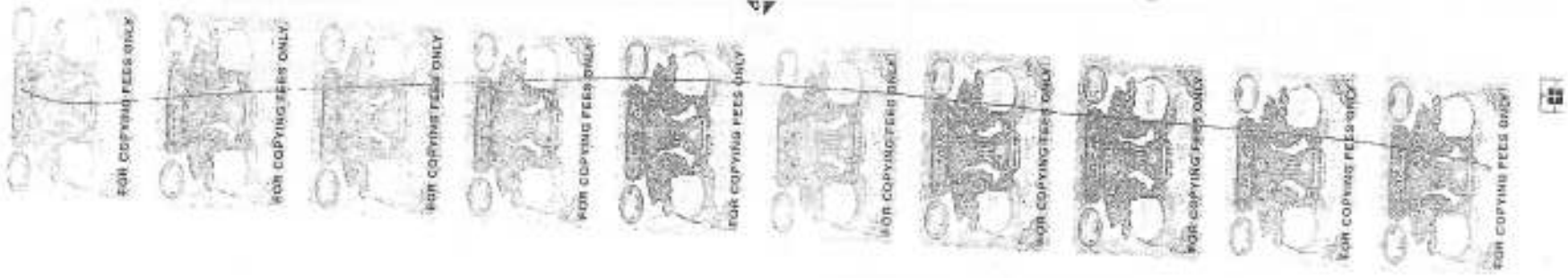
पंजीयन करने का दिनांक 01/04/2013

उप पंजीयक, सिरोही

प्रतिलिपि दिनांक 38 तक...

अन्य, इससे पूर्व ये आवेदन प्रस्तुत किये।





जमाबन्दी (आंशिक प्रतिलिपि)

ग्राम का नाम :-	नागरा	पटवार हल्का	नाग	भू.प्रबं.नि.क्षेत्र	[illegible]	पृष्ठ संख्या	1 of 2
तहसील :-	रेवदर	जिला :-	सिरोही	दिनांक :-	[illegible]		
वर्ष :-	2067 - 2070	वास्तविक वर्ष :-	2067				
खरीफ :-	बीघा-बिस्वा						

खेड़ा(अबादी)		भूमि धारक का नाम	काश्तकार का नाम	खसरा नंबर	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		सामान्य या विशेष जिसमें दी गई जमीन अन्तरित हुई		टिप्पणी
नया	पुराना								रु.	पै.			
1	2	3	4	5	6	7		8	9	10	11	12	13
1	राज. सरकार	गोचर्या इचा नजर (चारागाह हेतु)		3	14-19	नदी	14-19						
				11	17-16	नदी	17-16						
				11/583	9-16	नदी	9-16						
				25	9-11	नाला	9-11						
				29	6-19	नाला	6-19						
				36	1-04	नाला	1-04						
				41	6-02	नाला	6-02						
				43	9-03	नाला	9-03						
				164	2-05	नाला	2-05						
				168	0-15	नाला	0-15						
				170	5-08	नाला	5-08						
				179	5-18	नाला	5-18						
				242	11-04	नाला	11-04						
				305	3-03	नाला	3-03						
				342	0-15	नाला	0-15						
				360	1-13	नाला	1-13						
				383	1-16	नाला	1-16						
				384	13-04	नाला	13-04						
				407	6-19	नाला	6-19						
				415	2-02	नाला	2-02						
				455	15-05	नाला	15-05						
				481	3-17	नाला	3-17						
				508	0-18	नाला	0-18						
				538	12-16	नाला	12-16						
				564	4-16	नाला	4-16						
				578	4-03	नाला	4-03						
				582	0-12	नाला	0-12						

ग्राम का नाम :- गढ़ावा
तहसील :- रेवदर
सम्वत :- 2069 - 2072
क्षेत्रफल :- बीघा-बिस्वा

परवार कानूनगो :- बाघ
जिला :- सिरोही
वास्तविक सम्वत :- 2069

भू.बन्दि.नि.केन्द्र :- रेवदर
दिनांक :- 01/04/2013

खेवट(खतौनी) खाता	खेवट(खतौनी) पुरानाखाता	भूमि धारक का नाम	खातेदार का नाम	खसरा नंबर	क्षेत्रफल	भूमि वर्गीकरण		सिंचाई के साधन	लगान		सामान्यतया आदेश सं. तथा तारीख	भूमि और विशिष्टियाँ जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
									दर	रकम			
1	2	3	4	5	6	7		8	9	10	11	12	13
1		राम.	खातेदार (खातेदाह) हेतु	1/637	03-19	बंजी	03-19						
		बरकार		4/2	1-10	बंजी	1-10						
				4/4	5-12	बंजी	5-12						
			कुल खसरा : 3		कुल क्षेत्रफल : 61-01	भूमि प्रकार के अनुसार क्षेत्रफल							
						बंजी	61-01						
			कुल खसरा : 3		कुल क्षेत्रफल : 61-01	भूमि प्रकार के अनुसार क्षेत्रफल							
						बंजी	61-01						

शुल्क : 10/-

प्रमाणित किया जाता है कि इस प्रतिलिपि में लिखित कथन के समक्ष परिवर्तन समाविष्ट कर दिये गये है।

प्रतिलिपि तैयार करने का दिनांक- 01/04/2013

प्रतिलिपि रजिस्टर संख्या 40 दिनांक 1-4-13
उक्त आदेश संख्या से जारी की जाने वाली।
प्रभारी अधिकारी भारत केन्द्र

सहायक रेवदर

सहा.भार.बं. नि.केन्द्र
रेवदर, सिरोही

FOR COPYING FEES ONLY

जमाबन्दी (आंशिक प्रतिलिपि)

ग्राम का नाम :- खायरा पटवार हल्का ग्राम भू.अभि.रि.क्षेत्र नक्शा पृष्ठ संख्या 4 of 4

तहसील :- रेवाड़ी जिला :- गिरोड़ी दिनांक :- 01/04/2013

सम्वत :- 2067 - 2070 वास्तविक सम्वत :- 2067

परगना :- बौंधा-खेरखरा

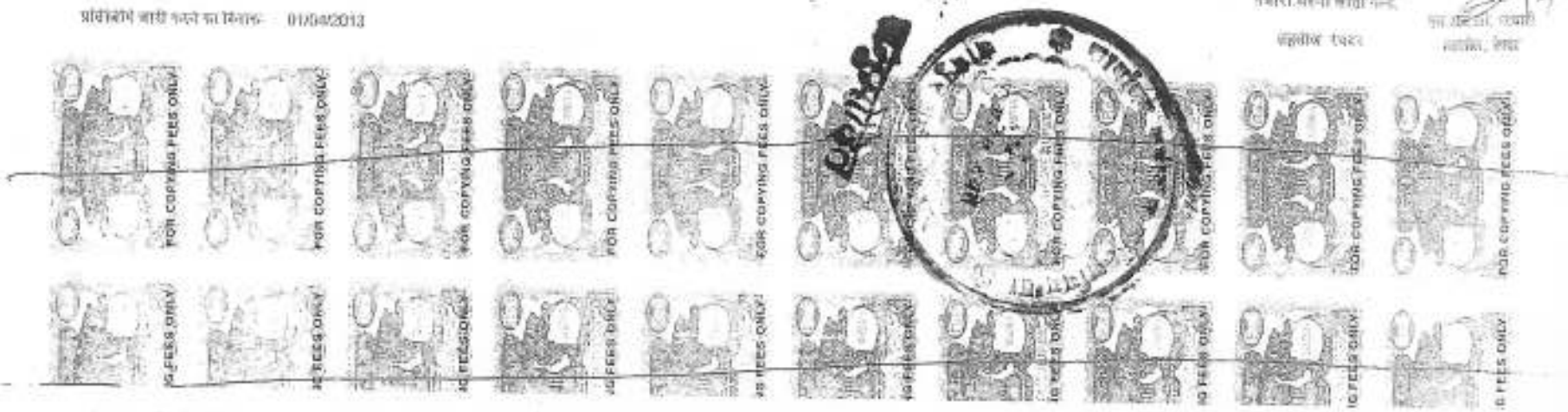
खसरा(खतौनी) नया	पुराना	भूमि धारक का नाम	खसरा संख्या	क्षेत्रफल	भूमि वर्गीकरण	सिंचाई के साधन	लगान		भोगदार/पट्टेदार अवधि व तथा तारीख	भूमि क्षेत्र जिसके पक्ष में भूमि अन्तरित हो	टिप्पणी
							दर	रकबा			
1	2	3	4	5	6	7	8	9	10	11	12
						नक्शा 42-11					
						खसरा 130-17					
		खातेदार तथा सरकार (पट्टेदार के लिए नहीं)	574	2-16		खसरा 2-16					
			कुल खसरा : 1	कुल क्षेत्रफल : 2-16		भूमि प्रकार के अनुसार क्षेत्रफल					
						खसरा 2-16					
कुल			कुल खसरा : 29	कुल क्षेत्रफल : 176-04		भूमि प्रकार के अनुसार क्षेत्रफल					
						नक्शा 42-11					
						खसरा 133-13					

प्रतिलिपि शुल्क: 20/-

प्रमाणित किया जाता है कि यह प्रतिलिपि से निम्नांकित अंक के समक्ष परिवर्तन प्रमाणित कर दिये गये हैं

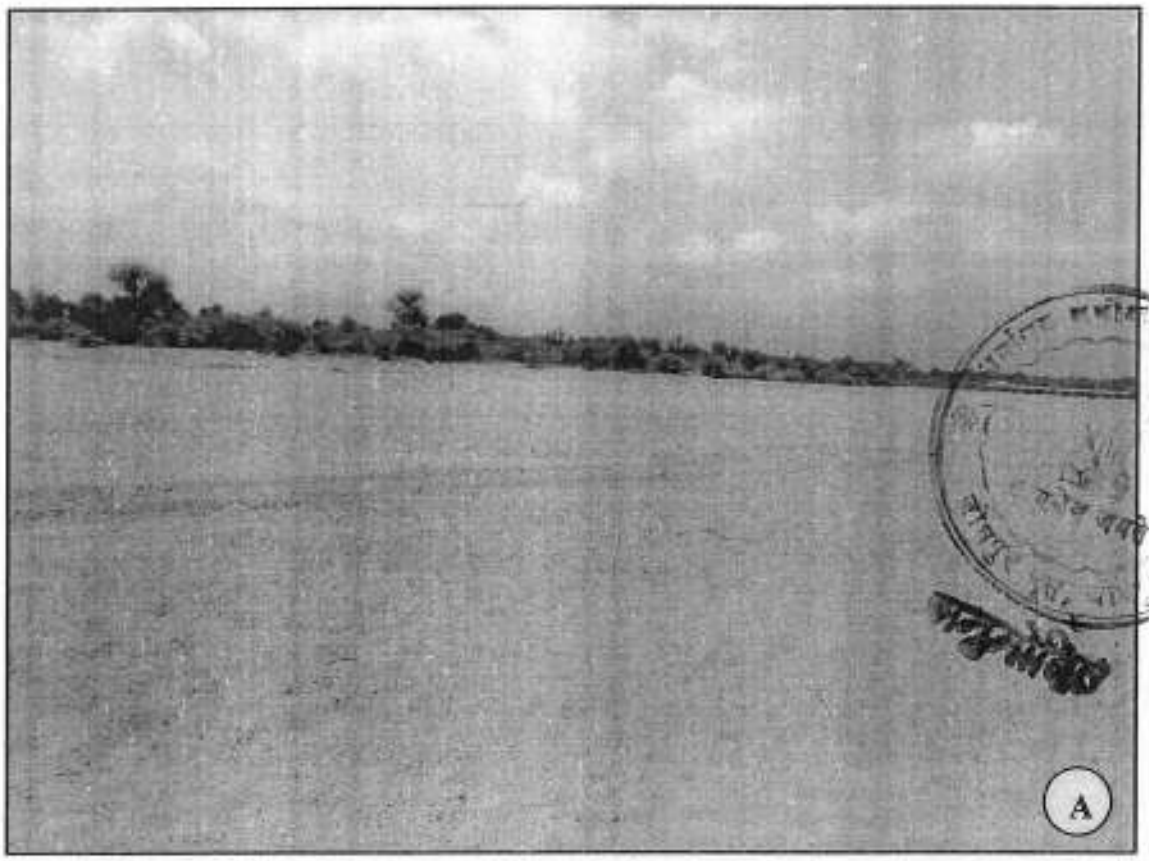
प्रतिलिपि क्रमांक: 1903378-49017

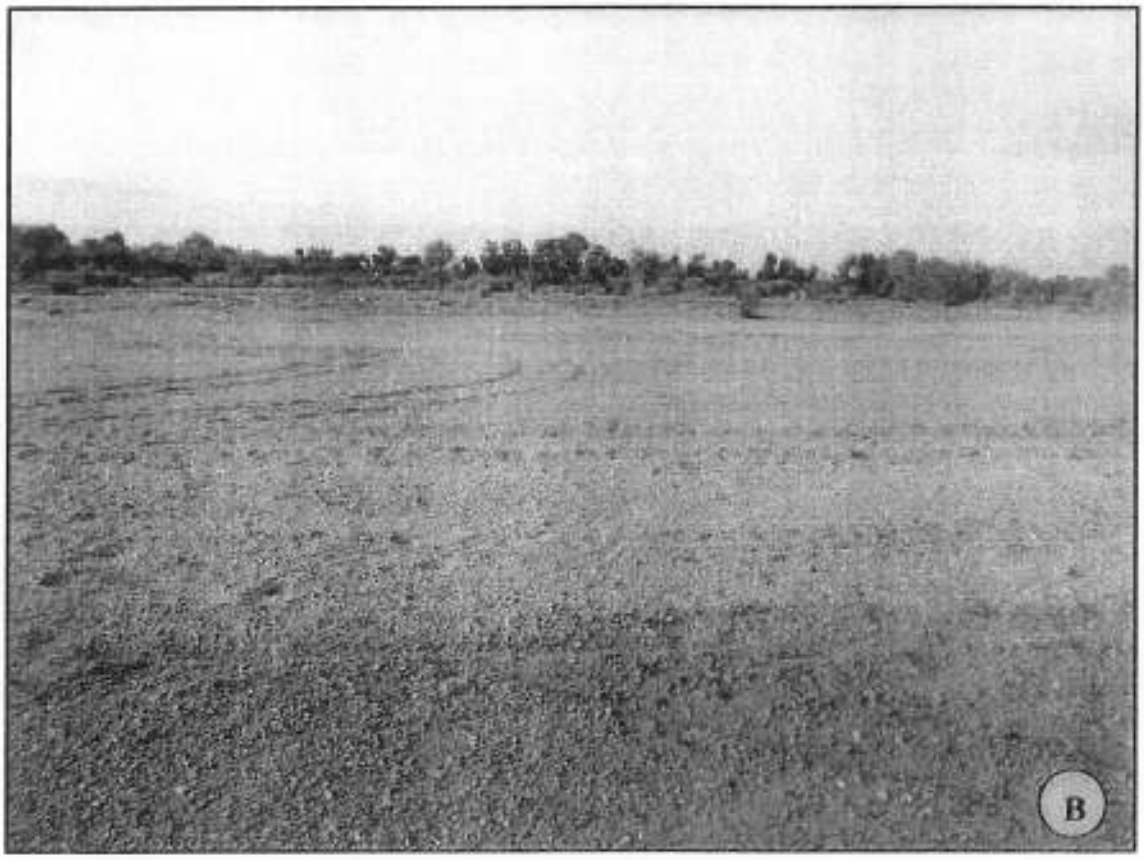
प्रतिलिपि जारी करने का दिनांक: 01/04/2013

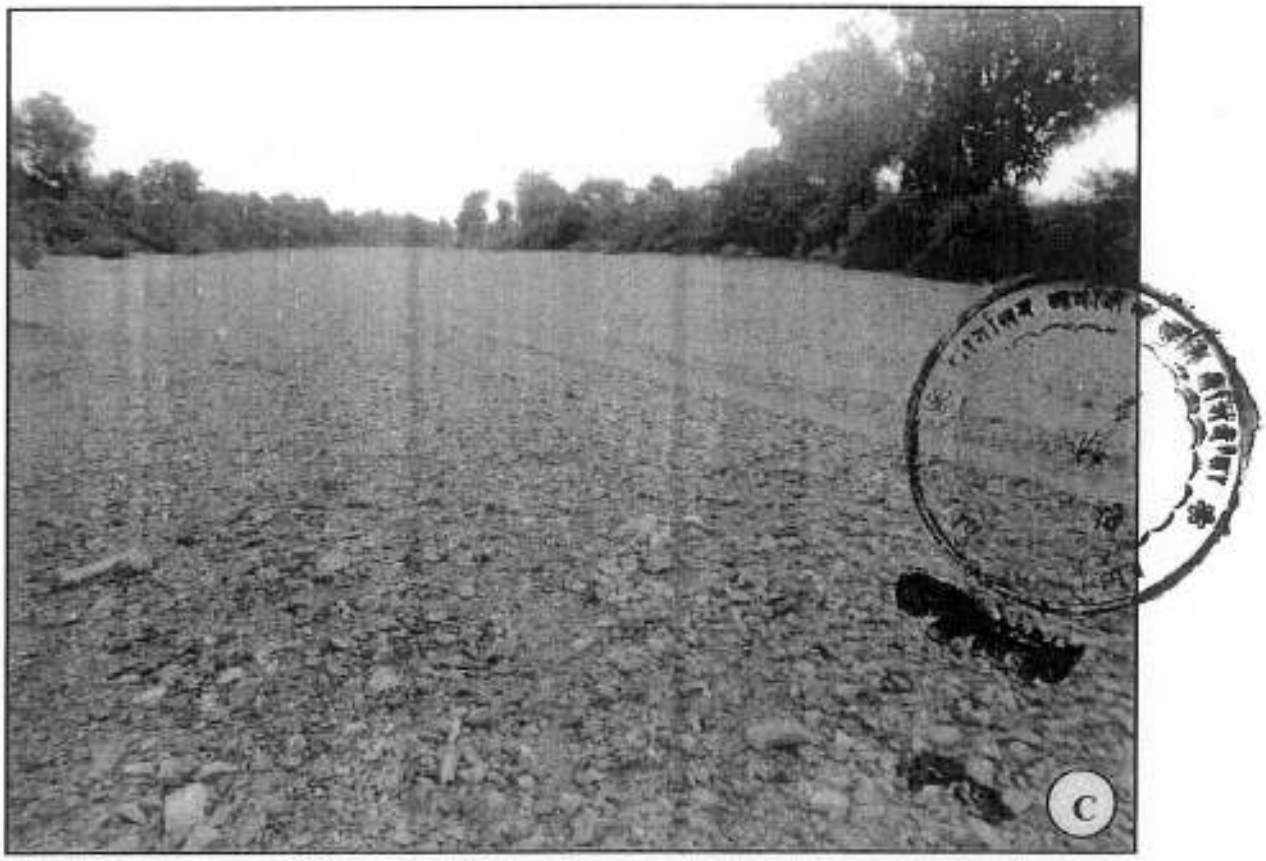


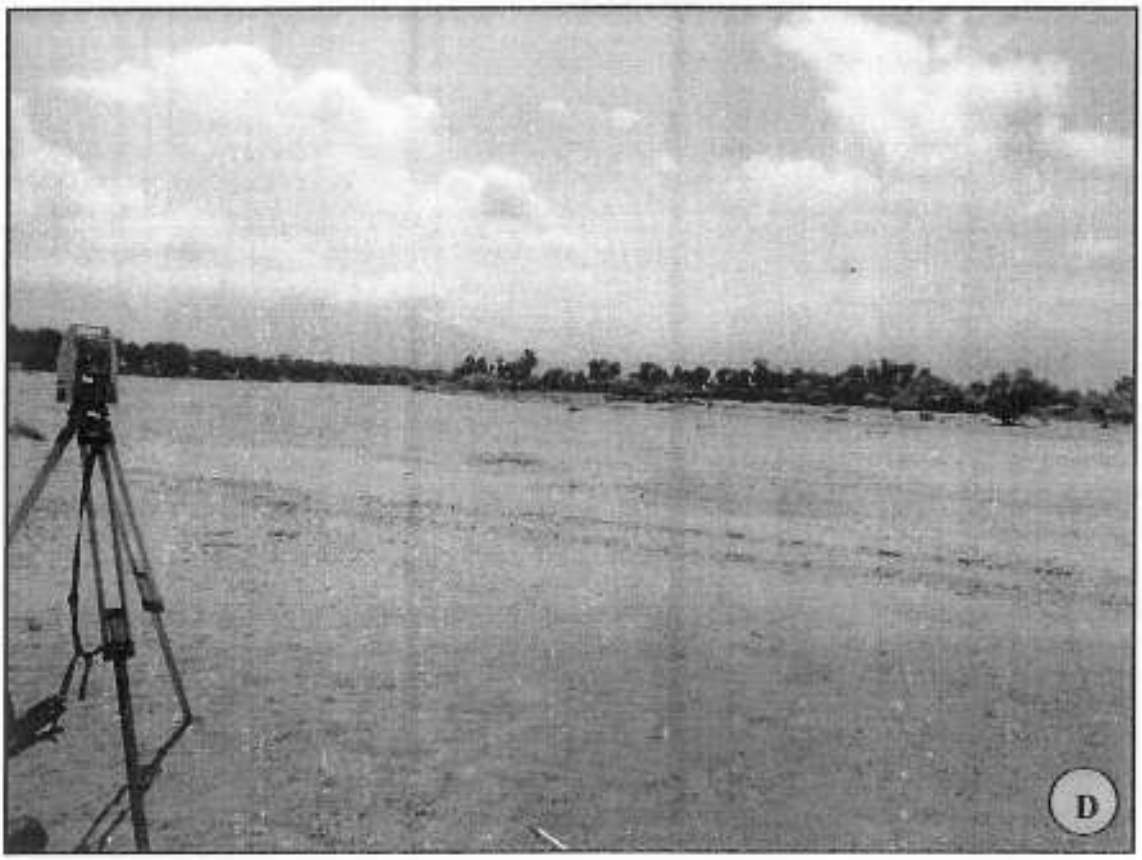
Annexure No. - 6

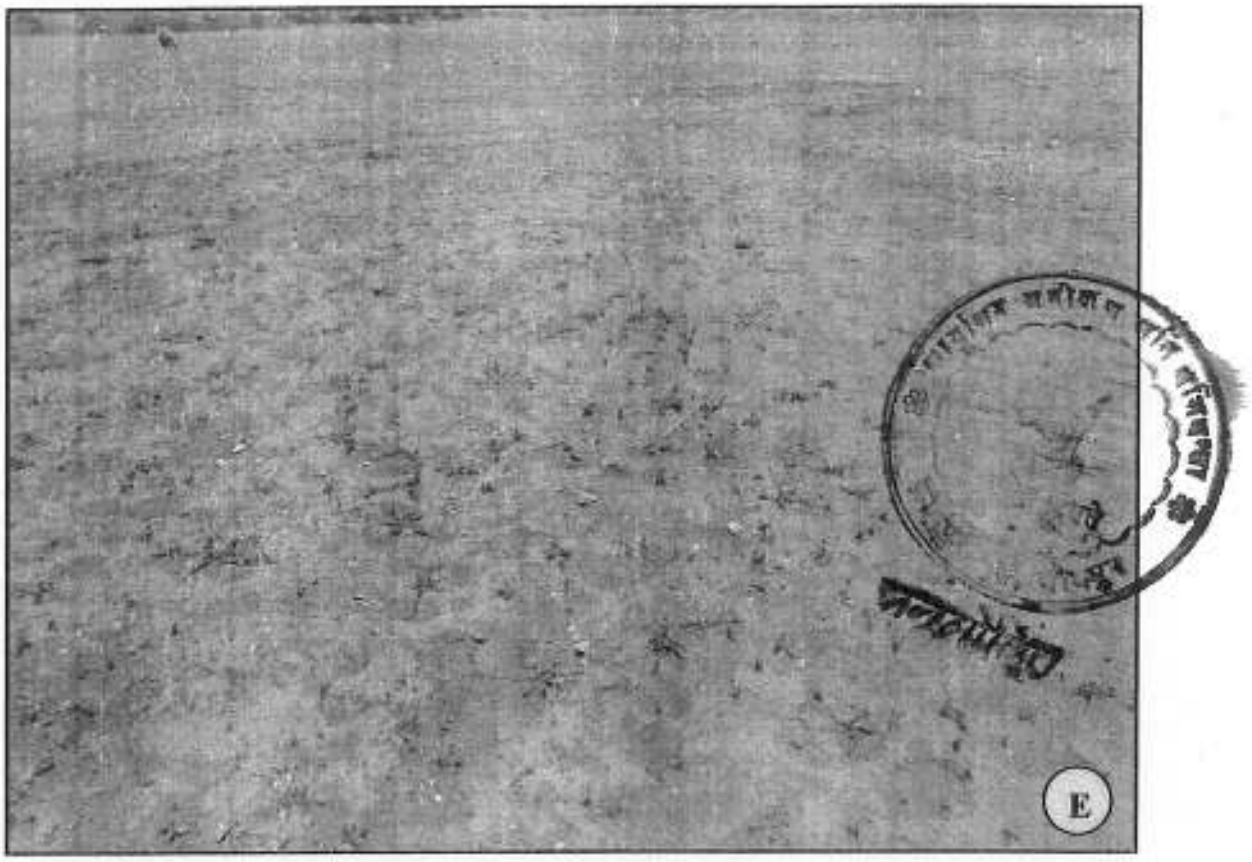
PHOTO OF MINE SITE [DISTRICT–SIROHI, TEHSIL–REODHAR

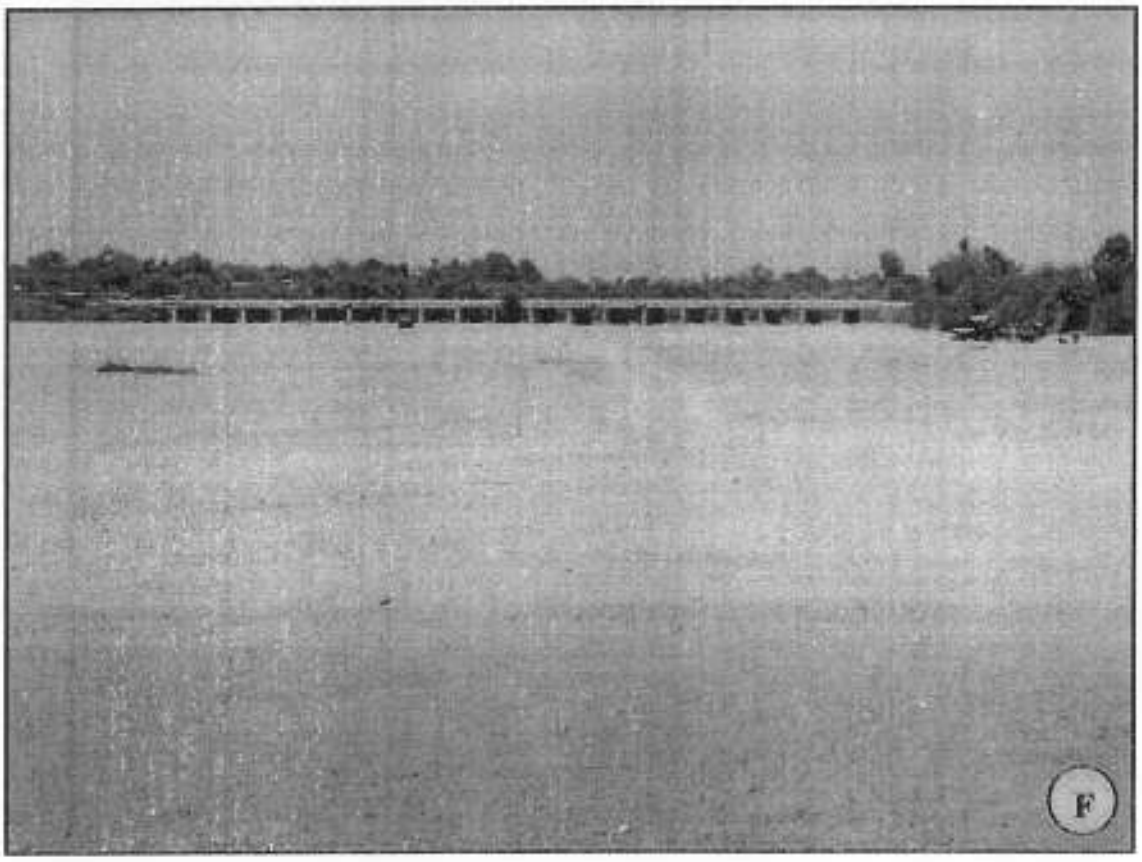





C


D


E


F

ANNEXURE-5A

PUBLIC HEARING

FOR ENVIRONMENT CLEARENCE

FOR RIVER SAND (BAJRI) PRODUCTION

OF

M/s. Shri Sher Singh Solanki

Organizer: State Pollution Control Board, Pali

Date of Public Hearing: 01/09/2014

Time: 11:00 A.M.

Place: SDM Office, Tehsil – Reodar,

District – Sirohi

In The Presence of

Mr. V. Sarwan Kumar

(District Collector, Sirohi)

&

Mr. R, B. Morya

(Regional Officer, RSPCB, Pali)

☎ 02932-231616

क्षेत्रीय कार्यालय
राजस्थान राज्य प्रदूषण नियंत्रण मण्डल,
एस–ए–6, मंडिया रोड औद्योगिक क्षेत्र, पाली

क्रमांक / राप्रनिम / क्षे.का.पाली / 2520 दिनाँक : 14/11/14

सदस्य सचिव
राज.प्रदूषण नियंत्रण मण्डल
जयपुर।

विषय : मैसर्स श्री शेर सिंह सोलंकी पुत्र श्री मंगल सिंह सोलंकी द्वारा नदी की बजरी के खनन (1286 हैक्टेयर), तहसील रेवदर, जिला सिरोही में प्रस्तावित नदी की बजरी खनन, उत्पादन क्षमता 28.05 टन प्रतिवर्ष की पर्यावरण स्वीकृति हेतु लोक सुनवाई दिनांक 01.09.2014 से संबंधित कार्यवाही विवरण।

महोदय,

उपरोक्त विषयान्तर्गत लेख है कि श्री शेर सिंह सोलंकी पुत्र श्री मंगल सिंह सोलंकी द्वारा नदी की बजरी के खनन (1286 हैक्टेयर), तहसील रेवदर, जिला सिरोही में प्रस्तावित नदी की बजरी खनन, उत्पादन क्षमता 28.05 टन प्रतिवर्ष की पर्यावरण स्वीकृति हेतु लोक सुनवाई दिनांक 01.09.2014 को कार्यालय उप खण्ड अधिकारी, तहसील रेवदर (सिरोही) में आयोजित की गयी था। जन सुनवाई का कार्यवृत विवरण (Minutes) की हस्ताक्षरित प्रति, फोटोग्राफ एवं विडियोग्राफी से सम्बंधित सीडी सूचनार्थ एवं अग्रिम कार्यवाही हेतु प्रेषित की जा रही है।

संलग्न : उपरोक्तानुसार

भवदीय,

Sd

(आर.बी.मौर्य)
क्षेत्रीय अधिकारी
रा.प्र.नि.म.,पाली

क्रमांक / राप्रनिम / क्षे.का.पाली / दिनाँक :

1. जिला कलेक्टर, सिरोही
2. अति. जिला कलेक्टर, सिरोही।
3. उप खण्ड अधिकारी, रेवदर, सिरोही।
4. ए.सी.पी. राप्रनिम, जयपुर को मण्डल मुख्यालय पत्रांक F.Tech (P-0158)RPCB/CPM/837 दिनांक 09.08.2011 की अनुपालना में जन सुनवाई का कार्यवृत विवरण (Minutes) को मण्डल की वेबसाईट पर दर्शाने हेतु।
5. श्री शेर सिंह सोलंकी पुत्र श्री मंगल सिंह सोलंकी तहसील रेवदर, जिला सिरोही

(आर.बी.मौर्य)
क्षेत्रीय अधिकारी
रा.प्र.नि.म.,पाली

क्षेत्रीय कार्यालय, राजस्थान राज्य प्रदूषण नियंत्रण मण्डल, पाली

लोक सुनवाई कार्यवाही विवरण

आवेदक – मैसर्स शेर सिंह सोलंकी पुत्र श्री मंगल सिंह सोलंकी निकट ग्राम आवाड़ा, भामेरा, बूटड़ी, छापोल, डंगराली, देरोल, गुलाबगंज, गुन्दवाड़ा, हाथल, जामटा, जावल, जीरावाल, जुआदरा, करेली, करोटी, लीलोरा, लूनोल, मकावल, मलावा, मलगॉव, मारोल, मिठन, निम्बोडा, पादरू खेड़ा, पीपलिया, राजगढ़, रामपुरा, रेवदर, सेलवाड़ा, थल, विकनवास एवं वासन, तहसील – रेवदर, जिला – सिरोही द्वारा प्रस्तावित बजरी खनन् (लीज क्षेत्रफल–1286 हैक्टेयर) उत्पादन 28.05 लाख टन प्रतिवर्ष की पर्यावरणीय स्वीकृति हेतु दिनांक 01.09.2014 को आयोजित लोकसुनवाई का विवरणः–

स्थानः– कार्यालय उपखण्ड अधिकारी, तहसील–रेवदर, जिला–सिरोही (राजस्थान)

दिनाँकः– 01.09.2014 (सोमवार)

समयः– मध्यान्ह पूर्व 11:00 बजे

उपस्थिति : सर्व श्री

1. वी. सरवन कुमार, जिला कलक्टर, सिरोही।
2. आर. बी. मौर्य, क्षेत्रीय अधिकारी, राजस्थान राज्य प्रदूषण नियंत्रण मण्डल, पाली।

राजस्थान राज्य प्रदूषण नियंत्रण मण्डल, क्षेत्रीय कार्यालय, पाली की सार्वजनिक सूचना क्रमांकः राप्रनिम/क्षे. का पाली/1312 दिनाँक 28.07.2014 के अनुसार निर्धारित तिथि 01.09.2014 को कार्यालय उपखण्ड अधिकारी, तहसील–रेवदर, जिला–सिरोही में मैसर्स शेर सिंह सोलंकी पुत्र श्री मंगल सिंह सोलंकी द्वारा प्रस्तावित खनन् (लीज क्षेत्रफल–1286 हैक्टेयर) उत्पादन 28.05 लाख टन प्रतिवर्ष करने के लिए पर्यावरणीय स्वीकृति हेतु दिनांक 01.09.2014 को आयोजित लोकसुनवाई श्री वी. सरवन कुमार, जिला कलक्टर, सिरोही एवं श्री आर. बी. मौर्य, क्षेत्रीय अधिकारी, राजस्थान राज्य प्रदूषण नियंत्रण मण्डल, पाली की उपस्थिति में आयोजित की गई। लोक सुनवाई में नामित अधिकारीगण एवं क्षेत्र के ग्रामवासी व अन्य का उपस्थिति पत्र मय हस्ताक्षर संलग्न है (संलग्नक–ए)। उक्त लोक–सुनवाई के लिए नियमानुसार समाचार पत्र हिन्दुस्तान टाईम्स में दिनॉक 03.08.2014 एवं राजस्थान पत्रिका में दिनॉक 03.08.2014 को आम सूचना प्रकाशित की गई थी, समाचार पत्रो की फोटो प्रतियाँ संलग्न है (संलग्नक–बी व सी)। यह लोक सुनवाई पर्यावरण संरक्षण अधिनियम–1986 के अन्तर्गत पर्यावरण एवं वन मंत्रालय भारत सरकार, नई दिल्ली द्वारा जारी अधिसूचना दिनांक 14.09.2006 के प्रावधानों के अनुरूप आयोजित की गई। लोक सुनवाई प्रस्तावित स्थल के पास स्थित कार्यालय उपखण्ड अधिकारी, तहसील–रेवदर, जिला–सिरोही में दिनांक 01.09.2014 को

आयोजित की गई। लोक सुनवाई की विडियों रिकोर्डिंग सी. डी. एवं फोटोग्राफ संलग्न है (संलग्नक–डी व ई) ।

लोक सुनवाई की कार्यवाही प्रारम्भ करते हुए क्षेत्रीय अधिकारी श्री आर. बी. मौर्य ने लोक सुनवाई के प्रावधानों, उद्धेश्यों तथा महत्व के बारे में बताते हुए उपस्थित जन से यह अपील की, कि वे इस प्रस्तावित से संबंधित अपनी आकांक्षाओं और अपेक्षाओं के बारे में विचार मौखिक/लिखित रूप से प्रस्तुत करें।

प्रस्तावित परियोजना मैसर्स शेर सिंह सोलंकी पुत्र श्री मंगल सिंह सोलंकी के तकनीकी सलाहकार श्री संदीप कुमार, परफेक्ट एनवायरो सोल्यूशन्स प्राइवेट लिमिटेड, नई दिल्ली ने इस परियोजना के प्रतिवेदन का विस्तार से वर्णन किया तथा मैसर्स शेर सिंह सोलंकी द्वारा की जाने वाली पर्यावरण प्रदूषण नियंत्रण एवं पर्यावरण संरक्षण संबंधी जानकारी बताई।

तत्पश्चात् क्षेत्रीय अधिकारी, राजस्थान राज्य प्रदूषण नियंत्रण मण्डल, पाली ने उपस्थित जनसमुदाय से अपेक्षा/सुझाव आमन्त्रित किये।

जनसुनवाई में उपस्थित श्री गोवर्धन सिंह देवडा, निवासी सिरोडी ने कहा कि बजरी नही होने से निर्माण कार्य में समस्या आयेगी। 5 रू प्रति टन की दर से जो राशि राज्य सरकार को जमा करवाई जा रही है उसका पौधारोपण एवं उनके संरक्षण पर खर्च किया जाए।

श्री गणपत सिंह, निवासी निम्बोडा ने कहा कि पौधारोपण का सुझाव अच्छा है लेकिन उनके लिए पानी की सुविधा व उनकी देखभाल कौन करेगा। एवं नदी में ट्रैक्टरों के आवागमन के लिए सड़क बनाई जाए।

इस पर परियोजना प्रस्तावक ने कहा कि खनन् पट्टा अनुबंध की तिथि से पॉच साल तक पौधारोपण व उनकी देखभाल भी करेगें।

श्री विरेन्द्र सिंह चौधरी, उपखण्ड अधिकारी, तहसील–रेवदर ने कहा कि ग्राम पंचायत यह निश्चित करें कि पौधारोपण कहॉ–कहॉ करवाना है।

श्री भूपेन्द्र सिंह, निवासी रेवदर ने कहा कि पौधों का रखरखाव होता है कि नही इसके लिए मॉनिटरिंग कमेटी बनाई जाए।

श्री वी. सरवन कुमार, जिला कलक्टर, सिरोही ने कहा कि पॉच साल तक पौधों की देखभाल परियोजना प्रस्तावक द्वारा की जाएगी एवं उसके बाद ग्राम पंचायत उनकी देखभाल करे।

श्री रामसिंह, निवासी अवाडा ने कहा कि नदी के दोनो तरफ 7.5 मी. तक पौधारोपण का प्रावधान है लेकिन कई स्थानों पर 7.5 मी. जगह नही होने पर पौधारोपण खातेदारी जमीन अथवा अतिक्रमण में होगा, इसका निर्धारण कौन करेगा।

इस पर श्री वी. सरवन कुमार, जिला कलेक्टर, सिरोही ने कहा कि प्रशासन इस बात का ध्यान रखेगा कि पौधारोपण नदी के दोनो तरफ 7.5 मी. तक ही होगा। 7.5 मी. जगह नही होने पर पौधारोपण अन्य योग्य स्थान पर किया जाएगा।

लोक सुनवाई के दौरान कोई लिखित प्रतिवेदन प्राप्त नही हुआ है।

अन्त में जिला कलेक्टर, सिरोही ने सभी उपस्थित जनो का आभार प्रकट किया गया एवं क्षेत्रीय अधिकारी द्वारा लोक सुनवाई समाप्त करने की घोषणा की गई।

(आर. बी. मौर्य)
क्षेत्रीय अधिकारी
राजस्थान राज्य प्रदूषण नियंत्रण मण्डल, पाली

(वी. सरवन कुमार)
जिला कलेक्टर, सिरोही
जिला कलेक्टर, सिरोही

उपस्थिति पंजिका

मैसर्स शेर सिंह सोलंकी पुत्र श्री मंगल सिंह सोलंकी की प्रस्तावित बजरी (अप्रधान खनिज) खनन परियोजना (खनन पट्टा क्षेत्र : 1286 हैक्टेयर) (उत्पादन क्षमता : 28.05 लाख टन प्रतिवर्ष) तहसील – रेवदर के राजस्व गांव – आवाड़ा, भामेरा, बूटड़ी, छापोल, डंगराली, देरोल, गुलाबगंज, गुन्दवाड़ा, हाथल, जामटा, जावल, जीरावाल, जुआदरा, करेली, करोटी, लीलोरा, लूनोल, मकावल, मलावा, मलगॉव, मारोल, मिठन, निम्बोडा, पादरू खेड़ा, पीपलिया, राजगढ़, रामपुरा, रेवदर, सेलवाड़ा, थल, विकनवास एवं वासन, जिला – सिरोही (राजस्थान) हेतु जनसुनवाई

दिनाँक: 01.09.2014 (सोमवार) **समय :** मध्यान्ह पूर्व 11:00 बजे

स्थान: कार्यालय उपखण्ड अधिकारी, तहसील–रेवदर, जिला–सिरोही (राजस्थान)

क्र.सं.	नाम एवं पता	हस्ताक्षर
1.	श्री वी स्वरूप कुमार IAS. जिला कलक्टर सिरोही.	
2.	श्री विरेन्द्रसिंह चौधरी RAS उपखण्ड अधिकारी रेवदर.	
3.	श्री आर की मॉर्य क्षेत्रीय अधिकारी पाली.	
4.	हरूपतसिंह तहसीलदार रेवदर	
5.	मूल सिंह देवड़ा खनि अभियंत्रा सिरोही	
6.	रघुमान सिंह सहायक वनसंरक्षक सिरोही	
7.	उत्तम सिंह राठौड़ माईन्स कोसेन्ट्रेटर खान विभाग	
8.	ओमाराम चौधरी हेड वं. कः सिरोही	
9.	जगपतसिंह निम्बेडा	
10.	शेरसिंह आवाड़ा	
11.	भरत कुमार पीपलिया	
12.	नरवर सिंह देवड़ा पीपलपुरा उ	
13.	गोपालसिंह डी एफ ओ सिरोही	
14.		

15.	[illegible]	[illegible]
16.	मगनलाल / मोहनजी [illegible]6	मगन
17.	पुष्पेन्द्रसिंह / माधोसिंह मगरवाड़ा	[illegible]
18.	इंद्रसिंह s/o लीलेसिंह देवड़ा मगरवाड़ा	इंद्रसिंह
19.	अलवरसिंह s/o शिवनाथसिंह देवड़ा	अलवरसिंह
20.	डाडू सिंह देवड़ा मुवाड़ा	[illegible]
21.	भँवरदान s/o रामरतनजी चारण करेली	[illegible]
22.	विपिन s/o मदनजी · सिरोही	[illegible]
23.	जोगसिंह s/o. कल्याणसिंह देवड़ा पिथापुरा	[illegible]
24.	गंगासिंह s/o. [illegible]	[illegible]
25.	जोगसिंह पृथ्वीसिंह [illegible]	[illegible]
26.	भंवरसिंह · पिथापुरा	[illegible]
27.	गौरीशंकर जागा। अध्यापक सिरोही	[illegible]
28.	खेमसिंह s/o भरतसिंह भाटी पोसेरा	खेमसिंह
29.	केसरु सिंह / मानसिंह जागाणी	[illegible]
30.	शंकर लाल / वदाजी · जागाणी	शंकर
31.	इन्द्रसिंह / मालसिंह देवड़ा मंगवाड़ा	[illegible]
32.	शैलेन्द्रसिंह गांधी सिरोही	[illegible]
33.	हुमाराम पोतालजी चौधरी (सेठ)	[illegible]
34.	तेजाराम [illegible]	[illegible]
35.	[illegible]	[illegible]
36.	[illegible]	[illegible]

37.	गोपालसिंह मारीवाड़	गोपालसिंह
38.	देवेन्द्र सिंह रावत	
39.	जोगसिंह N.T. मेंजर	
40.	[illegible] N.T. रावत	
41.	Kishan Lal. PR.	
42.	Kailash Garg Patwari	
43.	Ranjit Singh रावत	
44.	प्रभुराम S/ब्रह्मानंद सिरोही	प्रभुराम
45.	तलसाराम चौलपुरा	तलसाराम
46.	[illegible] सिंह	[illegible]
47.	[illegible] सिंह चौहान [illegible]	
48.	शिवसिंह [illegible] रावत	
49.	[illegible] सिंह रावत	
50.	नन्दसिंह रावत	नन्दसिंह
51	रामसिंह [illegible]	
52	[illegible] रावत	
53	बाबूराम [illegible]	बाबूराम
54	[illegible] रावत	
55	[illegible] रावत	
56	[illegible] रावत	
57	महेन्द्रपालसिंह रावत	
58	Mr. K. Gupta	

59.	Ajay Kumar Perfact Enviro Solution Pvt. Ltd.	Ajay Kumar
60.	Sunil Verma Perfact Enviro Solution Pvt. Ltd.	
61.	Sandeep Kumar Perfact Enviro Solutions Pvt. Ltd.	
62.	Vikram Singh. Perfect Enviro Solutions Pvt. Ltd.	
63	Jaipur	

REGIONAL OFFICE, RAJASTHAN STATE POLLUTION CONTROL BOARD, PALI

PUBLIC HEARING PROCEEDING IN DETAILS

Applicant: - Details of Public Hearing held on 01.09.2014 for Environment clearance of river sand (Bajri) (Lease Area 1286 Ha.) for proposed production @ 28.05 Lac TPA of M/s Sher Singh Solanki S/o Shri Mangal Singh Solanki, near village – Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, & Wasan, Tehsil- Reodar, District - Sirohi (Rajasthan).

Place: - Office- Subsection Officer, Tehsil – Reodar, Distrct – Sirohi.

Date: - 01.09.2014

Time: - 11:00 A.M.

The following were present Sarv Shri:-

1. V. Sarwan Kumar, District Collector, Sirohi.
2. R. B. Maurya, Regional officer, Rajasthan State Pollution Control Board, Pali.

Public Hearing organized by Rajasthan State Pollution Control Board, Regional office, Pali, via public notice no. RPCB/ROPALI/1312 dated – 28/07/2014 of M/s. Sher Singh Solanki S/o Shri Mangal Singh Solanki for proposed production of river sand (Bajri) (Lease area 1286 Ha.) @ 28.05 lac TPA has been conducted on 01.09.2014 in the presence of Shri V.Sarwan Kumar, Disctict Collector Sirohi and Shri. R.B. Maurya, Regional officer, RSPCB, Pali.

Attendance sheet with signature of designated officers and local villagers & others present at Public Hearing has been annexed as annexure A.

As per rules, Public Notice regarding Public Hearing has been published in Hindustan Times and Rajasthan Patrika on date 03.08.2014. Photo copies of news papers are annexed as annexure no. B & C.

The public hearing has been organized as per Environment Protection Act, 1986 under provision of EIA Notification dated 14.09.2006 of Ministry of Environment & Forest, Govt. of India, New Delhi.

Public Hearing has been conducted at Office of Subsection Officer, Tehsil–Reodar, Distrct–Sirohi on dated 01.09.2014 near proposed lease area. Video C.D. and photographs of Public Hearing are annexed as annexure no. D & E.

With initiating Public Hearing Proceeding, Regional officer Shri. R.B. Maurya stated the provision, objectives and importance of Public Hearing and appeals to Public to represent their thoughts, requirement and expectation from proposed project in oral/written form.

Shri. Sandeep Kumar, Perfect Enviro Solution Pvt. Ltd., Technical advisor of proposed mining project of M/s Sher Singh Solanki S/o Shri. Mangal Singh Solanki, explains the provision of this project in detail and told the information relevent for Pollution Control Measures & Environment Protection Measures to be done by M/s Sher Singh Solanki.

After that Regional Officer, Rajasthan State Pollution Control Board, Pali invites the objection/Suggestions from gathered peoples.

Shri. Govardhan Singh Devra resident of Sirohi, presented in Public Hearing Said that problem will occur in construction work due to unavailability of Gravel. Amount that is being deposited to state govt. at the rate of ₹ 5/ton should be spent on plantation and their conservation.

Shri Ganpat Singh resident of Nimbora, said that suggestion of plantation is good but who will provide water facility and care for them. And road should be constructed on river for transportation by tractor. On this project proponent said that they will do plantation and its care for five year from the date of agreement.

Shri Virendra Singh Chaudhary, Subsection Officer, Tehsil- Reodar, said that gram pamnchayat make sure where the plantation has to be done.

Shri Bhupendra Singh resident of Reodar, said for checking the maintenance of plants, monitoring committee should be formed.

Shri V. Sarwan Kumar, District Collector, Sirohi said that upto five year care of plants will be taken bt project proponent and after that gram panchayat will look after them.

Shri Ramsingh resident of Awada, said that there is provision for plantation upto 7.5 m on both side of river but due to non availability of land on many places plantation will be carried out on Khatedari Land or Encroachment, who will demarcate it ?

On this Shri V. Sarwan Kumar, District Collector, Sirohi said that administration will take care of this that plantation would carried out upto 7.5m on both side of river. In case of non availability of land in the area, plantation will be carried out on other suitable land

No written report have been received during public hearing.

In the end, District Collector, Sirohi has expressed vote of thanks to all the villagers and all those who present in the Public Hearing & The Regional officer announces the closing of proceeding.

(Mr. R. B. Maurya)
Regional Officer
Rajasthan State Pollution Control Board,
Pali

(Mr. V. Sarwan Kumar)
District collector
Sirohi (Rajasthan)

PUBLIC HEARING PHOTOGRAPHS










ANNEXURE-5B

(Public Hearing Compliance along with budgetary provision)

PUBLIC HEARING ACTION PLAN WITH BUDGETARY ALLOCATION

S.No.	Issues raised by the Public	Response/Commitment of Project Proponents	Suggestions made by the Public Hearing Panel	Action (with budgetary allocation)
1.	Shri Govardhan Singh Devra resident of Sirohi, Said that problem will occur in construction work due to unavailability of Gravel. Amount that is being deposited to state govt. at the rate of ` 5/ton should be spent on plantation and their conservation.	Technical advisor said that plantation will be carried out on 7.5m safety zone and other suitable places.	-	A capital budget of Rs. 3.0 lacks with recurring cost of Rs. 6.5 lacks has been earmarked for plantation with protection. (Ref. Table 9.6 of EIA/EMP)
2.	Shri Ganpat Singh resident of Nimbora said that suggestion of plantation is good but who will provide water facility and care for them. And road should be constructed on river for transportation by tractor.	Project proponent said that we will develop plantation and taken care of it's for five year from the date of agreement.	Shri Virendra Singh Chaudhary, SDM, Tehsil- Reodar, said that gram pamnchayat make sure where the plantation has to be done.	A capital budget of Rs. 3.0 lacks with recurring cost of Rs. 6.5 lacks has been earmarked for plantation with protection. (Ref. Table 9.6 of EIA/EMP)
3.	Shri Bhupendra Singh resident of Reodar, said that evaluation committee should be formed for monotoring the maintenance of plants,		Shri V. Sarwan Kumar, District Collector, Sirohi said that taken care of plantation will be done by the PP upto five year and after that gram panchayat will look after the plantation.	Agreed, PP will taken care of plantation upto five years.
4.	Shri Ramsingh resident of Awada, said that there is provision for plantation upto 7.5 m on both side of river but due to non availability of land on many places plantation will be carried out on Khatedari Land or Encroachment, who will demarcate it?		Shri V. Sarwan Kumar, District Collector, Sirohi said that administration will taken care that plantation would carried out upto 7.5m on both side of river. In case of non availability of land in the area, plantation will be carried out on other suitable land.	Plantation will be carried out with the consultation of Gran Panchayat and not be done in khatedari land.

ANNEXURE-6

(ARAVALLI NOC LETTER)

राजस्थान सरकार
कार्यालय खनि अभियन्ता, खान एवं भू विज्ञान विभाग,सिरोही

कमांकः— खअ/सिरोही/अप्रधान/बजरी/2015/ 2260 दिनांक 12/3/015

प्रमाण पत्र एम एल सं. 12/2012

यह प्रमाणित किया जाता है कि श्री शेरसिंह पुत्र श्री मंगल सिंह सोलंकी निवासी 13, शिव नगर, कमला नेहरू नगर अजमेर रोड जयपुर के पक्ष में खनन पट्टा खनिज बजरी क्षैत्रफल 2527 हैक्टर आवंटित करने के लिये शासन द्वारा आदेश कमांक प.8 (16) खान/ग्रप–2/2013 जयपुर दिनांक 27.2.2013 को मंशा पत्र जारी किया गया है। खनन पट्टा आवंटन हेतु जारी मंशा पत्र में उल्लेखित क्षैत्र तहसील रेवदर के राजस्व गांवो मे गैर मुमकीन नदी, नालो, बालो से (खसरो के अनुसार) जिला सिरोही में आता हैं। जिसके अक्षान्तर 24° 31' 01.97" से 24° 41' 16.24"एव देशान्तर 72° 24' 44.49"से 72° 38' 23.95" तक जो निदेशालय द्वारा अरावली पर्वतमाला निर्धारण करने के कम में जारी परिपत्र दिनांक 9.01.2006 के अनुसार अरावली प्रतिबंधित क्षैत्र में नही आता है। तथा माननीय सर्वोच्च न्यायालय के आदेश की अवहेलना में नही आता है।

यह प्रमाण पत्र कार्यालय द्वारा मंशा पत्रधारी श्री शेर सिंह की और से प्रस्तुत पृष्ठांकन प्रतिलिपी दिनांक 5.1..2015 द्वारा चाहे अनुसार व मंशा पत्रधारक द्वारा प्रस्तुत पृष्ठांकन प्रतिलिपी के साथ संल्गन खनन पट्टा क्षैत्र के जी. टी. शीट पर प्रस्तुत नक्शे के आधार पर इस कार्यालय की मानचित्र शाखा से ली गई टिप्पणी के आधार पर भारत सरकार एवं वन मंत्रालय में लम्बित पर्यावरण सहमती हेतु वांछित पूर्तियो के लिये जारी किया जाता है।

(एम एस देवडा)
खनि अभियंता
सिरोही

ANNEXURE-7

(Submission receipt to DFO)

कार्यालय उप वन संरक्षक, सिरोही (राजस्थान) 307001

E-Mail ID:def.sirohi forest @rajasthan.gov.in &dfo sirohi@gmail.com Phone.@fax No. 02972 2222277

क्रमांकःएफ12( ) वसु/ख0अ0/उवसं/2014–15/ 3014 दिनांकः– 27/3/15

निमित्,

मैसर्स श्री शेर सिंह सोंलकी
पुत्र श्री मंगलसिंह सोंलकी
निवासी 13 शिवनगर, अजमेर रोड
जयपुर।

विषय :– **LOI N0**. प. 8 (16) खान/ग्रुप–2/2013, जयपुर दिनांक–27.02.2013 के तहत् बजरी खनन् क्षैत्रफल 1286.00 हैक्टेयर निकट ग्राम आवदा .... अन्य ग्राम तहसील रेवदर जिला सिरोही (राज.) के सम्बन्ध में।

सन्दर्भः– आपका पत्र कमांक शून्य – दिनांक 2.3.2015 के कम मे।

उपरोक्त विषयान्तर्गत सन्दर्भित पत्र के कम मे लेख हैं कि बजरी खनन् क्षैत्रफल 1286.00 हैक्टेयर निकट ग्राम आवदा.....अन्य ग्राम तहसील रेवदर जिला सिरोही के आवेदित बजरी खनन क्षैत्र के लिए भारत सरकार के वन पर्यावरण मंत्रालय के पत्र कमांक J-11015/309/2013- IA II (M) दिनांक 22/11/2013 के कम मे बिन्दू सं0 10. 15. 16 के सन्दर्भ मे क्लीयेरेन्स प्राप्त करने हेतु आप द्वारा चाही गई सूचना निम्नानुसार प्रस्तुत है।

1 – भारत सरकार के पर्यावरण एवं वन मंत्रालय के बिन्दू सं.10 के कम में आप द्वारा प्रस्तुत दस्तावेजो के अनुकरण उपरान्त यह प्रमाणित किया जाता है कि उक्त बजरी खनन क्षैत्र वन क्षैत्र मे नही आते है।

2 – बिन्दू सं. 15 के कम मे यह उल्लेखनीय है कि उक्त खनन पट्टा क्षैत्र के 10 कि.मी. परिधि में वन्य जीव अभ्यारण्य माउण्ट आबू का क्षैत्र भी पडता है। अतः उप वन संरक्षक (वन्य जीव) आबूपर्वत से कारवाई अपेक्षित है।

3 – बिन्दू सं. 16 के कम में उक्त खनन पट्टे के कोर जोन एवं 10 कि.मी. परिधि (बफर जोन) में पाये जाने वाले फ्लोरा एवं फोना की सूची पूर्ण नही है। फोना की सूची में तेन्दूआ, भालू तथा मोर को सम्मिलित करते हुए सूची प्रमाणित की जाती है।

आप द्वारा प्रस्तुत कन्जर्वेशन प्लान में भी कुछ कमियॉ पाई गई है। उपयुक्त कन्जर्वेान प्लान का ढॉचा इस कार्यालय से प्राप्त कर उसके अनुसार कन्जर्वेशन प्लान बनाकर पुनः प्रस्तुत करे।

भवदीय

(शशि शंकर)
उप वन संरक्षक
सिरोही

क्रमांकःएफ12( ) वसु/ख0अ0/उवसं/2014–15/ दिनांकः–

प्रतिलिपि उप वन संरक्षक (वन्य जीव) आबूपर्वत को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित है।

(शशि शंकर)
उप वन संरक्षक
सिरोही

ANNEXURE-8A

(Laboratory Test reports for analysis of air, water, soil, noise)

Table 1 Ambient Air Quality Monitoring Results

Station	Sampling locations	SO_2		NO_2		PM_{10}	
		Min.	Max.	Min.	Max.	Min.	Max.
AAQ1	Down Wind from Sili Nadi	6.2	8.6	10.0	13.1	49.9	61.2
AAQ2	Mandar	5.8	8.2	10.3	13.7	51.7	69.0
AAQ3	Marol	6.1	8.5	9.9	12.9	50.1	63.4
AAQ4	Reodar	5.6	8.0	10.2	13.3	47.6	68.2
AAQ5	Jirawal	6.0	8.7	10.1	13.5	48.4	59.7
AAQ6	Thal	5.9	8.4	10.0	13.2	52.2	64.3
AAQ7	Selwara	6.1	8.6	9.8	13.1	51.3	63.5
AAQ8	Dangrali	5.8	8.5	10.2	13.6	49.7	63.8
AAQ9	Anadra	6.0	8.3	9.9	13.3	46.9	63.9
AAQ10	Sipu River	5.7	8.2	10.4	13.9	52.0	59.1

(Unit = µg/m^3)

Table 2 Results of Ground & Surface Water

S.No.	Parameters	LOCATION OF GROUND WATER SAMPLING						
		Hathal GW1	Kotra Khera GW2	Mandar GW3	Mokawal GW4	Dhani GW5	Tokara GW6	Drinking water standards, IS:10500 ; 2012 (Permissible Limits)
1	pH	8.2	8.0	8.2	7.8	8.2	8.2	6.5-8.5
2	Conductivity (µmhos/cm)	1767.6	1146.6	1056.6	1123.2	860.4	1200.6	-
3	Turbidity (NTU)	<1	<1	<1	<1	<1	<1	1
4	Temperature	23.6	23.0	22.9	23.4	22.7	24.0	-
5	Color (HAZEN)	<1	<1	<1	<1	<1	<1	5
6	Odour	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Agreeable
7	Total Dissolved Solids (mg/l)	982	637	587	624	478	667	500
8	Chloride (as Cl -) (mg/l)	242.6	204	164	148	130	212	250
9	Alkalinity (as CaCO3) (mg/l)	357	218.5	177.1	378.6	157.2	210.2	200
10	Total Hardness (as CaCO3) (mg/l)	428	430.4	281	390	296.3	442.7	200
11	Calcium (as Ca) (mg/l)	120.2	124.2	70.6	115	80.4	131.6	75
12	Magnesium (as Mg) (mg/l)	31.1	29.2	25.5	25.0	23.2	27.7	30
13	Sodium (as Na) (mg/l)	86.0	26.0	33.0	24.8	19.0	22.3	--
14	Potassium (mg/l)	2.7	2.3	5.9	1.8	6.1	2.7	--
15	Fluoride (as F) (mg/l)	2.0	1.3	1.4	1.2	1.2	1.8	1
16	Nitrate Nitrogen (as NO3-) (mg/l)	32.1	27.1	182.1	22.5	29.4	25.4	45
17	Sulphate (as SO42-) (mg/l)	70.5	52.2	25.6	11.4	62.4	53.8	200
18	Iron (mg/l)	<0.3	<0.3	<0.3	1.6	<0.3	<0.3	0.3

Table 3 Results of Soil Sample

S.No.	Parameter	LOCATION				
		Sipu River	Sirohi	Mandar	Bhamera	Kapasiya
		(S1)	(S2)	(S3)	(S4)	(S5)
1.	pH	8.5	8.0	7.8	7.6	8.1
2.	Conductivity (µS/cm)	50.0	64.0	46.0	17.0	80.0
3.	Bulk density (gm/cc)	1.79	1.39	1.53	1.37	1.48
4.	Spe. Gravity (gm/cc)	2.61	2.34	2.57	2.39	2.67
5.	Porosity (%)	31.4	40.7	39.8	42.5	44.2
6.	Calcium (mg/kg)	18.2	44.1	27.7	12.02	43.6
7.	Magnesium (mg/kg)	10.1	20.0	16.8	7.2	24.0
8.	Sodium (mg/kg)	1.3	11.2	16.2	4.7	6.7
9.	Ava. Potassium (mg/kg)	8.8	6.3	4.6	3.1	13.8
10.	Ava. Phosphorus (mg/kg)	0.1	1.2	1.3	1.4	1.8
11.	Ava. Nitrogen (mg/kg)	56.8	40.7	50.1	6.2	25.1
12.	Organic matter (%)	0.12	0.24	0.22	0.26	0.22
13.	Chloride (mg/kg)	22.4	17.5	35.0	12.6	21.6
14.	Texture	Sand	Sandy Clay Loam	Sand	Sandy loam	Sandy loam
15.	Sand (%)	94.5	63.9	91.5	84.5	63.9
16.	Silt (%)	3.2	11.0	1.6	6.9	19.5
17.	Clay (%)	2.2	25.0	6.7	8.4	11.1

Table 4 Results of Ambient Noise of Study Area

S.No	Loaction	L_{eq} Day Noise level dB(A)	L_{eq} Night Noise level dB(A)	Day time (6.00 A.M to 10.00P.M)	Night time (10.00 P.M to 6.00A.M)
				Standard (L_{eq} in dB(A)	Standard (L_{eq} in dB(A)
1	0.5 km downwind	56.4	54.7	75.0	70.0
2	Mandar	55.1	44.5	55.0	45.0
3	Marol	54.6	44.2	55.0	45.0
4	Reodar	53.8	44.1	55.0	45.0
5	Jirawal	54.5	43.9	55.0	45.0
6	Thal	54.1	44.2	55.0	45.0
7	Selwara	55.3	53.1	75.0	70.0
8	Dangrali	53.5	43.8	55.0	45.0
9	Anadra	54.2	44.0	55.0	45.0
10	Sipu Nadi	56.4	54.2	75.0	70.0

ANNEXURE-8B

(MICRO METEOROLOGICAL DATA)

Meteorological Data of M/s. Sher Singh Solanki
Tehsil- Reodar, District- Sirohi (Rajasthan)

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
1/12/2013	1	2	18.9	75	976	90	3.3	2438	0
1/12/2013	2	2	18.8	74	976	45	4	2438	0
1/12/2013	3	2	18.8	71	976	45	4.2	2438	0
1/12/2013	4	3	18.8	68	976	167	4.3	2438	0
1/12/2013	5	3	18.7	65	976	176	4.3	2438	0
1/12/2013	6	3	18.6	61	976	185	4.2	2438	0
1/12/2013	7	3	18.4	59	976	45	4.1	2438	0
1/12/2013	8	3	17.9	62	976	219	3.5	2438	0
1/12/2013	9	3	19.8	61	976	246	3.6	2438	0
1/12/2013	10	3	21.3	53	976	259	3.2	2438	0
1/12/2013	11	3	22.2	50	976	267	2.1	2438	0
1/12/2013	12	2	23	48	976	273	1.3	2438	0
1/12/2013	13	2	23.9	45	975	282	1.4	2438	0
1/12/2013	14	3	24.3	43	975	282	1.6	2438	0
1/12/2013	15	3	24.4	43	974	283	1.5	2438	0
1/12/2013	16	3	24.2	43	974	285	1.4	2438	0
1/12/2013	17	2	23.7	49	974	302	1	2438	0
1/12/2013	18	2	22.6	56	973	304	-0.1	2438	0
1/12/2013	19	2	21.4	63	974	23	-0.2	2438	0
1/12/2013	20	2	20.3	68	974	148	0.2	2438	0
1/12/2013	21	2	19.6	72	975	144	0.9	2438	0
1/12/2013	22	2	19	73	975	149	1.6	77777	0
1/12/2013	23	2	18.9	72	975	152	2.9	77777	0
1/12/2013	24	2	18.8	70	975	152	4.2	77777	0
2/12/2013	1	2	18.3	69	975	153	4.6	77777	0
2/12/2013	2	2	17.9	67	974	155	4.7	2438	0
2/12/2013	3	2	17.9	62	974	45	4.6	2438	0
2/12/2013	4	2	18.3	55	974	45	4.6	2438	0
2/12/2013	5	2	18.9	58	974	167	4.1	2438	0
2/12/2013	6	2	19	55	974	175	3.9	2438	0
2/12/2013	7	3	19.2	54	975	186	3.5	2438	0
2/12/2013	8	3	19.3	54	975	200	3.1	2438	0
2/12/2013	9	3	20.7	55	975	240	2.5	2438	0
2/12/2013	10	3	22.8	48	975	277	3.3	2438	0
2/12/2013	11	3	23.7	49	975	279	3	2438	0
2/12/2013	12	3	24.4	48	975	284	2.9	2438	0
2/12/2013	13	3	24.9	46	974	293	2.9	2438	0
2/12/2013	14	3	24.9	45	974	301	2.7	2438	0
2/12/2013	15	3	24.8	45	973	306	2.5	2438	0
2/12/2013	16	3	24.4	46	973	310	2.3	2438	0
2/12/2013	17	3	23.9	55	973	319	1.9	2438	0
2/12/2013	18	2	22.8	58	973	320	1.2	2438	0
2/12/2013	19	2	21.7	63	973	298	0.1	2438	0
2/12/2013	20	2	20.7	68	973	187	0	2438	0
2/12/2013	21	2	19.8	72	974	45	0.4	2438	0
2/12/2013	22	2	19	75	974	45	1.3	2438	0
2/12/2013	23	2	18.7	75	974	45	2.2	2438	0
2/12/2013	24	2	18.6	73	974	45	2.8	77777	0
3/12/2013	1	2	18.4	71	974	155	3.1	77777	0
3/12/2013	2	2	18.2	69	974	155	3.8	77777	0
3/12/2013	3	2	17.9	68	974	155	4.2	2438	0
3/12/2013	4	2	17.7	68	974	155	4.1	2438	0
3/12/2013	5	2	17.4	66	974	155	3.6	2438	0
3/12/2013	6	2	17.4	63	974	163	2.8	2438	0
3/12/2013	7	3	17.2	61	975	174	2.1	2438	0
3/12/2013	8	3	16.7	63	975	243	1.7	2438	0
3/12/2013	9	3	18.4	57	975	301	2.2	2438	0
3/12/2013	10	3	19.9	57	975	316	1.4	2438	0
3/12/2013	11	3	21.4	52	975	320	1	2438	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
3/12/2013	12	2	22.3	50	974	324	0.8	2438	0
3/12/2013	13	2	22.9	49	974	332	0.7	2438	0
3/12/2013	14	2	23.3	48	973	336	0.8	2438	0
3/12/2013	15	2	23.4	47	973	341	0.8	2438	0
3/12/2013	16	2	23.3	47	973	348	1.1	2438	0
3/12/2013	17	2	22.8	53	973	345	1.2	2438	0
3/12/2013	18	2	21.7	58	973	348	1	2438	0
3/12/2013	19	2	20.7	63	973	45	0.4	2438	0
3/12/2013	20	2	19.7	68	974	74	0.3	2438	0
3/12/2013	21	2	18.8	71	974	104	1.1	2438	0
3/12/2013	22	2	18.3	71	975	109	2.2	2438	0
3/12/2013	23	2	18.2	68	975	108	3.1	2438	0
3/12/2013	24	2	18	64	976	107	3.5	2438	0
4/12/2013	1	2	17.7	61	975	113	3.5	2438	0
4/12/2013	2	2	17.3	60	975	125	3.4	2438	0
4/12/2013	3	2	16.9	59	975	135	3.4	2438	0
4/12/2013	4	2	16.9	58	975	45	3.3	2438	0
4/12/2013	5	2	16.7	57	975	143	2.9	2438	0
4/12/2013	6	2	16.3	58	975	144	2.5	2438	0
4/12/2013	7	2	15.8	60	976	141	2	2438	0
4/12/2013	8	2	15.4	63	976	122	1.2	2438	0
4/12/2013	9	2	16.9	64	976	62	0.2	2438	0
4/12/2013	10	2	19.8	51	976	45	1.9	2438	0
4/12/2013	11	2	20.7	51	976	1	1.8	2438	0
4/12/2013	12	2	21.3	51	976	359	1.2	2438	0
4/12/2013	13	2	21.9	49	975	355	1.2	2438	0
4/12/2013	14	2	22.3	48	975	346	1.2	2438	0
4/12/2013	15	2	22.4	46	975	342	1.4	2438	0
4/12/2013	16	2	22.2	48	974	347	1.8	2438	0
4/12/2013	17	2	21.6	55	974	347	1.6	2438	0
4/12/2013	18	2	20.7	60	974	353	1	2438	0
4/12/2013	19	2	19.6	64	974	354	0.1	2438	0
4/12/2013	20	2	18.6	69	975	170	-0.1	2438	0
4/12/2013	21	2	17.7	74	975	148	0.1	2438	0
4/12/2013	22	2	16.9	76	976	137	0.6	2438	0
4/12/2013	23	2	16.6	77	976	45	1.2	2438	0
4/12/2013	24	2	16.4	75	976	147	2.1	77777	0
5/12/2013	1	2	16.6	70	976	149	2.8	77777	0
5/12/2013	2	2	16.7	67	975	148	3.1	77777	0
5/12/2013	3	2	16.4	65	975	148	3	77777	0
5/12/2013	4	2	15.9	66	975	143	2.5	77777	0
5/12/2013	5	2	15.4	67	976	141	1.9	77777	0
5/12/2013	6	2	14.8	69	976	141	1.2	77777	0
5/12/2013	7	2	14.2	71	976	137	0.7	77777	0
5/12/2013	8	2	13.9	73	976	118	0.2	77777	0
5/12/2013	9	2	16	68	976	83	-0.1	77777	0
5/12/2013	10	2	19.2	53	976	351	1.5	77777	0
5/12/2013	11	2	20.4	49	976	354	2.1	77777	0
5/12/2013	12	2	21	47	976	357	2.3	77777	0
5/12/2013	13	2	21.6	47	975	1	2.4	77777	0
5/12/2013	14	2	21.9	48	975	5	2.3	77777	0
5/12/2013	15	2	21.9	48	974	11	2.3	77777	0
5/12/2013	16	2	21.9	49	974	15	2.5	77777	0
5/12/2013	17	2	21.2	59	973	10	2	77777	0
5/12/2013	18	2	20.3	63	973	21	1.9	77777	0
5/12/2013	19	2	19.3	66	974	47	1.4	77777	0
5/12/2013	20	2	18.4	69	974	78	0.9	77777	0
5/12/2013	21	2	17.6	72	974	112	0.8	77777	0
5/12/2013	22	2	16.8	75	974	126	1.1	77777	0
5/12/2013	23	2	16.2	76	975	45	1.6	77777	0
5/12/2013	24	2	15.8	76	975	143	2	77777	0
6/12/2013	1	2	15.4	75	974	141	1.8	77777	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
6/12/2013	2	2	15	74	974	143	1.6	77777	0
6/12/2013	3	2	14.9	73	974	145	1.5	77777	0
6/12/2013	4	2	14.7	72	974	142	1.4	77777	0
6/12/2013	5	2	14.4	70	973	45	1.5	77777	0
6/12/2013	6	2	14.3	70	973	45	1.5	77777	0
6/12/2013	7	2	14.2	68	974	141	1.6	77777	0
6/12/2013	8	2	14.4	67	974	45	1.6	2438	0
6/12/2013	9	2	15.9	69	974	128	0.4	2438	0
6/12/2013	10	2	19.3	53	974	30	0.3	2438	0
6/12/2013	11	2	20.7	48	974	19	0.8	2438	0
6/12/2013	12	2	21.4	46	974	24	0.8	2438	0
6/12/2013	13	2	22	44	973	31	0.7	2438	0
6/12/2013	14	2	22.4	43	973	23	0.5	2438	0
6/12/2013	15	2	22.6	44	972	45	0.5	2438	0
6/12/2013	16	2	22.4	45	972	1	0.7	2438	0
6/12/2013	17	2	21.9	51	972	354	0.7	2438	0
6/12/2013	18	2	20.7	57	972	14	0.2	2438	0
6/12/2013	19	2	19.4	63	972	92	-0.1	2438	0
6/12/2013	20	2	18.4	68	973	113	0.2	2438	0
6/12/2013	21	2	17.7	73	973	120	1.1	2438	0
6/12/2013	22	2	17.3	73	973	128	2.4	2438	0
6/12/2013	23	2	17	70	974	140	3.9	77777	0
6/12/2013	24	2	16.6	67	974	147	4.6	77777	0
7/12/2013	1	2	16.2	65	974	147	4.8	77777	0
7/12/2013	2	2	15.9	62	973	145	4.8	77777	0
7/12/2013	3	2	15.8	60	973	145	4.8	77777	0
7/12/2013	4	2	15.7	57	973	145	4.8	77777	0
7/12/2013	5	2	16.8	70	973	145	4.4	2438	0
7/12/2013	6	2	16.9	68	973	147	4.4	2438	0
7/12/2013	7	2	16.8	67	973	149	4.5	2438	0
7/12/2013	8	2	16.9	67	973	150	4.1	2438	0
7/12/2013	9	2	19.2	62	973	155	3	2438	0
7/12/2013	10	2	21.8	50	973	45	1.8	2438	0
7/12/2013	11	2	23.3	45	973	216	0.2	2438	0
7/12/2013	12	2	23.9	41	973	274	0	2438	0
7/12/2013	13	2	24.3	41	973	299	0.1	2438	0
7/12/2013	14	3	24.4	41	972	311	0.2	2438	0
7/12/2013	15	3	24.4	42	972	319	0.1	2438	0
7/12/2013	16	3	24.4	43	971	330	0.3	2438	0
7/12/2013	17	3	23.8	50	971	331	0.3	2438	0
7/12/2013	18	3	22.6	57	971	287	0	2438	0
7/12/2013	19	2	21.3	64	971	322	-0.2	2438	0
7/12/2013	20	2	20.2	70	972	45	0	2438	0
7/12/2013	21	2	19.3	75	972	45	0.9	2438	0
7/12/2013	22	2	18.8	75	972	144	2.8	2438	0
7/12/2013	23	2	18.3	73	973	153	4.3	2438	0
7/12/2013	24	2	17.9	73	973	151	4.5	2438	0
8/12/2013	1	2	17.6	72	972	149	4.6	2438	0
8/12/2013	2	2	17.4	70	972	150	4.6	2438	0
8/12/2013	3	2	17.3	68	972	155	4.6	2438	0
8/12/2013	4	2	17.3	65	972	45	4.5	2438	0
8/12/2013	5	3	17.3	63	972	45	4.5	2438	0
8/12/2013	6	3	17	63	972	170	4.6	2438	0
8/12/2013	7	3	16.8	63	972	169	4.6	2438	0
8/12/2013	8	3	17	63	973	170	4.2	2438	0
8/12/2013	9	3	19.3	59	973	178	3.3	2438	0
8/12/2013	10	3	21.2	53	973	45	2.4	2438	0
8/12/2013	11	3	22.6	51	973	240	0.9	2438	0
8/12/2013	12	3	23.4	50	973	287	0.7	2438	0
8/12/2013	13	3	23.8	50	972	303	0.9	2438	0
8/12/2013	14	4	24	50	972	309	1.1	2438	0
8/12/2013	15	4	23.9	51	971	313	1.4	2438	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
8/12/2013	16	4	23.8	53	971	317	1.8	2438	0
8/12/2013	17	3	23.2	60	971	322	2.3	2438	0
8/12/2013	18	3	22.2	65	970	321	2.1	2438	0
8/12/2013	19	3	21.2	70	971	313	0.8	2438	0
8/12/2013	20	3	20.3	75	971	126	-0.1	2438	0
8/12/2013	21	3	19.4	80	971	45	0.4	2438	0
8/12/2013	22	2	18.8	82	972	137	1.4	2438	0
8/12/2013	23	2	18.6	81	972	142	2.5	2438	0
8/12/2013	24	2	18.4	80	972	146	3.4	2438	0
9/12/2013	1	2	18.2	79	972	149	3.7	2438	0
9/12/2013	2	2	17.9	79	971	151	3.9	2438	0
9/12/2013	3	2	17.6	78	971	155	3.9	2438	0
9/12/2013	4	2	17.6	77	971	45	3.7	2438	0
9/12/2013	5	2	17.4	76	971	165	3.1	2438	0
9/12/2013	6	2	16.9	77	971	169	2.4	2438	0
9/12/2013	7	2	16.6	78	972	170	2.1	2438	0
9/12/2013	8	3	16.4	79	972	45	1.7	2438	0
9/12/2013	9	3	18.3	74	972	176	0.4	2438	0
9/12/2013	10	3	20.9	62	972	310	1	2438	0
9/12/2013	11	3	21.8	59	972	328	1.5	2438	0
9/12/2013	12	3	22.4	57	972	334	1.7	2438	0
9/12/2013	13	3	22.8	55	971	334	1.8	2438	0
9/12/2013	14	3	22.9	56	971	328	1.7	2438	0
9/12/2013	15	3	22.9	57	970	322	1.8	2438	0
9/12/2013	16	3	22.7	58	970	318	1.9	2438	0
9/12/2013	17	3	22.2	64	970	313	2.1	2438	0
9/12/2013	18	3	21.4	68	969	309	1.8	2438	0
9/12/2013	19	3	20.6	72	970	300	1	2438	0
9/12/2013	20	3	19.8	76	970	232	0	2438	0
9/12/2013	21	3	18.9	81	971	151	0	2438	0
9/12/2013	22	3	18.2	84	971	141	0.4	2438	0
9/12/2013	23	2	17.7	86	971	137	1.1	2438	0
9/12/2013	24	2	17.4	86	972	128	1.4	2438	0
10/12/2013	1	2	16.9	86	971	142	1.6	2438	0
10/12/2013	2	2	16.7	86	971	152	1.9	2438	0
10/12/2013	3	2	16.3	86	971	146	1.5	2438	0
10/12/2013	4	2	16	86	971	140	1.5	2438	0
10/12/2013	5	2	15.9	85	971	142	1.7	2438	0
10/12/2013	6	2	15.8	84	971	146	2	2438	0
10/12/2013	7	3	15.8	82	971	148	2.5	2438	0
10/12/2013	8	3	15.9	80	971	151	2.7	2438	0
10/12/2013	9	3	17.8	74	971	148	1.5	2438	0
10/12/2013	10	3	20.6	61	971	146	-0.1	2438	0
10/12/2013	11	3	21.8	53	971	297	-0.1	2438	0
10/12/2013	12	3	22.4	50	971	286	-0.1	2438	0
10/12/2013	13	3	22.7	49	970	325	0	2438	0
10/12/2013	14	4	22.9	49	970	330	0.4	2438	0
10/12/2013	15	4	22.9	49	970	327	0.9	2438	0
10/12/2013	16	4	22.8	51	970	322	1.6	2438	0
10/12/2013	17	4	22.2	57	970	321	2.4	2438	0
10/12/2013	18	3	21.3	61	970	318	2.6	2438	0
10/12/2013	19	3	20.3	65	971	314	1.8	2438	0
10/12/2013	20	3	19.4	70	971	294	0.2	2438	0
10/12/2013	21	3	18.6	75	972	149	0.1	2438	0
10/12/2013	22	2	17.8	79	972	149	0.5	2438	0
10/12/2013	23	2	17.4	81	973	146	1.3	2438	0
10/12/2013	24	2	17.2	81	973	143	2	2438	0
11/12/2013	1	2	16.9	80	973	45	2.5	2438	0
11/12/2013	2	2	16.8	80	973	140	2.9	2438	0
11/12/2013	3	3	16.6	79	972	145	3.1	2438	0
11/12/2013	4	3	16.6	78	972	149	3.1	2438	0
11/12/2013	5	3	16.4	77	972	153	3.1	2438	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
11/12/2013	6	3	16.4	77	972	156	3	2438	0
11/12/2013	7	4	16.2	77	973	45	2.9	2438	0
11/12/2013	8	4	16.3	77	973	170	2.7	2438	0
11/12/2013	9	3	18.3	70	973	45	1.3	2438	0
11/12/2013	10	3	20.6	60	974	272	1.2	2438	0
11/12/2013	11	3	21.4	58	974	301	1.3	2438	0
11/12/2013	12	3	21.9	55	974	310	1.3	2438	0
11/12/2013	13	3	22.4	54	973	314	1.6	2438	0
11/12/2013	14	4	22.6	53	973	318	2	2438	0
11/12/2013	15	5	22.6	54	972	322	2.2	2438	0
11/12/2013	16	5	22.3	55	972	328	2.4	2438	0
11/12/2013	17	4	21.7	63	972	332	2.4	2438	0
11/12/2013	18	4	20.9	66	971	336	2.3	2438	0
11/12/2013	19	3	20	69	972	343	1.4	2438	0
11/12/2013	20	3	19.3	73	973	358	0.2	2438	0
11/12/2013	21	2	18.4	77	973	159	0.1	2438	0
11/12/2013	22	2	17.8	81	974	174	0.3	2438	0
11/12/2013	23	2	17.2	83	974	178	0.6	2438	0
11/12/2013	24	2	16.7	84	974	171	1.2	2438	0
12/12/2013	1	2	16.3	85	974	45	1.6	2438	0
12/12/2013	2	2	15.9	85	974	150	1.6	2438	0
12/12/2013	3	2	15.7	84	974	150	1.4	2438	0
12/12/2013	4	2	15.4	84	974	158	1.2	2438	0
12/12/2013	5	2	14.9	77	973	155	1	2438	0
12/12/2013	6	2	14.4	77	974	147	1.1	2438	0
12/12/2013	7	2	14.3	77	974	148	1.6	2438	0
12/12/2013	8	2	14.4	76	974	150	1.8	2438	0
12/12/2013	9	2	16.4	72	974	45	0.4	2438	0
12/12/2013	10	2	19.4	56	974	344	-0.2	2438	0
12/12/2013	11	2	20.6	51	974	345	0.4	2438	0
12/12/2013	12	2	21.3	49	974	350	0.7	2438	0
12/12/2013	13	2	21.8	48	973	348	1	2438	0
12/12/2013	14	2	22	47	973	341	1.5	2438	0
12/12/2013	15	2	22	47	973	334	2	2438	0
12/12/2013	16	2	21.9	48	972	327	2.3	2438	0
12/12/2013	17	2	21.2	58	972	314	2.2	2438	0
12/12/2013	18	2	20.3	60	972	305	2.2	2438	0
12/12/2013	19	2	19.4	63	972	293	1.6	2438	0
12/12/2013	20	2	18.4	66	973	254	0.6	2438	0
12/12/2013	21	2	17.7	70	973	45	0.6	2438	0
12/12/2013	22	2	16.9	73	974	178	1.2	2438	0
12/12/2013	23	2	16.4	74	974	180	1.8	2438	0
12/12/2013	24	2	16.3	74	974	182	2.4	2438	0
13/12/2013	1	2	16.2	73	974	180	2.8	2438	0
13/12/2013	2	2	15.9	73	974	177	2.9	2438	0
13/12/2013	3	2	15.7	72	974	175	2.7	2438	0
13/12/2013	4	2	15.4	72	974	179	2.5	2438	0
13/12/2013	5	2	15.4	70	974	186	2.3	2438	0
13/12/2013	6	2	15.2	70	974	195	2.2	2438	0
13/12/2013	7	2	14.9	69	974	200	2.2	2438	0
13/12/2013	8	2	15	69	974	202	2.2	2438	0
13/12/2013	9	2	17.2	62	974	237	2	2438	0
13/12/2013	10	2	19.2	56	974	270	2.3	2438	0
13/12/2013	11	2	20.4	52	974	278	2.1	2438	0
13/12/2013	12	2	21.3	50	974	278	1.8	2438	0
13/12/2013	13	2	21.9	48	973	281	1.7	2438	0
13/12/2013	14	2	22.4	47	973	284	1.9	2438	0
13/12/2013	15	2	22.4	47	972	284	2.2	2438	0
13/12/2013	16	2	22.3	49	972	281	2.6	2438	0
13/12/2013	17	2	21.6	59	972	283	2.4	2438	0
13/12/2013	18	2	20.6	64	972	266	2.4	2438	0
13/12/2013	19	2	19.6	68	972	239	2.7	2438	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
13/12/2013	20	2	18.7	71	972	222	3.4	2438	0
13/12/2013	21	2	18.2	71	972	214	3.8	77777	0
13/12/2013	22	2	17.9	70	973	207	3.8	77777	0
13/12/2013	23	2	17.6	68	973	199	4	77777	0
13/12/2013	24	2	17.3	66	973	45	4.2	77777	0
14/12/2013	1	2	17	64	973	204	4.2	2438	0
14/12/2013	2	2	16.9	63	973	212	4.1	2438	0
14/12/2013	3	2	16.9	63	973	221	4.2	2438	0
14/12/2013	4	2	16.6	64	973	227	4.4	2438	0
14/12/2013	5	2	16.2	66	973	230	4.4	2438	0
14/12/2013	6	2	15.9	66	973	229	4.2	2438	0
14/12/2013	7	2	15.9	65	973	226	4	2438	0
14/12/2013	8	2	15.9	65	974	229	3.4	2438	0
14/12/2013	9	2	17.2	63	974	264	2.2	77777	0
14/12/2013	10	2	18.7	59	974	298	1.9	77777	0
14/12/2013	11	2	20	54	974	304	1.7	77777	0
14/12/2013	12	2	20.8	53	974	300	1.2	77777	0
14/12/2013	13	2	21.7	51	973	294	1.1	77777	0
14/12/2013	14	2	22.4	48	973	45	1.5	77777	0
14/12/2013	15	2	22.6	47	972	287	1.8	77777	0
14/12/2013	16	2	22.4	48	972	280	1.9	77777	0
14/12/2013	17	2	21.9	56	972	288	1.3	77777	0
14/12/2013	18	2	20.8	62	972	258	0.6	77777	0
14/12/2013	19	2	19.7	67	973	206	1	77777	0
14/12/2013	20	2	18.8	70	973	186	1.8	77777	0
14/12/2013	21	2	18.2	70	973	177	2.8	77777	0
14/12/2013	22	2	17.9	67	973	171	3.9	77777	0
14/12/2013	23	2	17.4	64	973	45	4.4	77777	0
14/12/2013	24	2	17.2	60	974	167	4.5	77777	0
15/12/2013	1	2	16.9	57	973	170	4.6	2438	0
15/12/2013	2	2	17	53	973	174	4.4	2438	0
15/12/2013	3	2	17.2	51	973	178	4.1	2438	0
15/12/2013	4	2	17	50	973	180	3.8	2438	0
15/12/2013	5	2	16.8	50	973	179	3.5	2438	0
15/12/2013	6	2	16.4	52	974	175	3.4	2438	0
15/12/2013	7	2	15.9	54	974	172	3.5	77777	0
15/12/2013	8	2	15.9	55	974	173	3.5	77777	0
15/12/2013	9	2	17.2	57	974	177	2.4	77777	0
15/12/2013	10	2	20.2	47	974	224	1.3	77777	0
15/12/2013	11	2	21.4	44	974	249	0.5	77777	0
15/12/2013	12	2	22.4	41	974	258	0.2	77777	0
15/12/2013	13	2	23.2	40	973	284	0.1	77777	0
15/12/2013	14	2	23.4	40	973	303	0.4	77777	0
15/12/2013	15	2	23.6	40	973	315	0.8	77777	0
15/12/2013	16	2	23.4	42	972	323	1.5	77777	0
15/12/2013	17	2	22.4	51	972	330	2.3	77777	0
15/12/2013	18	2	21.2	57	972	333	2.2	77777	0
15/12/2013	19	2	19.9	63	973	343	0.7	77777	0
15/12/2013	20	2	18.8	69	974	129	0	77777	0
15/12/2013	21	2	17.8	74	974	127	0.5	77777	0
15/12/2013	22	2	17	77	975	130	1.4	77777	0
15/12/2013	23	2	16.8	77	975	135	1.9	77777	0
15/12/2013	24	2	16.4	76	976	45	2.1	77777	0
16/12/2013	1	2	15.9	76	975	45	2.4	77777	0
16/12/2013	2	2	15.8	74	975	135	2.9	2438	0
16/12/2013	3	2	15.7	72	975	45	2.7	2438	0
16/12/2013	4	2	15.4	71	975	144	1.9	2438	0
16/12/2013	5	2	14.9	72	974	148	1.2	2438	0
16/12/2013	6	2	14.3	75	974	150	1	2438	0
16/12/2013	7	2	13.8	77	975	148	1.1	2438	0
16/12/2013	8	2	13.4	78	975	135	1	2438	0
16/12/2013	9	2	15.6	74	976	99	0	2438	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
16/12/2013	10	2	18.8	58	976	45	0.5	2438	0
16/12/2013	11	2	19.9	56	976	17	1.1	2438	0
16/12/2013	12	2	20.7	54	976	10	1	2438	0
16/12/2013	13	2	21.2	53	975	2	1	2438	0
16/12/2013	14	2	21.6	53	974	355	1	2438	0
16/12/2013	15	2	21.8	52	974	346	1.2	2438	0
16/12/2013	16	2	21.6	53	973	339	1.7	2438	0
16/12/2013	17	2	20.9	61	973	332	2.3	2438	0
16/12/2013	18	2	19.9	65	973	329	2.5	2438	0
16/12/2013	19	3	19	69	974	326	2.1	2438	0
16/12/2013	20	3	18.3	72	974	319	1	2438	0
16/12/2013	21	3	17.6	75	975	272	-0.2	2438	0
16/12/2013	22	2	16.9	79	975	147	0.1	2438	0
16/12/2013	23	2	16.3	82	976	154	0.7	2438	0
16/12/2013	24	2	15.9	84	976	154	1.3	2438	0
17/12/2013	1	2	15.6	84	976	155	1.9	2438	0
17/12/2013	2	2	15.4	82	975	154	2.2	2438	0
17/12/2013	3	2	15.2	82	975	151	1.7	2438	0
17/12/2013	4	2	14.8	83	975	145	1.2	2438	0
17/12/2013	5	2	13.6	80	975	140	1	2438	0
17/12/2013	6	2	12.9	82	975	45	0.7	2438	0
17/12/2013	7	2	12.6	84	975	45	0.7	2438	0
17/12/2013	8	2	12.4	84	975	45	0.6	2438	0
17/12/2013	9	2	14.6	77	975	91	-0.1	2438	0
17/12/2013	10	2	17.8	60	975	347	0.4	2438	0
17/12/2013	11	2	18.9	56	975	353	1	2438	0
17/12/2013	12	2	19.7	53	975	353	1.1	2438	0
17/12/2013	13	2	20.3	52	974	347	1.2	2438	0
17/12/2013	14	2	20.6	51	973	344	1	2438	0
17/12/2013	15	2	20.7	52	973	342	0.8	2438	0
17/12/2013	16	2	20.6	53	973	338	1.1	2438	0
17/12/2013	17	2	20	58	972	330	1.2	2438	0
17/12/2013	18	2	19	63	972	325	0.8	2438	0
17/12/2013	19	2	17.9	69	973	313	-0.1	2438	0
17/12/2013	20	2	16.9	74	973	165	0	2438	0
17/12/2013	21	2	16	79	973	148	0.2	2438	0
17/12/2013	22	2	15.4	82	974	147	0.8	2438	0
17/12/2013	23	2	14.9	83	974	152	1.6	2438	0
17/12/2013	24	2	14.7	82	974	158	2.2	2438	0
18/12/2013	1	2	14.6	80	974	45	2.3	77777	0
18/12/2013	2	2	14.4	79	974	45	2.4	2438	0
18/12/2013	3	2	14.2	78	973	163	2.4	2438	0
18/12/2013	4	2	13.9	78	973	176	2.2	2438	0
18/12/2013	5	2	13.9	77	973	192	2.1	2438	0
18/12/2013	6	2	13.8	76	973	205	1.9	2438	0
18/12/2013	7	2	13.6	75	974	204	2	2438	0
18/12/2013	8	2	13.7	75	974	212	2.1	2438	0
18/12/2013	9	2	15.8	70	973	263	2.5	2438	0
18/12/2013	10	3	17.3	65	973	283	2.8	2438	0
18/12/2013	11	3	18.2	61	973	294	2.5	2438	0
18/12/2013	12	3	18.8	59	973	300	2.2	2438	0
18/12/2013	13	3	19.3	54	972	304	2.7	2438	0
18/12/2013	14	3	19.4	51	972	305	2.9	2438	0
18/12/2013	15	3	19.4	50	972	304	2.9	2438	0
18/12/2013	16	2	18.9	50	971	302	3	2438	0
18/12/2013	17	2	18.3	59	971	297	2.4	2438	0
18/12/2013	18	2	17.6	59	971	286	1.9	2438	0
18/12/2013	19	2	16.9	59	972	263	1.5	2438	0
18/12/2013	20	2	16.3	59	972	247	1.6	2438	0
18/12/2013	21	2	15.8	60	972	237	1.6	2438	0
18/12/2013	22	2	15.2	60	973	222	1.5	2438	0
18/12/2013	23	2	14.7	60	973	216	1.4	2438	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
18/12/2013	24	2	14.3	60	973	201	1.6	77777	0
19/12/2013	1	2	14	57	972	45	2	77777	0
19/12/2013	2	2	13.9	56	972	204	2	77777	0
19/12/2013	3	2	13.7	54	972	231	1.9	77777	0
19/12/2013	4	2	12.9	56	972	278	3	77777	0
19/12/2013	5	2	11.3	65	973	45	3.5	77777	0
19/12/2013	6	2	10.2	68	973	287	3.2	77777	0
19/12/2013	7	2	9.3	69	973	287	3	77777	0
19/12/2013	8	2	8.8	72	973	294	2.3	77777	0
19/12/2013	9	2	10.8	63	974	335	3.3	77777	0
19/12/2013	10	2	12.4	60	974	339	3.5	77777	0
19/12/2013	11	2	13.4	60	973	335	3.2	77777	0
19/12/2013	12	2	14.2	60	973	327	3.2	77777	0
19/12/2013	13	2	15.2	56	973	325	3.2	77777	0
19/12/2013	14	2	15.8	54	973	323	2.9	77777	0
19/12/2013	15	2	15.9	53	972	318	2.5	77777	0
19/12/2013	16	2	15.8	54	972	313	2.2	77777	0
19/12/2013	17	2	15.3	58	972	305	1.8	77777	0
19/12/2013	18	2	14.6	60	972	45	1.2	77777	0
19/12/2013	19	2	13.8	63	972	272	0.6	77777	0
19/12/2013	20	2	12.9	65	973	233	0.2	77777	0
19/12/2013	21	2	12.3	67	973	173	0.1	77777	0
19/12/2013	22	2	11.6	71	973	150	0.3	77777	0
19/12/2013	23	2	10.8	74	974	141	0.3	77777	0
19/12/2013	24	2	10.2	77	974	225	0.7	77777	0
20/12/2013	1	2	9.8	77	974	137	1.7	77777	0
20/12/2013	2	2	9.8	74	973	225	2.4	77777	0
20/12/2013	3	2	9.7	73	973	122	1.7	77777	0
20/12/2013	4	2	9.3	73	973	108	0.9	77777	0
20/12/2013	5	2	8.9	74	973	106	0.4	77777	0
20/12/2013	6	2	8.6	75	974	104	0.4	77777	0
20/12/2013	7	2	8.4	76	974	112	0.5	77777	0
20/12/2013	8	2	8.4	76	974	129	0.4	2438	0
20/12/2013	9	2	10.8	68	975	78	0.1	2438	0
20/12/2013	10	2	13.4	59	975	21	0.7	2438	0
20/12/2013	11	2	14.8	55	975	225	1.5	2438	0
20/12/2013	12	2	15.4	57	975	356	1.5	2438	0
20/12/2013	13	2	16.2	58	974	351	1.5	2438	0
20/12/2013	14	2	16.6	59	974	352	1.7	2438	0
20/12/2013	15	2	16.6	60	973	354	1.8	2438	0
20/12/2013	16	2	16.4	63	973	357	2	2438	0
20/12/2013	17	2	15.6	72	973	350	2.4	2438	0
20/12/2013	18	2	14.3	80	972	353	2.9	2438	0
20/12/2013	19	2	13.4	85	973	11	2.7	2438	0
20/12/2013	20	2	12.8	89	973	38	2.4	2438	0
20/12/2013	21	2	12.3	91	974	56	2	77777	0
20/12/2013	22	2	11.9	92	974	75	1.5	77777	0
20/12/2013	23	2	11.4	92	974	103	1	77777	0
20/12/2013	24	2	11	88	975	225	1.2	77777	0
21/12/2013	1	2	10.9	83	974	148	1.9	77777	0
21/12/2013	2	2	10.6	78	974	157	2.2	77777	0
21/12/2013	3	2	10.4	74	974	225	2.1	77777	0
21/12/2013	4	2	9.9	73	973	225	1.7	77777	0
21/12/2013	5	2	9.3	75	973	173	1.3	2438	0
21/12/2013	6	2	8.4	80	973	200	1.2	2438	0
21/12/2013	7	2	7.9	85	974	220	1.3	2438	0
21/12/2013	8	2	7.4	91	974	231	1	2438	0
21/12/2013	9	2	9.8	89	974	296	0.9	2438	0
21/12/2013	10	2	11.7	85	974	297	0.6	2438	0
21/12/2013	11	2	13.8	75	974	310	1.2	2438	0
21/12/2013	12	2	15.2	67	974	311	1.6	2438	0
21/12/2013	13	2	16	60	973	309	1.7	2438	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
21/12/2013	14	2	16.7	54	973	306	1.9	77777	0
21/12/2013	15	2	16.8	50	973	306	2.1	77777	0
21/12/2013	16	2	16.6	50	973	310	2.5	77777	0
21/12/2013	17	2	15.7	59	973	319	2.6	77777	0
21/12/2013	18	2	14.6	64	973	326	2.5	77777	0
21/12/2013	19	2	13.8	67	974	327	1.3	77777	0
21/12/2013	20	2	12.9	70	974	30	-0.1	77777	0
21/12/2013	21	2	12	74	975	143	0.4	77777	0
21/12/2013	22	2	11.4	76	975	225	1.1	77777	0
21/12/2013	23	2	11	76	975	143	1.9	77777	0
21/12/2013	24	2	10.9	74	976	153	2	77777	0
22/12/2013	1	2	10.9	70	975	225	1.9	77777	0
22/12/2013	2	2	10.8	67	975	178	1.8	77777	0
22/12/2013	3	2	10.6	64	975	175	1.6	77777	0
22/12/2013	4	2	10.4	62	975	225	1.2	77777	0
22/12/2013	5	2	9.3	51	975	225	0.6	77777	0
22/12/2013	6	2	8.9	51	975	172	0.1	77777	0
22/12/2013	7	2	8.4	52	976	266	0.1	77777	0
22/12/2013	8	2	8.3	53	977	215	0.2	77777	0
22/12/2013	9	2	9.7	53	977	167	0.3	2438	0
22/12/2013	10	2	12.6	41	977	270	0	2438	0
22/12/2013	11	2	14.4	36	977	307	0.3	2438	0
22/12/2013	12	2	15.6	33	977	321	0.8	2438	0
22/12/2013	13	2	16.2	34	977	326	0.8	2438	0
22/12/2013	14	2	16.7	34	976	330	1.2	2438	0
22/12/2013	15	2	16.8	36	976	333	1.7	2438	0
22/12/2013	16	2	16.4	38	976	337	2.1	2438	0
22/12/2013	17	2	15.7	48	975	333	2.3	2438	0
22/12/2013	18	2	14.6	52	975	334	2.2	2438	0
22/12/2013	19	2	13.6	55	976	336	1.7	2438	0
22/12/2013	20	2	12.7	59	976	353	0.8	2438	0
22/12/2013	21	2	11.9	61	977	39	0.2	2438	0
22/12/2013	22	2	11.3	64	977	113	0.1	77777	0
22/12/2013	23	2	10.7	66	978	225	0.6	77777	0
22/12/2013	24	2	10.2	68	978	135	1	77777	0
23/12/2013	1	2	9.8	69	978	225	1	77777	0
23/12/2013	2	2	9.4	69	978	129	0.9	77777	0
23/12/2013	3	2	9	70	978	125	0.5	77777	0
23/12/2013	4	2	8.7	72	978	111	0.2	77777	0
23/12/2013	5	2	8.4	72	978	92	0.2	77777	0
23/12/2013	6	2	8.2	72	978	86	0.3	77777	0
23/12/2013	7	2	7.9	73	979	98	0.5	77777	0
23/12/2013	8	2	7.8	72	979	95	0.4	77777	0
23/12/2013	9	2	9.9	61	980	40	0.6	77777	0
23/12/2013	10	2	12.4	53	980	17	1.5	77777	0
23/12/2013	11	2	14.2	48	980	15	2.3	77777	0
23/12/2013	12	2	15.2	48	980	13	2.4	77777	0
23/12/2013	13	2	15.9	48	979	225	2.5	77777	0
23/12/2013	14	2	16.6	47	979	225	2.7	77777	0
23/12/2013	15	2	16.7	48	979	2	2.8	77777	0
23/12/2013	16	2	16.4	51	978	360	3.1	77777	0
23/12/2013	17	2	15.4	63	978	352	2.7	77777	0
23/12/2013	18	2	14.6	67	978	359	3	77777	0
23/12/2013	19	2	13.7	69	979	225	3	2438	0
23/12/2013	20	2	12.9	71	979	23	2.9	2438	0
23/12/2013	21	2	12.4	73	980	38	2.7	2438	0
23/12/2013	22	2	11.9	74	980	53	2.5	2438	0
23/12/2013	23	2	11.4	76	981	63	2.2	77777	0
23/12/2013	24	2	10.9	77	981	66	1.9	77777	0
24/12/2013	1	2	10.4	79	981	62	1.7	77777	0
24/12/2013	2	2	9.9	81	980	55	1.7	77777	0
24/12/2013	3	2	9.6	83	980	53	1.9	77777	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
24/12/2013	4	2	9.3	85	980	54	2.2	77777	0
24/12/2013	5	2	8.9	87	980	53	2.7	77777	0
24/12/2013	6	2	8.6	89	979	54	3.2	77777	0
24/12/2013	7	2	8.4	90	980	54	3.2	77777	0
24/12/2013	8	2	8.3	91	980	51	3	77777	0
24/12/2013	9	2	11.2	77	980	38	3.6	77777	0
24/12/2013	10	2	13.2	68	980	28	3.8	77777	0
24/12/2013	11	2	14.6	63	980	22	3.8	77777	0
24/12/2013	12	2	15.4	62	980	18	3.7	77777	0
24/12/2013	13	2	16.2	60	980	13	3.8	77777	0
24/12/2013	14	2	16.9	57	979	7	4	77777	0
24/12/2013	15	2	16.9	57	979	225	4.1	77777	0
24/12/2013	16	2	16.7	60	979	1	4	77777	0
24/12/2013	17	2	15.7	72	979	349	3.1	77777	0
24/12/2013	18	2	14.6	77	979	350	3.3	77777	0
24/12/2013	19	2	13.8	78	980	359	3.1	2438	0
24/12/2013	20	2	13.3	78	980	16	2.5	2438	0
24/12/2013	21	2	12.7	79	980	40	1.9	2438	0
24/12/2013	22	2	12	81	980	65	1.5	77777	0
24/12/2013	23	2	11.6	83	981	90	1.4	77777	0
24/12/2013	24	2	11.2	85	981	107	1.4	77777	0
25/12/2013	1	2	10.8	86	981	111	1.1	77777	0
25/12/2013	2	2	10.4	88	980	99	0.6	77777	0
25/12/2013	3	2	9.9	89	980	85	0.5	77777	0
25/12/2013	4	2	9.7	90	980	79	0.6	77777	0
25/12/2013	5	2	9.4	90	980	67	0.5	77777	0
25/12/2013	6	2	8.9	91	980	45	0.4	77777	0
25/12/2013	7	2	8.6	92	980	53	0.5	77777	0
25/12/2013	8	2	8.4	93	980	68	0.6	77777	0
25/12/2013	9	2	10.9	78	980	28	1.7	77777	0
25/12/2013	10	2	12.6	68	981	13	2	2438	0
25/12/2013	11	2	14	58	980	225	2.3	2438	0
25/12/2013	12	2	15	54	980	225	2.3	2438	0
25/12/2013	13	2	15.8	53	979	1	2.2	2438	0
25/12/2013	14	2	16.3	51	979	354	2.5	2438	0
25/12/2013	15	2	16.4	51	979	349	2.9	2438	0
25/12/2013	16	2	16	52	978	346	3.2	2438	0
25/12/2013	17	2	15	63	978	336	2.8	2438	0
25/12/2013	18	2	14	66	978	337	3.1	2438	0
25/12/2013	19	2	13.3	66	979	346	2.9	2438	0
25/12/2013	20	2	12.6	67	979	5	2.2	2438	0
25/12/2013	21	2	12	68	980	30	1.4	2438	0
25/12/2013	22	2	11.4	70	980	62	0.9	2438	0
25/12/2013	23	2	11	71	981	85	1.1	2438	0
25/12/2013	24	2	10.6	72	981	97	0.9	2438	0
26/12/2013	1	2	10.2	74	980	94	0.6	2438	0
26/12/2013	2	2	9.8	75	980	100	0.6	2438	0
26/12/2013	3	2	9.4	75	980	90	0.4	2438	0
26/12/2013	4	2	8.9	76	980	34	0.3	2438	0
26/12/2013	5	2	8.4	77	980	22	0.5	2438	0
26/12/2013	6	2	8	76	981	40	0.6	2438	0
26/12/2013	7	2	7.7	75	981	54	0.5	2438	0
26/12/2013	8	2	7.4	74	981	43	0.4	2438	0
26/12/2013	9	2	9.7	54	981	18	1.8	2438	0
26/12/2013	10	2	11.3	48	980	12	1.7	2438	0
26/12/2013	11	2	13.3	42	980	225	2.2	2438	0
26/12/2013	12	2	14.9	37	980	7	2.6	2438	0
26/12/2013	13	2	15.6	38	979	359	2.5	2438	0
26/12/2013	14	2	15.9	39	979	353	2.5	2438	0
26/12/2013	15	2	16	41	978	347	2.6	2438	0
26/12/2013	16	2	15.7	43	978	342	2.9	2438	0
26/12/2013	17	2	14.7	55	978	334	2.7	2438	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
26/12/2013	18	2	13.7	57	978	338	2.8	2438	0
26/12/2013	19	2	12.8	59	978	356	2.2	2438	0
26/12/2013	20	2	12	60	978	30	1.9	2438	0
26/12/2013	21	2	11.4	62	979	66	2.4	2438	0
26/12/2013	22	2	10.9	64	979	84	3.3	2438	0
26/12/2013	23	2	10.8	64	979	95	3.7	2438	0
26/12/2013	24	2	10.7	62	979	107	3.5	2438	0
27/12/2013	1	2	10.6	59	979	118	3.2	2438	0
27/12/2013	2	2	10.8	54	978	123	2.7	2438	0
27/12/2013	3	2	10.9	49	978	121	2.2	2438	0
27/12/2013	4	2	10.9	46	978	126	1.7	2438	0
27/12/2013	5	2	10.9	53	978	225	0.7	2438	0
27/12/2013	6	2	9.8	58	978	338	0.7	2438	0
27/12/2013	7	2	8.4	67	978	349	1.3	2438	0
27/12/2013	8	2	7.9	70	978	31	0.5	2438	0
27/12/2013	9	2	10.2	49	978	11	1.3	2438	0
27/12/2013	10	2	11.8	44	978	359	0.5	2438	0
27/12/2013	11	2	13.8	38	977	347	0.9	2438	0
27/12/2013	12	2	15.2	34	977	344	1.5	2438	0
27/12/2013	13	2	15.9	35	976	343	1.8	2438	0
27/12/2013	14	2	16.2	37	976	344	1.9	2438	0
27/12/2013	15	2	16.4	38	976	345	2.3	2438	0
27/12/2013	16	2	16.2	39	976	345	2.6	2438	0
27/12/2013	17	2	15.4	49	976	338	2.3	77777	0
27/12/2013	18	2	14.4	51	976	338	2.1	77777	0
27/12/2013	19	2	13.4	53	976	348	1.2	77777	0
27/12/2013	20	2	12.4	56	976	35	0.3	77777	0
27/12/2013	21	2	11.6	59	976	103	0.6	77777	0
27/12/2013	22	2	10.9	61	976	128	1.3	77777	0
27/12/2013	23	2	10.4	62	976	146	1.6	77777	0
27/12/2013	24	2	9.9	61	976	156	1.3	77777	0
28/12/2013	1	2	9.6	61	976	150	0.9	77777	0
28/12/2013	2	2	9.2	60	976	225	0.8	77777	0
28/12/2013	3	2	8.8	60	976	126	0.5	77777	0
28/12/2013	4	2	8.4	59	976	66	0.3	77777	0
28/12/2013	5	2	7.8	62	976	21	1	77777	0
28/12/2013	6	2	7.2	65	976	37	0.9	77777	0
28/12/2013	7	2	6.9	65	976	75	0.7	77777	0
28/12/2013	8	2	6.9	62	977	84	0.5	77777	0
28/12/2013	9	2	8.9	49	977	39	0.4	77777	0
28/12/2013	10	2	11.6	36	977	13	0.7	77777	0
28/12/2013	11	2	13.6	31	977	225	1.4	77777	0
28/12/2013	12	2	15.3	27	977	225	2.2	77777	0
28/12/2013	13	2	16	28	976	356	2.3	77777	0
28/12/2013	14	2	16.4	30	975	352	2.3	77777	0
28/12/2013	15	2	16.4	32	975	350	2.3	77777	0
28/12/2013	16	2	15.9	36	975	346	2.6	77777	0
28/12/2013	17	2	14.9	48	975	336	2.6	77777	0
28/12/2013	18	2	13.9	51	975	340	2.6	77777	0
28/12/2013	19	2	12.9	53	975	359	1.6	77777	0
28/12/2013	20	2	11.9	57	976	50	0.7	77777	0
28/12/2013	21	2	11	59	977	99	0.9	77777	0
28/12/2013	22	2	10.6	61	977	116	1.2	77777	0
28/12/2013	23	2	10	62	978	127	1.7	77777	0
28/12/2013	24	2	9.8	63	978	225	2.1	77777	0
29/12/2013	1	2	9.6	63	977	135	2.5	77777	0
29/12/2013	2	2	9.6	61	977	135	3	77777	0
29/12/2013	3	2	9.7	59	977	225	3.2	77777	0
29/12/2013	4	2	9.6	57	976	142	3.2	77777	0
29/12/2013	5	2	9.2	55	976	144	2.8	77777	0
29/12/2013	6	2	8.4	56	976	141	2	77777	0
29/12/2013	7	2	7.4	60	977	128	1	77777	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
29/12/2013	8	2	6.9	62	977	118	0.5	77777	0
29/12/2013	9	2	8.7	65	977	104	0.1	77777	0
29/12/2013	10	2	13	45	977	33	0.7	77777	0
29/12/2013	11	2	14.4	44	977	21	0.6	77777	0
29/12/2013	12	2	16	39	976	10	0.4	77777	0
29/12/2013	13	2	16.9	34	976	360	0.7	77777	0
29/12/2013	14	2	17.3	37	975	355	0.9	77777	0
29/12/2013	15	2	17.3	40	975	351	1.2	77777	0
29/12/2013	16	2	16.9	43	974	347	1.8	77777	0
29/12/2013	17	2	15.9	54	974	340	2.3	77777	0
29/12/2013	18	2	14.8	57	974	344	2.2	77777	0
29/12/2013	19	2	13.7	61	975	358	1.4	2438	0
29/12/2013	20	2	12.7	65	975	32	0.5	2438	0
29/12/2013	21	2	11.9	68	975	83	0.2	2438	0
29/12/2013	22	2	11.2	70	976	119	0.3	2438	0
29/12/2013	23	2	10.6	72	976	127	0.7	2438	0
29/12/2013	24	2	10.2	73	976	128	1	2438	0
30/12/2013	1	2	9.9	73	976	130	1.1	2438	0
30/12/2013	2	2	9.6	72	976	126	1.2	2438	0
30/12/2013	3	2	9.4	72	976	123	1.2	2438	0
30/12/2013	4	2	9	71	976	119	1.1	2438	0
30/12/2013	5	2	8.8	71	976	105	0.8	2438	0
30/12/2013	6	2	8.4	71	976	84	0.6	2438	0
30/12/2013	7	2	8.2	70	976	75	0.6	2438	0
30/12/2013	8	2	8.2	69	977	74	0.8	2438	0
30/12/2013	9	2	10.4	58	977	42	1.2	2438	0
30/12/2013	10	2	12.9	46	977	17	1.7	2438	0
30/12/2013	11	2	14.4	43	977	225	1.5	2438	0
30/12/2013	12	2	15.8	37	976	353	1.6	2438	0
30/12/2013	13	2	16.4	35	976	341	1.8	2438	0
30/12/2013	14	2	16.7	38	975	330	2.2	2438	0
30/12/2013	15	3	16.4	41	975	324	2.7	2438	0
30/12/2013	16	3	15.9	44	975	322	3.3	2438	0
30/12/2013	17	3	14.9	56	975	317	2.7	2438	0
30/12/2013	18	3	14	56	975	316	2.4	2438	0
30/12/2013	19	3	13.4	56	975	319	1.6	2438	0
30/12/2013	20	3	12.8	56	976	330	1	2438	0
30/12/2013	21	3	11.9	57	976	335	1.4	2438	0
30/12/2013	22	3	11	58	976	352	1.2	2438	0
30/12/2013	23	2	10.4	58	976	39	0.5	2438	0
30/12/2013	24	2	10.2	56	977	77	0.4	2438	0
31/12/2013	1	2	9.7	56	976	67	0.4	2438	0
31/12/2013	2	2	9.2	57	976	61	0.3	2438	0
31/12/2013	3	2	8.7	57	976	20	0	2438	0
31/12/2013	4	2	8	57	976	311	0.2	2438	0
31/12/2013	5	2	7.4	57	976	281	0.5	2438	0
31/12/2013	6	2	6.7	58	976	266	0.8	2438	0
31/12/2013	7	2	5.9	58	977	261	0.7	2438	0
31/12/2013	8	2	5.4	59	978	266	0.2	2438	0
31/12/2013	9	2	6.9	46	978	337	1.1	2438	0
31/12/2013	10	2	8.8	43	978	348	0.6	2438	0
31/12/2013	11	2	11.2	40	978	359	0.2	2438	0
31/12/2013	12	2	13.2	34	978	349	1.1	2438	0
31/12/2013	13	2	14	35	978	343	1.5	2438	0
31/12/2013	14	2	14.7	37	978	341	1.7	2438	0
31/12/2013	15	2	14.8	39	977	340	2.3	2438	0
31/12/2013	16	2	14.4	41	977	342	2.8	77777	0
31/12/2013	17	2	13.6	52	977	337	2.7	77777	0
31/12/2013	18	2	12.7	54	977	340	3	2438	0
31/12/2013	19	2	11.9	55	978	350	2.7	2438	0
31/12/2013	20	2	11.2	56	978	225	2.1	2438	0
31/12/2013	21	2	10.4	58	979	39	1.4	77777	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
31/12/2013	22	2	9.9	60	979	75	1.2	77777	0
31/12/2013	23	2	9.4	61	980	92	1.3	77777	0
31/12/2013	24	2	9	61	980	95	1.2	77777	0
1/1/2014	1	2	8.9	100	973	54	3.5	77777	0
1/1/2014	2	2	8.7	100	973	51	3.7	77777	0
1/1/2014	3	2	8.6	100	973	48	3.8	77777	0
1/1/2014	4	2	8.4	100	973	49	3.9	77777	0
1/1/2014	5	2	8	76	972	55	4.3	77777	0
1/1/2014	6	2	7.9	78	972	55	4.1	77777	0
1/1/2014	7	2	7.7	79	973	55	4	77777	0
1/1/2014	8	2	7.9	79	973	57	3.4	77777	0
1/1/2014	9	2	11.3	65	973	48	4	77777	0
1/1/2014	10	2	13.4	58	973	37	3.3	77777	0
1/1/2014	11	2	15.3	51	973	23	2.4	77777	0
1/1/2014	12	2	16.8	46	972	10	2.2	77777	0
1/1/2014	13	2	17.4	46	972	360	1.9	77777	0
1/1/2014	14	2	17.7	48	972	352	1.8	77777	0
1/1/2014	15	2	17.7	51	971	343	2	77777	0
1/1/2014	16	2	17.4	54	971	337	2.5	77777	0
1/1/2014	17	2	16.4	64	971	328	2.5	77777	0
1/1/2014	18	2	15.4	67	971	329	2.5	77777	0
1/1/2014	19	2	14.6	70	972	340	1.6	77777	0
1/1/2014	20	2	13.7	72	973	11	0.5	77777	0
1/1/2014	21	2	12.9	74	973	78	0.4	77777	0
1/1/2014	22	2	12.3	77	974	106	0.8	77777	0
1/1/2014	23	2	11.7	78	974	118	0.9	77777	0
1/1/2014	24	2	11.2	79	975	129	0.9	77777	0
2/1/2014	1	2	10.9	78	974	135	1.2	77777	0
2/1/2014	2	2	10.4	78	974	125	0.6	77777	0
2/1/2014	3	2	10	77	974	43	0	77777	0
2/1/2014	4	2	9.7	78	974	346	0.6	77777	0
2/1/2014	5	2	9.2	80	975	334	0.5	77777	0
2/1/2014	6	2	8.6	80	975	336	0.8	2438	0
2/1/2014	7	2	7.9	80	975	343	1.3	2438	0
2/1/2014	8	2	7.4	82	976	349	1.6	2438	0
2/1/2014	9	2	9.8	72	976	13	3.6	2438	0
2/1/2014	10	2	12	65	976	15	3.8	2438	0
2/1/2014	11	2	13.6	62	977	13	3.9	2438	0
2/1/2014	12	2	14.4	62	977	7	3.6	2438	0
2/1/2014	13	2	15.4	60	976	1	3.6	2438	0
2/1/2014	14	2	15.9	60	976	359	3.3	2438	0
2/1/2014	15	2	15.9	61	976	358	3.2	2438	0
2/1/2014	16	2	15.9	62	975	358	3.2	2438	0
2/1/2014	17	2	15.4	71	975	351	2.6	77777	0
2/1/2014	18	2	14.4	75	975	353	3	77777	0
2/1/2014	19	2	13.7	78	976	360	3.2	77777	0
2/1/2014	20	2	12.6	84	976	270	3.4	77777	0
2/1/2014	21	2	11.4	91	977	23	3.3	77777	0
2/1/2014	22	2	10.6	95	977	42	3	77777	0
2/1/2014	23	2	10	98	978	64	2.7	77777	0
2/1/2014	24	2	9.7	100	978	90	2.2	77777	0
3/1/2014	1	2	9.3	100	977	113	2.5	77777	0
3/1/2014	2	2	7.9	100	977	113	2.8	77777	0
3/1/2014	3	2	7	100	977	119	2.4	77777	0
3/1/2014	4	2	6.7	100	977	124	2.1	77777	0
3/1/2014	5	2	6.4	100	977	120	1.9	77777	0
3/1/2014	6	2	6.2	100	977	115	1.8	77777	0
3/1/2014	7	2	6	100	977	112	2.1	77777	0
3/1/2014	8	2	6.4	99	977	111	2	77777	0
3/1/2014	9	2	9.9	78	977	96	1.5	77777	0
3/1/2014	10	2	12.9	66	977	91	0.7	77777	0
3/1/2014	11	2	15.2	57	977	73	0	77777	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
3/1/2014	12	2	17.2	46	976	334	0	77777	0
3/1/2014	13	2	18.3	42	975	323	0	77777	0
3/1/2014	14	2	18.9	38	975	270	0	77777	0
3/1/2014	15	2	19.4	36	974	334	0	77777	0
3/1/2014	16	2	19.2	37	974	338	1.1	77777	0
3/1/2014	17	2	18.2	49	974	343	2.4	77777	0
3/1/2014	18	2	16.4	60	974	353	3.2	77777	0
3/1/2014	19	2	14.8	69	975	14	3	77777	0
3/1/2014	20	2	13.6	75	975	44	2.6	77777	0
3/1/2014	21	2	12.8	78	975	74	2.2	77777	0
3/1/2014	22	2	12.3	79	976	100	1.6	77777	0
3/1/2014	23	2	11.8	80	976	122	1.5	77777	0
3/1/2014	24	2	11.4	79	976	270	1.9	77777	0
4/1/2014	1	2	11.3	77	976	137	2.2	77777	0
4/1/2014	2	2	11.3	73	975	137	2.5	77777	0
4/1/2014	3	2	11.3	70	975	140	2.4	77777	0
4/1/2014	4	2	10.9	67	975	143	2.2	77777	0
4/1/2014	5	2	10.7	66	975	142	1.7	77777	0
4/1/2014	6	2	10.2	66	975	270	1.1	77777	0
4/1/2014	7	2	9.4	67	975	270	0.6	77777	0
4/1/2014	8	2	9.3	68	975	148	0.3	77777	0
4/1/2014	9	2	10.9	71	975	117	0.1	77777	0
4/1/2014	10	2	14.6	52	975	331	-0.1	77777	0
4/1/2014	11	2	16.2	46	975	310	0	77777	0
4/1/2014	12	2	17.6	37	975	317	0.5	77777	0
4/1/2014	13	2	18.3	37	974	314	0.8	77777	0
4/1/2014	14	2	18.7	36	974	316	1.4	77777	0
4/1/2014	15	2	18.6	37	973	320	2	77777	0
4/1/2014	16	2	18.2	40	973	326	2.5	77777	0
4/1/2014	17	2	16.9	53	972	330	2.7	77777	0
4/1/2014	18	2	15.8	56	972	331	2.8	77777	0
4/1/2014	19	2	14.8	58	972	331	1.9	77777	0
4/1/2014	20	2	13.9	62	973	342	0.6	77777	0
4/1/2014	21	2	12.9	65	973	74	0	77777	0
4/1/2014	22	2	12.2	68	974	120	0.3	77777	0
4/1/2014	23	2	11.6	70	974	127	0.5	77777	0
4/1/2014	24	2	10.9	72	974	129	0.6	77777	0
5/1/2014	1	2	10.6	73	974	137	0.6	77777	0
5/1/2014	2	2	10.2	73	974	270	0.6	77777	0
5/1/2014	3	2	9.8	73	974	137	0.1	77777	0
5/1/2014	4	2	9.6	72	974	337	0.2	77777	0
5/1/2014	5	2	9	74	974	331	0.5	77777	0
5/1/2014	6	2	8.4	75	974	327	0.2	2438	0
5/1/2014	7	2	8	75	975	335	0.4	2438	0
5/1/2014	8	2	7.7	75	975	344	0.6	2438	0
5/1/2014	9	2	9.8	62	975	270	2.5	2438	0
5/1/2014	10	2	11.4	56	975	1	2.4	2438	0
5/1/2014	11	2	13.2	49	975	357	2.7	2438	0
5/1/2014	12	2	13.9	49	975	352	2.4	77777	0
5/1/2014	13	2	14.9	46	974	345	2.5	77777	0
5/1/2014	14	2	15.3	46	973	345	2.7	77777	0
5/1/2014	15	2	15.4	47	973	347	2.5	77777	0
5/1/2014	16	2	15.2	49	973	351	2.5	77777	0
5/1/2014	17	2	14.4	57	972	353	2.2	77777	0
5/1/2014	18	2	13.6	61	972	359	2.3	77777	0
5/1/2014	19	2	12.8	64	973	270	2.2	77777	0
5/1/2014	20	2	11.9	68	973	21	2.1	77777	0
5/1/2014	21	2	11.3	71	974	42	2	77777	0
5/1/2014	22	2	10.4	76	974	57	2.1	77777	0
5/1/2014	23	2	9.9	80	975	63	2.2	77777	0
5/1/2014	24	2	9.3	85	975	68	2.4	77777	0
6/1/2014	1	2	8.8	89	975	78	2.7	77777	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
6/1/2014	2	2	8.4	91	975	82	3	77777	0
6/1/2014	3	2	7.4	96	975	71	3.3	77777	0
6/1/2014	4	2	6.4	100	975	60	3.3	77777	0
6/1/2014	5	2	7.3	62	975	59	2	77777	0
6/1/2014	6	2	6.9	63	975	54	2.8	77777	0
6/1/2014	7	2	6.8	64	975	60	3	77777	0
6/1/2014	8	2	6.9	63	975	68	2.9	77777	0
6/1/2014	9	2	9.8	52	975	52	3.1	77777	0
6/1/2014	10	2	11.9	45	975	37	3.1	77777	0
6/1/2014	11	2	13.9	41	975	27	3.3	77777	0
6/1/2014	12	2	14.9	41	975	21	3.3	77777	0
6/1/2014	13	2	15.7	41	975	19	3.5	77777	0
6/1/2014	14	2	16.3	40	974	22	3.6	77777	0
6/1/2014	15	2	16.3	41	974	24	3.7	77777	0
6/1/2014	16	2	15.9	44	973	27	3.8	77777	0
6/1/2014	17	2	14.9	59	973	24	3	77777	0
6/1/2014	18	2	13.6	63	973	33	3.6	77777	0
6/1/2014	19	2	12.4	66	974	49	3.8	77777	0
6/1/2014	20	2	11.7	67	974	57	3.9	77777	0
6/1/2014	21	2	11.2	68	974	65	4	77777	0
6/1/2014	22	2	10.9	68	975	70	3.9	77777	0
6/1/2014	23	2	10.6	68	975	73	3.3	77777	0
6/1/2014	24	2	10.2	68	975	80	2.8	77777	0
7/1/2014	1	2	9.8	69	975	87	2.4	77777	0
7/1/2014	2	2	9.4	68	975	88	2	77777	0
7/1/2014	3	2	9.2	68	975	70	1.9	77777	0
7/1/2014	4	2	8.7	69	975	51	2.7	77777	0
7/1/2014	5	2	7.9	72	975	43	4	77777	0
7/1/2014	6	2	7	75	976	51	4.1	77777	0
7/1/2014	7	2	7	74	976	64	4	77777	0
7/1/2014	8	2	7.4	70	976	71	3.6	77777	0
7/1/2014	9	2	10.6	57	976	62	4	77777	0
7/1/2014	10	2	13.3	44	977	52	4.2	77777	0
7/1/2014	11	2	15.3	39	976	48	3.9	77777	0
7/1/2014	12	2	16.4	38	976	45	3.5	77777	0
7/1/2014	13	2	17.2	39	975	41	3.2	77777	0
7/1/2014	14	2	17.6	39	975	36	3	77777	0
7/1/2014	15	2	17.7	41	975	28	3.3	77777	0
7/1/2014	16	2	17.2	46	974	23	3.8	77777	0
7/1/2014	17	2	15.7	62	974	23	3.2	77777	0
7/1/2014	18	2	14	68	975	34	3.7	77777	0
7/1/2014	19	2	12.9	72	975	43	3.8	77777	0
7/1/2014	20	2	11.9	74	976	56	3.9	77777	0
7/1/2014	21	2	11.4	76	976	69	4.1	77777	0
7/1/2014	22	2	11.4	74	976	82	3.7	77777	0
7/1/2014	23	2	11.6	71	976	101	3.4	77777	0
7/1/2014	24	2	11.4	66	977	112	3.7	77777	0
8/1/2014	1	2	11.2	62	976	116	3.9	77777	0
8/1/2014	2	2	11	58	976	117	3.7	77777	0
8/1/2014	3	2	10.8	55	976	118	3.1	77777	0
8/1/2014	4	2	10.4	55	976	110	2.3	77777	0
8/1/2014	5	2	9.8	56	976	94	1.9	77777	0
8/1/2014	6	2	9.2	59	976	84	1.8	77777	0
8/1/2014	7	2	8.8	61	976	86	1.9	77777	0
8/1/2014	8	2	8.8	61	976	89	2	77777	0
8/1/2014	9	2	11.6	54	976	64	3	77777	0
8/1/2014	10	2	14.3	47	976	48	3.1	77777	0
8/1/2014	11	2	16	42	976	44	2.9	77777	0
8/1/2014	12	2	17.3	40	976	39	2.7	77777	0
8/1/2014	13	2	17.9	42	975	35	2.4	77777	0
8/1/2014	14	2	18.3	44	975	30	2.2	77777	0
8/1/2014	15	2	18.3	47	974	25	2.1	77777	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
8/1/2014	16	2	17.9	50	974	23	2.2	77777	0
8/1/2014	17	2	17.3	60	974	17	1.9	77777	0
8/1/2014	18	2	16	65	974	27	1.8	77777	0
8/1/2014	19	2	15	68	974	42	1.7	77777	0
8/1/2014	20	2	14.2	71	975	56	1.8	2438	0
8/1/2014	21	2	13.4	73	975	73	1.7	77777	0
8/1/2014	22	2	12.7	76	976	103	1.2	77777	0
8/1/2014	23	2	12	78	976	270	1.4	77777	0
8/1/2014	24	2	11.8	77	976	270	2.2	77777	0
9/1/2014	1	2	11.7	75	976	137	2.6	77777	0
9/1/2014	2	2	11.6	71	975	270	2.3	77777	0
9/1/2014	3	2	11.4	69	975	126	1.8	77777	0
9/1/2014	4	2	10.9	69	975	119	1.5	77777	0
9/1/2014	5	2	10.6	70	975	116	1.1	77777	0
9/1/2014	6	2	10.2	70	975	113	0.9	77777	0
9/1/2014	7	2	9.9	71	975	112	0.8	77777	0
9/1/2014	8	2	10	71	976	109	0.7	77777	0
9/1/2014	9	2	11.9	67	976	105	0.4	77777	0
9/1/2014	10	2	15.4	54	976	39	0.8	77777	0
9/1/2014	11	2	17	49	976	16	0.7	77777	0
9/1/2014	12	2	18.7	39	976	357	1.3	77777	0
9/1/2014	13	2	19.2	39	975	356	1.6	77777	0
9/1/2014	14	2	19.4	41	975	356	1.9	77777	0
9/1/2014	15	2	19.4	42	975	354	2.5	2438	0
9/1/2014	16	2	19	44	974	356	3	2438	0
9/1/2014	17	2	18	57	974	356	2.7	2438	0
9/1/2014	18	2	16.9	60	974	270	3.3	2438	0
9/1/2014	19	2	15.9	63	975	25	3.5	2438	0
9/1/2014	20	2	15	64	975	42	3.4	2438	0
9/1/2014	21	2	14.4	66	975	63	3.1	2438	0
9/1/2014	22	2	13.9	67	975	86	2.9	2438	0
9/1/2014	23	2	13.4	67	975	102	2.6	2438	0
9/1/2014	24	2	13	66	975	117	2.2	2438	0
10/1/2014	1	2	12.7	66	975	123	1.8	2438	0
10/1/2014	2	2	12.4	65	975	114	1.5	2438	0
10/1/2014	3	2	11.9	65	975	97	1.1	2438	0
10/1/2014	4	2	11.6	66	975	71	1	2438	0
10/1/2014	5	2	11.2	68	976	61	1.3	2438	0
10/1/2014	6	2	10.9	69	976	66	1.6	2438	0
10/1/2014	7	2	10.7	70	976	80	2	2438	0
10/1/2014	8	2	10.8	68	976	92	2.2	2438	0
10/1/2014	9	2	13.4	59	976	68	2.2	2438	0
10/1/2014	10	2	15.9	52	976	49	1.8	2438	0
10/1/2014	11	2	17.9	46	976	29	1.8	2438	0
10/1/2014	12	2	19.3	40	975	17	2.2	2438	0
10/1/2014	13	2	19.9	40	975	11	2.2	2438	0
10/1/2014	14	2	20.3	41	975	270	2.2	2438	0
10/1/2014	15	2	20.4	42	975	7	2.4	2438	0
10/1/2014	16	2	20	45	974	270	2.6	2438	0
10/1/2014	17	2	19.2	55	974	270	2.4	2438	0
10/1/2014	18	2	18	58	974	20	2.7	2438	0
10/1/2014	19	2	16.9	61	975	47	3	2438	0
10/1/2014	20	2	15.9	64	975	67	3.4	2438	0
10/1/2014	21	2	15.4	65	975	86	3.6	2438	0
10/1/2014	22	2	14.9	63	975	101	3.6	2438	0
10/1/2014	23	2	14.6	61	975	113	3.2	2438	0
10/1/2014	24	2	14.3	59	976	270	3.3	2438	0
11/1/2014	1	2	14	57	975	145	3.5	2438	0
11/1/2014	2	2	13.9	54	975	150	3	2438	0
11/1/2014	3	2	13.6	54	976	147	1.9	2438	0
11/1/2014	4	2	12.9	56	976	270	1	2438	0
11/1/2014	5	2	12.7	53	976	113	0.5	2438	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
11/1/2014	6	2	12.4	54	976	115	0.7	2438	0
11/1/2014	7	2	12.2	54	976	115	1.2	2438	0
11/1/2014	8	2	12.3	54	976	115	1.4	2438	0
11/1/2014	9	2	14.4	49	976	101	1.1	2438	0
11/1/2014	10	2	17.4	38	976	58	1	2438	0
11/1/2014	11	2	19	36	976	34	1	2438	0
11/1/2014	12	2	20.3	33	976	21	1.3	2438	0
11/1/2014	13	2	20.9	35	975	15	1.3	2438	0
11/1/2014	14	2	21.3	36	975	12	1.3	2438	0
11/1/2014	15	2	21.4	37	975	270	1.5	2438	0
11/1/2014	16	2	21.3	39	974	270	1.8	2438	0
11/1/2014	17	2	20.6	48	974	355	1.6	2438	0
11/1/2014	18	2	19.6	52	974	359	1	2438	0
11/1/2014	19	2	18.4	57	975	62	0.1	2438	0
11/1/2014	20	2	17.4	61	975	147	0.4	2438	0
11/1/2014	21	2	16.6	65	975	151	1.2	2438	0
11/1/2014	22	2	16	65	975	155	2	2438	0
11/1/2014	23	2	15.9	62	976	158	2.7	2438	0
11/1/2014	24	2	16	58	976	159	3.1	2438	0
12/1/2014	1	2	16.2	54	976	270	3.1	2438	0
12/1/2014	2	2	15.9	53	976	270	2.9	2438	0
12/1/2014	3	2	15.8	52	976	171	2.5	2438	0
12/1/2014	4	2	15.6	52	976	179	2.1	2438	0
12/1/2014	5	2	15.4	52	976	183	1.8	2438	0
12/1/2014	6	2	15	53	976	179	1.7	2438	0
12/1/2014	7	2	14.8	53	976	171	2	2438	0
12/1/2014	8	2	14.9	53	975	270	2.5	2438	0
12/1/2014	9	2	16.6	53	975	158	1.8	2438	0
12/1/2014	10	2	20	42	974	178	0.6	2438	0
12/1/2014	11	2	21.9	37	974	208	0.1	2438	0
12/1/2014	12	2	23.4	31	973	242	0.7	2438	0
12/1/2014	13	2	24.3	30	973	256	1	2438	0
12/1/2014	14	2	24.8	29	972	268	1.3	2438	0
12/1/2014	15	2	24.9	29	972	277	2	2438	0
12/1/2014	16	2	24.3	37	972	286	2.4	2438	0
12/1/2014	17	2	23	48	972	297	2.9	2438	0
12/1/2014	18	2	21.7	53	972	300	3	2438	0
12/1/2014	19	2	20.6	56	973	287	2	2438	0
12/1/2014	20	2	19.7	59	973	238	1.1	2438	0
12/1/2014	21	2	18.9	61	973	270	1.6	2438	0
12/1/2014	22	2	18.4	62	973	180	2.2	2438	0
12/1/2014	23	3	18.3	61	973	182	2.5	2438	0
12/1/2014	24	3	18.3	59	973	270	2.6	2438	0
13/1/2014	1	3	18.3	57	973	205	2.5	2438	0
13/1/2014	2	4	18.2	56	973	231	2.4	2438	0
13/1/2014	3	4	17.4	60	973	279	4.2	2438	0
13/1/2014	4	4	15.3	78	974	298	3.4	2438	0
13/1/2014	5	4	14.8	85	974	297	2.8	2438	0
13/1/2014	6	4	14.4	85	974	270	2.7	2438	0
13/1/2014	7	4	13.9	84	974	270	2.4	2438	0
13/1/2014	8	3	13.8	82	974	293	2	2438	0
13/1/2014	9	3	15.4	63	975	332	3.1	2438	0
13/1/2014	10	3	16.9	53	975	332	3	2438	0
13/1/2014	11	2	17.8	50	975	328	3	2438	0
13/1/2014	12	2	18.4	48	974	323	3	2438	0
13/1/2014	13	2	19	45	974	318	3.1	2438	0
13/1/2014	14	2	19.3	44	974	313	3	2438	0
13/1/2014	15	2	19.4	43	973	309	3	2438	0
13/1/2014	16	2	19.2	42	973	305	2.9	2438	0
13/1/2014	17	2	18.4	51	973	296	2.2	2438	0
13/1/2014	18	2	17.7	51	973	288	2.1	77777	0
13/1/2014	19	2	16.9	51	974	282	1.9	77777	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
13/1/2014	20	2	16	52	974	278	1.6	77777	0
13/1/2014	21	2	15.4	53	974	282	0.9	77777	0
13/1/2014	22	2	14.8	54	974	313	0.1	77777	0
13/1/2014	23	2	14	55	975	59	0	77777	0
13/1/2014	24	2	13.3	58	975	114	0.3	77777	0
14/1/2014	1	2	12.7	61	974	120	0.9	77777	0
14/1/2014	2	2	12.4	61	974	120	1.4	77777	0
14/1/2014	3	2	12.2	60	974	118	1.4	77777	0
14/1/2014	4	2	11.9	60	975	107	1	77777	0
14/1/2014	5	2	11.6	60	975	76	0.5	77777	0
14/1/2014	6	2	11.2	61	975	49	0.6	77777	0
14/1/2014	7	2	10.7	62	975	67	0.7	77777	0
14/1/2014	8	2	10.7	61	975	80	0.8	77777	0
14/1/2014	9	2	13.4	44	975	43	1.5	77777	0
14/1/2014	10	2	14.9	40	975	31	1.2	77777	0
14/1/2014	11	2	16.7	37	975	17	1	77777	0
14/1/2014	12	2	17.9	33	975	5	1.1	77777	0
14/1/2014	13	2	18.7	35	974	353	1	77777	0
14/1/2014	14	2	19.2	36	974	342	1.1	77777	0
14/1/2014	15	2	19.3	37	973	333	1.3	77777	0
14/1/2014	16	2	19	39	973	325	1.6	77777	0
14/1/2014	17	2	18.3	46	973	317	1.8	77777	0
14/1/2014	18	2	17	51	972	311	1.5	77777	0
14/1/2014	19	2	15.9	57	973	296	0.3	77777	0
14/1/2014	20	2	14.9	62	973	270	0.1	77777	0
14/1/2014	21	2	13.9	67	973	128	0.5	77777	0
14/1/2014	22	2	13.3	70	973	270	1.2	77777	0
14/1/2014	23	2	12.9	69	973	135	1.8	77777	0
14/1/2014	24	2	12.9	67	973	270	2.1	77777	0
15/1/2014	1	2	12.9	64	973	146	2	77777	0
15/1/2014	2	2	12.9	59	973	270	1.8	2438	0
15/1/2014	3	2	13.2	54	973	179	1.7	2438	0
15/1/2014	4	2	13.2	51	973	200	1.6	2438	0
15/1/2014	5	2	13	49	973	215	1.6	2438	0
15/1/2014	6	2	12.7	50	974	218	1.7	2438	0
15/1/2014	7	2	12.3	51	974	219	1.3	2438	0
15/1/2014	8	2	12	53	974	225	0.6	2438	0
15/1/2014	9	2	13.9	50	974	300	0	2438	0
15/1/2014	10	2	15.9	46	974	321	-0.1	2438	0
15/1/2014	11	2	17.8	39	974	335	0.4	2438	0
15/1/2014	12	2	18.9	34	973	339	0.8	2438	0
15/1/2014	13	2	19.7	34	973	337	0.6	2438	0
15/1/2014	14	2	20.3	31	973	335	0.9	2438	0
15/1/2014	15	2	20.4	31	973	337	1.1	2438	0
15/1/2014	16	2	20.3	32	973	342	1.4	2438	0
15/1/2014	17	2	19.6	39	973	341	1.5	2438	0
15/1/2014	18	2	18.4	44	973	342	0.9	2438	0
15/1/2014	19	2	17.3	49	974	270	-0.1	2438	0
15/1/2014	20	2	16.3	55	974	130	0	2438	0
15/1/2014	21	2	15.4	58	974	118	0.5	2438	0
15/1/2014	22	2	14.9	61	974	116	1.2	2438	0
15/1/2014	23	2	14.7	61	975	122	2	2438	0
15/1/2014	24	2	14.6	59	975	128	2.5	2438	0
16/1/2014	1	2	14.7	56	975	270	2.8	2438	0
16/1/2014	2	2	14.8	53	974	270	3	2438	0
16/1/2014	3	2	14.9	50	974	139	3.1	2438	0
16/1/2014	4	2	14.9	47	974	146	2.9	2438	0
16/1/2014	5	2	15.3	56	974	153	2.5	2438	0
16/1/2014	6	2	15	56	974	165	2.2	2438	0
16/1/2014	7	2	14.8	56	974	180	2.1	2438	0
16/1/2014	8	3	14.8	57	975	199	2.1	2438	0
16/1/2014	9	3	17.2	49	975	245	1.7	2438	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
16/1/2014	10	3	18.9	44	975	295	2.7	2438	0
16/1/2014	11	3	19.7	43	975	308	2.1	2438	0
16/1/2014	12	3	20.4	43	975	312	1.4	2438	0
16/1/2014	13	3	20.9	41	975	321	1.2	2438	0
16/1/2014	14	3	21.4	41	974	325	1.2	2438	0
16/1/2014	15	3	21.4	41	974	330	1.4	2438	0
16/1/2014	16	3	21.3	43	974	333	2	2438	0
16/1/2014	17	3	20.4	52	974	331	2.6	2438	0
16/1/2014	18	3	19.6	55	974	327	2.8	2438	0
16/1/2014	19	3	18.9	57	974	319	2.1	2438	0
16/1/2014	20	3	18	60	975	314	0.6	2438	0
16/1/2014	21	3	17.3	64	975	142	-0.1	2438	0
16/1/2014	22	3	16.6	68	976	121	0.3	2438	0
16/1/2014	23	2	15.9	71	976	117	0.7	2438	0
16/1/2014	24	2	15.6	72	976	116	0.9	2438	0
17/1/2014	1	2	15.2	72	976	120	1.1	2438	0
17/1/2014	2	3	14.9	71	976	118	1.2	2438	0
17/1/2014	3	3	14.7	71	975	116	1.3	2438	0
17/1/2014	4	3	14.4	70	975	118	1.5	2438	0
17/1/2014	5	3	14.4	67	975	120	1.7	2438	0
17/1/2014	6	3	14.6	65	975	125	1.6	2438	0
17/1/2014	7	3	14.7	63	975	130	1.5	2438	0
17/1/2014	8	3	14.9	62	975	141	1	2438	0
17/1/2014	9	3	16.9	57	975	339	1.9	2438	0
17/1/2014	10	3	17.8	56	975	343	3.1	2438	0
17/1/2014	11	3	18.6	51	975	342	3.1	2438	0
17/1/2014	12	3	18.9	48	975	346	3.2	2438	0
17/1/2014	13	3	19.3	46	975	344	3.8	2438	0
17/1/2014	14	3	19.2	47	975	344	4.1	2438	0
17/1/2014	15	3	18.8	50	975	342	4.5	2438	0
17/1/2014	16	3	17.7	62	975	338	4.9	2438	0
17/1/2014	17	3	16	72	975	339	4.6	2438	0
17/1/2014	18	4	14.9	76	975	352	3.7	2199	0
17/1/2014	19	4	14.4	79	975	31	2.4	2438	0
17/1/2014	20	4	14.4	80	975	66	1.5	2438	0
17/1/2014	21	3	13.9	83	976	91	0	2438	0
17/1/2014	22	3	13.4	85	976	205	0.1	2438	0
17/1/2014	23	3	13	86	976	202	0.3	2438	0
17/1/2014	24	3	12.9	84	976	209	0.7	2438	0
18/1/2014	1	3	12.8	79	976	214	1.1	2438	0
18/1/2014	2	2	12.7	74	975	220	1.6	2438	0
18/1/2014	3	2	12.4	70	975	247	2.8	2438	0
18/1/2014	4	2	10.9	74	976	274	4.2	2438	0
18/1/2014	5	2	9.6	77	976	279	3.7	2438	0
18/1/2014	6	2	8.8	72	976	277	3.5	2438	0
18/1/2014	7	2	8.2	71	977	277	3.4	2438	0
18/1/2014	8	2	8.6	64	978	289	3.7	2438	0
18/1/2014	9	2	10.3	46	979	304	4.6	2438	0
18/1/2014	10	2	11.3	42	979	309	4	2438	0
18/1/2014	11	2	11.9	42	979	311	3.4	2438	0
18/1/2014	12	2	12.9	41	979	310	3.4	2438	0
18/1/2014	13	2	13.7	39	979	306	3.3	2438	0
18/1/2014	14	2	14	39	978	302	3.4	2438	0
18/1/2014	15	2	14.2	39	978	302	3.5	2438	0
18/1/2014	16	2	14.2	38	978	303	3.3	2438	0
18/1/2014	17	2	13.6	46	978	301	2.3	77777	0
18/1/2014	18	2	12.9	47	978	298	2	77777	0
18/1/2014	19	2	12.2	47	978	287	1.6	77777	0
18/1/2014	20	2	11.4	48	979	261	0.8	77777	0
18/1/2014	21	2	10.9	50	979	215	0.3	77777	0
18/1/2014	22	2	10	53	979	161	0.7	77777	0
18/1/2014	23	2	9.4	56	980	155	1.4	77777	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
18/1/2014	24	2	8.9	56	980	147	2	77777	0
19/1/2014	1	2	8.8	55	980	140	2.3	77777	0
19/1/2014	2	2	8.6	53	979	140	2.5	77777	0
19/1/2014	3	2	8.4	51	980	142	2.3	77777	0
19/1/2014	4	2	8.4	49	980	141	1.7	77777	0
19/1/2014	5	2	8	49	980	290	1	77777	0
19/1/2014	6	2	7.4	51	980	123	0.4	77777	0
19/1/2014	7	2	7	52	981	126	0.3	77777	0
19/1/2014	8	2	6.9	54	981	117	0.3	77777	0
19/1/2014	9	2	9.4	46	981	71	0.2	77777	0
19/1/2014	10	2	12	36	981	33	0.4	77777	0
19/1/2014	11	2	13.8	31	981	290	0.7	77777	0
19/1/2014	12	2	14.8	31	981	290	0.7	77777	0
19/1/2014	13	2	15.7	30	980	290	0.8	77777	0
19/1/2014	14	2	16.2	30	980	358	1.1	77777	0
19/1/2014	15	2	16.4	31	979	353	1.4	77777	0
19/1/2014	16	2	16.2	33	979	355	1.8	77777	0
19/1/2014	17	2	15.4	42	979	357	2.1	77777	0
19/1/2014	18	2	14.4	46	979	5	2.4	77777	0
19/1/2014	19	2	13.4	50	979	21	2.3	77777	0
19/1/2014	20	2	12.4	53	979	41	2.1	77777	0
19/1/2014	21	2	11.6	56	980	64	2	77777	0
19/1/2014	22	2	10.9	58	980	84	2.1	77777	0
19/1/2014	23	2	10.4	60	980	95	2.3	77777	0
19/1/2014	24	2	10.2	61	980	97	2.3	77777	0
20/1/2014	1	2	9.8	62	980	95	1.9	77777	0
20/1/2014	2	2	9.2	64	980	95	1.5	77777	0
20/1/2014	3	2	8.9	64	980	89	1.5	77777	0
20/1/2014	4	2	8.4	65	980	86	1.5	77777	0
20/1/2014	5	2	8.3	64	980	74	1.9	77777	0
20/1/2014	6	2	8	64	980	62	2.8	77777	0
20/1/2014	7	2	7.9	65	981	62	3.7	77777	0
20/1/2014	8	2	7.9	65	981	68	3.6	77777	0
20/1/2014	9	2	11	50	981	61	3.9	77777	0
20/1/2014	10	2	13.2	41	981	53	3.5	77777	0
20/1/2014	11	2	15	34	980	44	3.4	77777	0
20/1/2014	12	2	16	34	980	40	3.3	77777	0
20/1/2014	13	2	16.9	31	979	35	3.4	77777	0
20/1/2014	14	2	17.4	30	978	28	3.6	77777	0
20/1/2014	15	2	17.4	32	978	23	3.9	77777	0
20/1/2014	16	2	16.9	37	978	21	4.2	77777	0
20/1/2014	17	2	15.4	55	978	18	3.1	77777	0
20/1/2014	18	2	13.9	60	978	28	3.7	77777	0
20/1/2014	19	2	12.9	62	979	43	3.7	77777	0
20/1/2014	20	2	12.3	63	979	57	3.8	77777	0
20/1/2014	21	2	11.8	63	980	67	3.9	77777	0
20/1/2014	22	2	11.4	63	980	75	3.9	77777	0
20/1/2014	23	2	11.2	63	981	85	3.6	77777	0
20/1/2014	24	2	10.9	62	981	95	3.1	77777	0
21/1/2014	1	2	10.6	62	981	112	2.7	77777	0
21/1/2014	2	2	10.2	61	981	119	2.1	77777	0
21/1/2014	3	2	9.8	62	981	100	1.3	77777	0
21/1/2014	4	2	9.2	63	981	76	1.3	77777	0
21/1/2014	5	2	8.4	59	981	75	1.6	77777	0
21/1/2014	6	2	8	58	981	72	2	77777	0
21/1/2014	7	2	7.9	57	981	78	2.4	77777	0
21/1/2014	8	2	8.2	55	981	86	2.7	77777	0
21/1/2014	9	2	11.2	45	981	62	2.9	77777	0
21/1/2014	10	2	13.3	40	982	45	2.5	77777	0
21/1/2014	11	2	15.2	35	981	26	2.7	77777	0
21/1/2014	12	2	16	36	981	22	2.9	77777	0
21/1/2014	13	2	16.6	37	980	18	3.1	77777	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
21/1/2014	14	2	17	37	980	16	3.6	77777	0
21/1/2014	15	2	17	38	979	18	3.8	77777	0
21/1/2014	16	2	16.7	42	979	23	3.9	77777	0
21/1/2014	17	2	15.4	58	978	24	3	77777	0
21/1/2014	18	2	14.2	63	978	36	3.7	77777	0
21/1/2014	19	2	12.9	68	979	51	4	77777	0
21/1/2014	20	2	12	71	979	61	4	77777	0
21/1/2014	21	2	11.4	73	980	65	4	77777	0
21/1/2014	22	2	11.2	74	980	68	4	77777	0
21/1/2014	23	2	10.9	75	981	71	4	77777	0
21/1/2014	24	2	10.9	75	981	72	4	77777	0
22/1/2014	1	2	10.9	74	981	73	3.8	2438	0
22/1/2014	2	2	10.8	73	981	69	3.6	2438	0
22/1/2014	3	2	10.4	74	981	61	3.9	2438	0
22/1/2014	4	2	9.9	78	981	54	4.3	2438	0
22/1/2014	5	2	9	83	981	55	4.1	2438	0
22/1/2014	6	2	8.8	86	981	62	3.9	2438	0
22/1/2014	7	2	8.9	86	981	71	3.7	2438	0
22/1/2014	8	2	9.3	86	981	74	3.3	2438	0
22/1/2014	9	2	12.6	74	980	54	3.8	77777	0
22/1/2014	10	2	14.9	62	980	44	3.9	77777	0
22/1/2014	11	2	16.3	57	979	39	3.9	77777	0
22/1/2014	12	2	17.3	55	979	37	3.8	77777	0
22/1/2014	13	2	18.2	52	978	33	4	77777	0
22/1/2014	14	2	18.6	51	978	29	4.1	77777	0
22/1/2014	15	2	18.6	52	977	27	4.2	77777	0
22/1/2014	16	2	18.2	55	977	27	4.2	2438	0
22/1/2014	17	2	17.2	69	977	24	3.1	2438	0
22/1/2014	18	2	15.7	76	976	32	3.6	2438	0
22/1/2014	19	3	14.4	80	977	46	3.8	2438	0
22/1/2014	20	3	13.7	83	978	60	3.9	2438	0
22/1/2014	21	2	13.3	85	978	70	4.1	2438	0
22/1/2014	22	2	13.2	83	978	82	3.9	2438	0
22/1/2014	23	2	13.3	78	979	98	4	2438	0
22/1/2014	24	2	13.3	72	979	107	4.1	77777	0
23/1/2014	1	2	13.2	66	978	109	3.8	77777	0
23/1/2014	2	2	12.9	62	978	109	3.5	77777	0
23/1/2014	3	2	12.4	60	978	109	3	77777	0
23/1/2014	4	2	11.8	60	978	106	2.3	77777	0
23/1/2014	5	2	11.3	62	978	96	1.8	77777	0
23/1/2014	6	2	10.7	65	978	85	1.6	77777	0
23/1/2014	7	2	10.3	68	978	82	1.7	77777	0
23/1/2014	8	2	10.4	69	979	90	1.5	77777	0
23/1/2014	9	2	13.8	60	978	61	2.3	77777	0
23/1/2014	10	2	16.2	56	979	40	2.1	77777	0
23/1/2014	11	2	18	50	978	37	1.9	77777	0
23/1/2014	12	2	19.4	47	978	33	1.8	77777	0
23/1/2014	13	2	20.2	48	977	29	1.8	77777	0
23/1/2014	14	2	20.8	47	977	24	2	77777	0
23/1/2014	15	2	20.9	45	977	19	2.5	77777	0
23/1/2014	16	2	20.8	48	977	15	3.1	77777	0
23/1/2014	17	2	19.4	62	976	10	3	77777	0
23/1/2014	18	2	17.8	69	977	22	3.8	77777	0
23/1/2014	19	2	16.2	74	977	40	4	77777	0
23/1/2014	20	2	15	77	978	54	4.1	77777	0
23/1/2014	21	2	14.4	78	978	64	4.1	77777	0
23/1/2014	22	2	14.4	77	979	71	3.8	77777	0
23/1/2014	23	2	14.4	75	979	82	3.6	77777	0
23/1/2014	24	2	14.2	72	980	94	3.6	77777	0
24/1/2014	1	2	14	69	980	100	3.6	77777	0
24/1/2014	2	2	13.9	65	980	107	3.4	77777	0
24/1/2014	3	2	13.9	62	980	107	2.8	77777	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
24/1/2014	4	2	13	64	980	73	1.9	77777	0
24/1/2014	5	2	11.9	71	981	44	3.3	77777	0
24/1/2014	6	2	11	76	981	52	3.9	2438	0
24/1/2014	7	2	10.9	75	981	58	3.2	2438	0
24/1/2014	8	2	10.9	74	981	49	2.5	2438	0
24/1/2014	9	2	13.9	61	980	30	3.8	2438	0
24/1/2014	10	2	16.2	53	980	32	4.4	2438	0
24/1/2014	11	2	17.8	49	980	31	4.8	2438	0
24/1/2014	12	2	18.6	48	979	29	4.9	2438	0
24/1/2014	13	2	19.3	45	979	25	5	2438	0
24/1/2014	14	2	19.4	45	978	18	5.1	2438	0
24/1/2014	15	2	19.2	47	978	16	5.1	2438	0
24/1/2014	16	2	18.8	51	978	14	4.9	2438	0
24/1/2014	17	2	17.6	65	977	11	3.1	2438	0
24/1/2014	18	2	16.3	69	977	21	3.5	2438	0
24/1/2014	19	2	15	73	978	37	3.8	2438	0
24/1/2014	20	2	14.2	76	979	49	3.9	2438	0
24/1/2014	21	2	13.4	79	979	56	4	2438	0
24/1/2014	22	2	12.9	81	980	64	4	2438	0
24/1/2014	23	2	12.6	81	980	72	4	77777	0
24/1/2014	24	2	12.4	80	981	74	4	77777	0
25/1/2014	1	2	12.4	77	981	80	3.7	77777	0
25/1/2014	2	2	12.4	75	980	83	3.2	77777	0
25/1/2014	3	2	11.9	74	981	70	2.6	77777	0
25/1/2014	4	2	11.4	77	981	47	2.7	77777	0
25/1/2014	5	2	10.8	81	981	45	3.1	77777	0
25/1/2014	6	2	10.4	84	981	56	3.2	77777	0
25/1/2014	7	2	10.2	84	981	67	2.9	77777	0
25/1/2014	8	2	10.3	83	981	72	2.7	77777	0
25/1/2014	9	2	13.4	70	981	48	3.2	77777	0
25/1/2014	10	2	15.6	58	980	34	3.4	77777	0
25/1/2014	11	2	17	51	980	28	3.5	77777	0
25/1/2014	12	2	17.9	48	980	26	3.2	77777	0
25/1/2014	13	2	18.9	42	979	23	3.5	77777	0
25/1/2014	14	2	19.3	39	978	20	3.7	77777	0
25/1/2014	15	2	19.4	38	978	21	3.8	77777	0
25/1/2014	16	2	18.9	41	978	24	3.7	77777	0
25/1/2014	17	2	17.9	57	977	23	2.7	77777	0
25/1/2014	18	2	16.8	60	977	34	3.3	77777	0
25/1/2014	19	2	15.8	62	978	44	3.7	77777	0
25/1/2014	20	2	14.9	63	978	53	3.7	77777	0
25/1/2014	21	2	14.3	65	979	65	3.4	77777	0
25/1/2014	22	2	13.7	66	979	81	2.8	77777	0
25/1/2014	23	2	13	68	980	94	2.4	77777	0
25/1/2014	24	2	12.4	70	980	105	2.3	77777	0
26/1/2014	1	2	11.9	71	980	121	2.3	77777	0
26/1/2014	2	2	11.8	70	980	290	2.3	77777	0
26/1/2014	3	2	11.6	70	980	290	1.8	77777	0
26/1/2014	4	2	11.2	71	980	115	1.3	77777	0
26/1/2014	5	2	10.6	58	980	102	1.9	77777	0
26/1/2014	6	2	10.4	57	980	103	2	77777	0
26/1/2014	7	2	10.3	55	981	109	2.1	77777	0
26/1/2014	8	2	10.6	54	981	112	1.8	77777	0
26/1/2014	9	2	13.4	44	981	84	1.4	77777	0
26/1/2014	10	2	15.9	40	981	53	0.7	77777	0
26/1/2014	11	2	17.7	36	981	18	0.4	77777	0
26/1/2014	12	2	18.9	32	981	290	0.8	77777	0
26/1/2014	13	2	19.6	33	980	5	1.1	77777	0
26/1/2014	14	2	20.2	31	979	7	1.5	77777	0
26/1/2014	15	2	20.4	30	979	290	2.1	77777	0
26/1/2014	16	2	19.9	32	978	7	2.7	77777	0
26/1/2014	17	2	18.9	48	978	5	2.7	77777	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
26/1/2014	18	2	17.7	51	978	18	3.5	77777	0
26/1/2014	19	2	16.4	55	979	46	3.7	77777	0
26/1/2014	20	2	15.4	57	979	75	4	77777	0
26/1/2014	21	2	14.9	57	979	95	4.1	77777	0
26/1/2014	22	2	14.4	55	980	112	4.1	77777	0
26/1/2014	23	2	14.2	53	980	125	4.1	77777	0
26/1/2014	24	2	13.9	50	980	290	4.5	77777	0
27/1/2014	1	2	13.6	48	979	151	4.5	77777	0
27/1/2014	2	2	13.8	45	979	290	4.1	77777	0
27/1/2014	3	2	13.7	44	979	159	3.5	77777	0
27/1/2014	4	2	13	46	979	153	2.4	77777	0
27/1/2014	5	2	12.3	49	979	145	0.9	77777	0
27/1/2014	6	2	11.4	54	979	117	0.3	77777	0
27/1/2014	7	2	10.8	56	979	117	0.4	77777	0
27/1/2014	8	2	11	55	979	104	0.6	2438	0
27/1/2014	9	2	13.9	49	979	89	0.6	2438	0
27/1/2014	10	2	16.9	38	979	63	1	2438	0
27/1/2014	11	2	18.6	37	978	54	1.2	2438	0
27/1/2014	12	2	19.9	35	978	46	1.5	2438	0
27/1/2014	13	2	20.6	38	977	39	1.7	77777	0
27/1/2014	14	2	21	38	977	31	2	77777	0
27/1/2014	15	2	21.4	39	976	25	2.5	77777	0
27/1/2014	16	2	21	41	976	21	2.9	77777	0
27/1/2014	17	2	20	54	976	19	2.4	77777	0
27/1/2014	18	2	18.9	58	976	32	2.9	77777	0
27/1/2014	19	2	17.9	60	977	52	3.4	2438	0
27/1/2014	20	2	16.9	63	977	67	4	2438	0
27/1/2014	21	2	16.2	65	978	83	4.1	77777	0
27/1/2014	22	2	15.9	64	978	107	4.1	77777	0
27/1/2014	23	2	15.6	60	978	290	4.6	77777	0
27/1/2014	24	2	14.9	57	978	142	4.9	77777	0
28/1/2014	1	2	14.8	53	978	144	4.9	77777	0
28/1/2014	2	2	14.9	49	978	145	4.9	6412	0
28/1/2014	3	2	14.9	46	978	146	4.8	6412	0
28/1/2014	4	2	15	45	977	147	4.7	6412	0
28/1/2014	5	2	15	44	977	150	4.7	77777	0
28/1/2014	6	2	14.9	44	977	152	4.8	77777	0
28/1/2014	7	2	14.8	46	978	150	5	77777	0
28/1/2014	8	2	14.6	50	978	146	4.3	77777	0
28/1/2014	9	2	16.3	54	978	148	2.5	77777	0
28/1/2014	10	2	19.9	43	978	179	-0.1	77777	0
28/1/2014	11	2	21.9	33	977	307	-0.2	77777	0
28/1/2014	12	2	22.7	29	977	24	0.4	77777	0
28/1/2014	13	2	23	29	977	32	1	77777	0
28/1/2014	14	2	23.4	29	976	28	1.5	77777	0
28/1/2014	15	2	23.4	31	976	23	2.2	2438	0
28/1/2014	16	2	22.9	35	975	19	3	2438	0
28/1/2014	17	2	21.4	52	975	17	2.9	2438	0
28/1/2014	18	2	20	57	975	33	3.5	2438	0
28/1/2014	19	2	19.2	60	975	54	3.7	2438	0
28/1/2014	20	2	18.4	61	976	76	3.9	2438	0
28/1/2014	21	2	17.9	63	976	105	4	2438	0
28/1/2014	22	2	17	65	976	129	4.5	77777	0
28/1/2014	23	2	16.4	65	977	290	4.6	77777	0
28/1/2014	24	2	16.4	60	977	290	4.4	77777	0
29/1/2014	1	2	16.4	55	977	290	4.1	77777	0
29/1/2014	2	2	16	53	977	290	3.7	7988	0
29/1/2014	3	2	15.9	51	977	290	3.4	7988	0
29/1/2014	4	2	15.8	50	977	137	3	77777	0
29/1/2014	5	2	15.3	52	977	290	2.7	77777	0
29/1/2014	6	2	14.8	55	977	125	2.4	6412	0
29/1/2014	7	2	14.4	57	977	121	2.4	6412	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
29/1/2014	8	2	14.6	58	977	115	2	2438	0
29/1/2014	9	2	17	49	977	85	1.2	2438	0
29/1/2014	10	2	19.6	41	977	48	1.1	2438	0
29/1/2014	11	2	20.8	43	977	36	0.4	2438	0
29/1/2014	12	2	22.3	38	976	340	-0.1	77777	0
29/1/2014	13	2	23	37	976	332	-0.1	77777	0
29/1/2014	14	2	23.6	35	975	339	0.3	77777	0
29/1/2014	15	2	23.8	35	975	346	0.8	77777	0
29/1/2014	16	2	23.6	36	974	353	1.5	2438	0
29/1/2014	17	2	22.8	45	974	359	2.1	2438	0
29/1/2014	18	2	21.6	50	974	290	1.9	2438	0
29/1/2014	19	2	20.3	55	974	37	1.1	2438	0
29/1/2014	20	2	19.2	60	975	85	1.3	2438	0
29/1/2014	21	2	18.3	63	975	104	1.9	2438	0
29/1/2014	22	2	17.7	65	975	114	2	77777	0
29/1/2014	23	2	17	66	976	125	2.2	77777	0
29/1/2014	24	2	16.8	66	976	290	2.8	77777	0
30/1/2014	1	2	16.6	64	975	150	3.4	7988	0
30/1/2014	2	2	16.9	60	975	153	3.7	7988	0
30/1/2014	3	2	16.9	58	975	151	3.3	2438	0
30/1/2014	4	2	16.6	58	975	149	3.1	2438	0
30/1/2014	5	2	16.4	57	974	154	3.2	2438	0
30/1/2014	6	2	16.4	56	974	290	2.9	2438	0
30/1/2014	7	2	16.4	55	975	290	2.8	2438	0
30/1/2014	8	2	16.6	54	975	290	2.8	2438	0
30/1/2014	9	2	16.9	54	976	170	2.5	2438	0
30/1/2014	10	2	19.7	50	976	182	0.8	2438	0
30/1/2014	11	2	21.9	39	976	259	0.2	2438	0
30/1/2014	12	2	23.2	32	976	218	-0.1	2438	0
30/1/2014	13	2	23.9	30	975	242	-0.1	2438	0
30/1/2014	14	2	24.4	30	975	246	-0.1	2438	0
30/1/2014	15	2	24.6	30	974	321	-0.1	2438	0
30/1/2014	16	2	24.6	30	974	62	-0.1	2438	0
30/1/2014	17	2	23.9	37	974	13	0.1	2438	0
30/1/2014	18	2	22.4	45	974	30	-0.2	2438	0
30/1/2014	19	2	20.8	53	975	142	0.2	2438	0
30/1/2014	20	2	19.6	57	975	135	1.4	2438	0
30/1/2014	21	2	18.9	57	976	144	3.2	2438	0
30/1/2014	22	2	18.3	56	976	145	4.1	2438	0
30/1/2014	23	2	17.6	57	977	137	4.3	2438	0
30/1/2014	24	2	17.4	55	977	290	4.2	2438	0
31/1/2014	1	2	17.4	53	977	290	4.2	2438	0
31/1/2014	2	2	17.2	51	976	129	4.4	2438	0
31/1/2014	3	2	16.8	49	976	128	4.6	2438	0
31/1/2014	4	2	16.6	49	976	129	4.7	2438	0
31/1/2014	5	2	17.6	52	975	129	4.3	2438	0
31/1/2014	6	2	17.4	52	975	125	4.3	2438	0
31/1/2014	7	2	17.4	53	976	122	4.5	2438	0
31/1/2014	8	2	17.6	55	976	122	4	2438	0
31/1/2014	9	2	20.4	50	976	109	2.8	2438	0
31/1/2014	10	2	22.9	41	976	92	2.1	2438	0
31/1/2014	11	2	24.4	38	976	72	1.4	2438	0
31/1/2014	12	2	25.4	36	975	49	1	2438	0
31/1/2014	13	2	25.8	34	975	24	1.2	2438	0
31/1/2014	14	2	25.9	33	975	13	1.7	2438	0
31/1/2014	15	2	25.9	33	974	290	2.4	2438	0
31/1/2014	16	2	25.4	37	974	290	3	2438	0
31/1/2014	17	2	24	52	974	12	2.8	2438	0
31/1/2014	18	2	22.8	56	974	33	3.5	2438	0
31/1/2014	19	2	21.2	61	975	58	4	2438	0
31/1/2014	20	2	20.2	63	975	74	4.1	2438	0
31/1/2014	21	2	19.6	63	975	83	4.2	2438	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
31/1/2014	22	2	19.4	63	975	95	4	2438	0
31/1/2014	23	2	19.4	63	975	113	4.1	2438	0
31/1/2014	24	2	19.2	61	975	125	4.4	2438	0
1/2/2014	1	2	18.9	59	975	128	4.4	2438	0
1/2/2014	2	2	18.8	56	975	290	4.4	2438	0
1/2/2014	3	2	18.8	54	974	290	4.3	2438	0
1/2/2014	4	2	18.7	53	974	290	4	2438	0
1/2/2014	5	2	18.4	52	974	290	3.1	2438	0
1/2/2014	6	2	17.6	56	975	107	1.3	2438	0
1/2/2014	7	2	16.4	64	975	46	2.9	2438	0
1/2/2014	8	2	16.3	66	975	68	2.4	2438	0
1/2/2014	9	2	19.6	52	975	58	2.4	2438	0
1/2/2014	10	2	21.4	47	975	36	1.2	2438	0
1/2/2014	11	2	22.9	43	975	7	1.1	2438	0
1/2/2014	12	2	23.7	43	975	356	1.1	2438	0
1/2/2014	13	2	24	42	975	353	1.6	2438	0
1/2/2014	14	2	24.4	43	974	358	1.9	2438	0
1/2/2014	15	2	24.4	44	974	2	2	2438	0
1/2/2014	16	2	24.3	46	974	314	2.3	2438	0
1/2/2014	17	2	23.4	57	974	314	2	2438	0
1/2/2014	18	3	22.7	61	974	14	1.6	2438	0
1/2/2014	19	3	21.7	66	974	28	1	2438	0
1/2/2014	20	3	20.8	70	975	71	0.5	2438	0
1/2/2014	21	3	20.3	72	975	118	0.5	2438	0
1/2/2014	22	3	19.9	73	976	123	0.7	2438	0
1/2/2014	23	2	19.6	75	976	314	0.8	2438	0
1/2/2014	24	2	19.4	75	977	194	0.9	2438	0
1/2/2014	1	2	19.3	75	976	167	0.7	2438	0
1/2/2014	2	2	19.3	74	976	156	1	2438	0
1/2/2014	3	2	19.2	74	976	155	0.7	2438	0
1/2/2014	4	2	18.9	76	975	119	0.4	2438	0
1/2/2014	5	2	18.7	77	975	101	0.6	2438	0
1/2/2014	6	2	18.4	78	975	110	0.7	2438	0
1/2/2014	7	2	18.6	77	976	117	0.8	2438	0
1/2/2014	8	2	18.7	76	976	115	0.8	2438	0
1/2/2014	9	2	21.4	59	976	70	0.8	2438	0
1/2/2014	10	2	23	51	976	36	0.9	2438	0
1/2/2014	11	2	24	45	976	20	0.9	2438	0
1/2/2014	12	2	24.9	40	976	7	1	2438	0
1/2/2014	13	2	25.3	38	975	10	1.2	2438	0
1/2/2014	14	2	25.4	37	975	18	1.2	2438	0
1/2/2014	15	3	25.4	37	974	27	1.3	2438	0
1/2/2014	16	2	25.3	38	973	40	1.7	2438	0
1/2/2014	17	2	24.4	47	973	51	1.8	2438	0
1/2/2014	18	2	23.6	51	972	64	2.1	2438	0
1/2/2014	19	2	22.7	53	973	77	2.6	2438	0
1/2/2014	20	2	21.8	55	973	91	3.6	2438	0
1/2/2014	21	2	20.7	58	973	102	4.2	2438	0
1/2/2014	22	2	19.9	62	974	113	4.2	2438	0
1/2/2014	23	2	19.4	67	974	129	4.3	2438	0
1/2/2014	24	2	18.9	68	974	137	4.5	2438	0
3/2/2014	1	2	18.9	67	974	141	4.5	2438	0
3/2/2014	2	2	18.9	65	973	145	4.5	2438	0
3/2/2014	3	2	18.9	64	973	147	4.4	2438	0
3/2/2014	4	2	18.9	62	972	145	4.4	2438	0
3/2/2014	5	2	18.8	62	972	143	4.3	2438	0
3/2/2014	6	2	18.7	61	972	143	4.2	2438	0
3/2/2014	7	2	18.8	58	972	146	3.9	2438	0
3/2/2014	8	2	19.2	58	973	147	3.3	2438	0
3/2/2014	9	2	21	58	973	147	1.6	2438	0
3/2/2014	10	2	23.9	47	973	200	0.2	2438	0
3/2/2014	11	2	24.8	43	973	269	0.7	2438	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
3/2/2014	12	2	25.3	42	972	279	0.9	2438	0
3/2/2014	13	3	25.6	43	972	282	0.5	2438	0
3/2/2014	14	3	25.7	43	971	295	0.3	2438	0
3/2/2014	15	3	25.7	44	970	309	0.3	2438	0
3/2/2014	16	3	25.4	49	970	330	0.5	2438	0
3/2/2014	17	3	24.9	55	969	338	0.3	2438	0
3/2/2014	18	3	23.9	61	969	159	-0.1	2438	0
3/2/2014	19	3	23.3	66	970	181	0.2	2438	0
3/2/2014	20	3	22.8	69	970	180	0.8	2438	0
3/2/2014	21	2	22.4	70	970	314	1.1	2438	0
3/2/2014	22	2	22.2	70	971	167	2.1	2438	0
3/2/2014	23	2	22	69	971	169	3.4	2438	0
3/2/2014	24	3	21.6	70	971	173	4	2438	0
4/2/2014	1	3	21	72	971	179	4.3	2438	0
4/2/2014	2	3	20.8	74	970	186	4.5	2438	0
4/2/2014	3	3	20.4	77	970	194	4.4	2438	0
4/2/2014	4	3	19.9	80	970	204	4.2	2438	0
4/2/2014	5	3	19.7	81	970	213	4.1	2438	0
4/2/2014	6	3	19.4	82	970	217	4	2438	0
4/2/2014	7	3	19.2	83	970	220	3.9	2438	0
4/2/2014	8	3	19.2	83	971	227	3.8	2438	0
4/2/2014	9	3	20.9	70	971	250	4.4	2438	0
4/2/2014	10	3	22.3	56	971	268	4.4	2438	0
4/2/2014	11	3	22.9	53	972	268	3.9	2438	0
4/2/2014	12	4	23.4	50	972	262	3.7	2438	0
4/2/2014	13	4	23.8	48	971	255	4	2438	0
4/2/2014	14	4	23.9	46	971	247	4.4	2438	0
4/2/2014	15	4	23.9	48	971	242	5.2	2438	0
4/2/2014	16	4	23.4	53	971	233	4.5	2438	0
4/2/2014	17	5	22.9	65	971	233	2.9	2199	0
4/2/2014	18	6	21.8	72	971	248	3.6	2199	1
4/2/2014	19	6	20.9	77	972	254	3.3	2199	4
4/2/2014	20	7	20.4	80	972	259	3.3	2438	4
4/2/2014	21	7	19.9	83	973	257	3.5	2438	6
4/2/2014	22	6	19.6	83	974	255	3	2438	4
4/2/2014	23	5	19.3	82	974	244	2.7	2438	4
4/2/2014	24	4	19.2	80	974	229	3	2438	5
5/2/2014	1	5	18.8	80	974	217	3.3	2438	4
5/2/2014	2	4	17.9	84	974	216	3.8	2438	2
5/2/2014	3	4	17.2	89	973	222	4.3	2438	0
5/2/2014	4	4	16.4	90	973	228	4.5	2438	0
5/2/2014	5	3	14.4	87	973	230	4.8	2438	0
5/2/2014	6	3	13.9	88	973	230	4.8	2438	0
5/2/2014	7	3	13.4	90	974	228	4.4	2438	0
5/2/2014	8	2	14.6	84	975	235	4.7	2438	0
5/2/2014	9	2	16.7	66	975	254	5.5	2438	0
5/2/2014	10	3	17.9	55	975	259	5.1	2438	0
5/2/2014	11	3	18.8	49	975	257	4.8	2438	0
5/2/2014	12	3	19.4	46	975	256	4.9	2438	0
5/2/2014	13	3	19.7	42	975	255	5	2438	0
5/2/2014	14	3	19.9	40	975	255	5.1	2438	0
5/2/2014	15	3	19.8	39	974	255	5.2	2438	0
5/2/2014	16	3	19.4	39	974	256	4.7	2438	0
5/2/2014	17	3	18.6	51	974	264	2.7	2438	0
5/2/2014	18	2	17.9	52	974	271	2.2	2438	0
5/2/2014	19	2	17	53	975	275	1.2	2438	0
5/2/2014	20	2	16	57	976	284	0.1	2438	0
5/2/2014	21	2	15	62	976	314	-0.1	2438	0
5/2/2014	22	2	14	68	977	125	-0.2	2438	0
5/2/2014	23	2	13.3	72	977	150	-0.1	2438	0
5/2/2014	24	2	12.7	75	978	137	-0.1	2438	0
6/2/2014	1	2	12.2	75	978	140	0.1	2438	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
6/2/2014	2	2	11.9	74	978	140	0.4	2438	0
6/2/2014	3	2	11.6	73	978	145	0.6	2438	0
6/2/2014	4	2	11.3	71	978	151	0.5	2438	0
6/2/2014	5	2	11	69	978	175	0	2438	0
6/2/2014	6	2	10.4	69	979	312	1	2438	0
6/2/2014	7	2	9.9	70	980	336	0.2	2438	0
6/2/2014	8	2	10.3	66	980	83	0.1	2438	0
6/2/2014	9	2	12.9	47	980	5	1.3	2438	0
6/2/2014	10	2	14.7	41	980	357	1.6	2438	0
6/2/2014	11	2	16.2	37	980	354	2	2438	0
6/2/2014	12	2	17.2	35	980	350	2.2	77777	0
6/2/2014	13	2	17.9	34	980	346	2.8	77777	0
6/2/2014	14	2	18.3	34	979	344	3.5	77777	0
6/2/2014	15	2	18.3	35	979	346	4	77777	0
6/2/2014	16	2	17.9	37	979	351	4.3	77777	0
6/2/2014	17	2	16.9	52	979	351	2.9	77777	0
6/2/2014	18	2	15.9	56	978	314	3.2	2438	0
6/2/2014	19	2	15.3	57	979	21	3	2438	0
6/2/2014	20	2	14.6	59	979	46	2.4	2438	0
6/2/2014	21	2	13.8	62	980	78	1.9	2438	0
6/2/2014	22	2	13	64	980	108	1.9	77777	0
6/2/2014	23	2	12.6	65	980	129	2	77777	0
6/2/2014	24	2	12	66	980	140	1.6	77777	0
7/2/2014	1	2	11.6	68	980	314	0.7	77777	0
7/2/2014	2	2	11	70	980	93	0.3	77777	0
7/2/2014	3	2	10.7	72	979	71	0.7	77777	0
7/2/2014	4	2	10.4	73	980	56	1.2	2438	0
7/2/2014	5	2	9.9	74	980	53	1.6	2438	0
7/2/2014	6	2	9.8	75	980	65	1.7	2438	0
7/2/2014	7	2	9.4	75	980	79	1.5	2438	0
7/2/2014	8	2	9.7	74	980	71	1.2	2438	0
7/2/2014	9	2	12.9	58	980	35	2.9	2438	0
7/2/2014	10	2	14.9	51	980	31	3.2	2438	0
7/2/2014	11	2	16	49	980	31	3	2438	0
7/2/2014	12	2	17.4	45	979	28	3	2438	0
7/2/2014	13	2	18.2	43	978	21	3.2	2438	0
7/2/2014	14	2	18.7	41	978	17	3.6	77777	0
7/2/2014	15	2	18.8	41	977	16	3.9	77777	0
7/2/2014	16	2	18.6	43	977	18	4.2	77777	0
7/2/2014	17	2	17.4	59	977	13	3.1	77777	0
7/2/2014	18	2	15.9	66	977	17	3.8	77777	0
7/2/2014	19	2	14.7	71	977	30	3.9	77777	0
7/2/2014	20	2	13.9	74	978	43	3.8	77777	0
7/2/2014	21	2	13.2	77	978	54	3.8	77777	0
7/2/2014	22	2	12.7	79	978	63	3.8	77777	0
7/2/2014	23	2	12.4	81	979	72	3.9	77777	0
7/2/2014	24	2	12.2	81	979	77	4	77777	0
8/2/2014	1	2	12	80	979	77	3.9	77777	0
8/2/2014	2	2	11.9	79	979	68	3.9	77777	0
8/2/2014	3	2	11.4	80	979	57	4.2	77777	0
8/2/2014	4	2	10.6	84	979	49	4.1	77777	0
8/2/2014	5	2	9.9	89	979	45	3.8	2438	0
8/2/2014	6	2	9.4	93	980	46	3.5	2438	0
8/2/2014	7	2	9	95	980	50	3.5	2438	0
8/2/2014	8	2	10.3	89	980	47	4	2438	0
8/2/2014	9	2	12.8	68	980	35	5.3	2438	0
8/2/2014	10	2	13.9	62	979	30	5.1	77777	0
8/2/2014	11	2	15.2	57	979	25	4.9	77777	0
8/2/2014	12	2	15.9	56	979	22	4.7	77777	0
8/2/2014	13	2	16.6	56	978	22	4.6	77777	0
8/2/2014	14	2	17.2	53	977	20	4.8	77777	0
8/2/2014	15	2	17.2	55	977	22	5.1	77777	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
8/2/2014	16	2	16.9	60	977	28	5.1	77777	0
8/2/2014	17	2	15.9	73	976	37	4.4	77777	0
8/2/2014	18	2	13.9	87	976	45	4.6	77777	0
8/2/2014	19	2	12.3	89	977	48	4.9	77777	0
8/2/2014	20	2	11.3	90	978	52	4.6	2438	0
8/2/2014	21	2	10.6	92	978	55	3.9	2438	0
8/2/2014	22	2	10.3	94	979	64	3.2	77777	0
8/2/2014	23	2	10.2	94	979	82	2.9	77777	0
8/2/2014	24	2	10.4	92	979	104	2.6	77777	0
9/2/2014	1	2	10.4	90	978	119	2.4	2438	0
9/2/2014	2	2	10.4	87	978	126	2.2	2438	0
9/2/2014	3	2	10.4	85	977	122	1.7	2438	0
9/2/2014	4	2	10.2	84	977	99	0.7	2438	0
9/2/2014	5	2	9.8	85	977	71	0.4	2438	0
9/2/2014	6	2	9.6	85	977	63	0.6	2438	0
9/2/2014	7	2	9.4	85	977	73	0.7	2438	0
9/2/2014	8	2	9.9	83	978	76	0.9	2438	0
9/2/2014	9	2	13.3	67	978	36	1.9	2438	0
9/2/2014	10	2	15.3	61	978	37	1.7	2438	0
9/2/2014	11	2	17.4	54	978	35	1.7	2438	0
9/2/2014	12	2	18.6	53	977	31	1.6	2438	0
9/2/2014	13	2	19.4	52	976	26	1.9	2438	0
9/2/2014	14	2	20.3	50	975	22	2.1	2438	0
9/2/2014	15	2	20.7	50	975	21	2.5	2438	0
9/2/2014	16	2	20.4	52	974	20	3.1	2438	0
9/2/2014	17	2	19.4	64	973	15	2.9	2438	0
9/2/2014	18	2	18	70	973	22	3.3	2438	0
9/2/2014	19	2	16.9	74	974	37	3.5	2438	0
9/2/2014	20	2	15.9	77	974	50	3.7	2438	0
9/2/2014	21	2	15.2	78	975	61	3.8	2438	0
9/2/2014	22	2	14.9	78	975	72	3.7	2438	0
9/2/2014	23	2	14.9	76	975	94	3.3	77777	0
9/2/2014	24	2	14.9	74	976	114	3.5	77777	0
10/2/2014	1	2	14.7	71	975	124	4.1	77777	0
10/2/2014	2	2	14.6	67	974	128	4.3	77777	0
10/2/2014	3	2	14.7	62	974	314	3.8	77777	0
10/2/2014	4	2	14.6	58	974	314	2.8	77777	0
10/2/2014	5	2	14.4	45	974	123	2.7	77777	0
10/2/2014	6	2	13.8	47	974	106	2.3	77777	0
10/2/2014	7	2	13.2	49	974	94	2	77777	0
10/2/2014	8	2	13.3	51	974	85	1.9	77777	0
10/2/2014	9	2	16.9	40	974	50	3.1	77777	0
10/2/2014	10	2	18.4	39	975	39	3.1	77777	0
10/2/2014	11	2	19.9	39	975	34	2.6	77777	0
10/2/2014	12	2	21.4	35	974	22	2.7	77777	0
10/2/2014	13	2	21.8	37	974	14	2.9	77777	0
10/2/2014	14	2	21.9	40	973	314	3	77777	0
10/2/2014	15	2	22	41	973	5	3.3	2438	0
10/2/2014	16	2	21.8	43	973	7	3.5	2438	0
10/2/2014	17	2	20.9	56	973	314	2.6	2438	0
10/2/2014	18	2	19.9	59	973	314	2.9	2438	0
10/2/2014	19	2	19.2	61	973	19	2.9	2438	0
10/2/2014	20	2	18.4	63	974	31	2.7	2438	0
10/2/2014	21	3	17.8	66	975	44	2.8	2438	0
10/2/2014	22	3	17.3	68	975	61	2.7	2438	0
10/2/2014	23	2	16.9	71	976	88	2	2438	0
10/2/2014	24	2	16.7	72	976	120	2	2438	0
11/2/2014	1	2	16.6	73	975	314	2.4	2438	0
11/2/2014	2	2	16.4	73	975	135	2.9	77777	0
11/2/2014	3	2	16.2	71	975	314	2.9	77777	0
11/2/2014	4	2	15.9	71	975	122	2.2	77777	0
11/2/2014	5	2	15.3	72	975	105	1.6	77777	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
11/2/2014	6	2	14.8	74	975	92	1.3	77777	0
11/2/2014	7	2	14.2	77	976	54	1.4	77777	0
11/2/2014	8	2	14.4	78	976	49	2.6	77777	0
11/2/2014	9	2	17.7	66	976	43	3.5	77777	0
11/2/2014	10	2	19.7	59	976	35	3.1	77777	0
11/2/2014	11	2	21.2	54	976	27	3.2	77777	0
11/2/2014	12	2	22.2	50	976	22	3.2	77777	0
11/2/2014	13	2	22.8	48	975	18	3.4	77777	0
11/2/2014	14	2	23	47	975	16	3.4	77777	0
11/2/2014	15	2	23.2	46	974	15	3.5	77777	0
11/2/2014	16	2	22.9	47	974	13	3.8	77777	0
11/2/2014	17	2	21.9	62	974	314	2.8	77777	0
11/2/2014	18	2	20.7	67	974	314	3.4	77777	0
11/2/2014	19	2	19.4	70	974	22	3.6	2438	0
11/2/2014	20	2	18.7	72	975	39	3.6	2438	0
11/2/2014	21	2	18	74	976	54	3.8	2438	0
11/2/2014	22	2	17.4	76	976	60	4	2438	0
11/2/2014	23	2	16.9	79	977	67	4.1	2438	0
11/2/2014	24	2	16.9	78	977	77	4.1	77777	0
12/2/2014	1	2	17	75	976	82	4	77777	0
12/2/2014	2	2	17	73	976	79	4	77777	0
12/2/2014	3	2	17	70	976	75	4.1	77777	0
12/2/2014	4	2	16.9	69	976	74	4.1	77777	0
12/2/2014	5	2	16	71	976	56	4.7	77777	0
12/2/2014	6	2	14	82	977	50	4.6	77777	0
12/2/2014	7	2	13.9	81	977	62	4	77777	0
12/2/2014	8	2	15.2	73	977	61	3.6	77777	0
12/2/2014	9	2	18.8	58	977	50	5.7	77777	0
12/2/2014	10	2	20.9	48	977	50	6.5	77777	0
12/2/2014	11	2	22.2	44	977	49	6	77777	0
12/2/2014	12	2	22.9	41	976	48	5.7	77777	0
12/2/2014	13	2	23.7	38	975	46	5.4	77777	0
12/2/2014	14	2	24	35	975	44	5.2	77777	0
12/2/2014	15	2	24.2	34	974	42	5	77777	0
12/2/2014	16	2	23.6	43	974	38	4.2	77777	0
12/2/2014	17	2	22.4	56	974	30	3.2	77777	0
12/2/2014	18	2	20.9	60	973	34	3.8	77777	0
12/2/2014	19	2	19.4	64	974	45	4	77777	0
12/2/2014	20	2	18.4	69	974	59	3.9	77777	0
12/2/2014	21	2	18	71	975	74	3.7	77777	0
12/2/2014	22	2	17.8	73	975	93	3.4	77777	0
12/2/2014	23	2	17.4	72	976	108	3.9	77777	0
12/2/2014	24	2	17.3	71	976	114	4.2	77777	0
13/2/2014	1	2	17.2	71	975	117	3.9	77777	0
13/2/2014	2	2	16.9	71	975	111	3.2	2438	0
13/2/2014	3	2	16.4	74	975	98	2.4	2438	0
13/2/2014	4	2	15.7	77	975	69	2.1	2438	0
13/2/2014	5	2	14.9	80	975	56	2.3	2438	0
13/2/2014	6	2	14.6	81	975	69	2	2438	0
13/2/2014	7	2	14.4	82	975	104	1.5	2438	0
13/2/2014	8	2	14.9	80	975	118	1.3	2438	0
13/2/2014	9	2	18.7	64	975	91	0.4	2438	0
13/2/2014	10	2	20.8	58	975	35	0.5	2438	0
13/2/2014	11	2	22.3	54	974	38	1.4	2438	0
13/2/2014	12	2	23.3	52	974	32	1.6	2438	0
13/2/2014	13	2	23.9	49	973	21	1.7	2438	0
13/2/2014	14	2	24.4	46	973	12	1.9	2438	0
13/2/2014	15	2	24.6	45	972	7	2.4	2438	0
13/2/2014	16	2	24.3	46	972	314	3	2438	0
13/2/2014	17	3	23.2	59	972	10	3	2438	0
13/2/2014	18	3	21.7	65	971	23	3.4	2438	0
13/2/2014	19	3	20.6	67	972	41	3.5	2438	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
13/2/2014	20	2	19.9	67	972	56	3.5	2438	0
13/2/2014	21	2	19.4	66	972	67	3.6	2438	0
13/2/2014	22	2	19	65	972	76	3.5	2438	0
13/2/2014	23	2	18.8	66	973	87	3.2	2438	0
13/2/2014	24	2	18.4	69	973	104	2.9	2438	0
14/2/2014	1	2	17.9	74	972	124	3	2438	0
14/2/2014	2	2	17.6	77	972	135	3.2	2438	0
14/2/2014	3	2	17.3	78	972	314	2.8	2438	0
14/2/2014	4	2	16.8	79	972	314	1.7	2438	0
14/2/2014	5	2	16.3	81	972	126	0.7	2438	0
14/2/2014	6	2	15.8	83	972	128	0.5	2438	0
14/2/2014	7	2	15.3	84	973	129	0.3	2438	0
14/2/2014	8	2	15.4	85	973	91	0	77777	0
14/2/2014	9	2	19.2	67	973	15	0.7	2438	0
14/2/2014	10	2	20.7	63	973	314	0.4	2438	0
14/2/2014	11	2	22.6	53	973	354	-0.1	2438	0
14/2/2014	12	3	23.9	45	972	355	-0.2	2438	0
14/2/2014	13	3	24.7	42	971	272	-0.1	2438	0
14/2/2014	14	3	25.2	40	971	309	0.3	2438	0
14/2/2014	15	3	25.4	39	970	313	1.2	2438	0
14/2/2014	16	3	25.2	40	970	316	2.3	2438	0
14/2/2014	17	3	24	52	970	322	3.1	2438	0
14/2/2014	18	3	22.4	58	970	327	3.4	2438	0
14/2/2014	19	3	21.6	59	970	338	2.4	2438	0
14/2/2014	20	2	20.7	61	971	29	0.8	2438	0
14/2/2014	21	2	19.9	65	971	98	1.6	2438	0
14/2/2014	22	2	19.4	67	971	110	2.4	2438	0
14/2/2014	23	2	19	69	971	119	2.7	2438	0
14/2/2014	24	2	18.8	69	972	129	2.6	2438	0
15/2/2014	1	2	18.4	70	971	314	2	2438	0
15/2/2014	2	2	17.9	71	971	149	1.3	2438	0
15/2/2014	3	2	17.4	72	971	314	1	2438	0
15/2/2014	4	2	16.9	74	971	175	0.9	2438	0
15/2/2014	5	3	17.4	78	972	231	2.4	2438	0
15/2/2014	6	3	16.9	80	972	249	3.5	2438	0
15/2/2014	7	3	16.3	82	972	250	3	2438	0
15/2/2014	8	3	16.9	79	973	282	1.6	2438	0
15/2/2014	9	3	19	67	973	312	1.2	2438	0
15/2/2014	10	3	20.9	57	972	304	1	2438	0
15/2/2014	11	2	22.2	49	972	290	1.6	2438	0
15/2/2014	12	3	23	40	972	283	2.3	2438	0
15/2/2014	13	2	23.4	34	971	278	2.9	2438	0
15/2/2014	14	2	23.7	32	970	272	3.7	2438	0
15/2/2014	15	3	23.6	33	970	266	4.3	2438	0
15/2/2014	16	3	23	36	970	257	4.6	2438	0
15/2/2014	17	3	22	52	969	248	3	2438	0
15/2/2014	18	3	21.3	53	969	228	3.3	2438	0
15/2/2014	19	3	20.4	53	969	208	3.5	2438	0
15/2/2014	20	3	19.9	53	969	187	3.4	2438	0
15/2/2014	21	3	19.3	54	969	170	3.5	2438	0
15/2/2014	22	3	18.7	55	969	314	3.4	2438	0
15/2/2014	23	3	18	57	969	159	3.7	2438	0
15/2/2014	24	3	17.4	59	969	314	4	2438	0
16/2/2014	1	3	17	59	968	167	3.6	2438	0
16/2/2014	2	3	16.9	57	968	314	3.1	2438	0
16/2/2014	3	3	16.8	57	968	219	3.5	2438	0
16/2/2014	4	3	15.3	67	968	259	4.7	2438	1
16/2/2014	5	3	13.8	84	968	283	3.3	2438	0
16/2/2014	6	3	13.3	87	968	271	2.8	2438	0
16/2/2014	7	3	13.2	85	969	252	2.2	2438	0
16/2/2014	8	3	14.3	76	969	288	3.6	2438	0
16/2/2014	9	3	15.9	64	970	304	4.8	2438	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
16/2/2014	10	3	17.2	59	970	303	5	2438	0
16/2/2014	11	3	18.2	55	970	298	5.1	2438	0
16/2/2014	12	3	18.9	52	970	294	5.3	2438	0
16/2/2014	13	4	19.4	50	969	292	5.4	2438	0
16/2/2014	14	4	19.7	48	969	290	5.4	2438	0
16/2/2014	15	4	19.9	46	969	290	5.6	2438	0
16/2/2014	16	3	19.9	46	968	289	5.6	2438	0
16/2/2014	17	3	19.3	60	968	280	3.3	2438	0
16/2/2014	18	3	18.3	63	968	267	3.6	2438	0
16/2/2014	19	3	17.4	65	969	255	3.9	2438	0
16/2/2014	20	3	16.4	67	969	248	4	2438	0
16/2/2014	21	3	15.8	67	970	246	4	2438	0
16/2/2014	22	3	15.2	67	970	250	4.1	2438	0
16/2/2014	23	2	14.6	67	971	255	4.1	2438	0
16/2/2014	24	2	13.9	67	971	258	4.1	2438	0
17/2/2014	1	2	13.4	68	971	262	4	2438	0
17/2/2014	2	2	12.9	68	971	267	3.9	2438	0
17/2/2014	3	2	12.3	70	971	273	3.7	2438	0
17/2/2014	4	2	11.9	71	971	277	3.6	2438	0
17/2/2014	5	2	11.4	71	971	282	3.5	2438	0
17/2/2014	6	2	11.2	70	972	282	3.4	2438	0
17/2/2014	7	2	10.9	69	972	277	3.4	2438	0
17/2/2014	8	2	12	64	973	289	3	2438	0
17/2/2014	9	2	14.8	48	973	312	3.8	2438	0
17/2/2014	10	2	16	44	973	314	2.8	2438	0
17/2/2014	11	2	17.3	42	973	308	1.7	2438	0
17/2/2014	12	2	18.3	40	973	297	0.9	77777	0
17/2/2014	13	2	19.2	37	972	288	0.7	77777	0
17/2/2014	14	2	19.7	36	972	286	0.7	77777	0
17/2/2014	15	2	19.9	36	972	286	0.8	77777	0
17/2/2014	16	2	19.9	37	971	288	1	77777	0
17/2/2014	17	2	19.7	40	971	293	1.4	77777	0
17/2/2014	18	2	18.9	46	971	296	1.1	77777	0
17/2/2014	19	2	17.7	52	972	258	0.6	77777	0
17/2/2014	20	2	16.6	57	973	90	0.8	77777	0
17/2/2014	21	2	15.8	61	973	90	1.7	77777	0
17/2/2014	22	2	15.2	63	974	153	2.5	77777	0
17/2/2014	23	2	14.9	63	974	147	3.4	2438	0
17/2/2014	24	2	14.6	62	974	147	4.3	2438	0
18/2/2014	1	2	13.9	62	974	146	4.5	2438	0
18/2/2014	2	2	13.6	63	974	145	4.5	2438	0
18/2/2014	3	2	13.4	61	974	146	4.3	2438	0
18/2/2014	4	2	13.8	57	974	148	3.9	2438	0
18/2/2014	5	2	13.9	54	974	154	3.2	2438	0
18/2/2014	6	2	13.6	53	974	90	2.7	2438	0
18/2/2014	7	2	13.4	53	974	173	2.6	2438	0
18/2/2014	8	2	13.7	53	974	179	2.3	2438	0
18/2/2014	9	2	17.2	42	974	217	0.9	2438	0
18/2/2014	10	2	19.2	38	974	273	0.7	2438	0
18/2/2014	11	2	20.2	37	974	90	0	2438	0
18/2/2014	12	2	21	36	974	314	0	2438	0
18/2/2014	13	2	21.6	35	973	327	0.4	2438	0
18/2/2014	14	3	21.9	35	973	338	0.8	2438	0
18/2/2014	15	3	21.9	35	973	347	1.1	2438	0
18/2/2014	16	3	21.9	36	972	354	1.4	2438	0
18/2/2014	17	2	21.4	44	972	1	1.7	2438	0
18/2/2014	18	2	20.4	48	972	16	1.8	2438	0
18/2/2014	19	2	19.3	53	973	43	1.7	2438	0
18/2/2014	20	2	18.3	56	974	74	2.1	2438	0
18/2/2014	21	2	17.4	58	974	90	2.8	2438	0
18/2/2014	22	2	16.9	59	975	99	3	2438	0
18/2/2014	23	2	16.4	60	975	119	3	2438	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
18/2/2014	24	2	15.9	61	976	141	3.7	2438	0
19/2/2014	1	2	15.4	62	975	149	4.3	77777	0
19/2/2014	2	2	15.2	61	975	149	4.3	77777	0
19/2/2014	3	2	15	60	975	149	4.3	77777	0
19/2/2014	4	2	15.3	57	974	152	4	77777	0
19/2/2014	5	2	15.4	55	974	158	3.4	77777	0
19/2/2014	6	2	15	56	974	167	2.6	2438	0
19/2/2014	7	2	14.4	58	974	173	2.2	2438	0
19/2/2014	8	2	14.6	60	974	170	1.6	2438	0
19/2/2014	9	2	17.4	58	974	148	-0.2	2438	0
19/2/2014	10	2	20.2	44	974	323	0.5	2438	0
19/2/2014	11	2	21	40	974	329	0.7	2438	0
19/2/2014	12	2	21.9	38	973	326	0.7	2438	0
19/2/2014	13	2	22.4	36	973	329	1.1	2438	0
19/2/2014	14	2	22.7	36	972	334	1.5	2438	0
19/2/2014	15	2	22.8	36	972	341	1.9	2438	0
19/2/2014	16	2	22.6	38	972	348	2.2	2438	0
19/2/2014	17	2	21.9	47	972	350	2.1	2438	0
19/2/2014	18	2	21	51	972	354	2.1	2438	0
19/2/2014	19	2	20.2	54	972	14	1.4	2438	0
19/2/2014	20	2	19.2	58	973	61	1.2	2438	0
19/2/2014	21	2	18.3	61	973	93	1.8	2438	0
19/2/2014	22	2	17.7	62	974	111	2.6	2438	0
19/2/2014	23	2	17.3	61	974	126	2.8	2438	0
19/2/2014	24	2	16.9	61	975	141	2.4	2438	0
20/2/2014	1	2	16.4	61	974	154	1.7	2438	0
20/2/2014	2	2	15.9	63	974	146	1	2438	0
20/2/2014	3	2	15.3	66	974	117	0.8	2438	0
20/2/2014	4	2	14.9	67	974	107	1.2	2438	0
20/2/2014	5	2	14.9	58	974	102	1.6	2438	0
20/2/2014	6	2	14.7	58	974	100	1.6	2438	0
20/2/2014	7	2	14.4	58	974	103	1.7	2438	0
20/2/2014	8	2	15.2	56	975	97	2.1	2438	0
20/2/2014	9	2	18.6	41	975	62	2.6	2438	0
20/2/2014	10	2	20.2	37	975	47	2.6	2438	0
20/2/2014	11	2	21.3	36	975	43	2.5	2438	0
20/2/2014	12	2	22.2	34	974	41	2.5	2438	0
20/2/2014	13	2	22.8	34	974	34	2.4	2438	0
20/2/2014	14	2	23.2	33	973	29	2.6	2438	0
20/2/2014	15	2	23.3	34	973	27	2.7	2438	0
20/2/2014	16	2	23	36	973	28	2.8	2438	0
20/2/2014	17	2	22.2	47	972	26	2.2	2438	0
20/2/2014	18	2	21.3	52	972	35	2.6	2438	0
20/2/2014	19	2	20.3	55	973	51	3.1	2438	0
20/2/2014	20	2	19.4	57	973	64	3.6	2438	0
20/2/2014	21	2	18.8	60	974	81	3.6	2438	0
20/2/2014	22	2	18.4	63	974	108	3.5	2438	0
20/2/2014	23	2	18.4	64	974	90	3.9	2438	0
20/2/2014	24	2	18.4	62	974	90	3.9	2438	0
21/2/2014	1	2	18.8	58	974	135	3.7	2438	0
21/2/2014	2	2	18.9	56	974	90	3.6	5081	0
21/2/2014	3	2	18.9	54	974	90	3.7	3925	0
21/2/2014	4	2	19	53	974	90	3.6	3925	0
21/2/2014	5	2	19.3	52	974	90	3.6	2438	0
21/2/2014	6	2	19.3	50	974	143	3.7	2438	0
21/2/2014	7	2	18.9	49	974	149	4.3	2438	0
21/2/2014	8	2	18.8	52	974	153	3.8	2438	0
21/2/2014	9	2	22.2	39	974	171	2.8	2438	0
21/2/2014	10	2	24.2	34	974	195	2.2	2438	0
21/2/2014	11	2	25.3	30	973	219	1.8	2438	0
21/2/2014	12	2	26.2	28	973	218	1.7	2438	0
21/2/2014	13	2	26.9	28	972	221	2	2438	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
21/2/2014	14	2	27.4	27	972	234	2.9	2438	0
21/2/2014	15	2	27.4	28	972	246	4.2	2438	0
21/2/2014	16	2	26.6	39	971	256	4.2	2438	0
21/2/2014	17	2	25	54	971	264	3.6	2438	0
21/2/2014	18	2	23.7	58	971	259	3.7	2438	0
21/2/2014	19	2	22.9	58	972	238	3.1	2438	0
21/2/2014	20	2	22.3	59	972	211	2.7	2438	0
21/2/2014	21	2	21.7	60	972	183	2.9	2438	0
21/2/2014	22	2	21	61	973	90	3.3	2438	0
21/2/2014	23	2	20.7	63	973	90	3.6	2438	0
21/2/2014	24	2	20.3	64	974	90	3.5	2438	0
22/2/2014	1	2	19.8	65	973	90	3	2438	0
22/2/2014	2	2	19.4	64	973	174	1.9	2438	0
22/2/2014	3	2	18.9	65	973	178	0.9	2438	0
22/2/2014	4	2	18.2	68	973	163	0.4	2438	0
22/2/2014	5	2	17.4	71	973	144	0.3	2438	0
22/2/2014	6	2	16.8	74	973	127	0.3	2438	0
22/2/2014	7	2	16.4	75	973	129	0.5	2438	0
22/2/2014	8	2	16.9	75	974	90	0.6	2438	0
22/2/2014	9	2	20.4	59	974	50	-0.1	2438	0
22/2/2014	10	2	22.4	53	974	311	-0.2	2438	0
22/2/2014	11	2	24	47	974	285	-0.1	2438	0
22/2/2014	12	2	25.3	43	974	298	-0.1	2438	0
22/2/2014	13	2	26	39	974	310	0.3	2438	0
22/2/2014	14	2	26.4	37	973	319	1	2438	0
22/2/2014	15	2	26.7	37	973	322	1.6	2438	0
22/2/2014	16	2	26.4	38	973	324	2.2	2438	0
22/2/2014	17	2	25.4	49	973	325	2.6	2438	0
22/2/2014	18	2	24.4	55	973	327	3.2	2438	0
22/2/2014	19	2	23.3	59	973	334	2.6	2438	0
22/2/2014	20	2	22.3	62	973	23	1.4	2438	0
22/2/2014	21	2	21.4	65	973	87	2.6	2438	0
22/2/2014	22	2	21	65	973	107	3.6	2438	0
22/2/2014	23	2	20.9	62	973	113	3.5	2438	0
22/2/2014	24	2	20.4	61	973	122	3	2438	0
23/2/2014	1	2	19.9	61	973	90	1.7	2438	0
23/2/2014	2	2	19.4	62	973	90	0.9	2438	0
23/2/2014	3	2	18.9	64	973	223	0.6	2438	0
23/2/2014	4	3	18.8	65	973	267	2.7	2438	0
23/2/2014	5	3	16.7	81	974	306	3.6	2438	0
23/2/2014	6	3	16.2	85	974	327	2.5	2438	0
23/2/2014	7	3	15.9	83	976	323	2.2	2438	0
23/2/2014	8	2	17.2	69	976	341	2.5	2438	0
23/2/2014	9	2	18.9	52	976	343	3.5	2438	0
23/2/2014	10	2	19.9	49	976	337	2.9	2438	0
23/2/2014	11	2	21	47	977	326	2.7	2438	0
23/2/2014	12	2	21.9	45	976	316	2.5	2438	0
23/2/2014	13	2	22.6	43	976	312	3	2438	0
23/2/2014	14	3	22.9	43	975	313	3.1	2438	0
23/2/2014	15	3	23	42	975	314	3	2438	0
23/2/2014	16	3	23	42	975	314	2.7	2438	0
23/2/2014	17	3	22.7	49	975	306	1.8	2438	0
23/2/2014	18	3	22	51	975	289	1.3	2438	0
23/2/2014	19	3	21	54	975	252	0.8	2438	0
23/2/2014	20	3	19.9	60	975	204	0.4	2438	0
23/2/2014	21	3	18.9	65	976	171	0.2	2438	0
23/2/2014	22	2	18.3	68	976	154	0.9	2438	0
23/2/2014	23	2	17.9	67	977	158	1.2	2438	0
23/2/2014	24	2	17.3	69	977	229	0.2	2438	0
24/2/2014	1	2	16.7	71	977	283	0.6	2438	0
24/2/2014	2	2	16.3	72	977	288	0.5	2438	0
24/2/2014	3	2	15.9	73	977	312	0.4	2438	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
24/2/2014	4	2	15.7	72	977	349	0.7	2438	0
24/2/2014	5	2	15.2	73	977	22	1.2	2438	0
24/2/2014	6	2	14.7	75	977	40	2.2	2438	0
24/2/2014	7	2	14.2	77	977	44	2.9	2438	0
24/2/2014	8	2	15.4	75	977	42	3.6	2438	0
24/2/2014	9	2	17.8	60	978	36	5	2438	0
24/2/2014	10	2	18.9	55	978	33	4.5	2438	0
24/2/2014	11	2	19.9	53	978	30	3.9	2438	0
24/2/2014	12	2	20.8	50	977	23	3.3	2438	0
24/2/2014	13	2	21.4	49	977	15	3	2438	0
24/2/2014	14	2	21.7	49	976	12	2.9	2438	0
24/2/2014	15	2	21.9	49	976	90	2.8	2438	0
24/2/2014	16	2	21.9	49	976	90	2.8	2438	0
24/2/2014	17	2	21.4	57	975	359	2.3	2438	0
24/2/2014	18	2	20.7	62	975	355	2.4	2438	0
24/2/2014	19	2	19.9	65	976	90	2.2	2438	0
24/2/2014	20	3	19	68	976	33	1.9	2438	0
24/2/2014	21	3	18.4	71	976	64	2	2438	0
24/2/2014	22	3	17.8	73	976	88	2.6	2438	0
24/2/2014	23	3	17.4	73	976	98	3.4	2438	0
24/2/2014	24	2	17.2	73	976	97	3.4	2438	0
25/2/2014	1	2	16.9	73	976	102	3.4	2438	0
25/2/2014	2	2	16.6	73	976	113	3.5	2438	0
25/2/2014	3	2	16.3	73	976	125	3	2438	0
25/2/2014	4	2	15.9	73	976	90	2.4	2438	0
25/2/2014	5	2	14.6	66	976	116	1.7	77777	0
25/2/2014	6	2	14.3	67	977	109	1.5	77777	0
25/2/2014	7	2	13.9	67	977	106	1.5	77777	0
25/2/2014	8	2	14.8	66	977	100	1.5	77777	0
25/2/2014	9	2	18.4	51	976	58	1.7	77777	0
25/2/2014	10	2	19.9	50	976	45	1.1	77777	0
25/2/2014	11	2	21.4	44	976	35	0.1	77777	0
25/2/2014	12	2	22.8	39	975	287	-0.1	77777	0
25/2/2014	13	2	23.9	34	975	257	-0.1	77777	0
25/2/2014	14	2	24.6	31	975	308	0.1	2438	0
25/2/2014	15	2	24.9	30	974	315	0.6	2438	0
25/2/2014	16	2	24.9	31	974	323	1.1	2438	0
25/2/2014	17	2	24.2	38	974	338	2	2438	0
25/2/2014	18	2	22.9	46	974	350	2.4	2438	0
25/2/2014	19	2	21.6	52	974	13	1.7	2438	0
25/2/2014	20	2	20.3	58	975	60	1.4	2438	0
25/2/2014	21	2	19.2	62	975	94	2	77777	0
25/2/2014	22	2	18.6	63	975	107	2.5	77777	0
25/2/2014	23	2	18.2	62	975	117	2.8	77777	0
25/2/2014	24	2	17.9	59	975	124	3.2	77777	0
26/2/2014	1	2	17.9	56	975	90	3.5	77777	0
26/2/2014	2	2	17.9	52	975	143	3.9	2438	0
26/2/2014	3	2	18	48	974	149	3.9	2438	0
26/2/2014	4	2	18	45	974	155	3.8	2438	0
26/2/2014	5	2	18	44	974	90	3.6	2438	0
26/2/2014	6	2	17.9	43	974	169	3.8	2438	0
26/2/2014	7	2	17.9	43	974	172	4.2	2438	0
26/2/2014	8	2	18.4	45	974	169	3.9	2438	0
26/2/2014	9	2	21.8	40	974	183	2.8	2438	0
26/2/2014	10	2	24.2	33	974	192	2	2438	0
26/2/2014	11	2	25.6	30	974	198	1.7	2438	0
26/2/2014	12	2	26.7	26	973	209	2.3	2438	0
26/2/2014	13	2	27.4	23	973	226	3.4	2438	0
26/2/2014	14	2	27.6	23	972	238	4.1	2438	0
26/2/2014	15	2	27.4	25	972	247	4.6	2438	0
26/2/2014	16	2	26.3	36	972	256	4.3	2438	0
26/2/2014	17	2	24.9	50	972	259	3.4	2438	0

Date	Hour	Stabilty Clauses	Dry Temperature	RH	Atm. Pressure	Wind Direction	Wind Speed (m/sec.)	Ceiling Height	Precipitation
26/2/2014	18	2	23.9	51	972	251	3.3	2438	0
26/2/2014	19	2	23	51	973	234	2.4	2438	0
26/2/2014	20	2	22	52	973	202	1.8	2438	0
26/2/2014	21	2	21	56	972	90	2.1	2438	0
26/2/2014	22	2	20.4	57	973	156	3.2	2438	0
26/2/2014	23	2	20.3	55	973	90	3.9	2438	0
26/2/2014	24	2	20	52	973	90	4.7	2438	0
27/2/2014	1	2	18.4	59	973	211	5.4	2438	0
27/2/2014	2	2	16.6	68	973	231	5.5	2438	0
27/2/2014	3	2	15.7	70	973	243	5.2	2438	0
27/2/2014	4	2	14.9	72	973	241	4.8	2438	0
27/2/2014	5	2	14.4	75	973	239	4.7	2438	0
27/2/2014	6	2	14	80	974	237	4.5	2438	0
27/2/2014	7	2	13.9	84	974	231	4	2438	0
27/2/2014	8	2	15.9	78	975	248	3.9	2438	0
27/2/2014	9	2	18.6	61	975	276	4.2	2438	0
27/2/2014	10	2	19.9	52	975	288	3.7	2438	0
27/2/2014	11	2	20.9	47	975	90	3.3	2438	0
27/2/2014	12	2	21.7	44	975	293	3.2	2438	0
27/2/2014	13	2	22.2	42	975	297	3.5	2438	0
27/2/2014	14	3	22.4	41	975	296	3.4	2438	0
27/2/2014	15	3	22.4	41	974	298	3.1	2438	0
27/2/2014	16	3	22.4	41	974	301	2.7	2438	0
27/2/2014	17	3	21.9	47	974	311	2.1	2438	0
27/2/2014	18	3	21.4	49	974	325	1.5	2438	0
27/2/2014	19	2	20.4	53	975	333	0.2	2438	0
27/2/2014	20	2	19.3	59	975	163	0.4	2438	0
27/2/2014	21	2	18.4	63	975	157	1.3	2438	0
27/2/2014	22	2	17.7	66	975	157	2	2438	0
27/2/2014	23	2	17.2	66	975	154	2.3	2438	0
27/2/2014	24	2	17	64	975	90	3	77777	0
28/2/2014	1	2	16.9	62	975	175	3.3	77777	0
28/2/2014	2	2	16.6	61	974	181	3.1	2438	0
28/2/2014	3	2	16.3	60	974	187	2.6	2438	0
28/2/2014	4	2	16	58	974	201	2.3	2438	0
28/2/2014	5	2	15.9	55	975	225	2.2	2438	0
28/2/2014	6	2	15.3	57	975	280	3.6	2438	0
28/2/2014	7	2	13.3	70	976	296	3.2	2438	0
28/2/2014	8	2	14.4	64	976	314	2.6	2438	0
28/2/2014	9	2	16.4	50	976	324	2.8	2438	0
28/2/2014	10	2	18.4	43	976	328	2.6	2438	0
28/2/2014	11	2	19.6	42	977	332	2.3	2438	0
28/2/2014	12	2	20.7	40	977	333	2.6	2438	0
28/2/2014	13	2	21.4	39	976	334	3	77777	0
28/2/2014	14	2	21.9	38	976	337	3.3	77777	0
28/2/2014	15	2	21.9	38	976	341	3.5	77777	0
28/2/2014	16	2	21.9	39	976	346	3.6	77777	0
28/2/2014	17	2	21.2	50	976	346	2.6	77777	0
28/2/2014	18	2	20.4	54	976	353	2.7	77777	0
28/2/2014	19	2	19.6	55	976	11	2.5	2438	0
28/2/2014	20	2	18.8	57	976	36	2	77777	0
28/2/2014	21	2	17.9	60	977	66	1.9	77777	0
28/2/2014	22	2	17.2	62	977	90	2	77777	0
28/2/2014	23	2	16.6	64	978	105	2.6	77777	0
28/2/2014	24	2	16.2	63	978	113	3	77777	0

ANNEXURE-8C

(AAQM DATA)

Table No.1 Results of Ambient air quality monitoring of village 0.5 Km Downwind from Sili Nadi

AAQ-1 **(Unit = µg/m^3)**

S.No.	Date	PM_{10}	SO_2	NO_2
1	02.12.2013	56.3	6.8	11.5
2	03.12.2013	59	7.1	11.1
3	09.12.2013	52.6	7.6	10.8
4	10.12.2013	54.1	7.5	11.3
5	16.12.2013	49.9	8.2	11
6	17.12.2013	51.5	8.6	12.2
7	23.12.2013	60.7	7.9	11.7
8	24.12.2013	58.2	8	11.8
9	03.01.2014	57.8	7.3	12.4
10	04.01.2014	55.2	7.7	12.6
11	10.01.2014	54.3	6.9	13.1
12	11.01.2014	61.2	7.2	12.8
13	17.01.2014	58	6.5	12.5
14	18.01.2014	54.9	6.2	13
15	24.01.2014	50.6	7	12.3
16	25.01.2014	53.3	7.4	11.9
17	02.02.2014	59.5	8.1	11
18	03.02.2014	55.2	7.8	10.7
19	09.02.2014	53.8	6.9	10
20	10.02.2014	57.1	6.7	10.3
21	16.02.2014	57.2	7.2	11.1
22	17.02.2014	54.7	7.5	10.9
23	23.02.2014	51.3	8.3	11.4
24	24.02.2014	52.8	7.9	11.2
Min.		**49.9**	**6.2**	**10**
Max.		**61.2**	**8.6**	**13.1**
98 Percentile		**60.97**	**8.46**	**13.05**

Table No. 2 Results of Ambient air quality monitoring of village Mandar

AAQ-2 **(Unit = µg/m^3)**

S.No.	Date	PM_{10}	SO_2	NO_2
1	02.12.2013	61.7	7	12.4
2	03.12.2013	63.2	7.3	12.2
3	09.12.2013	57.1	6.7	11.3
4	10.12.2013	54.9	6.5	11.7
5	16.12.2013	60.3	5.8	12
6	17.12.2013	59.4	6.1	11.8
7	23.12.2013	66.8	7.2	10.9
8	24.12.2013	64.5	7.4	11.2

9	03.01.2014	58.4	8	10.6
10	04.01.2014	62.3	7.6	10.3
11	10.01.2014	69	6.9	11.1
12	11.01.2014	67.6	7.1	11.4
13	17.01.2014	59.7	7.8	10.8
14	18.01.2014	61.2	8.2	11
15	24.01.2014	53.8	8.1	12.3
16	25.01.2014	51.7	7.7	12.7
17	02.02.2014	56	6.8	13.5
18	03.02.2014	60	6.6	13.7
19	09.02.2014	68.3	5.9	12.8
20	10.02.2014	66.4	6.3	13.1
21	16.02.2014	58.9	7.2	12.6
22	17.02.2014	61.2	6.8	12.2
23	23.02.2014	55.8	7.5	11.5
24	24.02.2014	53.6	7.4	11.9
Min.		**51.7**	**5.8**	**10.3**
Max.		**69**	**8.2**	**13.7**
98 Percentile		**68.7**	**8.2**	**13.6**

Table No. 3 Results of Ambient air quality monitoring of village Marol

AAQ-3 **(Unit = µg/m^3)**

S.No.	Date	PM_{10}	SO_2	NO_2
1	02.12.2013	54.8	6.9	10.7
2	03.12.2013	59.1	6.7	11
3	09.12.2013	59.4	7.4	11.8
4	10.12.2013	60.9	7.6	12
5	16.12.2013	53.7	7	11.3.
6	17.12.2013	50.1	6.4	10.9
7	23.12.2013	57.4	7.2	10.1
8	24.12.2013	54.2	7.5	9.9
9	03.01.2014	55.6	8.1	10.6
10	04.01.2014	56.3	8	10.7
11	10.01.2014	60.1	7.3	11.5
12	11.01.2014	62.7	7.1	11.7
13	17.01.2014	58.8	6.5	12.4
14	18.01.2014	57.1	6.1	12.8
15	24.01.2014	63.4	7	11.9
16	25.01.2014	59.5	6.8	12.1
17	02.02.2014	57.3	7.5	12.5
18	03.02.2014	55.8	7.8	12.2
19	09.02.2014	56.7	8.2	12.9
20	10.02.2014	54.8	8.5	12.6
21	16.02.2014	51	7.9	11.7
22	17.02.2014	52.6	7.7	12
23	23.02.2014	58.3	7.2	11.4

24	24.02.2014	60.1	7.3	11.1
Min.		**50.1**	**6.1**	**9.9**
Max.		**63.4**	**8.5**	**12.9**
98 Percentile		**63.1**	**8.4**	**12.9**

Table No. 4 Results of Ambient air quality monitoring of village Reodar

AAQ-4 **(Unit = µg/m^3)**

S.No.	Date	PM_{10}	SO_2	NO_2
1	02.12.2013	58.1	6.3	11.7
2	03.12.2013	53.9	6.1	12.1
3	09.12.2013	47.6	7	11.4
4	10.12.2013	50.4	6.8	11.2
5	16.12.2013	57.2	7.6	10.8
6	17.12.2013	56.5	7.5	11.1
7	23.12.2013	62.7	8	10.7
8	24.12.2013	65	7.7	10.5
9	03.01.2014	58.6	6.9	11.6
10	04.01.2014	60.3	7.1	11.9
11	10.01.2014	68.2	6.3	12.5
12	11.01.2014	66.4	6	12.3
13	17.01.2014	59.1	5.6	13
14	18.01.2014	61.8	5.9	13.3
15	24.01.2014	57.5	6.4	12.2
16	25.01.2014	55.9	6.7	11.8
17	02.02.2014	49.7	7.3	12.7
18	03.02.2014	51.1	7.1	13.1
19	09.02.2014	54.3	6.5	11.7
20	10.02.2014	53	6.2	11.5
21	16.02.2014	60.4	5.8	10.9
22	17.02.2014	63.2	6.1	11
23	23.02.2014	59.5	6.6	10.4
24	24.02.2014	61.3	7	10.2
Min.		**47.6**	**5.6**	**10.2**
Max.		**68.2**	**8**	**13.3**
98 Percentile		**67.4**	**7.9**	**13.2**

Table No. 5 Results of Ambient air quality monitoring of village Jirawal

AAQ-5 **(Unit = µg/m^3)**

S.No.	Date	PM_{10}	SO_2	NO_2
1	04.12.2013	51.6	8.1	10.4
2	05.12.2013	48.4	8.3	10.7
3	11.12.2013	56.9	7.6	11.6
4	12.12.2013	58.1	7.2	11.8

5	18.12.2013	54.2	6.8	12.2
6	19.12.2013	58.3	7	11.9
7	25.12.2013	59.2	6.3	12.8
8	26.12.2013	57.5	6.6	13.2
9	06.01.2014	55.6	7.4	13.5
10	07.01.2014	57.2	7.8	13.1
11	13.01.2014	54.2	8.2	12.7
12	14.01.2014	56.4	8	12
13	20.01.2014	49.7	8.7	12.4
14	21.01.2014	51.9	8.4	12.1
15	27.01.2014	57	7.7	11.5
16	28.01.2014	59.7	7.4	11.3
17	04.02.2014	54.3	6.9	10.2
18	05.02.2014	57.6	7.1	10.1
19	11.02.2014	58.4	6.3	10.8
20	12.02.2014	55.2	6	11.1
21	18.02.2014	48.7	6.5	12
22	19.02.2014	50.1	6.7	12.3
23	25.02.2014	54.5	7.3	11.8
24	26.02.2014	52.8	7.6	11.5
Min.		**48.4**	**6**	**10.1**
Max.		**59.7**	**8.7**	**13.5**
98 Percentile		**59.5**	**8.6**	**13.4**

Table No. 6 Results of Ambient air quality monitoring of village Thal

AAQ-6 **(Unit = µg/m^3)**

S.No.	Date	PM_{10}	SO_2	NO_2
1	04.12.2013	59.2	7.3	11.6
2	05.12.2013	61.4	7.1	11.2
3	11.12.2013	64.3	6.4	12.3
4	12.12.2013	62.6	6.8	12.5
5	18.12.2013	58	5.9	13.1
6	19.12.2013	56.3	6.1	12.8
7	25.12.2013	59.7	7.2	12.9
8	26.12.2013	62.8	7.5	13.2
9	06.01.2014	60.6	8.1	12.4
10	07.01.2014	57.3	7.7	12
11	13.01.2014	52.2	8.3	11.7
12	14.01.2014	54.9	8.4	11.8
13	20.01.2014	61.9	7.6	10.9
14	21.01.2014	63.5	7.4	10.7
15	27.01.2014	62.3	6.6	10
16	28.01.2014	53.7	6.2	10.3
17	04.02.2014	57.8	6.9	11
18	05.02.2014	58.6	7.1	10.8
19	11.02.2014	53.3	7.9	11.5

20	12.02.2014	55.2	8.2	11.3
21	18.02.2014	62.4	7.4	12.1
22	19.02.2014	60.8	7	11.8
23	25.02.2014	56.7	6.7	12.6
24	26.02.2014	53.4	6.9	12.2
Min.		**52.2**	**5.9**	**10**
Max.		**64.3**	**8.4**	**13.2**
98 Percentile		**63.9**	**8.4**	**13.2**

Table No. 7 Results of Ambient air quality monitoring of village Selwara

AAQ-7 **(Unit = µg/m^3)**

S.No.	Date	PM_{10}	SO_2	NO_2
1	04.12.2013	55	6.4	10.8
2	05.12.2013	52.9	6.1	11.1
3	11.12.2013	59.3	7.2	11.7
4	12.12.2013	61.7	7.4	12
5	18.12.2013	62.4	7.9	11.2
6	19.12.2013	63.5	8.2	10.9
7	25.12.2013	56.8	7.3	10.1
8	26.12.2013	58.2	7.1	9.8
9	06.01.2014	51.3	6.5	10.7
10	07.01.2014	52.6	6.2	11
11	13.01.2014	60.9	7	11.9
12	14.01.2014	62.1	6.8	12.3
13	20.01.2014	57.4	7.7	12.7
14	21.01.2014	54.8	8	12.5
15	27.01.2014	60.3	8.6	11.8
16	28.01.2014	56.7	8.5	11.4
17	04.02.2014	61.8	7.8	10.2
18	05.02.2014	61.4	7.6	9.9
19	11.02.2014	59.7	6.9	10.8
20	12.02.2014	56.1	6.6	11
21	18.02.2014	60.4	7.2	12.4
22	19.02.2014	62.7	7.5	12.6
23	25.02.2014	63.2	8.1	13.1
24	26.02.2014	62.2	7.9	12.9
Min.		**51.3**	**6.1**	**9.8**
Max.		**63.5**	**8.6**	**13.1**
98 Percentile		**63.4**	**8.6**	**13**

Table No. 8 Results of Ambient air quality monitoring of village Dangrali

AAQ-8 **(Unit = µg/m^3)**

S.No.	Date	PM_{10}	SO_2	NO_2

1	04.12.2013	57.2	7.6	11.2
2	05.12.2013	62.7	7.9	10.8
3	11.12.2013	56.3	8.5	11.6
4	12.12.2013	59	8.1	11.9
5	18.12.2013	54.2	7.4	12.1
6	19.12.2013	56.5	7.2	11.8
7	25.12.2013	49.7	6.8	12.6
8	26.12.2013	51.6	7	12.2
9	06.01.2014	56.9	6.4	13.3
10	07.01.2014	58.1	6.6	12.9
11	13.01.2014	61.4	5.9	11.7
12	14.01.2014	63.8	6.2	12
13	20.01.2014	57	6.7	11.3
14	21.01.2014	55.3	7	10.9
15	27.01.2014	49.9	7.5	10.2
16	28.01.2014	52.5	7.8	10.4
17	04.02.2014	58.7	8.3	11
18	05.02.2014	60.2	8	11.3
19	11.02.2014	62.5	7.3	12.1
20	12.02.2014	60.7	6.9	12.4
21	18.02.2014	55.8	6.1	13.2
22	19.02.2014	53.4	5.8	13.6
23	25.02.2014	50.9	6.3	12.8
24	26.02.2014	54.6	6	13.1
Min.		**49.7**	**5.8**	**10.2**
Max.		**63.8**	**8.5**	**13.6**
98 Percentile		**63.3**	**8.4**	**13.5**

Table No. 9 Results of Ambient air quality monitoring of Village Anadra

AAQ-9 **(Unit = µg/m^3)**

S.No.	Date	PM_{10}	SO_2	NO_2
1	06.12.2013	48.1	6.7	12.2
2	07.12.2013	50.7	6.4	12.5
3	13.12.2013	58.3	7.1	11.7
4	14.12.2013	61.2	6.9	11.9
5	20.12.2013	54.5	7.5	12.6
6	21.12.2013	53	7.7	12.3
7	27.12.2013	49.6	8.2	13
8	28.12.2013	52.4	8	13.3
9	08.01.2014	57.9	7.6	12.4
10	09.01.2014	56.1	7.3	12.1
11	16.01.2014	48.3	6.5	11.3
12	17.01.2014	46.9	7.7	10.9
13	23.01.2014	51.8	6	10.2
14	24.01.2014	54.2	6.3	9.9
15	30.01.2014	60.5	7.2	10.4

16	31.01.2014	54.7	7.4	10.6
17	06.02.2014	62	8.1	11
18	07.02.2014	63.9	8.3	11.2
19	13.02.2014	60.4	7.8	10.7
20	14.02.2014	63.3	7.5	11.1
21	20.02.2014	58.3	7	12.1
22	21.02.2014	59.5	6.7	12.5
23	27.02.2014	55.2	7.2	13.1
24	28.02.2014	51.6	6.8	12.8
Min.		**46.9**	**6**	**9.9**
Max.		**63.9**	**8.3**	**13.3**
98 Percentile		**63.6**	**8.3**	**13.2**

Table No. 10 Results of Ambient air quality monitoring of Sipu River

AAQ-10 **(Unit = µg/m^3)**

S.No.	Date	PM_{10}	SO_2	NO_2
1	06.12.2013	57.4	5.9	11.5
2	07.12.2013	55.8	5.7	11.2
3	13.12.2013	54.2	6.4	12
4	14.12.2013	57.3	6.8	12.2
5	20.12.2013	56.7	7.3	11.4
6	21.12.2013	53.9	7	11.1
7	27.12.2013	54.1	6.9	10.4
8	28.12.2013	52	7.1	10.7
9	08.01.2014	59.1	6.5	11
10	09.01.2014	54.4	6.2	10.8
11	16.01.2014	58.5	5.8	11.6
12	17.01.2014	58.3	6.1	11.9
13	23.01.2014	55.4	7.2	12.5
14	24.01.2014	52.7	7.5	12.6
15	30.01.2014	54.6	8	13.2
16	31.01.2014	53.2	8.2	12.9
17	06.02.2014	55.5	7.6	13.7
18	07.02.2014	52.3	7.4	13.9
19	13.02.2014	54.1	7.9	12.8
20	14.02.2014	55.2	8	13
21	20.02.2014	53.7	7.3	12.4
22	21.02.2014	53.8	6.9	12.1
23	27.02.2014	57.2	6.7	11.7
24	28.02.2014	54.7	6.3	12
Min.		**52**	**5.7**	**10.4**
Max.		**59.1**	**8.2**	**13.9**
98 Percentile		**58.8**	**8.1**	**13.8**

ANNEXURE-9A

(ENVIRONMENTAL POLICY)

SHER SINGH SOLANKI

R/o 13, Shiv Nagar, Jaipur (Rajasthan)
Contact No.: 0141-2333907

Ref.: **Date:**

ENVIRONMENTAL POLICY

We are committed to provide environment friendly, safe and healthy work culture for employees take measure to minimize potential impact on the environment. We will operate in compliance with all relevant environmental legislation and strive to use pollution prevention and environmental best practices.

We will:

(i) Committed to integrate the policy with all stages of project and activities.

(ii) Committed to comply with applicable statutory requirements, proper implementation, and management for prevention of pollution as per Environment Clearance/Clearance from pollution control board / Environmental Laws / CPCB norms / guidelines issued from time to time by related department.

(iii) Continue to improve the effectiveness of environment and management system by regular training with optimum use of natural resources, better productivity, and waste management by regular internal audit and up gradation of technology.

(iv) Committed to operate mines involving Stake holder participation.

(v) The mine owner appointed a specific representative who, irrespective of other responsibilities, shall have defined roles, responsibilities and authority for ensuring that environmental management system requirements are established, implemented and maintained in accordance with this standard.

(vi) Management is committed to provide necessary resources, financial, manpower, technology and other resources for environmental performance.

(vii) Reporting on the performance of the deviations if any in environmental management system arising out of violations of environmental conditions pointed out by government bodies or other public authorities and the plan of action taken by mine owner for review and to include in board meeting and circulate the guidelines issued by the board to all concerned in writing and will be termed as environmental performance compliance report.

(viii) Scientific mining practices will be adopted with proper care of environment..

Signature of the person responsible for policy

Name Sher Singh Solanki

Signature 

Position Owner

Date 17/05/2015

ANNEXURE-9B

(NON COMPLIANCE REPORTING SYSTEM)

SHER SINGH SOLANKI

R/o 13, Shiv Nagar, Jaipur (Rajasthan)
Contact No.: 0141-2333907

Ref.:

Date: 02/09/015

NON – COMPLIANCE REPORTING SYSTEM

- In case of violation of Environmental Norms, the case will be put up to the highest authority.
- The directions will be conveyed to respective person for taking up the necessary corrective action.
- Monitoring of the action taken as per the instruction from authority will be regularly carried out to ensure compliance.

Sher Singh Solanki
(Project Proponent)

ANNEXURE-9C

(ORGANIZATIONAL STRUCTURE OF ENVIRONMENT MONITORING CELL (EMC))

SHER SINGH SOLANKI

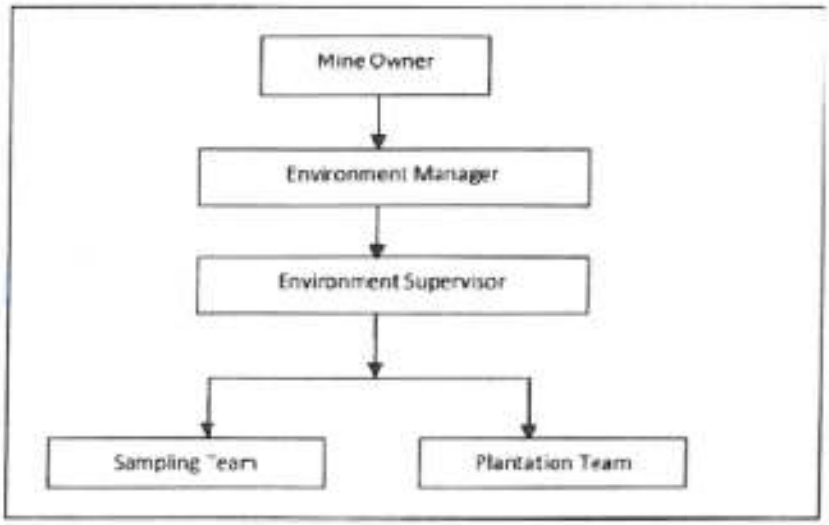
R/o 13, Shiv Nagar, Jaipur (Rajasthan)

Contact No.: 0141-2333907

Ref.:

Date: 02/09/15

ORGANIZATIONAL STRUCTURE OF ENVIRONMENT MONITORING CELL (EMC)



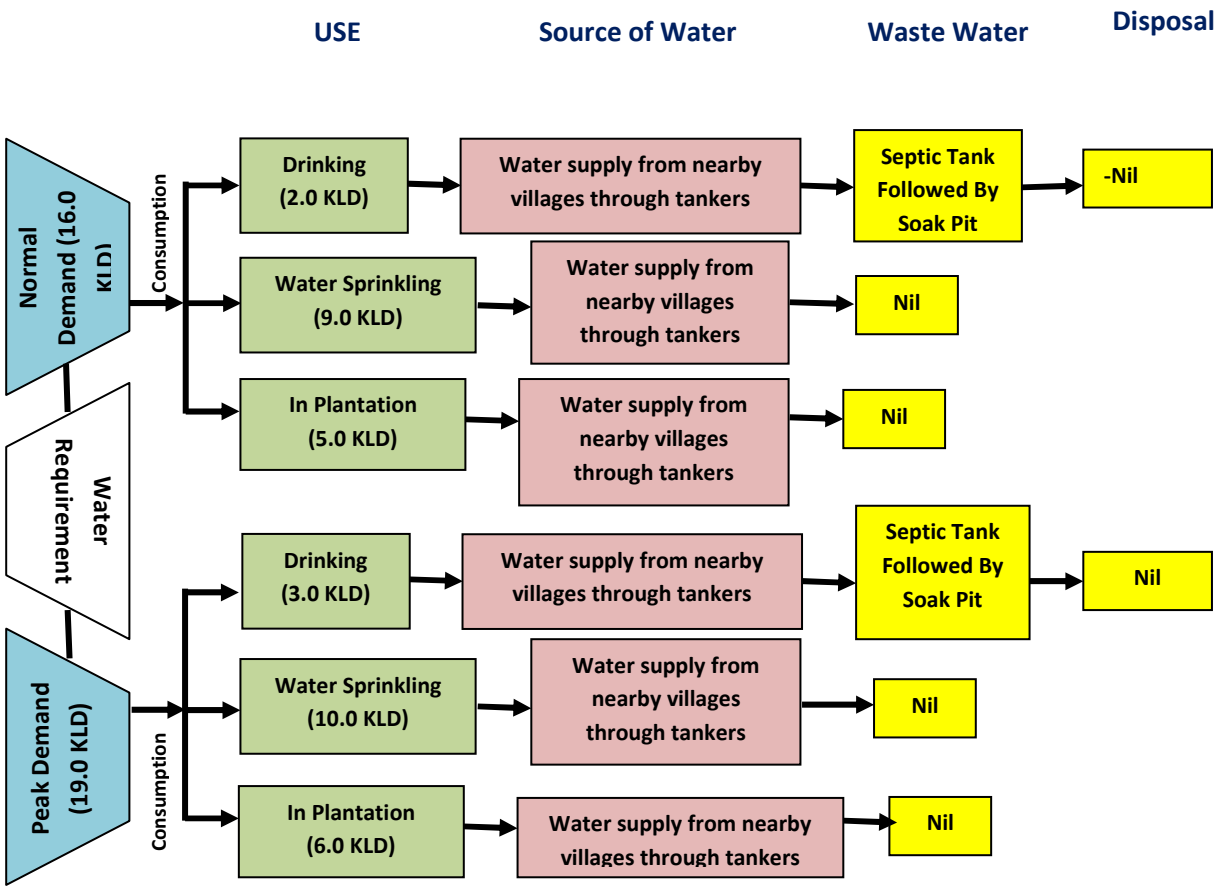
Sher Singh Solanki

(Project Proponent)

ANNEXURE-10

(WATER BALANCE DIAGRAM)

Water Balance Diagram

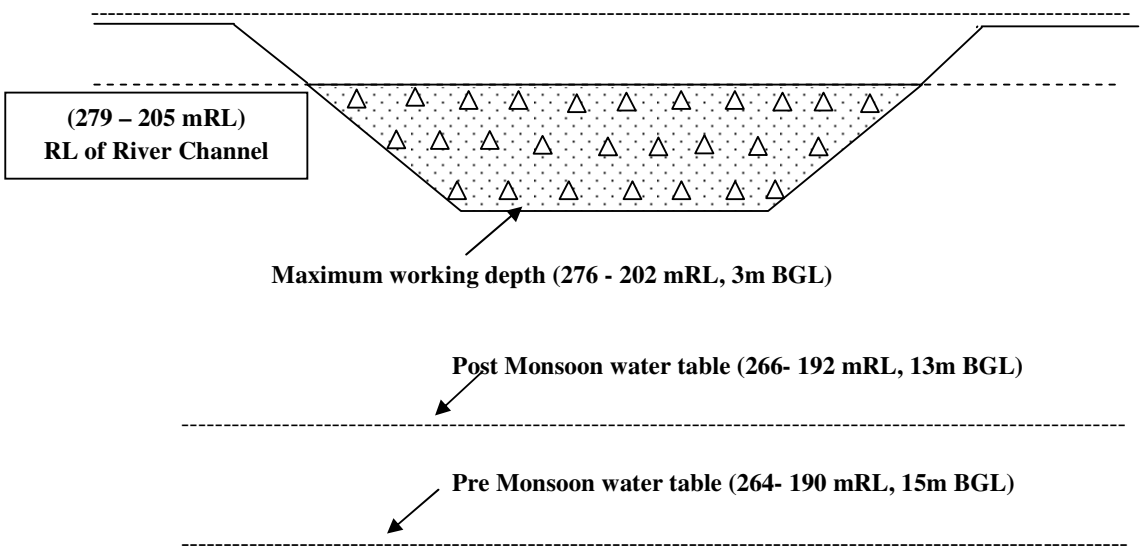


ANNEXURE-11

(SCHEMATIC PRESENTATION OF ELEVATION, WORKING DEPTH & GROUND WATER TABLE IN SITU)

Tehsil - Reodar

Schematic Presentation of Elevation, Working Depth & Ground Water Table in Situ



ANNEXURE-12

(Replenishment study)

REPLENISHMENT STUDY, TEH. – REODAR

Computation of sediment Budget in Applied lease area for mining of Mineral River sand(Bajri) by **Shri Sher Singh Solanki, - Tehsil- Reodar, District-Sirohi (Lease area 1286 Ha.).**

Location of the mining lease area

Location of the River is shown in as under:

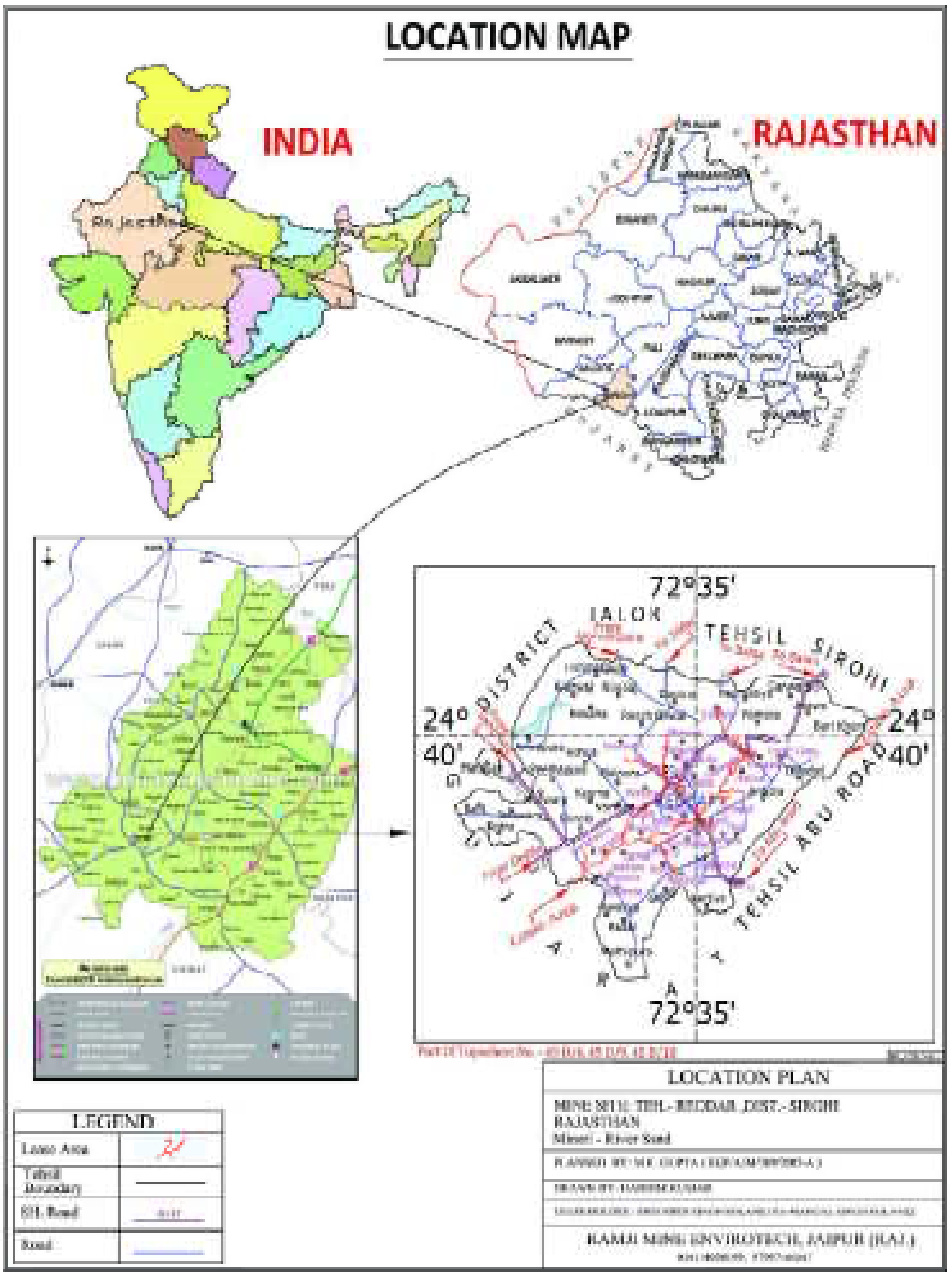


Fig. 1

Location Map of Mining Lease

The mining lease area for mineral riversand (Bajri) near villages- Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan**,** Tehsil **Reodar, District- Sirohi** LOI granted in favour of **Shri Sher Singh Solanki** lies between latitude 24°41'27.02"N to 24°31'13.65"N and longitude 72°42'27.86"E to 72°25'04.32"E on Survey of India 45 D/6 and 45 D/10.

Mine site is well connected with rail and road transport. SH 11 from Abu Road to Sildar are passes through the lease area near village Loonol. SH 27 also pass through the lease near village Loonol.

Topography and Drainage

The large part of the district Sirohi is a vast semi desert plain, marked by isolated hills and chain of hillocks forming the eastern and south western part of the district Aravalli hill ranges expands in the East. Abu- Sirohi ranges divides the district into two parts. In the western portion, scattered hills are available in each in Reodar tehsil. Detached hills of the Aravalli range are situated in the south east of the district; Mount Abu is situated at about 1219 metre above sea level. Another important plateau is Oriya in Abu Road tehsil and lies below the main peak of Guru Shikhar which is 1722 meter above the mean sea level.

In general, the district as a whole reveals dendritic drainage pattern which shows general flow direction towards NW and SE respectively. South Easterly flowing streams feeds run off to the Banas River. North Westerly flowing streams feeds run off to River Jawai, Khari, Kapalganga and Krishnawati whereas, River Sipu receives run off from streams flowing towards North West as well as towards South Easterly.

Jawai is the longest and largest river of North West which eventually joins Luni River. Other important rivers of Sirohi District are Banas, Khari, Sukri, Badi, Kapal Ganga & Krishnawati. All the aforesaid rivers are seasonal rivers i.e., water flows in rivers during rainy season and becomes dry during summer season.

A Study by Dandy and Bolton showed that sediment yield can be related to catchment area and mean annual runoff.

Sediment Yield versus Drainage Area Dandy and Bolton studied sedimentation data from about 1500 reservoirs, ponds, and sediment detention basins. In developing their formulas,

they used data from about 800 of these reservoirs with drainage areas greater than or equal to 1 mi^2. The smaller watersheds-those of drainage area less than 1 mi^2-were excluded because of their large variability of sediments yield, reflecting the diverse effects of soils, local terrain, vegetation, land use, and agricultural practices.

For drainage areas between 1 and 30,000 mi^2, Dandy and Bolton found that the annual sediment yield per unit area was inversely related to the 0.16 power of the drainage area:

$$\frac{S}{S_R} = \left(\frac{A}{A_R}\right)^{-0.16}$$

In which S= sediment yield in tons per square mile per year; S_R = Reference sediment yield corresponding to a 1-mi^2 drainage area, equal to 1645 tons per year; A = drainage area in square miles; and A_R = reference drainage area (1 mi^2)

Sediments Yield versus Mean Annual Runoff. Dandy and Bolton studied sedimentation data from 505 reservoirs having mean annual runoff data. Annual sediment yield per unit area was shown to increase sharply as mean annual runoff Q in- ceased from 0 to 2 in. Thereafter, for mean annual runoff from 2 to 50 in. annual sediment yield per unit area decreased exponentially. This led to the following equations.

For Q <2 in.: $$\frac{S}{S_R} = 1.07 \left(\frac{Q}{Q_R}\right)^{0.46}$$

For Q ≥2 in.: $$\frac{S}{S_R} = 1.19\ e^{(-0.11\ Q/Q_R)}$$

In which Q_R = reference mean annual runoff Q_R = 2 in.

Dandy and Bolton combined Eqs. 15-10 and 15-11 into a set of equations to express sediment yield in terms of drainage area and mean annual runoff.

For Q <2 in.: $$\frac{S}{S_R} = 1.07 \left(\frac{Q}{Q_R}\right)^{0.46} \times [1.43 - 0.26\ \text{Log}\ (A/A_R)]$$

For Q ≥2 in.: $$\frac{S}{S_R} = 1.19\ e^{(-0.11\ Q/Q_R)} \times [1.43 - 0.26\ \text{Log}\ (A/A_R)]$$

Sec: 15.2 Sediment Production.

For S_R = 1645 tons/mi^2/y, Q_R = 2 in., and A_R = 1 mi_2, E_q. 15-12 reduces to the followings:

For Q <2 in.: $S = 1280\ Q^{0.46}(1.43 - 0.26 \log A)$

For Q ≥2 in.: $S = 1965_e^{-0.055Q}(1.43 - 0.26 \log A)$

Equations 5-12 and 5-13 are based on average values of grouped data; therefore, they should be used with caution. In Certain cases, local factors such as soils, geology, topography, land

use, and vegetation may have greater influence on sediment yield than either mean annual runoff or drainage area. Nevertheless, these equations provide a first approximation to be regional assessment of sediment yield for watershed planning purposes.

Example:

Calculate the sediment yield by the Dandy and Bolton formula for a 150-mi^2 watershed with 3.5 in. of mean annual runoff.

The application of Eq. 15-13b leads to:

$$S= 1965 \text{ X } e^{(-0.055.3.5)}[1.43 – 0.26 \log (150)] = 1400 \text{ ton/mi}^2\text{/y}$$

Therefore, the sediment yield is 210,000 ton/y.

The equations express the general relationships between sediment yield runoff and drainage area. They may provide a quick rough approximation of mean sediment yields on a regional basis for preliminary watershed planning. Because Dandy & Bolton have derived the equation form average values computed sediment yields normally would be low for highly erosive area and high for well stabilized drainage basins with high plant density.

Factors which have direct bearing on sediments yield & limitations of Dandy & Bolton equation.

Sediment yield of a sediment basin has direct impact of local terrain, climate, vegetation, soils, agricultural practices & land use pattern of catchment area of the sediment basin aforesaid factors varies from basin to basin therefore, Dandy & Bolton has categorily stated that use of the equation to predict sediment yield for a specific location would be unwise because of the wide variability caused by local factors not considered in the equation development. Actual sediment yield form individual drainage basins may vary 10-fold or even 100-fold from computed yields.

Sediment yield computation for applied lease area for mining of Mineral sand Bajri by Shri-Bharat Singh, near village- Chosla, Chanthli, Bajta, Deokheri, Dhundri, Tankawas, Nayagaon, Maharun Kalan, Bhandawas, Gulgaon, Sadara, Sadari, Rajpura, Baneria, Amli, Balapura, Gothra, Devpura, Kadera, Alambu, Tehsil- Kekri.

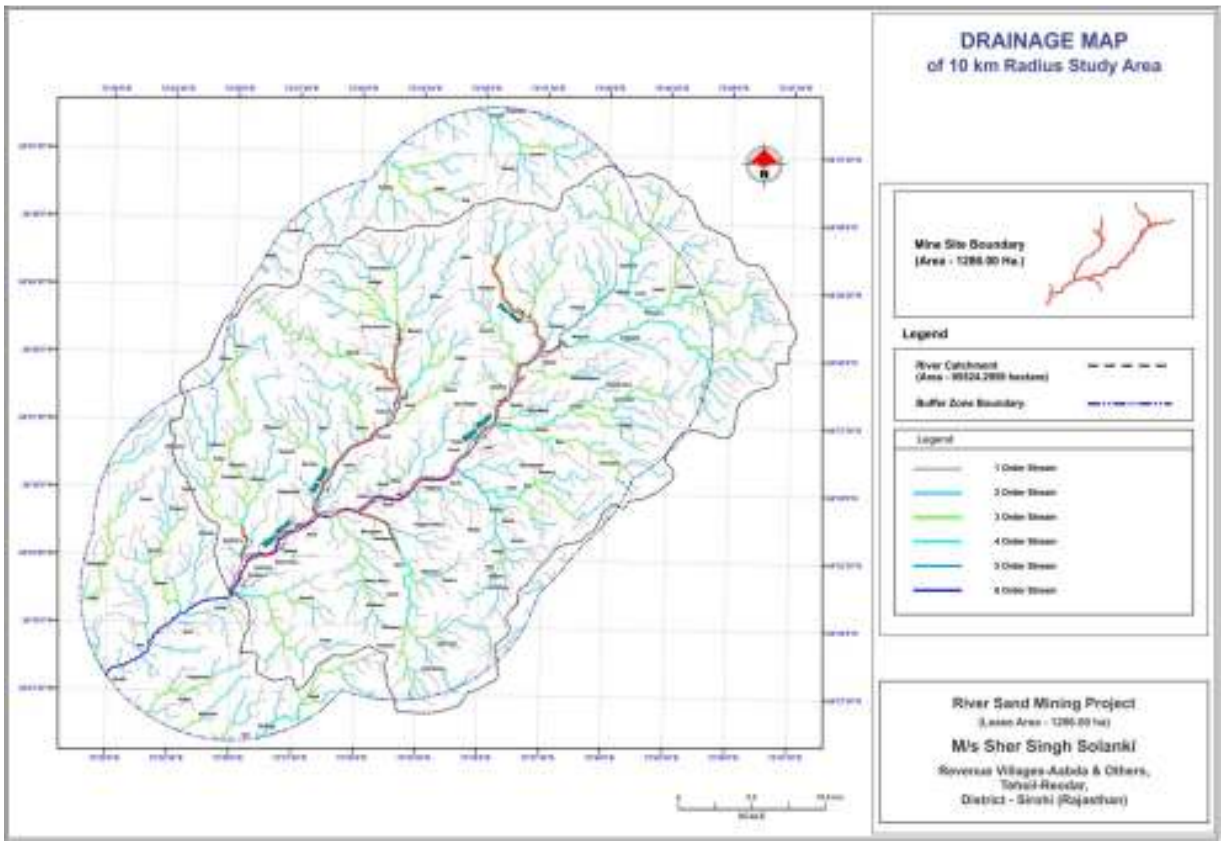
Rainfall data relied on for computation sediment yield in the instant case are as under:

Table 1.5 Rainfall Data of Past 21 Years of Tehsil-Reodar, District-Sirohi

S.No.	Year	Rainfall (in mm)
1.	1992	1279.0
2.	1993	539.0
3.	1994	1366.0

4.	1995	488.0
5.	1996	400.0
6.	1997	813.0
7.	1998	739.0
8.	1999	400.2
9.	2000	342.0
10.	2001	756.0
11.	2002	243.0
12.	2003	829.0
13.	2004	588.0
14.	2005	573.0
15.	2006	1322.0
16.	2007	684.0
17.	2008	451.0
18.	2009	336.0
19.	2010	890.0
20.	2011	737.0
21.	2012	538.0
Average Annual Rainfall in (mm.)		**681.6**

The annual rainfall in instant case is **681.6 i.e. 26.834646 inches** & catchment area of sediment basin is 95524.2959 Ha. i.e. 955.2430 Sq kms.(368.821Sq.miles) **GIS Map (map enclosed)**. On substitution aforesaid values in Dandy & Bolton equation, the sediment yield of the basin comes out to be 114650.22 tons per year. The maximum targeted production of river sand in the instant case is @ 30Lac TPA. Hence the annual replenishment of sediment comes out to be 3.82 %. However actual amount of sediment replenishment may vary from computed sedimented inview of catchment topography, lithology, soil erodibility, and vegetation & land use pattern and river channel morphology.

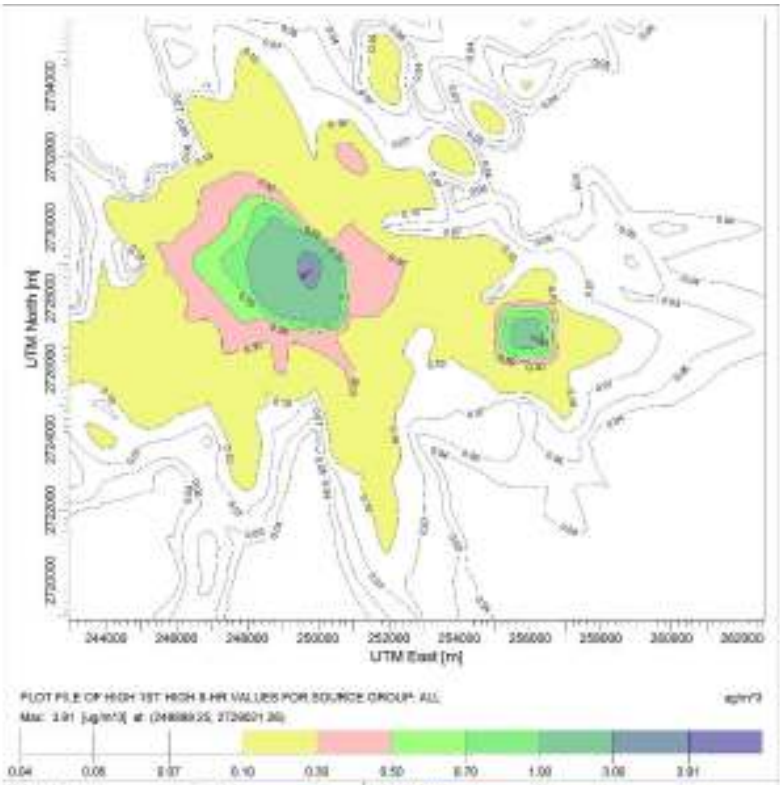

DRAINAGE MAP
of 10 km Radius Study Area
Mine Site Boundary
Legend
River Catchment
Buffer Zone Boundary
Legend
River Sand Mining Project
M/s Sher Singh Solanki
Reverse Villages-Aabda & Others,
Tehsil-Reodar,
District - Sirohi (Rajasthan)

ANNEXURE-13

(AIR DISPERSION MODELING)

IMPACT PREDICTION OF NON POINT EMISSIONSON AMBIENT AIR QUALITY
For
RIVERSAND (Bajri) (MINOR MINERAL)

At
TEHSIL- SIROHI,
RAJASTHAN
[AREA-1286 Ha]



BY:

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CONTENT

No.	CHAPTER
1.	INTRODUCTION
2.	METHODOLOGY
3.	INPUT DATA
4.	IMPACT PREDICTION
5.	RESULT AND DISCUSSIONS

CHAPTER 1

INTRODUCTION

The ambient air quality Ground Level Concentration (GLC) of the area near any project is impacted due to air pollution sources in the project.
The air pollution sources are of two types:

1. Point Sources – Chimneys/ duct
2. Non Point Sources – Vehicles, machinery, blasting, drilling etc.

The emissions from these sources spread or disperse in the air and cause increase in the pollution level in ambient air. This cause increase in Ground LevelConcentration (GLC). This increase in GLC can be predicted for proposed project using Air Dispersion Modelling.
It is a River Sand (Bajri) Project with leased hold area about 2527 hectares and the longitude & latitude of lease boundary is given below:
The coordinates of the individual lease boundary pillars are given in the table ahead —

Latitude	longitude	River Name
24°31'13.65"N to 24°43'51.09"N	72°25'4.32"Eto 72°42'26.86"E	Sipu River
24°34'4.87"N to 24°41'16.08"N	72°28'21.62"Eto 72°32'11.71"E	Sukri River

As in this case, AERMOD model developed by Lake Environmental Software is used to predict the GLC, when blasting/drilling in the mine is undertaken without taking any control measures. Thereafter the model was again used to check the GLC if appropriate control Measures are taken before blasting or drilling is done in the mine area. As this is a river sand mining, no blasting or drilling will be done.

CHAPTER 2
METHODOLOGY

For Air Dispersion Modelling following methodology shall be used:
Modelling Procedure

Methodology:
Prediction of ground level concentrations (GLC) due to proposedRiver Sand (Bajri) (minor mineral) mining in Sirohi, Rajasthan have been made by **Aermod model.**

Gaussian Plume Model

Ground Level Concentration χ, from a point source at any receptor under unlimited mixing is given by (USEPA ,1987).

$$\chi = \frac{Qg_1g_2}{(2\pi\sigma_y\sigma_z u)}$$

where,

$g_1 = \exp(-y^2/2\sigma y^2)$

$g_2 = \exp[-(z-H)^2/2\sigma_z^2] + \exp[-(z+H)^2/2\sigma_z^2]$

In unstable or neutral conditions if $\sigma z > 1.6$ L (limited mixing) the distribution below the mixing height is uniform with height provided that both the effective height H, and the receptor height z are below the mixing height

$$\chi = \frac{Qg_1}{(\sigma_y Lu\sqrt{2\pi})}$$

In unstable or neutral conditions when $\sigma z < 1.6$ L

$$\chi = \frac{Qg_1}{(2\pi\sigma_y\sigma_z u)}$$

where,
Q = source strength

Z = receptor height above the ground

H_e = effective stack height (Plume rise + Physical stack height)

u = wind speed at stack level

L = mixing height and
σ_y &σ_z = dispersion parameters
$g_3 = \Sigma\exp[-(z-H+2NL)^2/2\sigma_z^2] + \exp[-(z+H+2NL)^2/2\sigma_z^2]$
Evaluation with N the number of reflections, varying from –4 to +4 is usually sufficient

Plume Rise

Plume rise Δh has been determined according to Brigg's formula (CPCB guideline)

$$\Delta h = 21.425 \frac{F^{3/4}}{U_s} \quad \text{for } F<55$$

and

$$\Delta h = 38.71 \frac{F^{3/5}}{U_s} \quad \text{for } F>55$$

$F = g\, V_s D^2 (T_s - T_a)/4T_s$
Where
U_s = wind speed at stack level (m/s)

V_s = stack gas velocity (m/s)

T_s = stack gas temperature (^{0}K)

T_a = ambient temperature (^{0}K)

F = Buoyancy flux parameter (m^4/s^3)

Δh = Plume rise (m)

D = Diameter of the stack (m)

g = acceleration due to gravity, 9.807 (m/s^2)

Extrapolation of Wind Speed

Wind speed at stack level is calculated by power law as given below.

$U_{stack} = U_{10}(\text{Stack height}/10)^p$

Where U_{10} is the wind speed at 10 meter level and p is the power law coefficient (0.07, 0.07, 0.10, 0.15, 0.35 and 0.55 for stability classes A,B,C,D,E and F respectively) as per Irwin for rural areas (USEPA, 1987).

Stability Classification

Hourly stability is determined by wind direction fluctuation method as suggested by Slade(1965)and recommended by CPCB (PROBES/70/1997-1998).

$$\sigma_\theta = Wd_r/6$$

σ_θ, is standard deviation of wind direction fluctuation, W_{dr} is the overall wind direction fluctuation or width of the wind direction in degrees. The table for stability classes is given as under.

Stability Class	σ_θ **(degree)**
A	> 22.5
B	22.4 – 17.5
C	17.4 – 12.5
D	12.4 – 7.5
E	7.4 – 3.5
F	< 3.5

Dispersion Parameters

Dispersion parameters σ_y and σ_z for open country conditions (Briggs, 1974) are used as the project is locatedon a flat terrain in a rural area. Atmospheric dispersion coefficients vary with downwind distance (x) from emission sources for different atmospheric stability conditions. (CPCB – PROBES/70/1997-98).

Rural Conditions

Stability Class	σ_y	σ_z
A	$0.22x(1+0.0001x)^{-.5}$	$0.20x$
B	$0.16x(1+0.0001x)^{-.5}$	$0.12x$
C	$0.11x(1+0.0001x)^{-.5}$	$0.08x(1+0.0002x)^{.5}$
D	$0.08x(1+0.0001x)^{-.5}$	$0.06(1+0.0015x)^{.5}$
E	$0.06x(1+0.0001x)^{-.5}$	$0.03x(1+0.0003x)^{-1}$
F	$0.04x(1+0.0001x)^{-.5}$	$0.16x(1+0.0003x)^{-1}$

CHAPTER 3

INPUT DATA

1. **Point Source:**

Since it is a day time activity and all the machineries are diesel operating there is no point source emissions.

2. **Non-Point Source:**

As described in chapter 2 the mining process will have following fugitive emission sources:

- Loading /Semi mechanized mining
- Transportation

➢ **Emission Sources and Characteristics**

- No. of pit – 2
- Size of pit –10m x17.7m x 3m

The other details are as follows:

Release height – 1m.

Pit volume –532 m^3

Emission Rate of PM_{10} without control = 0.00031g/s/m^2

Emission Rate of PM_{10} with control = 0.0000157 g/s/m^2

Haul Road

No. of Haul Road-2

Length – 600m

Width – 6m

Emission Rate of without control = 0.00012 g/s/m^2

Emission Rate of with control = 0.0000868 g/s/m^2

3. Meteorological Data

Hourly meteorological data project site for the period (Dec2013-Feb 2014) in respect of wind speed, wind direction, temperature and cloud amount are utilized in this study. Mean mixing heights for each hour for region are extracted from the IMD data. These data are used in air quality modelling.

➢ Ambient Air Quality Standards andBackground Concentrations

Ambient air quality standards promulgated by Central Pollution Control Board (CPCB) for different areas are as follows:

S. No	Pollutant	Time Weighted Average	Concentration in Ambient Air	
			Industrial, Residential, Rural and Other Area	Ecologically Sensitive Area(Notified by Central Government)
1.	Particulate Matter(size less than 10µm) or PM_{10} µg/m^3	Annual* 24 hours**	60 100	60 100

*Annual arithmetic mean of minimum 104 measurements in a year at particular site taken twice a week 24 hourly at uniform intervals

**24 hours monitored values, shall be compiled with 98% of the time in a year, 2% of the time, they may exceed the limits but not on two consecutive days of the morning.

The above standards are for a sampling period of 24 hours.

Location	**Distance from Site**	**Direction**	**Background Concentration PM_{10}(µg/m^3) (Mean)**
Down Wind from Sili Nadi	0.5 km	SW	60.9
Mandar	3.0 km	W	68.7
Marol	0.5 km	S	63.1
Reodar	0.5 km	E	67.4
Jirawal	0.5 km	NW	59.5
Thal	0.5 km	W	63.9
Selwara	0.25 km	N	63.4
Dangrali	0.5 km	SE	63.3
Anadra	4.0 km	SE	63.6
Sipu River	-	-	58.8

The measured maximum values of pollutants at various ambient air quality monitoring stations are as given above:

4. Plan and Frame Work of Computations

➢ Selection of Locations

The locations have been selected around project site covering an area of 10 km radius from the centre of the project site. The entire area has been put on grid network and grid spacing has been taken as 1000 m.

➢ Plan of Computation

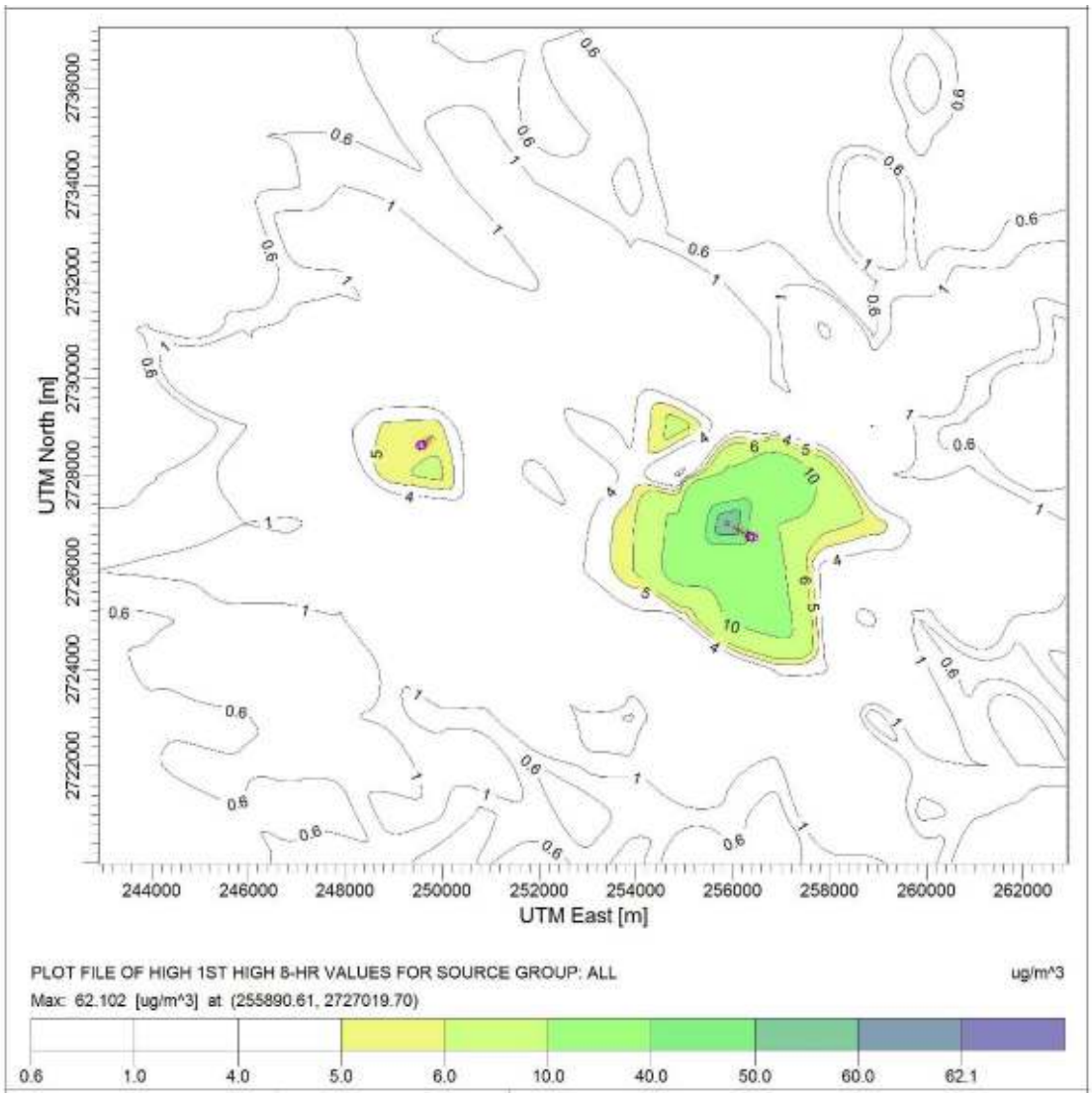
The emission rate, dispersion coefficients and other input data being now available; it was planned to compute the following:

- The 24 hourly averaged incremental concentration with hourly data.
- The identification of grid point having peak concentration for the incremental values.
- Preparation of isopleths of for various pollutants.

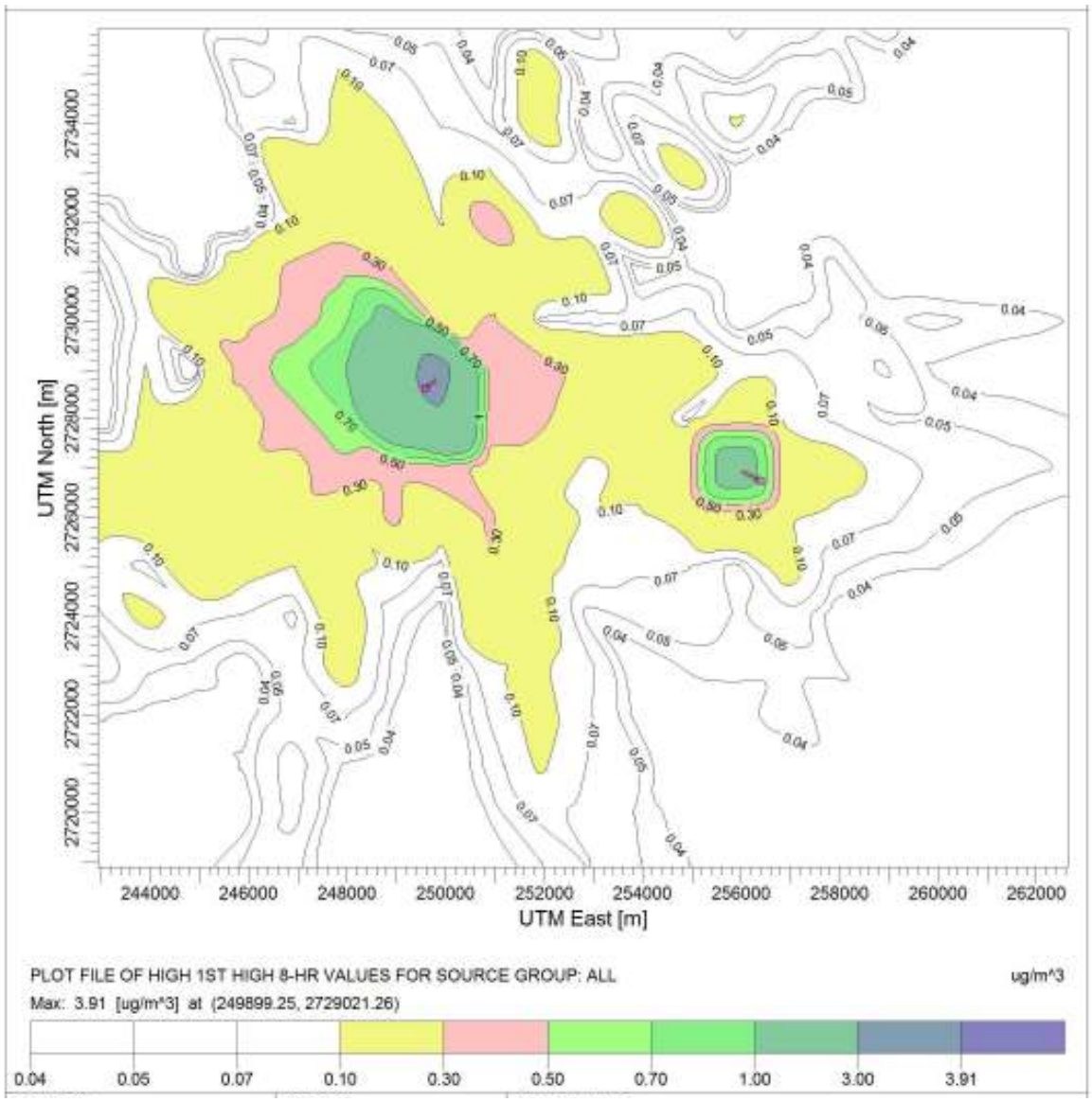
CHAPTER 4

IMPACT PREDICTION

1. **Impact Prediction from Non Point:**
   On applying the input data in the software for Air Dispersion AERMOD the output gives the following results



2. After using control measures:



CHAPTER 5
RESULT AND DISCUSSIONS

PREDICTED AMBIENT AIR QUALITY FOR NON POINT SOURCE IMPACT OF PM (AREA & LINE SOURCE)

With a wide fluctuation in meteorological parameters it is a complex task to predict post project ambient air quality. With available ambient air quality data and incremental concentrations computed through mathematical modelling the following post project ambient air quality has been predicted. The maximum GLC will be within core zone.

Location	Background Concentration PM_{10} ($\mu g/m^3$)	Predicted Incremental Concentration PM_{10} ($\mu g/m^3$) without control measures	Post Project Air Quality PM_{10} without control measures ($\mu g/m^3$)	Predicted Incremental Concentration PM_{10} ($\mu g/m^3$) with control measures	Post Project Air Quality PM_{10} with control measures ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
Down Wind from Sili Nadi	60.9	0.11	61.01	0.04	60.94	100
Mandar	68.7	0.05	68.75	0.01	68.71	100
Marol	63.1	0.54	63.64	0.02	63.12	100
Reodar	67.4	1.70	67.74	0.06	67.46	100
Jirawal	59.5	0.10	59.60	0.03	59.53	100
Thal	63.9	3.60	67.5	0.05	63.95	100
Selwara	63.4	11.43	74.83	0.09	63.49	100
Dangrali	63.3	2.11	65.41	0.03	63.33	100
Anadra	63.6	0.19	63.79	0.05	63.65	100
Sipu River	58.8	10.35	68.35	1.23	59.03	100

ANNEXURE-14

(CONSERVATION PLAN)

SHER SINGH SOLANKI

R/o 13, Shiv Nagar, Jaipur (Rajasthan)

Contact No.: 0141-2333907

Ref.: **Date:**

To,

The D.F.O.
Forest Department
Sirohi, Rajasthan

Subject: -

Submission of conservation Plan for Scheduled-I faunal species as per wild life protection Act. 1972. For the river sand project of M/s. Sher Singh Solanki, 32 revenue Villages of Tehsil- Reodhar, District- Sirohi (Rajasthan). For which LOI has been issued by State Government vide Order No. P.8 (16) Khan/Group-2/2013 Dated 27-02-2013.

Reference: - TOR vide letter No. J-11015/309/2013-IA.II (M) dated 22-11-2013

Your Letter no. एफ()वसु/खा0 अ0/उवसं/2014–15/3014 dated 27.03.15

Sir,

According to aforesaid subject Project Proponent obtained LOI from the mining department of State Govt. Rajasthan. Environmental clearance is being obtained for this project from the Ministry of Environment & Forest (MoEF), Government of India. In the reference of Point no 16 of TOR Letter, In case of any scheduled-I fauna found in the study area, their conservation plan should be prepared in consultation with State Forest and Wildlife Department. Scheduled-I fauna, Peacock (Pavocristatus), Leopard (Panthera pardus) and Sloth Bear (Melursus ursinus) was observed in the study area during our field study.

So we are submitting the conservation plan for Scheduled-I faunal species for your kind consultation and 10 KM radius topographical map supported by Location map for Authentication.
We are seeking for necessary action as soon as possible.

Yours Faithfully

M/s Shersingh Solanki
(LOI Holder)

Enclosures: -

1. TOR Letter
2. LOI Letter
3. List of Flora & Fauna
4. conservation plan for Scheduled-I faunal species

Conservation plan

For

Peafowl (*Pavo cristatus, Linnaeus, 1758*)



SHER SINGH S/O MANGAL SINGH
13, Shiv Nagar, Ajmer Road, Jaipur
Proprietor Authorised Signatory

Prepared by:

RAMJI MINE ENVIROTECH

Plot No.-21, First Floor, Aarna-2 Tower,

Kartarpura Industrial Area, Jaipur, Rajasthan – 302006

Ph.No: 0141-4036199, 9799744347 Fax No. 0141-4036199

E-mail: mkguptarqp@gmail.com, rme.envirotech@gmail.com

River sand (Bajri) Mining project, M.L. Area 1286 ha, at Tehsil –Reodar, District - Sirohi (Rajasthan)

1. Introduction of the project:

This is a fresh mining lease applied for mining of mineral River Sand in the Rivers; Sipu River and Sukri River. Annual production for Minerals River Sand 28.05 Lac TPA over an area of 1286 ha.

This is a necessitated by the Ministry of Environment and Forest, Government of India a detailed biological survey of the core zone and buffer zone (10km. radius) has been carried out and submitted in the EIA Report. In case of fauna, the schedule of the Wildlife (protection) Act 1972 has been referred.

Peafowl (Pavo cristatus, Linnaeus, 1758) belonging to schedule I of the Wildlife (Protection) Act 1972 is the species of fauna found in the buffer zone of the study area.

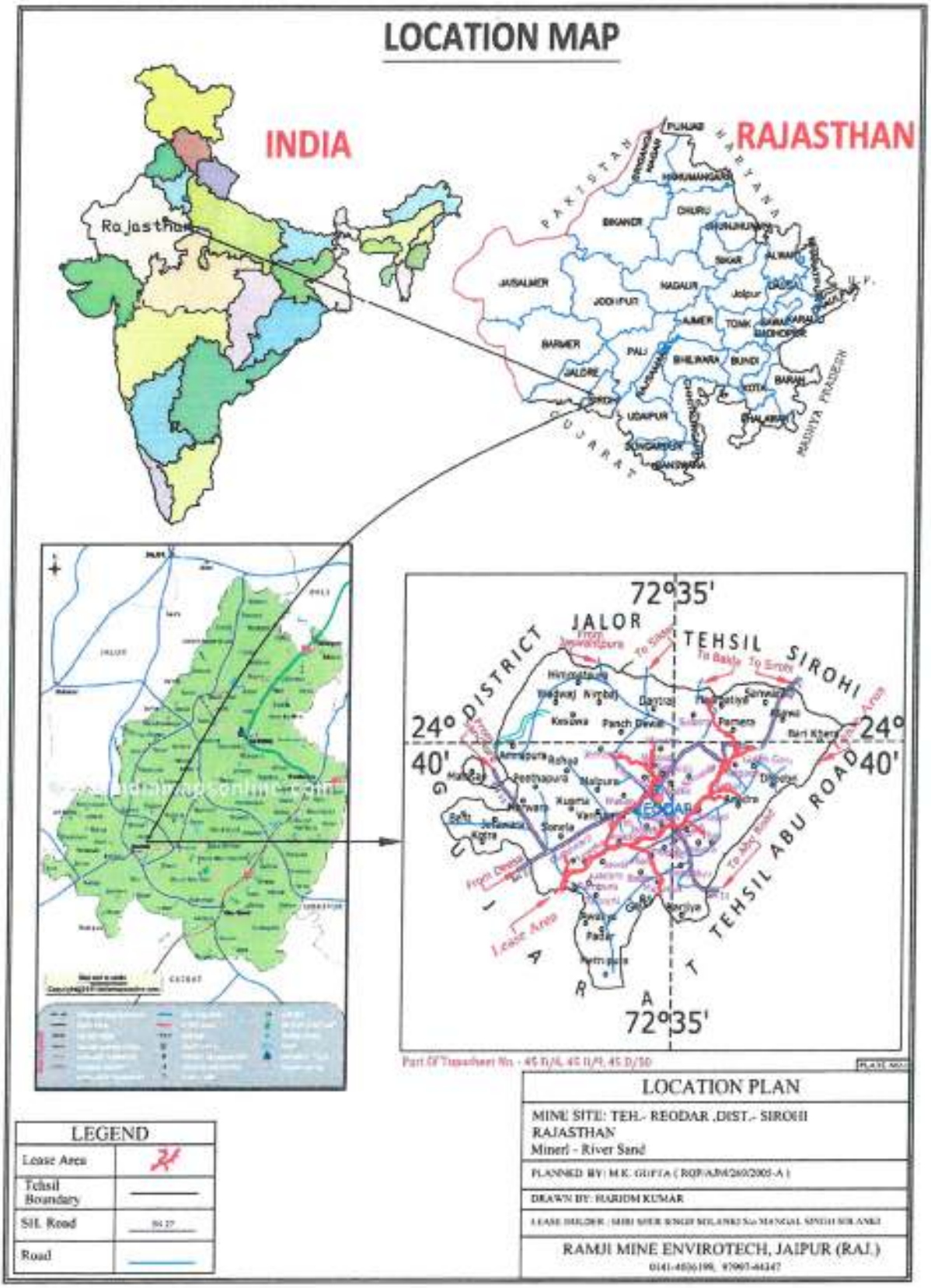
2. Location of the area:

A. Villages: Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan.

B. Tehsil: Reodar

C. District: Sirohi

D. State: Rajasthan


LOCATION MAP
INDIA
RAJASTHAN
Rajasthan
PAKISTAN
HARYANA
PUNJAB
GUJARAT
MADHYA PRADESH
BIKANER
CHURU
JAISALMER
NAGAUR
JODHPUR
AJMER
BARMER
PALI
JALORE
UDAIPUR
BHILWARA
BUNDI
KOTA
BARAN
TONK
SIKAR
JHUNJHUNU
ALWAR
DAUSA
JAIPUR
SIROHI
72°35'
JALOR
TEHSIL
SIROHI
DISTRICT
24° 40'
REODAR
TEHSIL ABU ROAD
Lease Area
To Abu Road
To Sirohi
To Balda
LEGEND
Lease Area
Tehsil Boundary
SH Road
Road
LOCATION PLAN
MINE SITE: TEH.- REODAR ,DIST.- SIROHI
RAJASTHAN
Mineri - River Sand
PLANNED BY: M.K. GUPTA (RQP/AJM/260/2005-A)
DRAWN BY: HARIOM KUMAR
RAMJI MINE ENVIROTECH, JAIPUR (RAJ.)

3. Introduction of the Indian Peafowl: -

The Indian Peafowl (Pavo cristatus) has been an integral part of the people of the India and their culture for centuries. From religion and mythology to civilization and socio-culture, the Indian Peafowl occupies an important place in the lives of the people. In addition to this, the Indian Peafowl is well recognized for its ecological and aesthetical values, and hence aptly declared as the 'National Bird' of India in the year 1963.

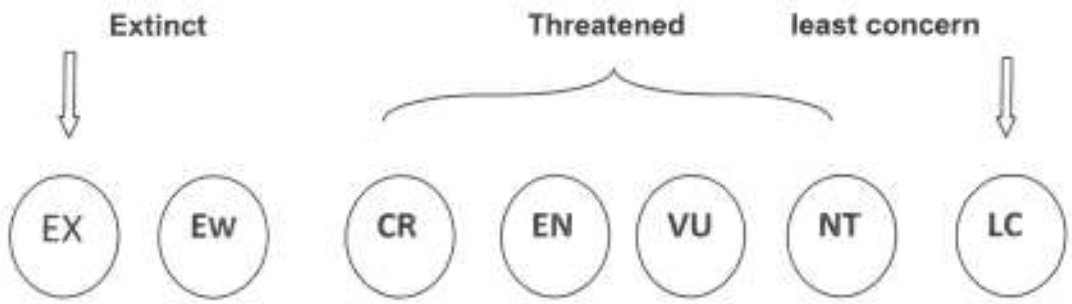
Since the early 1990s, there have been reports of increasing illegal trade in peafowl feathers, large-scale mortalities due to increased use of insecticides/pesticides in agricultural lands, poaching, and retaliatory killings by people due to alleged crop depredation by peafowl. Several peafowl stronghold areas in the country are now concerned about the current declining status.

3.1 Status: - This bird recognized under Schedule I species of Wild Life Protection Act 1972 in India.

3.2 Conservation and Relationship with man

The great beauty and popularity of the Indian Peafowl has ensured its protection throughout most of its native ranges. **It is a National bird of India.** The peafowl is prominent in the mythology and folklore of the Indian people. The Hindus consider the bird to be sacred because of its association with Lord Krishna who used to wear its feather as crown (Mor Mokut). It is also associated with the God Kartikeya, son of the Lord Shiva and Parvati and brother of Lord Ganesh. It is "Vaahan" (transport) of Lord Kartikeya.

CONSERVATION STATUS



IUCN : Least Concern

IWPA : Schedule I

CITES : Not listed

3.3 Classification:-

Kingdom	Animala
Phylum	Chordata
Class	Aves
Order	Galliformes
Family	Phasianidae
Genus	Pavo
Species	*Pavo cristatus*

3.4 Distribution:-

The natural range of Indian Peafowl is essentially the Indian Subcontinent, with India covering a vast majority of its range from the outer Himalaya (up to 2000m) through much of the country including the peninsula. Other countries where the species still survives in good numbers are Nepal and Sri Lanka, while there are only two populations in Pakistan, it is rare in Bhutan and possible extinct in Bangladesh. It has been introduced in Andaman Island (Ali & Ripley 1980).

3.5 Habitat and Behavior

It is a bird of scrub-jungles and forest edges, showing affinity to moist and dry deciduous and semi-arid biomes. It is also found in agriculture fields, along streams with good vegetation and close to human habitation in a semi-feral condition (Johnsgard 1986). It roosts on tree and also uses tall building where trees are scarce. It generally prefer a habitat mosaic of scrub and open areas, with adequate sites for dust bathing and lekking, a phenomenon where males are known to congregate in open areas for displaying to attract females (Yasmin & Yahya1996). Dust bathing is critical as this bird has to condition its feathers and remove feather – degrading bacteria and other external parasites. It is likely that the availability of such habitats partly explains the relatively high abundance of this species in semiarid and flood plains.

3.6 Breeding-

Peafowl normally reach breeding age at two years. Peahens will sometimes lay fertile eggs as yearlings. They will lay these eggs late in the summer after they have turned one year old. The best chance for a yearling hen to lay eggs is when she is in the same pen as a mature male. A mature male is a peacock which is at least three years old. The peacock will molt the tail in late summer and this is when the breeding season will end. A two year old peacock that has a one to two foot long tail train will be a better breeder at this age than a peacock of the same age that doesn't have a tail train of any size.

A mature peacock in prime condition can be mated to as many as five peahens. The eggs are light brown in color and are similar in size to turkey eggs. If the eggs are collected from the nest for artificial incubation, a peahen may lay as many as thirty eggs. Peahens which are allowed to roam freely about a farm will hide their nests in tall grass, around shrubs, and in brush piles. The nest is a depression scratched out in the ground and lined with grass. Nests in such locations are many times destroyed by possums, raccoons, and skunks which will eat the eggs.

4 Threats: -

- The Indian peafowl is under threat from various quarters that include the demand for feathers and wild meat, conflict with farmers during cropping season, increased use of chemical fertilizers and pesticides, and habitat degradation.
- Habitat degradation and loss –more significantly from conversion of their habitat to agriculture, habitation and industrial growth, poisoning to counter crop damage, consumption of eggs and fat extracts for alleged medicinal values, and killing for wild meat.
- Although these threats are beloved to be causing an alarming decline in population, the magnitude and pattern of the effects in project study area are yet to be quantified.

5 Action plan for Conservation of peafowl : -

- Mapping of habitat and distribution status of the species across the 10 km radius from project site.

- Time series analysis of habitat change to quantify the rate of change and identify high risk areas and potential sites for further affirmative action.
- Estimation population size by established count method such as line transect, call counts and roost counts.
- Intensive ecological investigation in reprehensive sites in major biogeography zone with focus on the effects of threats in relation to breeding success and survival probability.
- Quantification of trade, with details on source and people involved.

6. Conservation Plan for the National Bird "Peacock"

- Increases the tree cover in the buffer area of the limestone mine for shelter and roosting of peacocks. This will be achieved by planting of tree groves (a group of trees that grow close together, generally without many bushes or other plants) in buffer area. Some native species such as Neem, Kassod tree,Ber, Shisham, Mahaneem, Peepal, Siris tree etc. will be planted. Planting of tree groves in school compounds in the villages of buffers area will be planted as per the plantation programme.
- Publicity for generating public awareness for conservation of peacocks in the area. Generating awareness in school children by organizing competitions during "Wildlife Week" and "Van Mahotsave" celebrations.
- The human population in buffer area is pre-dominantly of such casts who have some religious feelings to protect the peacocks. Yet occasionally some people include in poaching of peacocks for its meat and feathers. Therefore, some provision of rewards to informers for the control of poaching and illegal trade in wildlife.
- Elimination of all kinds of human activity in the core zone and minimization of activity in the buffer zone.
- Restricting use of pollutants in their habitat.
- Stop the increased vehicle pollution, wildlife road fatalities and damage to precious habitat by peoples to start movement towards these areas.
- Restrict the meat of "Peacock". Monitoring the changes taking place and studying the reasons for the same.
- Carrying out census and research projects to know the potential threats.

- Assessing the damage done to the eco-system by human activity and efforts to recover it to its original form.
- Provision of veterinary care and cages for injured or sick deformed birds

  Plans are in progress to develop wireless communication systems to curb the problem of poaching.
- Suggest strategies to minimize negative impacts of changing environment in nearby area of peacock populations and to promote conservation of peacock habitats. Another way to help preserve the endangered species is to create a new professional society dedicated to ecological ethics.
- Notify to catch or kill the national bird as crime and no Legal support for defending in court cases. Therefore, laws need to be amended to make penalties harsher for poaching.

7. **Budget for Conservation of Peafowl:** The proponent has proposed a sum of Rs. 1, 58,000 for the "Peacock" conservation plan under the following heads:

BUDGET FOR CONSERVATION OF PEAFOWL

S.No	Work or Activity	Year wise expenditure in Rs.				
		I year (A)	II year (B)	III year (C)	IV year (D)	V year (E)
1	Plantation- 200 tree plants (5 feet height, including manure and digging cost of pit as per the plant species- Cost of sapling will be changed per year)	10000/- (@ 50/- per plant)	11000/- (@ 55/- per plant)	12000/- (@ 60/- per plant)	13000/- (@ 65/- per plant)	14000/- (@ 70/- per plant)
2	Small water tank or tanka – 10 in number @ 50000/- per tank	50000/-	1000/- (repair cost)	1000/- (repair cost)	1000/- (repair cost)	1000/- (repair cost)
3	One awareness programme for "Peacock" conservation will be scheduled in 3 months.	5000/-	5000/-	7000/-	7000/-	10000/-

4	2 cash prizes @ 1000 in a year will be awarded to the informer of poachers.	2000/-	2000/-	2000/-	2000/-	2000/-
		67000/-	**19000/-**	**22000/-**	**23000**	**27000/-**
	Total= A+B+C+D+E= 67000/- + 19000/- + 22000/- + 23000/- + 27000/- = 1,58,000					

SHER SINGH S/O MANGAL SINGH
13, Shiv Nagar, Ajmer Road, Jaipur
Proprietor Authorised Signatory

CONSERVATION PLAN

FOR

LEOPARD (*Panthera pardus*)



SHER SINGH S/O MANGAL SINGH
13, Shiv Nagar, Ajmer Road, Jaipur
Proprietor Authorised Signatory

Prepared by:

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Plot No.-21, First Floor, Aarna-2 Tower,

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Ph.No: 0141-4036199, 9799744347 Fax No. 0141-4036199

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1.0 INTRODUCTION-

River Sand (Bajri) mining project located near Village - Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan, Tehsil - Reodar, District - Sirohi (Rajasthan)

Annual production for minerals River Sand 28.05 Lac TPA over an area of 1286 hectares.

1.1 Leopard-

The leopard (*Panthera pardus*) is an old world mammal of the Felidae family and the smallest of the four 'big cats' of the genus Panthera, along with the tiger, lion, and jaguar. Leopards that are melanistic, either all-black or very dark in coloration, are known colloquially as Black Panthers.

There are fragmented populations in the Indian subcontinent, Indochina, Malaysia, and western China. Despite the loss of range and continued population declines, the cat remains a least concern species; its numbers are greater than that of the other Panthera species, all of which face more acute conservation concerns.

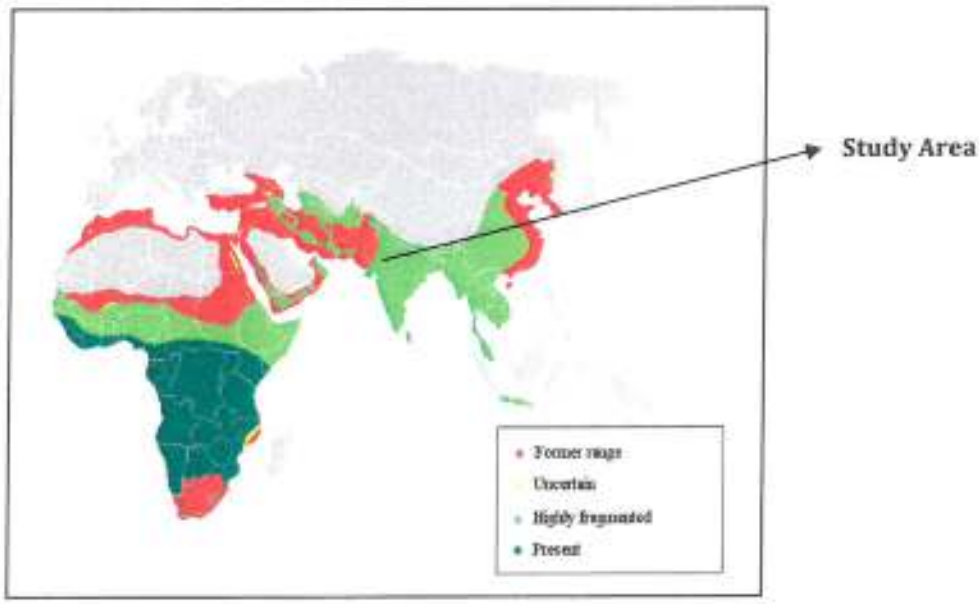


Fig. 1.1 Distributional pattern of Leopard across the world

The species' success owes in part to its opportunistic hunting behavior and its adaptability to a variety of habitats. The leopard consumes virtually any animal it can catch and ranges from rainforest to desert. Its ecological role resembles that of the similarly-sized cougar in the Americas. Physically, the spotted cat most closely resembles the jaguar, although it is of lighter build.

1.2 STATUS-

The leopard (*Panthera pardus*) is near threatened to the Indian Sub-continent in the IUCN Red list. With in the country, the species is protected under Schedule-I species of Wild Life Protection Act -1972 in India.



1.3 SCIENTIFIC CLASSIFICATION-

Kingdom	Animalia
Phylum	Chordata
Class	Mammalia
Order	Carnivora
Family	Felidae
Genus	Panthera
Species	P. pardus
Binomial Name	*Panthera pardus*

1.4 DISTRIBUTION AND HABITAT-

As of 1996, the leopard had the largest distribution of any wild cat, although populations before and since have shown a declining trend and are fragmented outside of sub-Saharan Africa. The IUCN notes that within sub-Saharan Africa the species is "still numerous and even thriving in marginal habitats" where other large cats have disappeared, but that populations in North Africa may be extinct. In Asia, data on distribution are mixed: populations in Southwest and Central Asia are small and fragmented; in the northeast portion of the range, they are critically endangered; and

in Indian, Southeast Asia, and China, the cat is still relatively abundant. Leopards also like to live in grasslands, woodlands and riverside forests.

1.5 BIOLOGY AND BEHAVIOR-

Graceful and stealthy, leopards are famous for their ability to go undetected. They are good, agile climbers, but cannot get down from a tree headfirst, because they do not have the ankle flexibility.

Along with climbing, they are strong swimmers but not as fond of water as tigers; for example, leopards will not normally lie in water. They are mainly nocturnal but can be seen at any time of day and will even hunt during daytime on overcast days. In regions where they are hunted, nocturnal behavior is more common. These cats are solitary, avoiding one another. However, three or four are sometimes seen together. Hearing and eyesight are the strongest of these cats' senses and are extremely acute. Olfaction is relied upon as well, but not for hunting. When making a threat, leopards stretch their backs, depress their ribcages between their shoulder blades so they stick out, and lower their heads (similar to domestic cats). During the day they may lie in bush, on rocks, or in a tree with their tails hanging below the treetops and giving them away.

1.6 DIET AND HUNTING-

Leopards are opportunistic hunters. Although mid-sized animals are preferred, the leopard will eat anything from dung beetles to 900 kg male giant elands. Their diet consists mostly of ungulates and monkeys, but rodents, reptiles, amphibians, birds and fish are also eaten. In fact, they hunt about 90 different species of animals. The leopard stalks its prey silently and at the last minute pounces on its prey and strangles its throat with a quick bite. Leopards often hide their kills in dense vegetation or take them up trees, and are capable of carrying animals up to three times their own weight this way. Storing carcasses up trees keeps them away from other predators such as spotted hyenas, jackals, tigers and lions, though the latter will occasionally be successful in climbing and fetching the leopard kills.

1.7 REPRODUCTION-

A male may follow a female who catches his attention. Eventually fighting for reproductive rights can take place. Depending on the region, leopards may mate all year round (India and Africa) or seasonally during January to February. The estrous cycle lasts about 46 days and the female usually is in heat for 6-7 days. Cubs are usually born in a litter of 2-3, but infant mortality is high and mothers are not commonly seen with more than 1-2 cubs. The pregnant females find a cave, crevice among boulders, hollow tree, or thicket to give birth and make a den. Cubs open their eyes after a period of 10 days. The fur of the young tends to be longer and thicker than that of adults. Their pelage is also grayer in color with less defined spots. Around three months the infants begin to follow the mother out on hunts. At one year of age leopard young can probably fend for themselves but they remain with the mother for 18-24 months.

2.0 THREATS-

- The Leopard is under threats from various quarters that include the demand for Skin conflict with habitat degradation.
- Habitat degradation and loss - more significantly from conversion of their habitat to agriculture, habitation and industrial growth.
- Hunting and poaching of Leopard for his Skin.
- The rapidly growing human population needs more food and timber off the same land.
- Grazing by domestic livestock is dramatically increasing as pastoralists sink new waterholes and transport animals by truck to temporary pastures.
- Presence of weed such as *prosopis juliflora* in habitation of Leopard.
- Human–leopard conflict-Expansion of agriculturally used land, encroachment of humans and their livestock into protected areas are main factors contributing to habitat loss and decrease of wild prey. As a result, leopards approach human settlements, where they are tempted to prey on dogs, pigs and goats -domestic livestock, which constitutes an important part of their diet, if they live on the periphery of human habitations. Human–leopard conflict situations ensue, and have increased in recent years. In retaliation for attacks on livestock, leopards are shot, poisoned and trapped in brutal snares.

2.1 COMMON FACTOR OF DECLINING OF POPULATION OF LEOPARD-

Wildlife species may become totally extinct if no measures are taken to protect them. Some of reasons for extinction of wild life are:

- Destruction of their natural habitats-by environmental pollution, deforestation, soil erosion, overgrazing, increased urbanization, forest fires, and developmental works.
- Poaching
- Introduction of exotic species.
- Over exploitation of natural resource.
- Disturbance in migratory routes.
- International trade in rare animals.
- Lack of education.
- Loss of forest quality in terms of prey biomass to support large carnivores like tiger and leopard.
- Fragmentation leading to loss of gene flow from source populations.
- Loss of reproduction owing to disturbance on account of heavily used infrastructure like highways, etc.
- Mortality of wild animals due to man-animal conflicts.
- Lack of awareness of people resides in nearby area.
- Disturb prey-predator relationship.

2.1.1 DESTRUCTION OF THEIR NATURAL HABITATS-

By Environmental pollution:

Water pollution need to be monitored on a continuous basis so that surface water contamination of ground water leaching is avoided. Dust is also generated during transport of construction materials, site development and mining activity. Dust gets deposited over surrounding vegetation being carried by wind. Dust has an inhibiting growth on plants and creates allergy and respiratory disorder in animals. The soil property and micro flora and fauna are also affected by dust.

By Deforestation:

Increases deforestation activities in another major cause of degradation of natural habitat of wild fauna.

By Soil erosion:

Illegal quarrying for building stone cutting of trees, clearance of ground flora for vegetable cultivation fires and pollution may result in soil erosion. Soil erosion leads to increased run off and progressive deterioration of site quality. This will make natural restoration of forest cover extremely difficult, unless aggressive measures are initiated to arrest the accelerated soil loss and nutrient drain. Maintenance of soil fertility is key to better forest growth and better status of animals.

By Forest fires, If any:

Forest fire, which is usually severe, affects habitat adversely and the extent of change in structure and composition of vegetation affects animal communities. Severity, frequency, size and uniformity of burn are important in determining the destiny of species. Fauna usually respond by emigration from the scene of fire and immigration in post fire situations, when there is re growth of forage and browse, which is soon exhausted. Severe fire may entrap young ones and charred them to death. Ground nesting birds may be affected by losing their chicks and eggs. Slow moving animals like pangolin, python and burrowing animals like monitor lizard are at risk in fast spreading fire. It can create snags by killing trees, toppling down old snags and destroying down-wood. Ground cover at ground and field levels are destroyed, humus is lost and mineral soil exposed.

By Loss of biodiversity:

Of the total number of species in a plant community, a relatively small percent are abundant while large number is rare. While the few abundant species regulate the energy flow in the community, the large numbers of rare species determine the species diversity. Higher diversity in plant means longer food chains, more species interactions, greater possibilities for negative feed-back control, which reduces oscillations in species structure and increase stability. This condition is obtained in climax mature forests. Such a community is vulnerable to external stressors like pollution, fire and thinning up of trees. Once, the plant species start disappearing by selective removal, dependent animal communities loose out in the struggle for survival. Plant species of interior habitats may be lost at a faster rate compared to edge habitats.

2.1.2 Poaching:

A significant immediate threat to wild leopard populations is the illegal trade in poached skins and body parts. There are well-organized gangs of professional poachers, who move from place to place and set up camp in vulnerable areas. Skins are rough-cured in the field and handed over to dealers, who send them for further treatment to Indian tanning centers. Buyers choose the skins from dealers or tanneries and smuggle them through a complex interlinking network to markets outside India.

2.2 STRATEGIES OF CONSERVATION OF WILD LIFE

- Protection and encouraging their breeding.
- Preservation of their habitats.
- Regulation on hunting.
- Ban on international trade in rare animals.
- Stopping overexploitation of useful products from wildlife.
- No commercial mono-culture to replace natural forests.

2.3 ACTION PLAN FOR CONSERVATION OF LEOPARD-

- Mapping of habitat and distribution status of the species across the 10 km radius from project site.
- Time series analysis of habitat change to quantify the rate of change and identify high risk areas and potential sites for further affirmative action.
- Estimation population size by established count method such as line transect, call counts.
- Intensive ecological investigation sites in major biogeography zone with focus on the effects of threats in relation to breading success and survival probability.
- Quantification of poaching and hunting, with details on sources and people involved.

3.0 WILDLIFE MANAGEMENT PLAN-

Wildlife management consists of habitat evaluation and assessment, periodic vegetation and animal status monitoring, identification of habitat factors favorable to growth and which act against the population. Welfare factors are promoted, decimating factors are arrested and limiting factors mitigated so that habitat carrying capacity is optimized and populations attain the saturation point intrinsic to the

species. Participation and support of local public is enlisted to make the conservation plan work and outcome becomes sustainable.

The state needs growth and a vibrant economy. However, protection of nature and environment and development of economy are not alternatives, not mutually exclusive. Both have to proceed hand in hand so that natural ecosystems are maintained or better, restored for uninterrupted flow of goods and services, on which human survival is dependent. Every entrepreneur need to be sensitive of the ecological impact of setting an industry and forge a connection with natural objects and dependent societies. This will make the development sustainable and bring lasting cheer in the society.

3.1 OBJECTS OF MANAGEMENT-

The objects of management are:-

1. To maintain the existing wildlife habitats in optimal state of productivity by alleviating the impairing forces.
2. To restore degrading habitats and nurture biodiversity.
3. To protect the resident fauna and long ranging Leopard through mass awareness and timely damage control measures.
4. To provide alternatives of livelihood to consumptive use of biomass for auto-resuscitation of habitats and elicit public support to maximize above objectives.

4. IMPACT ON ENVIRONMENT AND WILD ANIMALS

4.1 Impact of mine project on biodiversity

The native flora and fauna of core and buffer areas will be affected due to proposed mining Project. During operation phase, fugitive emission, noise pollution due to transportation and operation of mine machinery will cause negative impact on wild animals.

4.2 Mitigation majors to reduce unavoidable impacts during Mining Operation.

1. **Transportation: -**

Vehicles and Machinery would be properly maintained and periodically checked pollution level to reduce noise level and gases emission surrounding environment. Transported sand would also be covered.

2. **Fugitive Emission: -**

Water sprinkler would be used on connecting roads for transportation of mine operation to control fugitive emission surrounding environment.

3. **Pollution: -**

The green belt would be developed according to the guidelines prescribe by the CPCB. The green belt would be developed. The plant species for green belt would be drought resistance and can be control air pollution, fugitive emission and noise pollution of surrounding environment. The species for green belt plantation would be *Acacia nilotica, Alstonia scholaris, Albizia lebbeck, leucaena leucocephala, Delbergia sissoo, Peltophorum pterocarpum, Azardirachta indica, Cassia fistula, Delonix regia, Albizia procera, Bougainvillea, Nerium indicum, Rosa indica* and *Ficus benghalensis*.

4. **Creation of live hedges bamboos and tall grasses: -**

Live hedge of sturdily woody shrubs on the road on the either side of the road or path would restrict the wildlife to cross the road connected project site. For the same tail grasses and packed bamboo could be used.

4.3 Green belt development and plantation programme

Project Proponent has a social obligation to create environmental status by providing thick canopy cover to suppress fugitive emission and provide aesthetic beauty. Tree forms important part of biosphere in the ecosystem.

4.3.1 Plantation programme

The proposal has been made for the plantation over 12.5 ha area. The total number of plants 14113 will be planted.

5.0 CONSERVATION MEASURES FOR LEOPARD:-

- **Habitat Protection:** local people and their increasing population destroying the forest as well as habitat of the panther for their basic needs. Local people should educate through camps or in functions not to destroy the habitat of panther. Save and conserve this valuable species. To promote the density of forest, plantation programme by the government, NGO's and forest protection committees should be taken. The planting in Panchyat lands should also be done for the sake of panther and other wild animals.
- **Protection from poaching:** Panther is listed as near threatened on the IUCN. Red list because it is declining in large parts of its range due to hunting and for trade. The

local people kill these wild animals for skin, bones, meat, paws, nails and fur and trade them outside. The Wildlife Protection Act, 1972 provide protection for the panther which is Sch. I animal. Illegal hunting is strictly prohibited and offensive. The local people should aware not to kill this valuable wild animal and give protection and conserve its species.

- **Awareness and Training Program:** The plant operators may manage the local people and their working labour in the study area regarding protection and conservation of panther living or wandering thereby. They should protect their breeding home in closing season. The local people should aware not to trespass their breeding centre in the forest centre in closing season. They himself try and make other people not to go in such period.
- **People's Participation**: Now a days there are so many protection committees in local areas and NGO's working for conservation of panthers. The Plant Administration with the help of such organization's and committees may conserve this transient wild animals.

6.0 BUDGETS FOR CONSERVATION OF LEOPARD-

The total budget for environmental conservation including Leopard conservation will be around Rs. 4, 05,000 For Five Years.

BUDGETS FOR CONSERVATION OF LEOPARD

S.No	Conservation Action	Expenditure in Ist year	2 year	3rd year	4th year	5th year	Total
1	Awareness programme for protect the threatened species through Wild life week and Biodiversity day, Environment day and others i.e. Poster campaign, Speech on particular species , seminar etc.	15,000	15000	15000	15000	15000	75000
2	Release fund for fencing in surrounding area with the help of DFO, and Forest department.	20000	15000	15000	15000	15000	80,000
3	Development of water resources in protected areas with the help of DFO and Wild life conservator	30,000	15000	15000	15000	15000	90000
4	Release fund to Veterinary hospital for Medical facilities for treatment of injured Panther species	20000	20000	20000	20000	20000	100000
5	Release fund for development of Afforestation programme in protective and sensitive areas of habitat of Panther with District Forest department	20000	10000	10000	10000	10000	60000
	Total	105000	75,000	75,000	75,000	75,000	4,05,000/-

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Proprietor Authorised Signatory

Conservation plan

For

Sloth Bear *(Melursus ursinus)*



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Prepared by:

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River sand (Bajri) Mining project, M.L. Area 1286 ha, at Tehsil –Reodar, District - Sirohi (Rajasthan)

1. Introduction of the project:

This is a fresh mining lease applied for mining of mineral River Sand in the Rivers; Sipu River and Sukri River. Annual production for Minerals River Sand 28.05 Lac TPA over an area of 1286 ha.

This is A necessitated by the Ministry of Environment and Forest, Government of India a detailed biological survey of the core zone and buffer zone (10km. radius) has been carried out and submitted in the EIA Report.

In case of fauna, the schedule of the Wildlife (protection) Act 1972 has been referred.

Sloth Bear (Melursus ursinus) belonging to schedule I of the Wildlife (Protection) Act 1972 is the species of fauna found in the buffer zone of the study area.

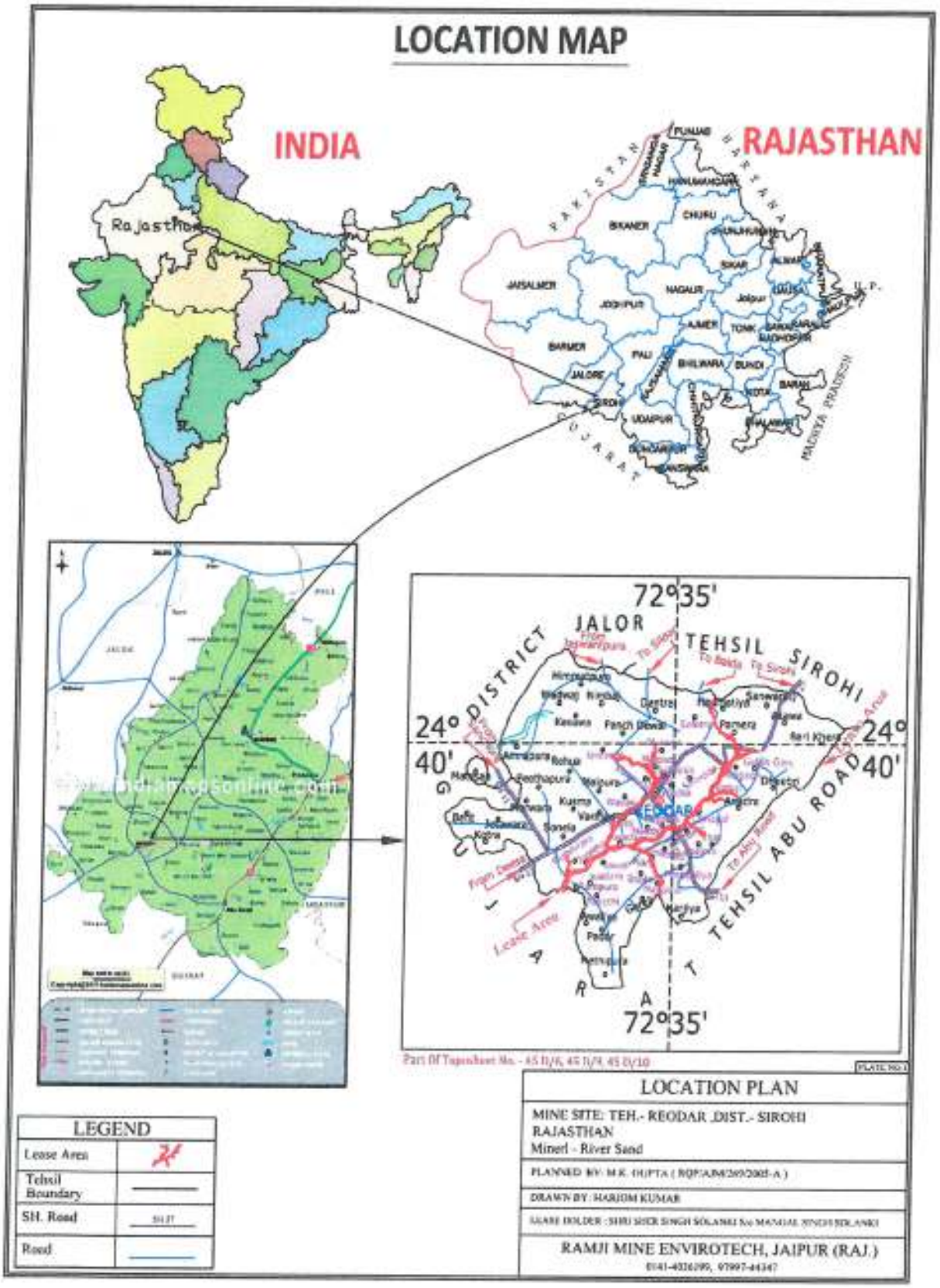
2. Location of the area:

A. Villages: Awada, Bhamra, Bootri, Chhapol, Dangrali, Derol, Gulab Ganj, Gundwara, Hathal, Jamtha, Jawal, Jeerawal, Juadara, Kareli, Karoti, Leelora, Loonol, Makawal, Malawa, Malgaon, Marol, Meetan, Nimbora, Padroo Khera, Peepaliya, Rajgarh, Rampura, Reodar, Selwada, Thal, Vikanwas, Wasan.

B. Tehsil: Reodar

C. District: Sirohi

D. State: Rajasthan



Prepared by: M/s Ramji Mine Envirotech, Jaipur (Rajasthan)

3. Introduction of the Sloth Bear: -

The sloth bear known as Labiated bear is a nocturnal insectivores, sickle-shaped clawsand a specially adapted lower lip and palate used for sucking insects. Sloth bear fur is completely black and a whitish Y or U shaped monk on chest. It is capable of galloping faster than running human. Although it appear slow and clumsy. Sloth bear are excellent climber including cubs. They climb to feed and rest on long trees. They are capable of climbing on smooth surface and hanging upside down.

Its presence is observed in winter season as per told by local people of study area. They also mentioned that sloth bear with cubs walked in the sugarcane cultivation and came for drinking water in water ponds nearby in the area. There are few numbers of sloth bear present in study area as per census report.

3.1 **Status:** - The sloth bear is listed as vulnerable on the World Conservation Union's Red List of Threatened Animals And recognized under Schedule I species of Wild Life Protection Act 1972 in India.

3.2 Classification:-

Kingdom	Animala
Phylum	Chordata
Class	Mammalia
Order	Carnivora
Family	Ursidae
Genus	Melursus
Species	Melursus ursinus

3.3 Distribution:-

Most sloth bears live in India and Sri Lanka; others live in southern Nepal, and they have been reported in Bhutan and Bangladesh.

3.4 SIZE:

Sloth bears grow five to six feet long, stand two to three feet high at the shoulder, and weigh from 120 (in lighter females) to 310 pounds (in heavy males).

3.5 Habitat and Behavior

Sloth bearlives lives in dense forest. It like fruits of Diospyros melanoxylon (Tendu), Ficus glomerata (Gular), Ficus religiosa (Pipal), Ficus benghalensis (Bar), Mangifera indica (Mango), Syzygium cumini (Jamun), Madhuca indica (Mahua) and other fruits trees. Also it eats gums of the trees. It is found of termites. They make their territories. Sloth bear scraps trees with their fore-paws and rub against them with their flanks. For cubs it collect wood apples and honey comb.

3.6 Breeding-

Sloth bear breed during spring and early summers and give birth near the beginning of winter. It gestation period is 210 days or about six months. Sloth bear mother gives birth 2 to 3 cubs in caves or in shelter under boulders. Mother bear carry cubs upto 9 month old on their back primary defense against attack by predators such as tigers, leopards and other bears. Cubs separate after 2 to 3 years old.

3.7 REPRODUCTION:

Sloth bears mate during the hot season—May, June, and July—and females usually give birth to two cubs six to seven months later. Cubs are born in an underground den, and stay there for several months. After emerging from the den, cubs stay at their mother's side for two to three years before heading off on their own.

3.8 Threats: -

(i) Hunting for valuable fur Bacula and Claws.

(ii) (ii) Used as performing Pets due to their tamable nature.

(iii) (iii) For Meat. (iv)Habitatdestruction: destruction of honey bee colonies for collection of honey and fruits by local people in study area.

There is a conflict between human and sloth bear for destruction habitat. Human have drastically reduce their habitat and diminish their population by hunting them for food and for products such as backula and claws.

4. Conservation Measures:-

- **Habitat:** Forest are deteriorating by local people for their basic needs like agriculture and fuel wood and over grazing for their cattle. Local people encroach the forest land for extension of cultivation land by felling and cutting the trees. The local people should be educated and aware for conserving flora and fauna. Good forest is good habitat for sloth bear regeneration to improve the degraded forest planting of the trees should be done through Village Forest Protection Committee and NGO's in forest land and panchayat land also. To resolve the conflict the basic issue of deteriorating habitat which is the reason for the conflict between people and bears, improvement through government or community based re-forestation may be promoted.
- **Awareness and Training Program:** This program may be done by Plant Administration for local people to educate and aware regarding conservation of sloth bear. The local people should aware that hunting of sloth bear is illegal and punishable. The sloth bear is found of honey. Sometimes local people collect honey for sale from honey bee colonies in habitat of sloth bear. Local people should aware about not to disturb honey bee colonies for the collection of honey.
- **Hunting:** Sloth bear hunt for fur and claws, fur is used for backula and trade outside the country. It is listed in Sch. I animals of WPA, 1972 which provide for legal protection of sloth bear. International Trade of sloth bear is prohibited as it is listed in Appendix of the Convention of International Trade in Endangered Species (CITES).
- **People's Participation:** There are so many VFPMC's and NGO's are working for the protection and conservation of sloth bear in protected areas. The Company administration or the plant operators may take help from them in protecting and conserving sloth bears walking in plant area or study area.
- **Rescue Centre:** To provide immediate help for ill, wounded and accidented sloth bear and their cubs rescue operation is a must. For this purpose a rescue centre should be open in study area. The rescue centre will be operated both company and concern forest department.

5.0 BUDGETS FOR CONSERVATION OF Sloth Bear-

The total budget for environmental conservation including Sloth Bear conservation will be around Rs. 2, 80,000 For Five Years.

BUDGET FOR CONSERVATION OF SLOTH BEAR

S.No	Conservation Action	Expenditure in Ist year	2 year	3rd year	4th year	5th year	Total
1	Awareness programme for protect the threatened species through Wild life week and Biodiversity day, Environment day and others i.e. Poster campaign, Speech on particular species , seminar etc.	10,000	10,000	10,000	10,000	10,000	50000
2	Creation of Water bodies or tanka and its maintinance	20,000	10000	10000	10000	10000	60000
3	Release fund to Veterinary hospital for Medical facilities for treatment of injured Sloth Bear species	20000	10000	10000	10000	10000	60000
4	Release fund for development of Afforestation programme in protective and sensitive areas of habitat of Sloth Bear with District Forest department	30000	20000	20000	20000	20000	110000
Total		**80000**	**50,000**	**50,000**	**50,000**	**50,000**	**2,80,000/-**

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ANNEXURE-15

(EB Report (Revised List of Flora/Fauna)

Biological Study

Biodiversity studies comprise the systematic examination of the full array of different kinds of organisms together with the technology by which the diversity can be maintained and used for the benefit of humanity. Current basic research at the species level focuses on the process of species formation the standing level of species numbers in various higher taxonomic categories and the phenomena of hyper diversity and extinction proneness. The major practical concern is the massive extinction rate now caused by human activity which threatens losses in the esthetic quality of the world, in economic opportunity and in vital ecosystem services.

Biological impact assessment is an integral and important component of "Environmental Impact Assessment" (EIA). Biological impact assessment (BIA) generally includes lists of plants and animals present in the core and buffer areas of the proposed project site. The identified species then check for their status according to an IUCN list of threat categories viz., endemic, endangered, vulnerable, rare, indeterminate and insufficiently known. In certain cases it is also considered desirable to conduct vegetation analysis using standard phyto-sociological methods.

BIA documents and collates the baseline data and information on the status of biodiversity and bio-resources likely to be impacted by the proposed activity and suggests measures for mitigation of the impact. Thus the fundamental objective of the BIA is to conserve the biodiversity and ensure its sustainable utilization.

In India BIA comes under the purview of the Environmental Protection Act 1986, Environmental Impact Assessment Notification of 1994, Wildlife Act of 1972, Forest Conservation Act 1980 amended in 1988, Biodiversity Act 2002.

The detailed environmental study was conducted in the project area to assess all possible consequences on the biological environment for river sand mining project. The present study is highlighting the various issues pertaining to floristic diversity and the faunal wealth in and surrounding of river sand mine area in District Reodar - Rajasthan

Objectives of the study:

The biological study of the area has been conducted in order to understand the ecological status of the existing flora and fauna to generate baseline information and evaluate the probable impacts on the biological environment.

The present objectives were undertaken with the following objectives:

- To collect the baseline terrestrial biodiversity status regarding flora and fauna in the project area.
- To assess the frequency, density, abundance, Importance Value Index (IVI) and Shannon-Wiener Diversity Index (flora).
- To evaluate the dominant species of plant and animal. Secondary data also be collected from the local residents and authenticated list of flora and fauna by the Department of Forest, Govt. of Rajasthan, Rajasthan.
- To identify the endangered / threatened / scheduled species in the study area (both flora and fauna). The conservation plan will be given if any wildlife species of schedule I is present there.
- To mark the wetlands and other ecologically sensitive areas such as national parks/ sanctuaries, if present there.
- To provide the conservation plan and suggestion / recommendation for social forestry green belt / plantation.
- To assess the effect of construction and operation of the project on existing ecology.

On the basis of on-site observations a checklist of flora and fauna was prepared.

STUDY APPROACH AND METHODOLOGY

Delineation of the Study Area

The project study area was delineated into two zones for biodiversity inventory. The existing project lease boundary was considered as Core Zone while, the area encompassing 10 km radius from the project boundary was designated as Buffer Zone. Field survey was carried out in all major habitats covering both core and buffer zones.

Methodology:

1. **Floral Study**

Floral study is based on extensive field survey of the area. The study has been conducted in winter season**.** The plant species were identified taxonomically through available literature, consultation with forest department and local people. A nested quadrate technique was used for sampling the vegetation. The size and number of quadrates needed were determined using the species area curve (Mishra,1968) and running mean method (Kershaw ,1973) .Summarization of previously used method and

recommendations led to the use of more than often (10*10 m) quadrates laid out of sampling the tree stratum at different altitudinal gradients and (1*1 m) for herbs and grasses. DBH of trees was also determined. All individuals > 10 cm GBH (Girth at Breast Height) were included in tree category. However, for examining the shrub species 3x3m sample plots were laid out.

The vegetation data collected for biological study were quantitative analyzed for density, Frequency and Abundance according to Curtis and McIntosh (1950). The relative value of frequency, density, and dominance of all the species were summed up to represent Importance Value Index (IVI). The following are the formulae to derive frequency, density, dominance, IVI etc.

$$\text{Density} = \frac{\text{Total number of individuals of a species}}{\text{Total number of quadrate studied}}$$

$$\text{Frequency} = \frac{\text{Total number of quadrate in which species occurred}}{\text{Total number of quadrate studied}} \times 100$$

$$\text{Abundance} = \frac{\text{Total number of individuals of species in all quadrate}}{\text{Total number of quadrate in which species occurred}}$$

$$\text{Dominance} = \frac{\text{Total Basal Area}}{\text{Total area sampled}}$$

$$\text{Relative Frequency} = \frac{\text{Frequency of the species}}{\text{Total frequency of all species}} \times 100$$

$$\text{Relative Density} = \frac{\text{Density of the species}}{\text{Total density of all species}} \times 100$$

$$\text{Relative Abundance} = \frac{\text{Abundance of the species}}{\text{Total abundance of all species}} \times 100$$

$$\text{Relative Dominance} = \frac{\text{Dominance of the species}}{\text{Total Dominance of all species}} \times 100$$

Importance Value Index (IVI) = Relative frequency + Relative density +Relative dominance

Shanon – Weaver Index (1948) :

The number of species and number of individuals in a community is measure of species diversity which depends on stability of the habitat. Vegetation of the study area was assess by determining Shannon – Weaver diversity index (1948)

$D = -\Sigma (ni / n) \log_2 (ni / n)$

ni = Number of individuals of each species in the sample

n = Total number of individuals

Terrestrial Flora in the study area

Plant species were recorded during biodiversity assessment in study area including RF/PF in which are described in below:

Table 1. Flora of RF/PF of project study area

S.No.	Common Name	Binomial name	Family	Habitat
1	Dhok	*Anogeissus pendula*	Combretaceae	T
2	Cumta	*Acacia senegal*	Fabaceae	T
3	Ronjh	*Acacia leucophloea*	Fabaceae	T
4	Babool	*Acacia nilotica*	Fabaceae	T
5	Neem	*Azadirachta indica*	Meliaceae	T
6	Dhak	*Butea monosperma*	Fabaceae	T
7	Amaltash	*Cassia fistula*	Fabaceae	T
8	Shesham	*Dalbergia sissoo*	Fabaceae	T
9	Pipal	*Ficus religiosa*	Moraceae	T
10	Safeda/Sugandhapatra	*Eucalyptus globulus*	Myrtaceae	T
11	Bargad	*Ficus benghalensis*	Moraceae	T
12	Khajoor	*Phoenix sylvestris*	Arecaceae	T
13	Jungal jalebi	*Pithecellobium dulce*	Fabaceae	T
14	Khejari	*Prosopis cineraria*	Mimosaceae	T
15	Bilayati Babool	*Prosopis juliflora*	Fabaceae	T
16	Arjun	*Terminalia arjuna*	Combretaceae	T
17	Ber	*Ziziphus mauritiana*	Rhamnaceae	T
18	Papri,Chilbul	*Holoptelea integrifolia*	Utreaceae	T
19	Aak	*Calotropis procera*	Asclepiadaceae	S
20	Kair	*Capparis decidua*	Capparaceae	S
21	Dandathor	*Euphorbia neriifolia*	Euphorbiaceae	S
22	White crossberry	*Grewia tenex*	Tiliaceae	S

23	Nag phani	*Opuntia elatior*	Cactaceae	S
24	Arandi	*Ricinus communis*	Euphorbiaceae	S
25	Raimuniya	*Lantana camara*	Verbenaceae	H
26	Pili Kantili	*Argemone mexicana*	Papaveraceae	H
27	Apamarga	*Achyranthes aspera*	Amaranthaceae	H
28	Burr marigold	*Bidens pilosa*	Asteraceae	H
29	Buffelgrass	*Cenchrus cilliaris*	Poaceae	G
30	Kanchara	*Commelina benghalensis*	Commelinaceae	H
31	Bara dudhi	*Euphorbia hirta*	Euphorbiaceae	H
32	Ban tulsi	*Ocimum gratissimum*	Lamiaceae	H
33	Chikana	*Sida acuta*	Malvaceae	H
34	Gokharu	*Tribulus terrestris*	Zygophyllaceae	H
35	Tal muriya	*Tridax procumbens*	Asteraceae	H
36	Chiriyari	*Triumfetta rhomboidea*	Tiliaceae	H
37	Jangli chaulai	*Amaranthus spinosus*	Amaranthaceae	H
38	Bui	*Aerva tomentosa*	Amaranthaceae	H
39	Muktajhuri	*Acalypha indica*	Euphorbiaceae	H
40	Chitraa	*Citrullus colocynthis*	Cucurbitaceae	H
41	Dhatura	*Datura metel*	Solanaceae	H
42	Peli Dhoodhak	*Launaea nudicaulis*	Asteraceae	H
43	Gokhru	*Indigofera cordifolia*	Fabaceae	H
44	Sarphonk	*Tephrosia purpurea*	Fabaceae	H
45	Bada gokhru	*Pedalium murex*	Pedaliacae	H
46	kaladana	*Ipomoea nil*	Convolvulaceae	C
47	Bristle grass	*Aristida depressa*	Poaceae	G
48	Doob ghas	*Cynodon dactylon*	Poaceae	G
49	Sheda Grass	*Dichanthium annulatum*	Poaceae	G
50	Munja grass	*Saccharum munja*	Poaceae	G

Table 1.4 Flora of core and buffer zone of project study site

S.No.	Common Name	Binomial Name	Family	Habitat	Core	Buffer
1	Siris	*Albizia lebbeck*	Mimosaceae	T	-	+
2	Ardu	*Ailanthus excelsa*	Simaroubaceae	T	-	+
3	Cumta	*Acacia senegal*	Fabaceae	T	-	+
4	Ronjh	*Acacia leucophloea*	Fabaceae	T	-	+
5	Babool	*Acacia nilotica*	Fabaceae	T	+	+
6	Neem	*Azadirachta indica*	Meliaceae	T	+	+
7	Dhak	*Butea monosperma*	Fabaceae	T	-	+
8	Baas	*Bamboo sp.*	Poaceae	G	-	+
9	Kassod	*Cassia siamea*	Fabaceae	T	-	+
10	Amaltash	*Cassia fistula*	Fabaceae	T	-	+

11	Shesham	*Dalbergia sissoo*	Fabaceae	T	-	+
12	Gulmohar	*Delonix regia*	Caesalpiniaceae	T	-	+
13	Pipal	*Ficus religiosa*	Moraceae	T	-	+
14	Safeda/Sugandhapatra	*Eucalyptus globulus*	Myrtaceae	T	-	+
15	Bargad	*Ficus benghalensis*	Moraceae	T	-	+
16	Mango	*Mangifera indica*	Anacardiaceae	T	-	+
17	Khajoor	*Phoenix sylvestris*	Arecaceae	T	-	+
18	Jungal jalebi	*Pithecellobium dulce*	Fabaceae	T	-	+
19	Karanj	*Pongamia pinnata*	Fabaceae	T	-	+
20	Ashok	*Polyalthia longifolia*	Annonaceae	T	-	+
21	Khejari	*Prosopis cineraria*	Mimosaceae	T	-	+
22	Vilayati Babool	*Prosopis juliflora*	Fabaceae	T	+	+
23	Arjun	*Terminalia arjuna*	Combretaceae	T	-	+
24	Jamun	*Syzygium cumini*	Myrtaceae	T	-	+
25	Ber	*Ziziphus mauritiana*	Rhamnaceae	T	+	+
26	Papri,Chilbul	*Holoptelea integrifolia*	Utreaceae	T	-	+
27	Aak	*Calotropis procera*	Asclepiadaceae	S	+	+
28	Aakra	*Calotropis gigantea*	Asclepiadaceae	S	-	+
29	Kair	*Capparis decidua*	Capparaceae	S	+	+
30	Dandathor	*Euphorbia neriifolia*	Euphorbiaceae	S	-	+
31	White crossberry	*Grewia tenex*	Tiliaceae	S	-	+
32	Nag phani	*Opuntia elatior*	Cactaceae	S	-	+
33	Kaner	*Nerium oleander*	Apocynaceae	S	-	+
34	Champa	*Plumeria alba*	Apocynaceae	S	-	+
35	Native gooseberry	*Physalis minima*	Solanaceae	H	+	+
36	Arandi	*Ricinus communis*	Euphorbiaceae	S	+	+
37	Jharberi	*Ziziphus nummularia*	Rhamnaceae	S	+	+
38	Pili Kantili	*Argemone mexicana*	Papaveraceae	H	+	+
39	Kateli	*Solanum xanthocarpum*	Solanaceae	H	+	+
40	Jangli chaulai	*Amaranthus spinosus*	Amaranthaceae	H	+	+
41	Bui	*Aerva tomentosa*	Amaranthaceae	H	-	+
42	Muktajhuri	*Acalypha indica*	Euphorbiaceae	H	+	+
43	Chitraa	*Citrullus colocynthis*	Cucurbitaceae	H	+	+
44	Pumpkin	*Cucurbita pepo*	Cucurbitaceae	C	+	+
45	Dhatura	*Datura metel*	Solanaceae	H	+	+
46	Peli Dhoodhak	*Launaea nudicaulis*	Asteraceae	H	+	+
47	Gokhru	*Indigofera cordifolia*	Fabaceae	H	+	+
48	Raimuniya	*Lantana camara*	Verbenaceae	H	+	+
49	Sarphonk	*Tephrosia purpurea*	Fabaceae	H	+	+

50	Bada gokhru	*Pedalium murex*	Pedaliacae	H	-	+
51	kaladana	*Ipomoea nil*	Convolvulaceae	C	-	+
52	Bristle grass	*Aristida depressa*	Poaceae	G	-	+
53	Rama grass	*Chloris dolichostachys*	Poaceae	G	-	+
54	Doob ghas	*Cynodon dactylon*	Poaceae	G	-	+
55	Bhurat	*Cenchrus biflorus*	Poaceae	G	+	+
56	Sheda Grass	*Dichanthium annulatum*	Poaceae	G	-	+
57	Kans Grass	*Saccharun spontaneum*	Poaceae	G	+	+
58	Munja Grass	*Saccharum munja*	Poaceae	G	+	+

Where, T = Tree, S = Shrub, H = Herb, G = Grass, C= Climber, (-) = absent, (+) = Present

1.2 Floral study: Trees (10x10m)

Core zone :

S.No	Common name	Binomial name of Species	R.D.	R.F	R. Dom	IVI	SWD Index $H= -\sum P_i (\ln P_i)$
1	Neem	*Azadirachta indica*	13.73	12.90	20.40	47.02	-0.273
2	Ber	*Ziziphus mauritiana*	21.57	22.58	20.48	64.63	-0.331
3	Babool	*Acacia nilotica*	39.22	38.71	36.99	114.92	-0.367
4	Vilayati babool	*Prosopis juliflora*	25.49	25.81	22.13	73.43	-0.348
5							1.319

It was observed that four trees Neem(*Azadirachta indica)* ,Babool (*Acacia nilotica),* Ber (*Ziziphus mauritiana*) and vilayati babool (*Prosopis juliflora)* were present at core zone of project site during survey. *Acacia nilotica(IVI-114.92)* was the dominant species in core zone followed by *Prosopis juliflora*(IVI-73.43) sparsely present on study site. SWD index is showing less density of trees in core zone.

Buffer zone: Trees(10x10)

S.No	Common name	Binomial name of Species	R.D.	R.F	R. Dom	IVI	SWD Index $H= -\sum P_i (\ln P_i)$
1	Siris	*Albizia lebbeck*	5.18	6.43	8.05	19.65	-0.1532
2	Ardu	*Ailanthus excelsa*	3.96	4.36	4.57	12.89	-0.1278
3	Cumta	*Acacia senegal*	3.50	4.36	4.69	12.55	-0.1174
4	Ronjh	*Acacia leucophloea*	2.28	2.49	3.51	8.29	-0.0863
5	Babool	*Acacia nilotica*	5.18	4.77	3.53	13.47	-0.1532
6	Neem	*Azadirachta*	5.33	5.39	6.37	17.09	-0.1562

		indica					
7	Dhak	*Butea monosperma*	4.72	4.98	3.81	13.51	-0.1441
8	Kassod	*Cassia siamea*	5.18	6.43	6.58	18.19	-0.1532
9	Amaltash	*Cassia fistula*	3.65	4.36	5.31	13.32	-0.1209
10	Shesham	*Dalbergia sissoo*	4.57	5.39	9.95	19.91	-0.1409
11	Gulmohar	*Delonix regia*	4.72	5.19	3.60	13.50	-0.1441
12	Pipal	*Ficus religiosa*	1.37	1.66	4.88	7.91	-0.0588
13	Safeda/Sugandhapatra	*Eucalyptus globulus*	3.96	3.94	2.72	10.62	-0.1278
14	Bargad	*Ficus benghalensis*	1.07	1.04	2.14	4.24	-0.0484
15	Mango	*Mangifera indica*	4.26	3.11	3.28	10.66	-0.1345
16	Khajoor	*Phoenix sylvestris*	2.59	2.90	1.49	6.98	-0.0946
17	Jungal jalebi	*Pithecellobium dulce*	2.59	2.90	2.36	7.85	-0.0946
18	Karanj	*Pongamia pinnata*	4.11	4.36	1.87	10.34	-0.1312
19	Ashok	*Polyalthia longifolia*	3.20	3.53	3.74	10.46	-0.1101
20	Khejari	*Prosopis cineraria*	5.63	4.36	1.28	11.26	-0.1620
21	Vilayati Babool	*Prosopis juliflora*	10.35	6.43	5.24	22.03	-0.2348
22	Arjun	*Terminalia arjuna*	1.07	1.04	6.45	8.56	-0.0484
23	Jamun	*Syzygium cumini*	2.13	2.28	0.90	5.32	-0.0820
24	Ber	*Ziziphus mauritiana*	4.26	3.94	1.08	9.29	-0.1345
25	Papri, Chilbul	*Holoptelea integrifolia*	5.18	4.36	2.60	12.14	-0.1532
							3.1121

Note: R.D.=Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance,IVI= Importance Value Index, SWD Index H= - ∑ Pi (lnPi)= Shanon – Weaver Index

It was observed that Vilayati Babool *(Prosopis juliflora, IVI-22.03)* dominant species in core zone. Then followed by Siris *(Albizia lebbeck,* IVI -19.65) and Chilbul(*Holoptelea integrifolia,* IVI-19.65) were dominant species in buffer zone of project study area. The other species which were present well in number as per the IVI i.e. Kasod tree (*Cassia siamea*, IVI- 18.19), Neem(*Azadirachta indica*, IVI-17.09), and Karanj(*Butea monosperma*,IVI-13.51). SWD index is indicated that trees diversity in buffer zone well in then the core zone.

Shrubs :Core zone(3x3m)

S.No	Common name	Binomial name of Species	R.D.	R.F	R. Ab.	IVI	SWD Index H= - ∑ P_i (lnP_i)
1	Aak	*Calotropis procera*	34.21	32.86	26.21	93.28	-0.367
2	Kair	*Capparis decidua*	28.07	25.71	27.48	81.27	-0.357
3	Arandi	*Ricinus communis*	21.05	24.29	21.83	67.16	-0.328
4	Ber	*Zyzipus nummularia*	16.67	17.14	24.48	58.29	-0.299
							1.350

Note: R.D.=Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance,IVI= Importance Value Index, SWD Index H= - ∑ P_i (lnP_i)= Shanon – Weaver Index

Shrub:Buffer zone (3x3m)

S.No	Common name	Binomial name of Species	R.D.	R.F	R. Ab.	IVI	SWD Index H= - ∑ P_i (lnP_i)
1	Aak	*Calotropis procera*	19.53	14.91	13.31	47.75	-0.3190
2	Aakra	*Calotropis gigantea*	10.20	8.70	11.92	30.82	-0.2329
3	Kair	*Capparis decidua*	8.45	10.56	8.13	27.15	-0.2089
4	Dandathor	*Euphorbia neriifolia*	9.04	6.83	13.44	29.31	-0.2172
5	White crossberry	*Grewia tenex*	7.87	7.45	10.73	26.05	-0.2001
6	Nag phani	*Opuntia elatior*	4.66	6.21	7.63	18.50	-0.1430
7	Kaner	*Nerium oleander*	9.62	11.18	8.74	29.54	-0.2252
8	Champa	*Plumeria alba*	4.37	6.83	6.50	17.71	-0.1369
9	Arandi	*Ricinus communis*	12.24	14.29	8.71	35.24	-0.2572
10	Jharberi	*Ziziphus nummularia*	13.99	13.04	10.90	37.94	-0.2752
							2.2155

Note: R.D.=Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance,IVI= Importance Value Index, SWD Index H= - ∑ P_i (lnP_i)= Shanon – Weaver Index

It was observed that Aak (*Calotropis procera* ,IVI-93.28) and Kair(*Capparis deciduas*, IVI-81.27) were dominant shrub species in core zone while in buffer zone again aak (*Calotropis procera*, IVI- 47.75) and Jherber(*Ziziphus nummularia* ,IVI-37.94) were dominant shrubs in buffer zone. The other species which were also well in number i.e. Arandi(*Ricinus communis*, IVI-35.24), Aakra(*Calotropis gigantean, IVI-30.82)* and Kaner(*Nerium oleander*, IVI-29.54) .

Herbs, grasses and climbers: Core zone(1x1m)

S.No	Common name	Binomial name of Species	R.D.	R.F	R. Ab.	IVI	SWD Index H= - ∑ P_i (lnP_i)
1	Native gooseberry	*Physalis minima*	1.94	2.40	5.57	9.91	-0.0765
2	Pili Kantili	*Argemone mexicana*	4.06	4.40	6.35	14.81	-0.1300
3	Kateli	*Solanum xanthocarpum*	4.76	6.00	5.47	16.23	-0.1450
4	Jangli chaulai	*Amaranthus spinosus*	6.70	8.40	5.50	20.60	-0.1811
5	Muktajhuri	*Acalypha indica*	4.59	5.60	5.64	15.83	-0.1413
6	Chitraa	*Citrullus colocynthis*	2.12	3.60	4.05	9.77	-0.0816
7	Pumpkin	*Cucurbita pepo*	1.94	2.40	5.57	9.91	-0.0765
8	Dhatura	*Datura metel*	7.41	7.20	7.09	21.69	-0.1928
9	Peeli Dhoodhak	*Launaea nudicaulis*	13.05	12.80	7.02	32.87	-0.2658
10	Gokhru	*Indigofera cordifolia*	4.76	5.60	5.86	16.22	-0.1450
11	Raimuniya	*Lantana camara*	8.29	9.20	6.21	23.70	-0.2064
12	Sarphonk	*Tephrosia purpurea*	14.29	13.20	7.45	34.94	-0.2780
13	Bhurat	*Cenchrus biflorus*	8.99	7.20	8.60	24.80	-0.2166
14	Kans Grass	*Saccharum spontaneum*	9.17	6.40	9.87	25.44	-0.2191
15	Munja Grass	*Saccharum munja*	7.94	5.60	9.76	23.30	-0.2011
							2.5568

Note: R.D.=Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance,IVI= Importance Value Index, SWD Index H= - ∑ P_i (lnP_i)= Shanon – Weaver Index

In core zone Sarphonk (*Tephrosia purpurea*) and Peeli dhoodhak (*Launaea nudicaulis*) were dominant species (IVI-34.94 & 32.87) then followed by other dominant species in core zone were Kans grass(*Saccharun spontaneum*, IVI-25.44) and Bhurat (*Cenchrus biflorus*, IVI-24.80) .

Herb ,grasses and climbers ; Buffer zone(1x1m)

S..No	Common name	Binomial name of Species	R.D.	R.F	R. Ab.	IVI	SWD Index H= - ∑ P_i (lnP_i)
1	Native gooseberry	*Physalis minima*	1.52	2.49	2.53	6.54	-0.0636
2	Arandi	*Ricinus communis*	2.59	4.23	2.54	9.36	-0.0947
3	Jharberi	*Ziziphus nummularia*	4.20	4.98	3.50	12.68	-0.1331
4	Pili Kantili	*Argemone mexicana*	3.31	5.22	2.63	11.16	-0.1127
5	Kateli	*Solanum xanthocarpum*	1.88	3.98	1.96	7.81	-0.0746
6	Jangli chaulai	*Amaranthus spinosus*	3.31	5.22	2.63	11.16	-0.1127
7	Bui	*Aerva tomentosa*	1.70	2.74	2.58	7.01	-0.0692
8	Muktajhuri	*Acalypha indica*	2.32	3.48	2.77	8.57	-0.0874
9	Chitraa	*Citrullus colocynthis*	0.89	2.24	1.66	4.79	-0.0422
10	Pumpkin	*Cucurbita pepo*	0.80	1.74	1.92	4.46	-0.0388
11	Dhatura	*Datura metel*	3.49	4.48	3.23	11.19	-0.1170
12	Peli Dhoodhak	*Launaea nudicaulis*	6.79	7.96	3.54	18.29	-0.1827
13	Gokhru	*Indigofera cordifolia*	3.40	3.73	3.78	10.90	-0.1149
14	Raimuniya	*Lantana camara*	3.40	5.22	2.70	11.32	-0.1149
15	Sarphonk	*Tephrosia purpurea*	5.63	6.72	3.48	15.83	-0.1620
16	Bada gokhru	*Pedalium murex*	3.31	3.98	3.45	10.73	-0.1127

17	kaladana	*Ipomoea nil*	0.98	1.99	2.05	5.02	-0.0454
18	Bristle grass	*Aristida depressa*	6.97	7.21	4.01	18.19	-0.1857
19	Rama grass	*Chloris dolichostachys*	1.52	2.74	2.30	6.56	-0.0636
20	Doob ghas	*Cynodon dactylon*	10.01	3.73	11.13	24.87	-0.2304
21	Bhurat	*Cenchrus biflorus*	8.58	5.22	6.82	20.62	-0.2107
22	Sheda Grass	*Dichanthium annulatum*	6.34	4.48	5.88	16.70	-0.1750
23	Kans Grass	*Saccharun spontaneum*	7.95	2.74	12.06	22.75	-0.2013
24	Munja Grass	*Saccharum munja*	9.12	3.48	10.86	23.46	-0.2183
							2.9636

Note: R.D.=Relative Density, R.F.= Relative Frequency, R.Dom.= Relative Dominance,IVI= Importance Value Index, SWD Index $H= -\sum P_i (\ln P_i)$= Shanon – Weaver Index

Sparse vegetation of herbs and grasses were present in buffer zone. Doob grass (Cynodon dactylon,) and Munja (Saccharum munja) were dominant species (IVI-24.87 & 23.46). The other dominant species in buffer zone were Kans grass(Saccharun spontaneum, IVI-22.75) and Bhurat (Cenchrus biflorus, IVI-20.62) .

Threat Status of the floristic diversity:

Flora recorded from the study sites during the survey when compared with the available literature revealed that none of the species recorded from the region fall under any category of threat status.

Table 1.3 Results of Phytosociology study of woody vegetation of Balda Bir Reserve forest

Khejri and Dhak trees were more in number then the other species . Shrubs i.e. ber and wild sage were more then the other shrubs in Balda Reserve forest.

S.No	Common Name of Species	Binomial Name of Species	Types		
			Tree	Shrub	Herb
1	Chakwa	*Anogeissus pendula*	+	-	-
2	Vilayati babool	*Acacia nilotica*	+	-	-
3	Khejri	*Prosopis cineraria*	++	-	-
4	Ber	*Ziziphus nummularia*	-	++	-
5	Aak	*Capparis decidua*	-	++	-
6	Dhak	*Butea monosperma*	++	-	-
7	Wild sage	*Lantana camera*	-	+++	-
8	Thor	*Euphorbia neriifolia*	-	++	-
9	Neem	*Azadirachta indica*	+	-	-

Table 1.4 Results of Phytosociology study of woody vegetation of Maila God Reserve forest

S.No	Common Name of Species	Binomial Name of Species	Types		
			Tree	Shrub	Herb
1	Chakwa	*Anogeissus pendula*	+++	-	-
2	Vilayati babool	*Acacia nilotica*	+	-	-
3	Khejri	*Prosopis cineraria*	++	-	-
4	Ber	*Ziziphus nummularia*	-	++	-
5	Aak	*Capparis decidua*	-	+	-
6	Dhak	*Butea monosperma*	+	-	-
7	Wild sage	*Lantana camera*	-	++	-
8	Thor	*Euphorbia neriifolia*	-	+	-
9	Chural	*Acacia leucophloea*	+	-	-

It was observed that *Anogeissus pendula* and *Prosopis cineraria* were two most dominant trees species in protected forest of Maila God Reserve forest while the other species less in number. In shrubs aak and ber were more in number.

2. Faunal study:

i. Avifauna

Point count method was followed for counting the birds. Opportunistic surveys were also carried out with respect to avifaunal checklist. Identification by calls was also made for species which were not directly encountered or were hidden in the vegetation or canopy. Secondary data collected from the literature.

ii. Herpetofauna

Amphibians and reptiles recorded during area searches were identified by visual characteristics. Aquatic searches involved examining each type of aquatic habitat.

iii. Mammals

Presence of mammals were documented by using both direct sightings and indirect evidences i.e. animal burrows/holes, scats, pellets, droppings and tracks. Opportunistic sightings were also included. Circular Plots were used to search indirect evidences.

Fauna of Project study area:

During the study in the field and concern with local stakeholder, 11 species of Mammals, 6 species of Reptiles, 2 species of Amphibians, and 43 species of Birds were recorded on project study area.

Table 1.6 Fauna were recorded in Core and Buffer Zone of Project Study Site

S.No	Common Name	Binomial Name of Species	Family	Schedule IW(P)A / IUCN	Core area	Buffer Area
	Mammals					
1	Nilgai	*Boselaphus tragocamelus*	Bovidae	III	-	+
2	Langur	*Presbytis entallus*	Cercoppithecidae	II	-	+
3	Bandar	*Macaca mulatta*	Cercoppithecidae	II	-	+
4	Jackal/Siyar	*Canis aureus*	Canidae	II	-	+
5	Hare	*Lepus nigricollis*	Leporidae	IV	+	+
6	House Rat	*Rattus rattus*	Muridae	V	-	+
7	Common Mongoose	*Herpestes edwardsii*	Herpestidae	II	-	+
8	Four Striped Palm Squirrel	*Funambulus pennanti*	Sciuridae	IV	+	+
9	Jungle cat	*Felis chaus*	Pteropodidae	II	-	+
10	Sloth Bear	*Melursus ursinus*	Ursidae	I	-	+
11	Panther	*Panthera pardus*	Felidae	I	-	+
	Reptiles					
10	Red sand Boa	*Eryx johnii*	Boidae	V	-	+
11	Brahminy Skink/ Bahmani	*Mabuya carinata*	Scincidae	LC	+	+
12	Common Garden Lizard/Girgit	*Calotes versicolor*	Agamidae	LC	+	+
13	House Gecko/Chhipkali	*Hemidactylus flaviviridis*	Gekkonidae	LC	-	+
14	Kobra	*Naja naja*	Elapidae	II	-	+
15	Starred Tortoise Kachhua	*Geochelone elegans*		IV		
	Amphibians					
16	Indian Bull Frog	*Hoplobatrachus* tigerinus	Dicroglossidae	IV	-	+
17	Indian cricket Frog	*Fejervarya limnocharis*	Dicroglossidae	IV	-	+
	Pisces: Not observed any species because seasonal water body were present there.					

Table 1.7 Avifaunal species recorded on project study area

S.No.	Common Name	Scientific Name	Family	Schedule IW(P)A / IUCN	Core area	Buffer Area
1	Black ibis	*Pseudibis papillosa*		IV	-	+

2	Black-headed Ibis	*Threskiornis melanocephalus*		IV	-	+
3	Painted stork	*Mycteria leucocephala*	Ciconiidae	IV	-	+
4	Common Sandpiper	*Actitis hypoleucos*	Scolopacidae	IV	-	+
5	Pied Kingfisher	*Ceryle rudis*	Cerylidae	IV	-	+
6	Indian Pond Heron	*Ardeola grayii*	Ardeidae	IV	-	+
7	Common coot	*Fulica atra*	Rallidae	IV	-	+
8	Grey Heron	*Ardea cinerea*	Ardeidae	IV	-	+
9	Red-wattled lapwing	*Vanellus cinereus*	Charadriidae	IV	-	+
10	Baya weaver	*Ploceus philippinus*	Ploceidae	IV	+	+
11	Grey francolin	*Francolinus pondicerianus*	Phasianidae	IV	+	+
12	Peafowl	*Pavo cristatus*	Phasianidae	I	-	+
13	Green bee-eater	*Merops orientalis*	Meropidae	LC	+	+
14	Lesser coucal	*Centropus bengalensis*	Cuculidae	IV	-	+
15	Rose-ringed parakeet	*Psittacula krameri*	Psittacidae	IV	-	+
16	White-throated kingfisher	*Halcyon smyrnensis*	Halcyonidae	IV	-	+
17	House swift	*Apus affinis*	Apodidae	LC	-	+
18	Rock pigeon	*Columba livia*	Columbidae	IV	-	+
19	Laughing dove	*Streptopelia enegalensis*	Columbidae	IV	+	+
20	Eurasian dove	*Streptopelia decaocto*	Columbidae	IV	-	+
21	Red Collared dove	*Streptopelia tranquebarica*	Columbidae	IV	-	+
22	Little egret	*Egretta garzetta*	Ardeidae	IV	-	+
23	Cattle egret	*Bubulcus ibis*	Ardeidae	IV	+	+
24	House crow	*Corvus splendens*	Corvidae	IV	-	+
25	Black drongo	*Dicrurus macrocercus*	Dicruridae	IV	+	+
26	Indian robin	*Saxicoloides fulicata*	Muscicapidae	IV	+	+
27	Asian Pied starling	*Sturnus contra*	Sturnidae	IV	-	+
28	Common myna	*Acridotheres tristis*	Sturnidae	IV	-	+
29	Red-vented bulbul	*Pycnonotus cafer*	Pycnonotidae	IV	+	+
30	Jungle crow	*Corvus macrorhynchos*	Corvidae	IV	-	
31	Jungle babbler	*Turdoides striatus*	Leiothrichidae	IV	+	+
32	Purple sunbird	*Nectarinia asiatica*	Nectariniidae	IV	-	+
33	House sparrow	*Passer domesticus*	Passeridae	IV	-	+
34	White-browed wagtail	*Motacilla maderaspatensis*	Motacillidae	LC	-	+
35	Yellow wegtail	*Motacilla flava*	Motacillidae	LC	-	+
36	Little cormorant	*Microcarbo niger*	Phalacrocoracidae	IV	-	+
37	Black wing Still	*Himantopus*	Recurvirostrida	IV	-	+

		himantopus	e			
38	Pied Bush chat	*Saxicola caprata*	Muscicapidae	IV	-	+
39	Ashy Warn- Warbler	*Prinia socialis*	Cisticolidae	IV	+	+
40	Wood piker	*Chrysocola ptes festivus*	Picidae	IV	-	+
41	White-breasted waterhen	*Amaurornis phoenicurus*	Rallidae	IV	-	+
42	Rufous tree pie	*Dendrocitta vagabunda*	Corvidae	IV	-	+
43	Spotted bill duck	*Anas poecilorhyncha*	Anatidae	IV	-	+



Dicrurus macrocercus



Bubulcus ibis



Streptopelia capicola



Pycnonotus cafer



Acridotheres tristis



Vanellus indicus



Turdoides striatus



Funambulus pennanti

Fig. -- Photo- Avifauna of study area

3.0 Aquatic diversity

Riparian, free floating and submerge vegetation were observed in project study area which are described in Table 1.8.

Table 1.8 Aquatic vegetation recorded in project study area

S.No.	Local name	Scientific Name	Family
1	Nutgrass, Coco	*Cyperus rotundus*	*Cyperaceae*
2	Knotweed	*Polygonum species*	*Polygonaceae*
3	-	*Phragmites karka*	*Poaceae*
4	-	*Scirpus cernuus*	*Cyperaceae*
5	Giant Duckweed	*Spirodela polyrhiza*	*Araceae*
6	Era	*Typha elephantina*	*Typhaceae*

4.0 Endangered Species

Panther, Sloth bear and peafowl were recorded during the site visit .Therefore, conservation plan have submitted to DFO of Sirohi district, Rajasthan.

5.0 Eco-sensitive Zone

Mount Abu Wildlife Sanctuary is present at a distance of 7.1km in East of Sipu River from buffer zone. There is no National Park or Biosphere Reserves in the Core as well as buffer zone.

IMPACTS - DUE TO MINES

NATURE OF IMPACTS

Impact of mining on land environment gets reflected in land-use pattern of the respective area because the more the land gets exposed to erosion by loosing its green cover or by getting disturbed otherwise due to mining and related activities, its water resources gets damaged, soils get contaminated, part or total of flora and fauna gets lost, air and water gets polluted and the more damages go on proceeding in accelerated rates and the cumulative effects push the land towards degradation.

Mines and their associated infrastructure may impact terrestrial flora and fauna in diverse ways during operational phase. The main impacts the loss and fragmentation of habitats, with a consequent loss of biodiversity and possibly loss of species of special concern. This may result from direct land clearance, or occur indirectly via loss or changes in habitats due to consequent changes in drainage patterns, increased fire risk, or secondary impacts associated socio-economic factors resulting from changes in surrounding land use. During the operational life of the mine, small accumulative impacts also occur Including ongoing mortalities resulting from increased road traffic, increased disturbance (noise and light), dust generation, air pollution, increased litter and change in the incidence of fire. All of these factors may impact the surrounding fauna and ecological processes in different ways.

However, in most of the cases it has been observed that the damage due to mining activity has been reflected on decrease in green cover or water resource or both. Greenery bears a pivotal role in protecting the quality of all aspects of environment, also in many cases it is considered as a desired indicator of protector of environmental quality in the region. Regarding desired land use pattern, our National Forest Policy has fixed the national average forest cover at 33%. This fact indicates that there is still some drawback in the land-use management system. Strategies need to be developed including policy intervention, promoting research and stakeholder participation, and technological intervention to check land degradation.

EXISTING IMPACTS:

Many existing impacts occur in the region, particularly the loss of sensitive habitats (via primary destruction and secondarily via contamination), loss of faunal diversity (particularly large mammals and birds), loss of species of special concern, and disruption to faunal movements. The direct impacts of mining disturbances to land surfaces are usually significant, with the likelihood of destruction of local biodiversity within natural ecosystems

through the removal of natural soils, plants and animals. However, mining is a temporary land use because the mineral deposit is finite and eventually gets exhausted.

The Key environmental problem and impacts of mining /quarrying are:

- Degradation of forest and loss of biodiversity
- Air and noise pollution
- Surface and ground water pollution
- Land degradation
- Environmental degradation due to abandoned and closed mine

MITIGATION MEASURES

The impact on land cannot be fully eliminated because there are some mining impacts such as loss of agricultural land, water pollution, fall in water table etc are inevitable but its impact can be reduced to an acceptable level by adopting suitable mitigation measures and by doing adequate planning at the initial stage of mine development. Setting aside or exclusion of critically important areas, compensatory afforestation, creation of green belts, rehabilitation of species or individuals are basic actions taken for mitigation of impact. While creating green belt and undertaking the afforestation works, it is required to plant indigenous/local plants and as far as possible exotics should not be introduced. The cost of eco-restoration of the site should be included in the project cost. Some of the land related mitigation measures are as follows:

- Topsoil can be conserved by implementing adequate mitigation and cons -ervation plan.
- Open area should be planted with trees.
- Stabilization of overburden dumps by mechanical and biological reclamation.
- No mining in area support unique habitant, endemic, threatened or declining species, or species of high economic and cultural value to society.
- Natural drains or nallah should not be disturbed; Incase of diversion - alignments should be made by constructing artificial drain.

Plantation is a principal goal of reclamation and results in many desirable secondary water quality and aesthetic benefits. Plantation goals are from simple erosion control to the full restoration of complex native communities. The approaches and protocols employed, therefore, are specific for region, site and land use. The development of a permanent vegetation cover should aim to establish a plant community that will maintain itself indefinitely without attention or artificial aid, and support native fauna. To extract better results, some ecological variables must be considered while selecting species for plantation. These are; their capacity to stabilize soil, soil organic matter and available soil nutrients, and under storey development. In the initial stages of revegetation quick growing grasses with

short life cycle and forage crops are recommended. It will improve the nutrient and organic matter content in soil. Plantation of mixed species of economic importance should be done after 2-3 years of growing grasses. While selecting suitable species for plantation in mine area, the following considerations have to be taken into account:

- Planting, pollutant tolerant species.
- Plants of fast growing with thick vegetation foliage
- Indigenous plants species with easy adaptability to the locality.
- Socio economic requirement of the people of the surrounding area.

There is need for creating green belt (approximately 7.5 to 15 m wide) in the safety area to provide an effective dust, noise and sight curtain in the periphery of the mining area. The trees to be planted in the green belt area shall act as buffers and shock absorber against dusts, noise and stone flying. Trees in the green belt will be tall, wind firm, broad leaved and evergreen.

Greenbelt development program will be designed within the natural constraints of the river sand area and in particular species selection reflects flora known to be resistant to the local conditions.

A Greenbelt development is necessary for:

1) Landscaping and providing shelter
2) Help in reducing Pollution level
3) Surface air purification by providing oxygen and letting SPM to settle on the leaves.
4) To attenuate noise generation by movement of vehicles and other machinery.
5) Prevent soil erosion to great extent
6) Improve ecological conditions.
7) Improves the aesthetics & beneficially influence the microclimate of the surrounding.

SPECIES FOR PLANTATION AND GREEN BELT DEVELOPMENT

The species selected for plantation will be of mixed type having a combination of fast and slow growing species with an ultimate aim to have triple storey plantation i.e. a combination of species of tall, intermediate and short height in zigzag lining. A list of the species suggested for afforestation is giving for the development of mining site for sustainable environment of area. All these plants and shrubs can be cultivated in less water and have tolerance power of heat and dry conditions of atmosphere.

SUGGESTED PLANTS FOR RECLAMATION OF THE MINING SITE

TREE		
S. No	**Species name**	**Binomial name**
1	Shisham	*Delbergia sisso*
2	Ardu or Mahaneem	*Ailanthus excelsa*
3	Khejri	*Prosopis cineraria*
4	Indian Elm	*Holoptelea integrifolia*
5	Siris tree	*Albizia lebbeck*
6	Rohira	*Tecomell undulata*
7	Imli	*Tamarindus indica*
8	Babool	*Acacia nilotica*
9	Jungle Jalebi	*Pithecellobium dulce*
10	Ronj	*Acacia leucophloea*
11	Neem	*Azadirachta indica*
12	Ber	*Zizyphus mauritiana*
SHRUBS / HERBS		
1	Munja grass	*Saccharum munja*
2	Peeli Kaner	*Thevetia peruviana*
3	Vilayati Babool	*Prosopis juliflora*
4	Arandi	*Ricinus cummunis*
5	Kaner	*Nerium Indicum*
6	Sarphonka	*Tephrosia hamiltonii*
7	"Red (Yellow, Wild) Sage"	*Lantana camara*
8	Kans grass	*Saccharum spontaneum*
9	Bui	*Aerva tomentosa*

CONSERVATION MEASURES

Ecological restoration is about a broad set of activities (enhancing, repairing, or reconstructing degraded ecosystems and optimizing biodiversity returns). In essence, the restoration of mined land is based around ecosystem reconstruction. It is usually a question of the re-establishment of the capability of the land to capture and retain fundamental resources (energy, water, nutrients and species). With this view, it is proposed to plant the trees and undertake development of green belt in the project area at all possible places. As a trend, the faunal population is on decreasing trend in general. Arrangement of adequate funds has been made for enhancing, repairing, or reconstructing degraded ecosystems and optimizing biodiversity returns.

Suggestion for conservation of Threatened Species

Direct and indirect approach is required to provide effective conservation, which is suggested as under.

- Some provision of rewards for growing maximum threatened plant species.
- Aware the villagers and encourage them to grow threatened plant species in their farms by mentioning their medicinal and economic value.

- Other way to help preserve the endangered species is to create society dedication towards the ecological ethics. All the conservation measures will be implemented with the help of and in the consultation of the state forest department.
- Organized workshop for conservation awareness of threatened plant species. A series of conservation awareness workshops for village and school children should be conducted in the different villages. Interactive discussion will be carried out participants.
- Encourage afforestation activities around by maintaining them.
- Suggest strategies to minimize negative impacts of changing environment in nearby area of promote conservation.

The lease is in the river bed and devoid of any vegetation. Mining activities will not cause any harm to riparian vegetation cover as the working will not extend beyond the offset left against the banks. It is proposed to have plantation on both sides of the roads & along the bank of river as greenbelt to provide cover against dust dissemination plantation will also be carried out as social forestry programmed in villages school and the areas allocated by the Panchayat / State authorities. Green belts are created not only for the purpose of protecting sensitive areas or to maintain ecological balance but also act as efficient biological filters. Green belt development provides an important tool to address the issue of mitigating the adverse effect of fugitive emission on surrounding environment.

CONCLUSION

The present study of Biological Impact Assessment (BIA) with the objective is to minimize adverse environmental impacts as discussed. It was observed that trees and herbs are quite better number in buffer zone then the core zone. The study covers all possible environmental issues involved in the project and the necessary mitigation measures. The present study reveals that only local and native species of plants (Trees, shrubs, herbs and grasses) were present at the buffer zone of mining site. No adverse impact of mining site was noticed on the flora and fauna present nearby area of mines.

Schedule I faunal species was observed nearby the mining area therefore, conservation plan is giving along this study. The habitats of human beings were far from the mining site therefore the air pollution and other environmental Impact will be negligible. Taking appropriate mitigation measures for enhances the surrounding environment of the mining site and the nearby area is our sole responsibility for the “Sustainable Environment”.

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ANNEXURE-16

(Cumulative joint traffic study)

CUMULATIVE JOINT TRAFFIC STUDY

1.0 INTRODUCTION

European Commission guidelines (European Commission, 1999)
Define 'cumulative impacts' as follows: 'Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project'.

There are 4 river sand mining leases are located nearby, those are as follows:

1. River Sand (Bajri) from 26.40 Lac TPA. Lease area of this mine is 2527 ha at Tehsil - Sirohi, District - Sirohi (Rajasthan).
2. River Sand (Bajri) from 28.05 Lac TPA. Lease area of this mine is 1286 ha at Tehsil-Reodar, District - Sirohi (Rajasthan).
3. River Sand (Bajri) from 28.05 Lac TPA. Lease area of this mine is 1414 ha at Tehsil-Sheoganj District - Sirohi (Rajasthan).
4. River sand (Bajri) from 48.0 Lac TPA. Lease area of this mine is 588.14 ha at Tehsil-Pindwara District - Sirohi (Rajasthan).

Independent as well as Cumulative joint traffic study has been done for all four projects. Cumulative impacts on highways calculated by adding impacts of all independent projects. Proposed Traffic will be distributed on different roads to different destinations, so negligible impact will be occurred on particular road.

1.1 Methodology

(i) **Volume (flow)** is the number of vehicles that pass through a given point on the road during a designated time interval. The time unit selected is an hour or a day.

(ii) **Capacity:** The maximum hourly volume (Vehicle per hour) at which vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under the prevailing roadway, traffic and control conditions.

(iii) **LOS (Level of Services):** A qualitative measurement describing operational conditions within a traffic stream and their perception by drivers/passengers.

CAPACITY AS PER IRC: 64 (1990)

Volume/ Capacity	Level of Services	Performance
0.0-0.2	A	Excellent
0.2-0.4	B	Very Good
0.4-0.6	C	Good/Average/Fair
0.6-0.8	D	Poor
0.8-1.0	E	Very Poor

IMPACTS ON HIGHWAYS BY INDEPENDENT RIVER SAND MINE

River Sand (Bajri) from 26.40 Lac TPA. Lease area of this mine is 2527 ha at Tehsil - Sirohi, District - Sirohi (Rajasthan).

Total Capacity of Mine : 2640000Tonne per Annum

Number of Working Days : 330 Days

Truck Capacity : 20 Tonne

Number of Trucks Deployed : 350 Trucks

Number of Trolley Deployed : 250 Trolley

Working Hours per day : 8 Hours

There will be 8,000 TPD production @ 26, 40,000 Lac TPA. Increased traffic due to proposed production will be distributed to different routes to different cities because all blocks is treated as separate mine due to long starch of mine lease area.

Mineral will be transported by Trucks and Trolleys. It is assumed that mineral will be transported to local market by trolleys and tucks but major consumption of mineral will be in cities as **Sheoganj, Sirohi, Jalore, Abu Road** etc. connecting via route SH-38, SH-27, SH-31.

Table- 1Details of Existing vehicle on major roads observed during field study on routes

		SH-38		SH-27		SH-31		MDR (Reodar- Jaswantpur)	
Design service volume PCU/Day (C)		15000		15000		15000		5800	
Type of Vehicle	PCU Factor	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)
Car/ jeep/ van	1.0	217	217	148	148	156	156	54	54
Two wheeler,	0.5	169	85	156	78	128	64	68	34
Trucks	3.0	240	720	172	516	154	462	78	234
trolleys,	1.5	141	211	78	117	69	104	43	65
Total		767	1233	554	859	507	786	243	387
Proposed V/C Ratio		0.08		0.05		0.05		0.06	
Level of Service (LOS)		"A"		"A"		"A"		"A"	

V= Volume in PCU's/Day C=Capacity in PCU's/Day

Addition to Traffic due to proposed Project

		SH-38		SH-27		SH-31		MDR (Reodar-Jaswantpur)	
Design service volume PCU/Day (C)		15000		15000		15000		5800	
Type of Vehicle	PCU Factor	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)
Trucks	3.0	300	900	200	600	150	450	50	150
trolleys,	1.5	200	300	150	225	125	188	25	37
Total		500	1200	350	825	275	638	75	187

Impact on Carrying capacity of SH-38, SH-27, SH-31

About 2.64 million tonne of material / annum shall be transported through SH-38, SH-27, SH-31, and will be 8,000 tonne / day, which will be transported by 350 trucks (20 tonne capacity) and 250 trolleys (4 tonne capacity) shall be deployed. The trucks shall make one loaded and unloaded journey every day. It is thus apparent that the additional traffic load due to mining shall be **2850 PCU/day** which will be distributed to different roads to different destination.

Table-2 Incremental rise in existing average daily traffic due to proposed transport activity

		SH-38		SH-27		SH-31		MDR (Reodar-Jaswantpur)	
Design service volume PCU/Day (C)		15000		15000		15000		5800	
Type of Vehicle	PCU Factor	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)
Car/ jeep/ van	1.0	217	217	148	148	156	156	54	54
Two wheeler,	0.5	169	85	156	78	128	64	68	34

Trucks	3.0	540	1620	372	1116	304	912	128	384
trolleys,	1.5	341	511	228	342	194	291	68	102
Total		1267	2433	904	1684	782	1423	318	574
Proposed V/C Ratio		0.16		0.11		0.09		0.098	
Level of Service (LOS)		"A"		"A"		"A"		"A"	

Results

Based on the above analysis, it is clear that the Volume/Capacity ratio is likely to change to 0.09 to 0.16 with LOS being "A" which is categorized as 'excellent' as per classification given in IRC: 64 (1990). So the additional load on the carrying capacity of the concerned road is not likely to have any significant adverse affect at all.

Production per day = 8,000 TPD @ 330 days of working per annum

Since we assume trucks of 20 tones and Trolley of 4 tone carrying capacity. There are 11 blocks having stretch of around 8-9 Km of each. There will be maximum trolley assumed per block is 20-25 and trucks per block will be 30-35. Separate route for each block will be maintained so that congestion on any route does not take place

River Sand (Bajri) from 28.05 Lac TPA. Lease area of this mine is 1286 ha at Tehsil-Reodar, District - Sirohi (Rajasthan).

Total Capacity of Mine	:	2805000 TonnePer Annum
Number of Working Days	:	330 Days
Truck Capacity	:	20 Tonne
Number of Trucks Deployed	:	350 Trucks
Number of Trolley Deployed	:	375 Trolley
Working Hours per day	:	8 Hours

There will be 8500 TPD production @ 2805000 lac TPA. Increased traffic due to proposed production will be distributed to different routes to different cities because all blocks is treated as separate mine due to long starch of mine lease area.

Mineral will be transported by Trucks and Trolleys. It is assumed that mineral will be transported to local market by trolleys and tucks but major consumption of mineral will be in cities as Sirohi,

Abu Road, Mandar and Jaswantpur and connecting via route SH-27, SH-11 and Reodhar-Jaswantpur District Road.

Table- 3 Details of vehicle on major roads observed during field study on routes

		SH-27		SH-11		MDR (Reodar- Jaswantpur)	
Design service volume PCU/Day (C)		15000		15000		5800	
Type of Vehicle	PCU Factor	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)
Car/ jeep/ van	1.0	148	148	345	345	54	54
Two wheeler,	0.5	156	78	265	132.5	68	34
Trucks	3.0	172	516	357	1071	78	234
trolleys,	1.5	78	117	98	147	43	65
Total		554	859	1065	1696	243	387
Proposed V/C Ratio		0.05		0.11		0.06	
Level of Service (LOS)		"A"		"A"		"A"	

Addition to Traffic due to proposed Project

		SH-27		SH-11		MDR (Reodar- Jaswantpur)	
Design service volume PCU/Day (C)		15000		15000		5800	
Trucks	3.0	400	1200	230	690	70	210
trolleys,	1.5	327	491	214	321	209	314
Total		727	1691	444	1011	279	524

Impact on Carrying capacity of SH-27, SH-11and ReodharJaswantpur-MDR

About 2.8 million tonne of material / annum shall be transported through SH-27, SH-11and ReodharJaswantpur-MDR, this tantamount to 8500 tonne / day for transportation of which 350 trucks (20 tonne capacity) and 375 trolleys (4 tonne capacity) shall be deployed. The trucks shall make one loaded and unloaded journey every day. It is thus apparent that the additional traffic load due to mining shall be **3226 PCU/day** which will be distributed to different roads to different destination.

Table-4 Incremental rise in existing average daily traffic due to proposed transport activity

		SH-27		SH-11		MDR (Reodar- Jaswantpur)	
Design service volume PCU/Day (C)		15000		15000		5800	
Type of Vehicle	PCU Factor	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)
Car/ jeep/ van	1.0	148	148	345	345	54	54
Two wheeler,	0.5	156	78	265	265	68	34
Trucks	3.0	572	1716	587	1761	148	444
trolleys,	1.5	405	608	312	468	252	378
Total		1281	2550	1509	2839	522	910
Proposed V/C Ratio		0.17		0.18		0.15	
Level of Service (LOS)		"A"		"A"		"A"	

Results

Based on the above analysis, it is clear that the Volume/Capacity ratio is likely to change to 0.15 to 0.18 with LOS being "A" which is categorized as 'excellent' as per classification given in IRC: 64 (1990). So the additional load on the carrying capacity of the concerned road is not likely to have any significant adverse affect at all.

Production per day = 8500 TPD @ 330 days of working per annum

Since we assume trucks of 20 tones and Trolley of 4 tone carrying capacity. There are 7 blocks having starch of around 9 Km. There will be maximum trolley assumed per block is 50-55 and trucks per block will be about 50-55. Separate route for each block will be maintained so that congestion on any route does not take place.

River Sand (Bajri) from 28.05 Lac TPA. Lease area of this mine is 1414 ha so it comes in Category 'A' project at Tehsil- Sheoganj District - Sirohi (Rajasthan).

Total Capacity of Mine : 28,05,000Tonne per Annum
Number of Working Days : 330 Days
Truck Capacity : 20 Tonne
Number of Trucks Deployed : 375 Trucks
Number of Trolley Deployed : 250
Working Hours per day : 8 Hours

There will be 8,500 TPD production @ 28,05,000 Lac TPA. Increased traffic due to proposed production will be distributed to different routes to different cities because all blocks is treated as separate mine due to long starch of mine lease area.

Mineral will be transported by Trucks and Trolleys. It is assumed that mineral will be transported to local market by trolleys and tucks but major consumption of mineral will be in **cities as Sheoganj, Sirohi, Jalore, Abu Road etc. connecting via route NH-14,SH-38 and by Dhruwana- Jaitpura Rd. (MDR).**

Table-5 Details of vehicle on major roads observed during field study on routes

		NH-14		SH-38		MDR (Dhruwana- Jaitpura)	
Design service volume PCU/Day (C)		35000		15000		5800	
Type of Vehicle	PCU Factor	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)
Car/ jeep/ van	1.0	289	289	217	217	43	43
Two wheeler,	0.5	179	90	169	85	78	39
Trucks	3.0	440	1320	240	720	58	174
trolleys,	1.5	188	282	141	211	33	49.5
Total		1096	1981	767	1233	212	306
Proposed V/C Ratio		0.05		0.08		0.05	
Level of Service (LOS)		“A”		“A”		“A”	

Addition to Traffic due to proposed Project

		NH-14		SH-38		MDR (Dhruwana- Jaitpura)	
Design service volume PCU/Day (C)		35000		15000		5800	
Trucks	3.0	400	1200	300	900	50	150
trolleys,	1.5	265	398	200	300	35	52
Total		665	1598	500	1200	85	202

Impact on Carrying capacity of NH-14, and MDR

About 2.805 million tonne of material / annum shall be transported through NH-14, SH-38 and by Dhruwana- Jaitpura Rd. (MDR) will be 8,500 tonne / day, which will be transported by 375 trucks (20 tonne capacity) and 250 trolleys (4 tonne capacity) shall be deployed. The trucks shall make one loaded and unloaded journey every day. It is thus apparent that the additional traffic load due to mining shall be **3000 PCU/day** which will be distributed to different roads to different destination.

Table-6 Incremental rise in existing average daily traffic due to proposed transport activity

		NH-14		SH-38		MDR (Dhruwana-Jaitpura)	
Design service volume PCU/Day (C)		35000		15000		5800	
Type of Vehicle	PCU Factor	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)
Car/ jeep/ van	1.0	289	289	217	217	43	43
Two wheeler,	0.5	179	89	169	85	78	39
Trucks	3.0	840	2520	540	1620	108	324
trolleys,	1.5	453	679	341	512	68	102
Total		1761	3577	1267	2434	297	508
Proposed V/C Ratio		0.10		0.16		0.08	
Level of Service (LOS)		“A”		“A”		“A”	

Results

Based on the above analysis, it is clear that the Volume/Capacity ratio is likely to change to 0.07 to 0.13 with LOS being "A" which is categorized as 'excellent' as per classification given in IRC: 64 (1990). So the additional load on the carrying capacity of the concerned road is not likely to have any significant adverse affect at all.

Production per day = 8,500 TPD @ 330 days of working per annum

Since we assume trucks of 20 tones and Trolley of 4 tone carrying capacity. There are 4 blocks having stretch of around 8-9 Km of each. There will be maximum trolley assumed per block is 40-45 and trucks per block will be 60-65. Separate route for each block will be maintained so that congestion on any route does not take place.

1.1.1 Tehsil- Pindwara

Total Capacity of Mine	:	48.0 Lac TonnesPer Annum
Number of Working Days	:	300 Days
Truck Capacity	:	20 Tonne
Number of Trucks Deployed	:	700 Trucks
Number of Trolley	:	500 Trolley
Working Hours per day	:	8 Hours

There will be 16,000 TPD production @ 48.0 lac TPA. Increased traffic due to proposed production will be distributed to different routes to different cities because all blocks is treated as separate mine due to long starch of mine lease area.

Mineral will be transported by Trucks and Trolleys. It is assumed that mineral will be transported to local market by trolleys and tucks but major consumption of mineral will be in cities as Sirohi, Abu Road, Mandar and Jaswantpur and connecting via route NH-14, NH-927A and SH- 62.

Table- 7 Details of vehicle on major roads observed during field study on routes

		NH-14		NH- 927 A		SH- 62	
Design service volume PCU/Day (C)		35000		15000		15000	
Type of Vehicle	PCU Factor	No. of vehicle	No. of	No. of vehicle	No. of	No. of vehicle /	No. of PCU/

		/ day	PCU/ Day (V)	/ day	PCU/ Day (V)	day	Day (V)
Car/ jeep/ van	1.0	289	289	236	236	267	267
Two wheeler,	0.5	179	89.5	389	194.5	359	179.5
Trucks	3.0	440	1320	342	1026	135	405
trolleys,	1.5	188	282	192	288	123	184.5
Total		1096	1981	1159	1745	884	1036
Proposed V/C Ratio		0.05		0.04		0.06	
Level of Service (LOS)		"A"		"A"		"A"	

Addition to Traffic due to proposed Project

		NH-14		NH- 927 A		SH- 62	
Design service volume PCU/Day (C)		35000		15000		15000	
Type of Vehicle	PCU Factor	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)
Trucks	3.0	1000	3000	200	600	200	600
trolleys,	1.5	600	900	200	300	200	300
Total		1600	3900	400	900	400	900

Impact on Carrying capacity of NH-14, NH-927A and SH-62

About 4.8 million tonne of material / annum shall be transported through NH-14, NH-927A and SH-62. Total production of mineral will be 16,000 tonne / day and total 700 trucks (20 tonne capacity) and 500 trolleys (4 tonne capacity) shall be deployed. The trucks shall make one loaded and unloaded journey every day. It is thus apparent that the additional traffic load due to mining shall **be 5700 PCU/day** which will be distributed to different roads to different destination.

Table- 8 Incremental rise in existing average daily traffic due to proposed transport activity

		NH-14		**NH- 927 A**		**SH- 62**	
Design service volume PCU/Day (C)		35000		15000		15000	
Type of Vehicle	PCU Factor	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)	No. of vehicle / day	No. of PCU/ Day (V)
Car/ jeep/ van	1.0	289	289	236	236	267	267
Two wheeler,	0.5	179	90	389	195	359	180
Trucks	3.0	1440	4320	542	1626	335	1005
trolleys,	1.5	788	1182	392	588	323	485
Total		2696	5881	1559	2645	1284	1937
Proposed V/C Ratio		0.16		0.17		0.12	
Level of Service (LOS)		"A"		"A"		"A"	

Results

In the context of river sand mining project of based on the above analysis, it is clear that the Volume/Capacity ratio is likely to change to 0.06 to 0.13 with LOS being "B" and "A" respectively which is categorized as 'Very Good' and 'Excellent' as per classification given in IRC: 64 (1990). So the additional load on the carrying capacity of the concerned road is not likely to have any significant adverse affect at all.

Production per day = 16,000 TPD

Since we assume trucks of 20 tones and Trolley of 4 tone carrying capacity. There are 7 blocks having starch of around 12-14 Km. There will be maximum trolley assumed per block is 65-70 and trucks per block will be about 50-55. Separate route for each block will be maintained so that congestion on any route does not take place.

2.0 CUMULATIVE IMPACTS

Cumulative impacts due to the proposed river sand projects will be negligible because mineral will be transported to different destinations by different mines. All mines are also divided in several blocks so mineral will be transported by easy approachable roads to each block. Beside this only four major roads will be commonly use, that are SH-24, NH- 14, SH- 38 and Reodar-Jaswantpur MDR. Each road will be use in two common projects. Cumulative impacts on these roads will be as follows:

Cumulative Plan Enclosed as Plate- 7.

A. SH-27

SH- 27 will be use commonly by the projectSirohi&Reoadar. Incremental traffic on SH- 27 by both project is as follows:

Table- 9 Proposed Impacts on SH- 27

Design service volume PCU/Day (C)	Type of Vehicle	Existing Traffic density	Increment by Sirohi	Increment by Reodar	Total Incremented Volume (V)	Proposed V/C Ratio	Level of Service (LOS)
		No. of PCU/ Day (Volume)	No. of PCU/ Day (Volume)	No. of PCU/ Day (Volume)			
15000	Car/ jeep/ van	148	-	-	148	0.22	"B"
	Two wheelers	78	-	-	78		
	Truck	516	600	1200	2316		
	Tractor	117	225	491	833		
	Total	859	825	1691	3375		

B. MDR (Reodar- Jaswantpur)

Reodar- Jaswantpur MDR will be use commonly by the project Sirohi&Reoadar. Incremental traffic on MDR by both project is as follows:

Table- 9 Proposed Impacts on MDR

Design service volume PCU/Day (C)	Type of Vehicle	Existing Traffic density	Increment by Sirohi	Increment by Reodar	Total Incremented Volume (V)	Proposed V/C Ratio	Level of Service (LOS)
		No. of PCU/ Day (Volume)	No. of PCU/ Day (Volume)	No. of PCU/ Day (Volume)			
5800	Car/ jeep/ van	54	-	-	54	0.18	"A"
	Two wheelers	34	-	-	34		
	Truck	234	150	210	594		
	Tractor	65	37	314	416		
	Total	387	187	524	1098		

C. NH- 14

NH- 14 will be use commonly by the project Sheoganj&Pindwara. Incremental traffic on NH- 14 by both projects is as follows:

Table- 9 Proposed Impacts on NH- 14

Design service volume PCU/Day (C)	Type of Vehicle	Existing Traffic density	Increment by Sheoganj	Increment by Pindwara	Total Incremented Volume (V)	Proposed V/C Ratio	Level of Service (LOS)
		No. of PCU/ Day (Volume)	No. of PCU/ Day (Volume)	No. of PCU/ Day (Volume)			
35000	Car/ jeep/ van	289	-	-	289	0.21	"B"
	Two wheelers	90	-	-	90		
	Truck	1320	1200	3000	5520		
	Tractor	282	397	900	1579		
	Total	1981	1597	3900	7478		

D. SH- 38

SH- 38 will be use commonly by the project Sirohi&Sheoganj. Incremental traffic on SH- 38 by both projects is as follows:

Table- 9 Proposed Impacts on SH- 38

Design service volume PCU/Day	Type of Vehicle	Existing Traffic density	Increment by Sirohi	Increment by Sheoganj	Total Incremented Volume (V)	Proposed V/C Ratio	Level of Service (LOS)
		No. of	No. of	No. of			

(C)		PCU/ Day (Volume)	PCU/ Day (Volume)	PCU/ Day (Volume)			
15000	Car/ jeep/ van	217	-	-	217	0.24	"B"
	Two wheelers	85	-	-	85		
	Truck	720	900	900	2520		
	Tractor	211	300	301	812		
	Total	1233	1200	1201	3634		

RESULTS OF CUMULATIVE IMPACT

In the context of river sand mining project of based on the above analysis, it is clear that the Volume/Capacity ratio is likely to change to 0.18 to 0.24 with LOS being "B" and "A" respectively which is categorized as 'Very Good' and 'Excellent' as per classification given in IRC: 64 (1990). So the additional load on the carrying capacity of the concerned road is not likely to have any significant adverse affect at all.

ANNEXURE-17

(Occupational health and safety management plan)

1.1 OCCUPATIONAL HEALTH & SAFETY

The working conditions in the mines are governed by the enactments of the Directorate General of Mines Safety (DGMS). As per the guidelines of the Mines Act, the management will take all necessary precautions. Normal sanitary facilities will be provided within the lease area. The major health concerning areas in riverbed mining includes dust & noise and hygiene. The management will carry out periodic health check up of workers.

1.1.1 Anticipated Occupational & Safety Hazards:

- Health Impact due to
  - ✓ Physical activity
  - ✓ Extremes of age, poor physical condition, fatigue
  - ✓ Cardiovascular diseases
  - ✓ Skin disorders
- Dust exposure
- Noise

1.1.2 Mitigation measures to ensure OH&S

Following points will be taken care of during mine operation for assuring safety of workers:

1. Regular Health Awareness Programmes and camps will be organized.
2. Regular maintenance and testing of the machines and equipments. Best available techniques to be employed in mining.
3. The mine workers will be provided all necessary Personal Protective Equipment (Dust Masks & Boots) for their physical safe guard from dust & hygiene.
4. Speed of vehicles will be restricted to below 25km/hr to mitigate dust generation while transporting of sand(bajri).
5. The fresh employees when taken will be thoroughly medically examined under initial medical examination including chest X-ray, Blood pressure etc, and thereafter during continuation of employment; the periodic medical examination will be conducted.
6. Under initial vocational training, the workers will be given training related to all safety and health aspects pertaining to sand mining and thereafter every quarter, special training courses/ Awareness programme for Malaria eradication, HIV and health effects on exposure to mineral dust will be organized for employed person as well as for nearby villagers.

7. The Occupational Health Surveillance Programme: A team of qualified doctors and nurses will visit periodically for health check up of all the workers, team and its records is maintained properly.

NOISE:-

1. Since mining operations do not include any major source of generation of noise in the working area thus, noise levels are not of significant levels. However, ear plugs will be provided to all workers in the area.
2. Audiometery test of the workers shall be done regularly & medical health provided wherever required.

1.1.3 EMP for the Occupational Safety & Health hazards

The health of workers can be protected by adopting the following measures:

- Good Housekeeping practices
- Enclosure of core zone to prevent unauthorized access.
- Enforcement of usage of Personal Protective Equipments.
- Regular Work Environment Monitoring
- Air emission control systems such as water sprinklers

Frequency of Periodical Examination:

- ❖ For employees - <30 years once in a year
- ❖ Between 31-40 years once in a year
- ❖ Between 41-50 years twice in a year
- ❖ Above >50 years twice in a year

1.1.3.1 Plan for pre-placement and periodical health status of workers:

Pre-employment checkup will be made mandatory and following tests will be conducted for all employees:

1. Plan of evaluation of health of workers
2. Chest x-rays
3. Audiometry
4. ECG
5. Haemogram (examination of the blood)
6. Urine (Routine and Microscopic)
7. Complete physical examination

- Musculo-skeletal disorders (MSD)
- Backache
- Pain in minor and major joints
- Fatigue, etc.

1.1.3.2 Budget allocation for OH&S in EMP:

- Insurance cover to all workers engaged in mines shall be provided
- A recurring budget of Rs 7.50 lac per annum for OH&S is proposed in EMP.

Table 1.1-1 budgetary provisions for OHS

S.No.	Provisions	Budget (Recurring Cost) In Lakh
1.	Regular health check up camps for the workers engaged in mines shall be organized	0.5
2.	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;	0.5
3.	Insurance cover to all workers engaged in mines shall be provided;	2.0
4.	Common vocational training center shall be setup at district level;	1.50
5.	Local needs of habitant like school, crèche, hospital, veterinary hospital, sanitation, drinking water etc. shall be considered positively.	3.0
	Total	**7.50 Lakh**

ANNEXURE-18

(Submission receipt to NBWL)

sher singh <shersinghsolanki1286@gmail.com>

Email Alert From System Administrator of Online Submission and Monitoring of Wildlife Clearances Proposal(OSMWCP) portal

2 messages

monitoring-fc@nic.in <monitoring-fc@nic.in> Thu, Jul 23, 2015 at 11:40 AM
To: shersinghsolanki1286@gmail.com
Cc: monitoring-fc@nic.in

This is to acknowledge that a proposal seeking prior approval of Central Government under the Forest (Conservation) Act 1980 as per the details given below has been successfully uploaded on the portal of the Ministry of Environment, Forests and Climate Change Government of India.

1. Proposal No.	:	FP/RJ/MIN/94/2015
2. Proposal Name	:	River Sand Mining Project of M/s Sher Singh Solanki
3. Category of the Proposal	:	Mining
4. Date of Submission	:	23/07/2015
5. Name of the Applicant with Contact Details		
Name	:	Sher
Mobile No.	:	9799744347
State	:	Rajasthan
District	:	Jaipur
Pincode	:	302012
6. Protected Area (ha.)	:	0

The proposal will be examined by Wild Life Warden, Forest (Conservation) Act, 1980 to assess its completeness.

(System Administrator)

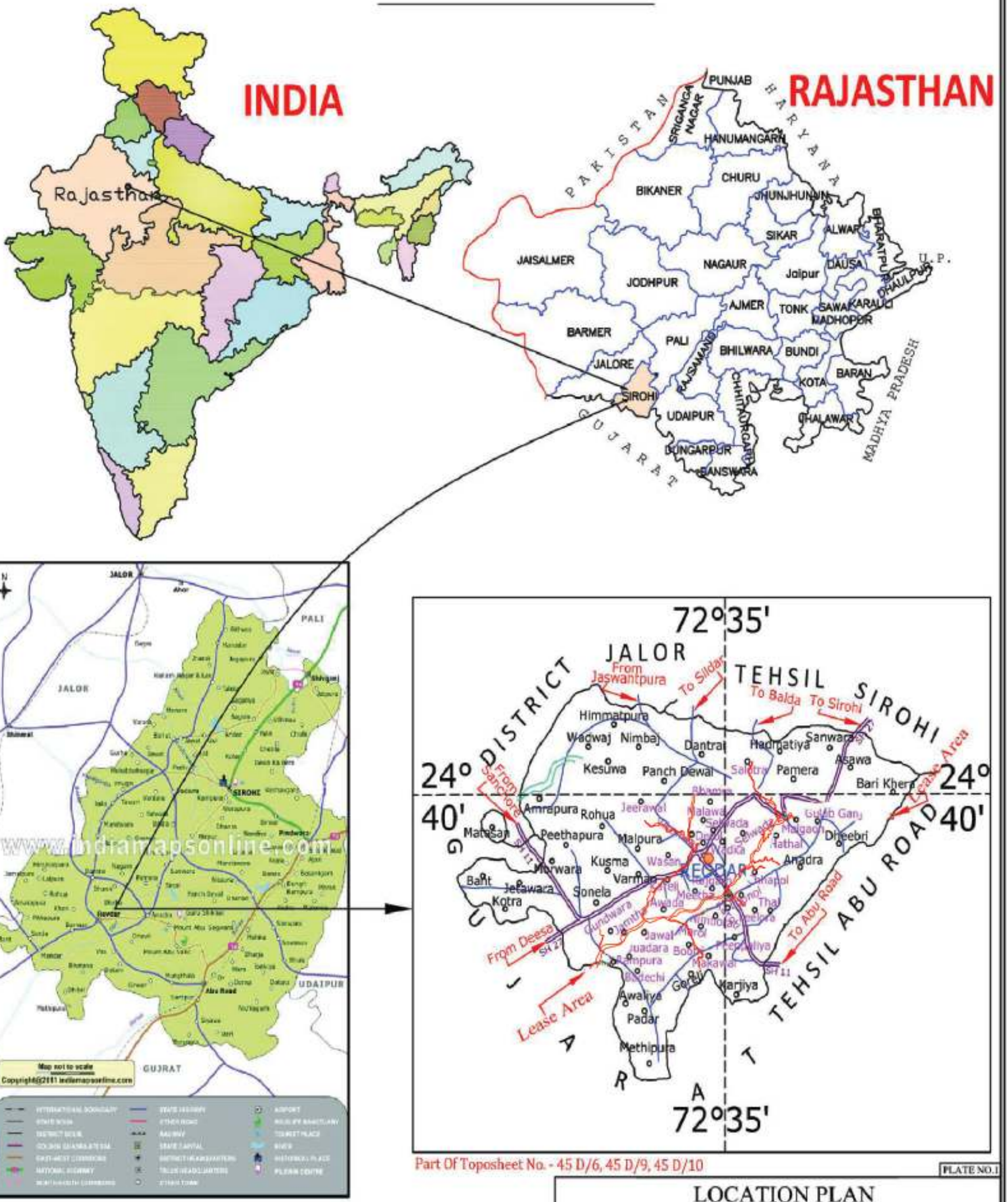
*** This is a system generated email, please do not reply. ***

sher singh <shersinghsolanki1286@gmail.com> Thu, Jul 23, 2015 at 12:14 PM
To: sharma.op985@gmail.com

[Quoted text hidden]

PLATES

LOCATION MAP



Part Of Toposheet No. - 45 D/6, 45 D/9, 45 D/10

PLATE NO.1

LEGEND	
Lease Area	
Tehsil Boundary	
SH. Road	SH 27
Road	

LOCATION PLAN

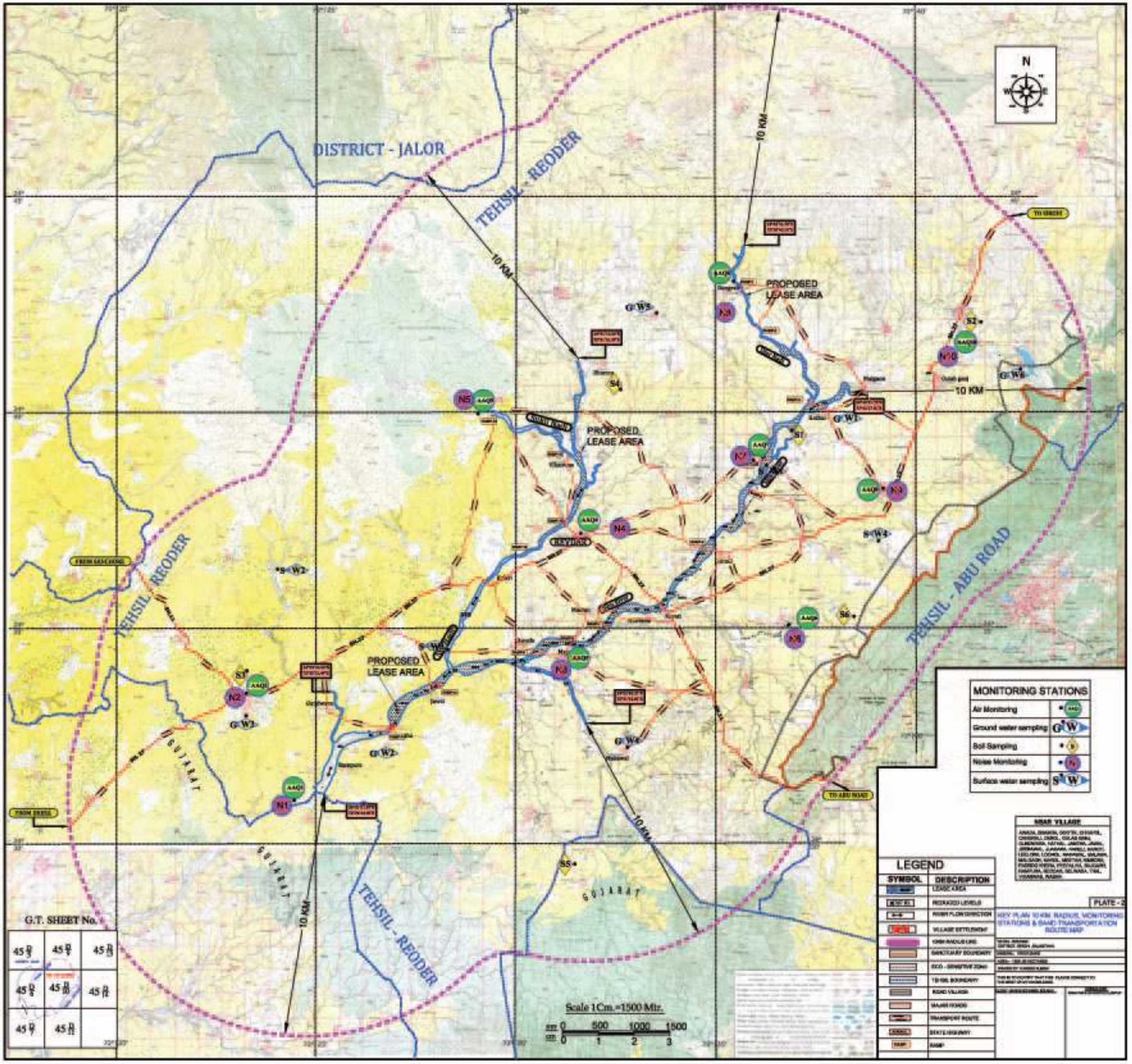
MINE SITE: TEH.- REODAR ,DIST.- SIROHI
RAJASTHAN
Minerl - River Sand

PLANNED BY: M.K. GUPTA (RQP/AJM/269/2005-A)

DRAWN BY: HARIOM KUMAR

LEASE HOLDER : SHRI SHER SINGH SOLANKI S/o MANGAL SINGH SOLANKI

RAMJI MINE ENVIROTECH, JAIPUR (RAJ.)
0141-4036199, 97997-44347


DISTRICT - JALOR
TEHSIL - REODER
10 KM
PROPOSED LEASE AREA
PROPOSED LEASE AREA
PROPOSED LEASE AREA
TEHSIL - REODER
TEHSIL - REODER
TEHSIL - ABU ROAD
GUJARAT
GUJARAT
GUJARAT
FROM SANCHORE
FROM SIROHI
TO ABU ROAD
BEYHAR
N1
N2
N3
N4
N5
N6
N7
N8
N9
N10
S1
S2
S3
S4
S5
S6
G W1
G W2
G W3
G W4
G W5
G W6
S W1
S W2
S W4
Scale 1Cm.=1500 Mtr.
0 500 1000 1500
0 1 2 3
N
MONITORING STATIONS
Air Monitoring
Ground water sampling
Soil Sampling
Noise Monitoring
Surface water sampling
SNAP VILLAGE
LEGEND
SYMBOL
DESCRIPTION
LEASE AREA
RESTRICTED LEVELS
RIVER FLOW DIRECTION
VILLAGE SETTLEMENT
10KM RADIUS LINE
SANCTUARY BOUNDARY
ECO - SENSITIVE ZONE
TEHSIL BOUNDARY
ROAD VILLAGE
MAJOR ROADS
TRANSPORT ROUTE
RAILWAY
RAMP
PLATE - 2
KEY PLAN 10 KM. RADIUS MONITORING STATIONS & SAND TRANSPORTATION ROUTE MAP
G.T. SHEET No.
45 B/3
45 B/4
45 B/8
45 B/7
45 B/11
45 B/12
45 B/15
45 B/16

72° 25' 72° 30' 72° 35' 72° 40'

24° 40'

24° 35'

N

NW NE W E SW SE S

SYMBOL	DESCRIPTION
	LEASE BOUNDARY
	RIVER FLOW DIRECTION
	ROAD VILLAGE
	REDUCED LEVELS
	SETTLEMENT
	TEHSIL BOUNDARY
	SPOT HEIGHT
	STATE HIGHWAY
	AGRICULTUREE LAND
	DRAINAGE/NALLA
	POND
	CONTOUR

Himmatpura, Nival, Aparapura, Dantrai, Hathalpura, Kerwa, Rorwa, Rohut, Sarun Ka Khera, Bhawal, 279 (Highest) MRL, Bhakhera, Dhanri, Dadarsi, Jhor Nadi, Lilaria, 290(Highest) MRL, Nagani, Tamera, Poshina, Maljaun, Jahpur, Malawa, Rajpura, Wanti, Bikamwas, Deori, Harcha, Mohabbatgarh, Selwanu, Dhadhpur, Anadra, Sheigarh, Dabani, Dak, Serua, Peroa, Lunpi, Bhawangarh, Dhanera, Lilora, Dolpura, Dhavli, Rampura Khera, Pipliya, Padru Khera, Maiwal, Butri, Salotra, Sibhra Khera, Sheogarh, Kotra Khera, Jawadra, Kampur, Bhilda Khera, Bhilda, Goreli, Bharana, Mamtora, Khan, Vagus Nadi, Basan, Ra pura, Malpura, Barbsan, Kaleri, Navapura, Dabpura, Maghiwada, Sonela, Awani, Asav, Rajgarh, Nimbhera, Kankawati, Jamla, Sundawara, Ghelugarh, Jhanwal, Sipu River, Sipu Nadi, Gru Nadi, Vagus Nadi, Tehsil-Reodar, Gujarat, Rajasthan, SH.27, SH.11, TO DEESA, TO ABU ROAD, TO SIROHI

SCALE - 1 CM = 900 MTR.

GT Sheet No.(45D-6,45D-10,)

PLATE - 3

SURFACE PLAN

TEHSIL -REODAR
DISTRICT- SIROHI ,RAJASTHAN

MINERAL: RIVER SAND(BAJRI)

AREA: - 1288 .00 HECTARES

DRAWN BY: HARIOM KUMAR

THIS IS TO CERTIFY THAT THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE

CONSULTANT

72°|25' 72°|30' 72°|35' 72°|40'

24° 40'

24° 35'

N

NW NE W E SW SE S

SYMBOL	DESCRIPTION
	LEASE BOUNDARY
	RIVER FLOW DIRECTION
	ROAD VILLAGE
	REDUCED LEVELS
	SETTLEMENT
	TEHSIL BOUNDARY
	SPOT HEIGHT
	STATE HIGHWAY
	AGRICULTUREE LAND
	DRAINAGE/NALLA
	POND
	CONTOUR
	7.5 Mts. BUFFER ZONE

1	Aveala	17	Lootrel
2	Bhasan	18	Makawal
3	Boom	19	Malawa
4	Chhapol	20	Malgaon
5	Dangrali	21	Mural
6	Dewal	22	Meethan
7	Girdi Ganj	23	Nimbeen
8	Gundwara	24	Padro Khera
9	Hathal	25	Pragadra
10	Jamba	26	Rajgarh
11	Jawal	27	Rampura
12	Jaswal	28	Reodar
13	Jhadwa	29	Sibrada
14	Kaeli	30	Thil
15	Kasoti	31	Vikamsar
16	Lookra	32	Wasan

PLATE -4

CONCEPTUAL PLAN

TEHSIL JAISOMAR
DISTRICT- SIROHI (RAJASTHAN)
MINERAL : ROSHA BAND(RAJ-R)
AREA - 1288.00 HECTARES
DRAWN BY: HARIOM KUMAR

THIS IS TO CERTIFY THAT THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE

CLIENT - GHCL

CONSULTANT
MANJU MINE CONSULTANTS (I) PVT. LTD.

SCALE - 1 CM = 500 MTR.

GT Sheet No.(45D-6,45D-10,)

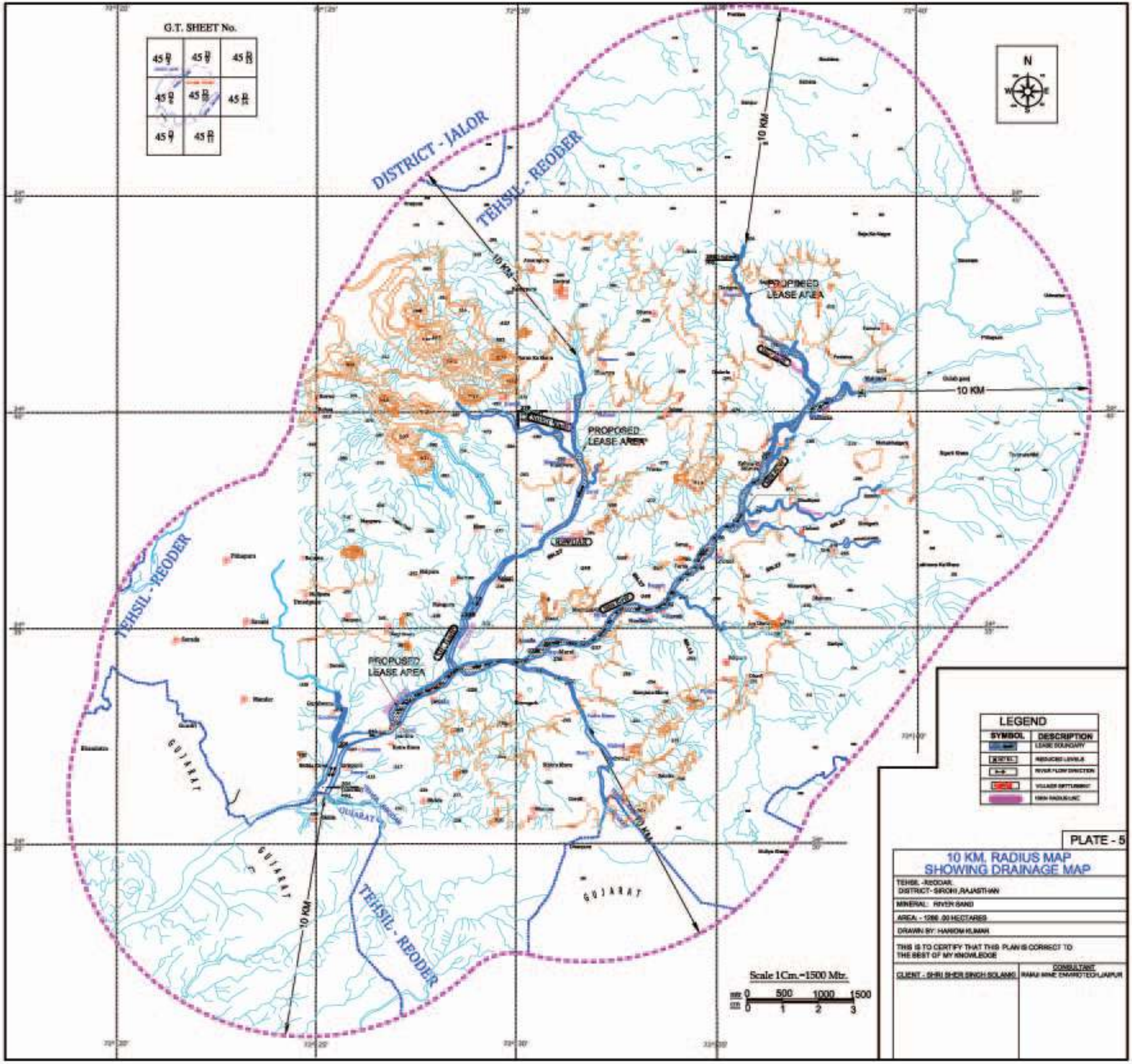
TO SIROHI

TO DEESA

TO ABU ROAD

GUJARAT

TEHSIL-REODAR


G.T. SHEET No.
45 B/9
45 B/10
45 B/13
45 B/14
45 B/15
45 B/16
45 B/11
45 B/12
N
DISTRICT - JALOR
TEHSIL - REODER
10 KM
PROPOSED LEASE AREA
PROPOSED LEASE AREA
PROPOSED LEASE AREA
10 KM
10 KM
10 KM
10 KM
GUJARAT
GUJARAT
GUJARAT
GUJARAT
GUJARAT
TEHSIL - REODER
TEHSIL - REODER
LEGEND
SYMBOL
DESCRIPTION
LEASE BOUNDARY
REDUCED LEVELS
RIVER FLOW DIRECTION
VILLAGE SETTLEMENT
10KM RADIUS CIRC
Scale 1Cm.=1500 Mtr.
0 500 1000 1500
0 1 2 3
PLATE - 5
10 KM. RADIUS MAP
SHOWING DRAINAGE MAP
TEHSIL -REODAR,
DISTRICT- SIROHI ,RAJASTHAN
MINERAL: RIVER SAND
AREA - 1266 .00 HECTARES
DRAWN BY: HARIOM KUMAR
THIS IS TO CERTIFY THAT THIS PLAN IS CORRECT TO
THE BEST OF MY KNOWLEDGE
CLIENT - SHRI SHER SINGH SOLANKI
CONSULTANT
RAMJI MINE ENVIROTECH,JAIPUR

DEVELOPMENT PLAN IN BRIE

- TOTAL LENGTH OF MINE LEASE AREA=64 KM.
- DEVELOPMENT IN 7 BLOCKS
- EACH BLOCK IS ONE UNIT
- EACH BLOCK IS AROUND 9 KM. IN LENGTH
- EACH BLOCK IS FURTHER SUBDIVIDED INTO 5 SUB BLOCK
- SUB BLOCK IS ABOUT 1800 MTR. IN LENGTH
- SUB BLOCK IS WORKED IN ALTERNATE YEARS SO THAT REPLENISHMENT CAN TAKE PLACE

N

NW NE W E SW SE S

LEGEND

SYMBOL	DESCRIPTION
	LEASE BOUNDARY
	RIVER FLOW DIRECTION
	ROAD VILLAGE
	MAJAR ROADS
	REDUCED LEVELS
	SETTLEMENT
	TEHSIL BOUNDARY
+280	SPOT HEIGHT
RAMP	RAMP
	TRANSPORT ROUTE
	STATE HIGHWAY

1	Awada	17	Lunel
2	Bhanta	18	Makawal
3	Bisrti	19	Malava
4	Chhapol	20	Malgaon
5	Dangtali	21	Mauri
6	Dauri	22	Mawkua
7	Gulab Gunj	23	Nimbora
8	Gundwara	24	Pathro Khara
9	Harbal	25	Pooprakya
10	Jamba	26	Rajpark
11	Jawal	27	Rampura
12	Jeerawal	28	Reodar
13	Jhadara	29	Selwara
14	Kaseli	30	Thal
15	Kawri	31	Vikanawas
16	Leelera	32	Watan

BLOCK

	BLOCK-1
	BLOCK-2
	BLOCK-3
	BLOCK-4
	BLOCK-5
	BLOCK-6
	BLOCK-7

FIVE YEAR DEVELOPMENT PLAN

	I st Year
	II nd Year
	III rd Year
	IV th Year
	V th Year

GT Sheet No.(45D-6,45D-10,)

SCALE - 1 CM = 800 MTR.

0 800 1600 2400 3200 4000 MTR.

0 1 2 3 4 5 CM.

PLATE - 6

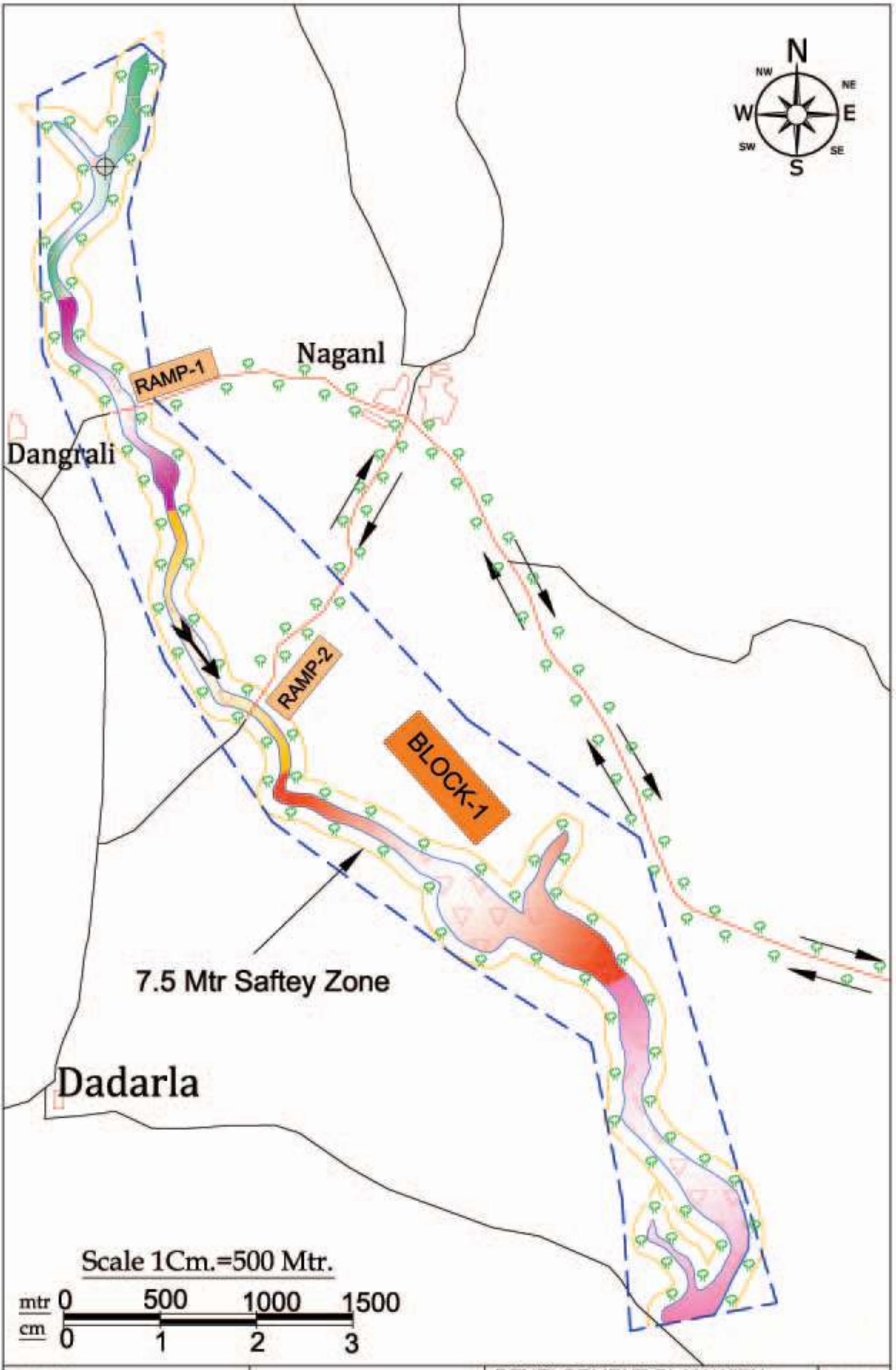
DEVELOPMENT PLAN WITH TRANSPORT ROUTE

TEHSIL -REODAR
DISTRICT- SIROHI ,RAJASTHAN
MINERAL: RIVER SAND(GRAVEL)
AREA - 1280 SQ.HECTARES
DRAWN BY- HARISH KUMAR

THIS IS TO CERTIFY THAT THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE

SIGNATURE

CONSULTANT



LEGEND	
Lease Area	
River Flow Direction	
Road Village	
Majar Roads	
Settlement	
Ramp	RAMP
Transport Route	
Plantations	
7.5 Mtr Saftey Zone	

YEAR WISE DEVELOPMENTPLAN	
I st Year	
II nd Year	
III rd Year	
IV th Year	
V th Year	

DEVELOPMENT PLAN WITH EVACUATION ROUTE & GREEN BELT PLAN

BLOCK-1

TEHSIL - REODAR, DISTRICT- SIROHI ,(RAJ)

MINERAL: RIVER SAND

CLIENT -SHRI SHER SINGH SOLANKI

CONSULTANT
PREFACT ENVIRO SOLUTIONS PVT.LTD.

Dadarla

Malgaon

263

Hathal

RAMP-3

BLOCK-2

SIPU RIVER

7.5 Mtr Saftey Zone

257

Selwara

RAMP-4

256

Dhadhpur

TO SIROHI

SH.27

Shetgarh

Dabani

Scale 1Cm.=500 Mtr.

mtr	0	500	1000	1500
cm	0	1	2	3

TO DEESA

LEGEND

Lease Area	
River Flow Direction	
Road Village	
Majar Roads	
Settlement	
Ramp	RAMP
Transport Route	
Plantations	
7.5 Mtr Saftey Zone	
State Highway	SH-27

N, NW, NE, W, E, SW, SE, S

YEAR WISE DEVELOPMENTPLAN	
I st Year	
II nd Year	
III rd Year	
IV th Year	
V th Year	

DEVELOPMENT PLAN WITH EVACUATION ROUTE & GREEN BELT PLAN

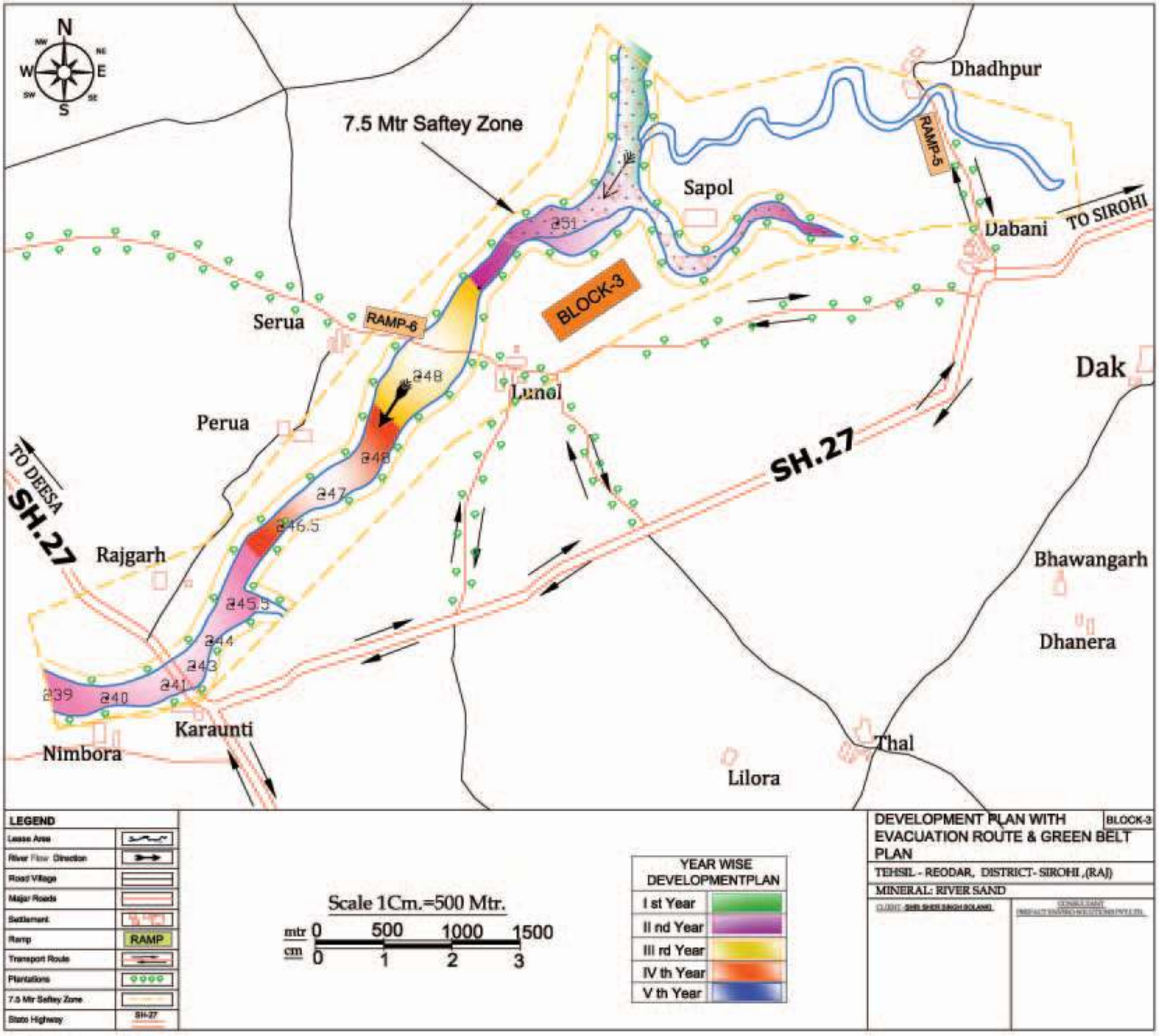
BLOCK-2

TEHSIL - REODAR, DISTRICT- SIROHI ,(RAJ)

MINERAL: RIVER SAND

CLIENT -SHRI SHER SINGH SOLANKI

CONSULTANT
PRIFACT ENVIRO SOLUTIONS PVT.LTD.


N
NW
NE
W
E
SW
SE
S
7.5 Mtr Saftey Zone
Dhadhpur
RAMP-5
Sapol
Dabani
TO SIROHI
BLOCK-3
Serua
RAMP-6
Lunol
Dak
Perua
TO DEESA
SH.27
SH.27
Rajgarh
Bhawangarh
Dhanera
Karaunti
Nimbora
Thal
Lilora
251
248
248
247
246.5
245.5
244
243
241
240
239
LEGEND
Lease Area
River Flow Direction
Road Village
Major Roads
Settlement
Ramp
RAMP
Transport Route
Plantations
7.5 Mtr Saftey Zone
State Highway
SH-27
Scale 1Cm.=500 Mtr.
mtr 0 500 1000 1500
cm 0 1 2 3
YEAR WISE DEVELOPMENTPLAN
I st Year
II nd Year
III rd Year
IV th Year
V th Year
DEVELOPMENT PLAN WITH EVACUATION ROUTE & GREEN BELT PLAN
BLOCK-3
TEHSIL - REODAR, DISTRICT- SIROHI ,(RAJ)
MINERAL: RIVER SAND

N
W
E
S

Rajgarh
TO SIROHI
SH.27
Mitan
Wanti
Karaunti
Nimbora
RAMP-7
RAMP-8
RAMP-9
237
236.9
235
233
232
231.5
230.5
229
228
227
231
230
7.5 Mtr Saftey Zone
BLOCK-4
SH.11
Awara
Marol
Rampura Khera
Pipliya
Bherugarh
Padru
Khera
Makwal
Butri
Sibhra
Khera
Salotra
Goreli
Bhatana

LEGEND

Lease Area	
River Flow Direction	
Road Village	
Major Roads	
Settlement	
Ramp	RAMP
Transport Route	
Plantations	
7.5 Mtr Safley Zone	
State Highway	SH-27&11

Scale 1Cm.=500 Mtr.

mtr	0	500	1000	1500
cm	0	1	2	3

YEAR WISE DEVELOPMENTPLAN	
I st Year	
II nd Year	
III rd Year	
IV th Year	
V th Year	

DEVELOPMENT PLAN WITH EVACUATION ROUTE & GREEN BELT PLAN — BLOCK-4

TEHSIL - REODAR, DISTRICT- SIROHI ,(RAJ)

MINERAL: RIVER SAND

CLIENT - SHRI BHOJ SINGH SOLANKI

TERRA TECH PRIVATE LIMITED

N
NW
NE
W
E
SW
SE
S

Saran Ka Khera

Jirawal

Malawa

SUKLI NADI

RAMP-10

RAMP-11

7.5 Mtr Saftey Zone

BLOCK-5

Bikanwas

RAMP-12

Derol

RAMP-13

Basan

Revdar

TO SIROHI

SH.27

Khan

Barman

Kaleri

TO DEESA

LEGEND	
Lease Area	
River Flow Direction	
Road Village	
Major Roads	
Settlement	
Ramp	RAMP
Transport Route	
Plantations	
7.5 Mtr Saftey Zone	
State Highway	SH-27

Scale 1Cm.=500 Mtr.

mtr	0	500	1000	1500
cm	0	1	2	3

YEAR WISE DEVELOPMENTPLAN
I st Year
II nd Year
III rd Year
IV th Year
V th Year

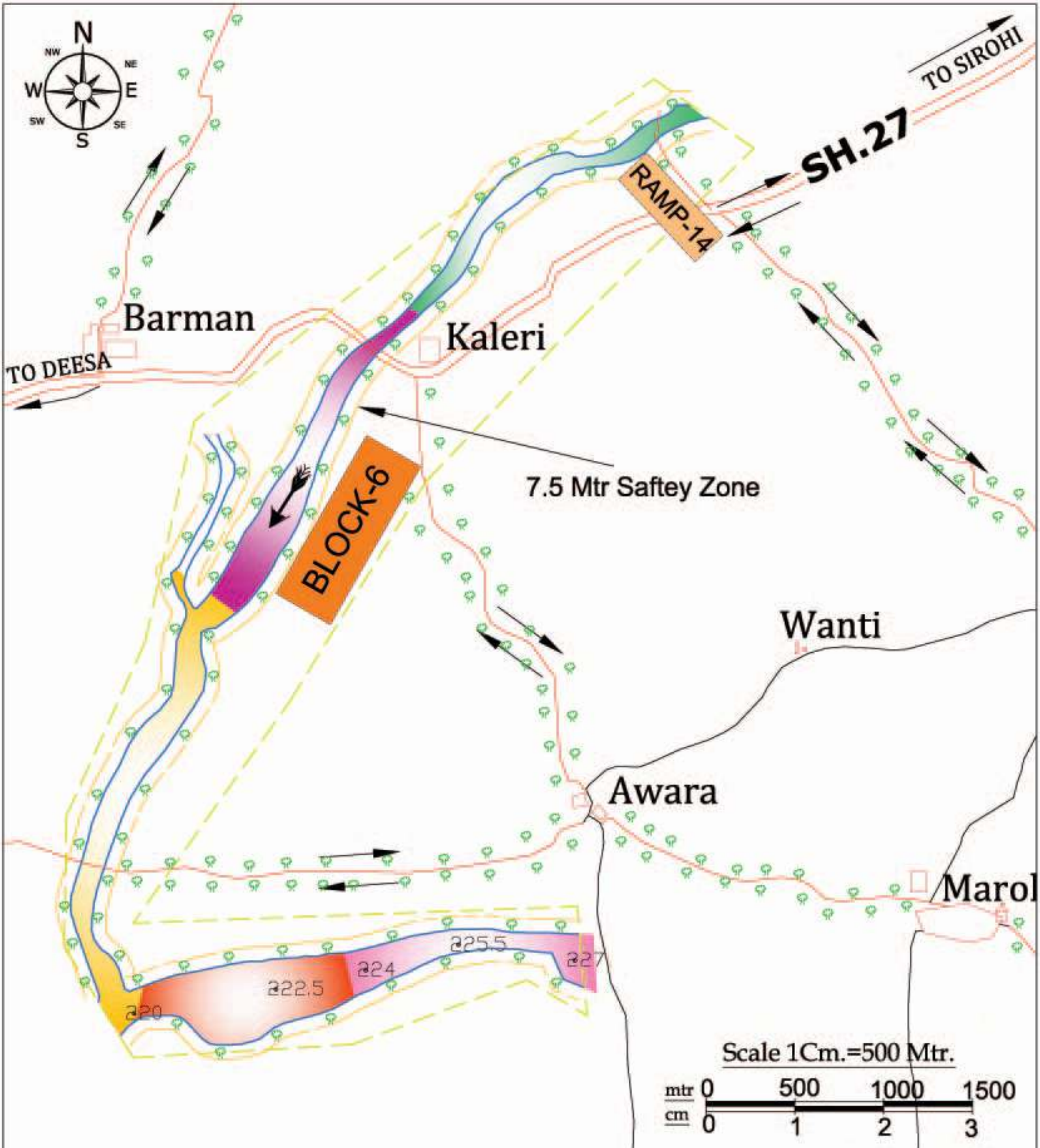
DEVELOPMENT PLAN WITH EVACUATION ROUTE & GREEN BELT PLAN — BLOCK-5

TEHSIL - REODAR, DISTRICT- SIROHI ,(RAJ)

MINERAL; RIVER SAND

CLIENT :SHRI SHER SINGH SOLANKI

CONSULTANT
PREFACT ENVIRO SOLUTIONS PVT LTD



LEGEND	
Lease Area	
River Flow Direction	
Road Village	
Majar Roads	
Settlement	
Ramp	RAMP
Transport Route	
Plantations	
7.5 Mtr Saftey Zone	
State Highway	SH-27

DEVELOPMENT PLAN WITH EVACUATION ROUTE & GREEN BELT PLAN — BLOCK-6

TEHSIL - REODAR, DISTRICT- SIROHI ,(RAJ)

MINERAL: RIVER SAND

CLIENT : SHRI SHER SINGH SOLANKI

CONSULTANT
PREFACT ENVIRO SOLUTIONS PVT.LTD.

Danpura

TO SIROHI

Magriwada

N

NW NE

W E

SW SE

S

SH.27

TO DEESA

Sonela

RAMP-15

7.5 Mtr Saftey Zone

216.5

216

215

214.5

214

Jawal

Gundwara

Gundwara

BLOCK-7

RAMP-16

Jamta

211

210

205

Kotra Khera

Juwadra

Bhilda Khera

Rampur

Bhilda

LEGEND	
Lease Area	
River Flow Direction	
Road Village	
Major Roads	
Settlement	
Ramp	RAMP
Transport Route	
Plantations	
7.5 Mtr Saftey Zone	
State Highway	SH-27

Scale 1Cm.=500 Mtr.

mtr	0	500	1000	1500
cm	0	1	2	3

YEAR WISE DEVELOPMENTPLAN	
I st Year	
II nd Year	
III rd Year	
IV th Year	
V th Year	

DEVELOPMENT PLAN WITH EVACUATION ROUTE & GREEN BELT PLAN

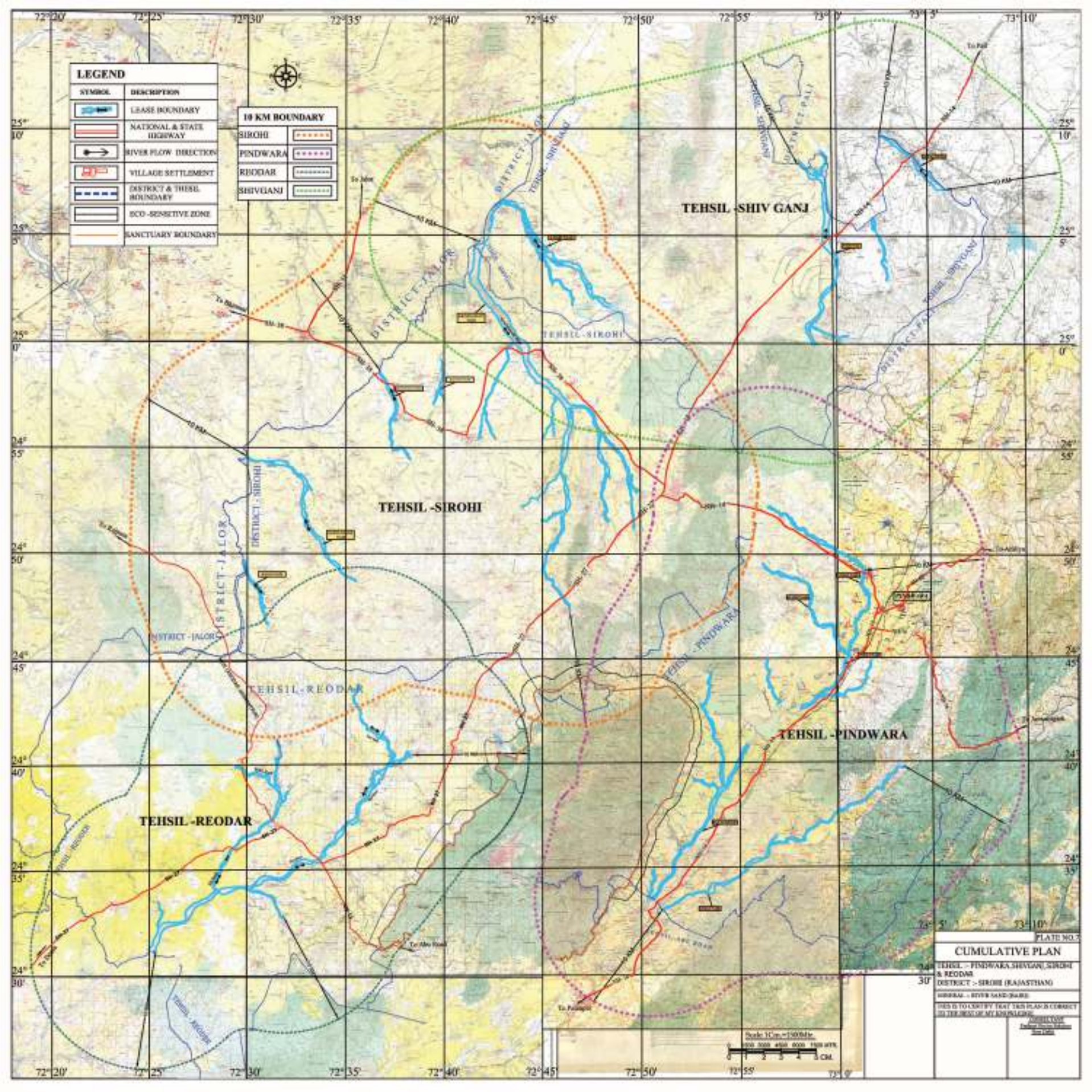
BLOCK-7

TEHSIL - REODAR, DISTRICT- SIROHI ,(RAJ)

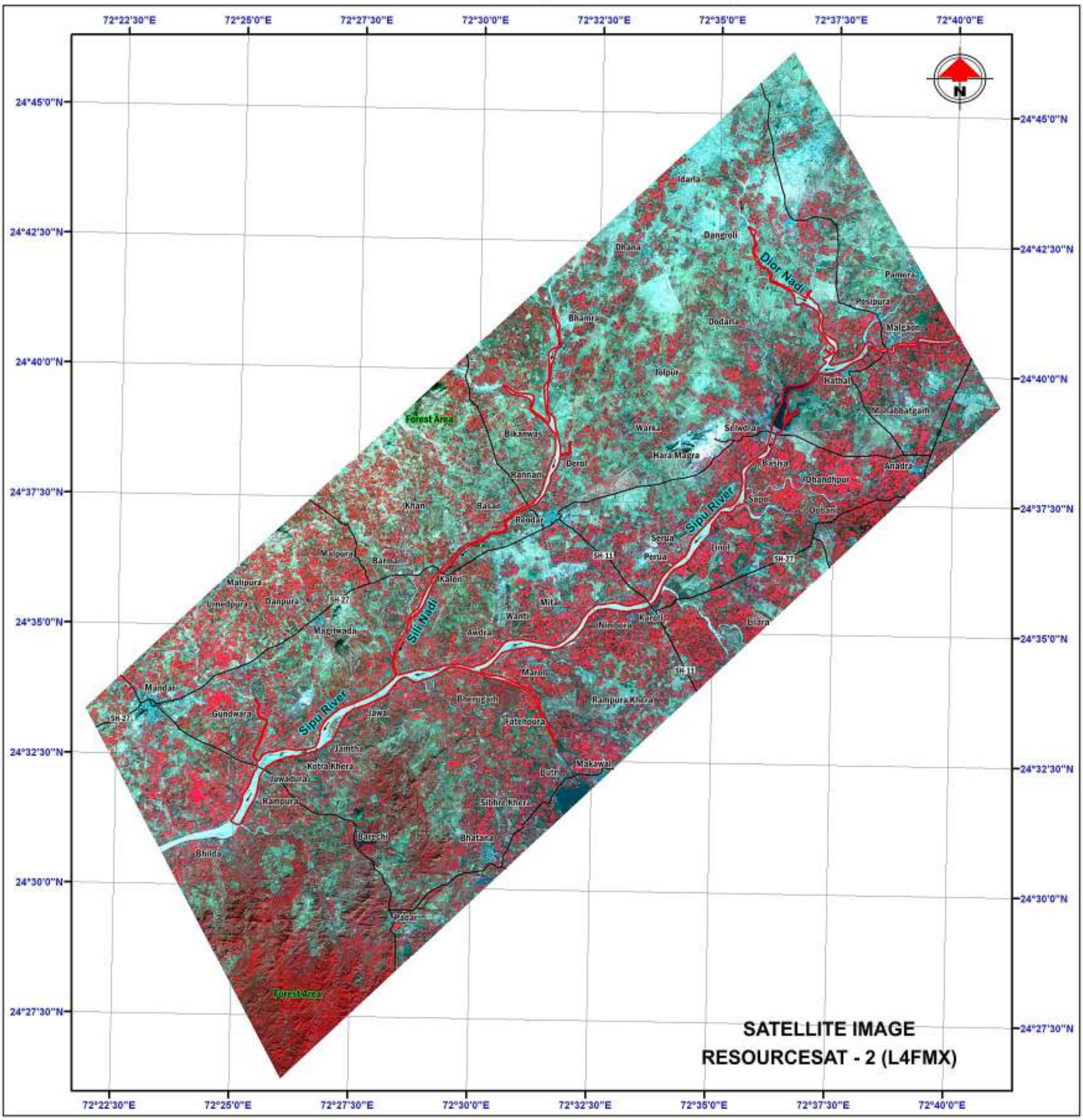
MINERAL: RIVER SAND

CLIENT :SHRI SHER SINGH SOLANKI

CONSULTANT
PREFACT ENVIRO SOLUTIONS PVT.LTD.


LEGEND
SYMBOL
DESCRIPTION
LEASE BOUNDARY
NATIONAL & STATE HIGHWAY
RIVER FLOW DIRECTION
VILLAGE SETTLEMENT
DISTRICT & THESIL BOUNDARY
ECO -SENSITIVE ZONE
SANCTUARY BOUNDARY
10 KM BOUNDARY
SIROHI
PINDWARA
REODAR
SHIVGANJ
TEHSIL -SHIV GANJ
TEHSIL -SIROHI
TEHSIL -PINDWARA
TEHSIL -REODAR
DISTRICT -JALOR
DISTRICT - SIROHI
DISTRICT -PALI
TEHSIL - SHIVGANJ
TEHSIL - PINDWARA
TEHSIL - REODAR
To Jalor
To Pali
To Abu Road
To Palanpur
72° 20'
72° 25'
72° 30'
72° 35'
72° 40'
72° 45'
72° 50'
72° 55'
73° 0'
73° 5'
73° 10'
25° 10'
25° 5'
25° 0'
24° 55'
24° 50'
24° 45'
24° 40'
24° 35'
24° 30'
PLATE NO.7
CUMULATIVE PLAN
TEHSIL - PINDWARA,SHIVGANJ,SIROHI & REODAR
DISTRICT :- SIROHI (RAJASTHAN)
MINERAL :- RIVER SAND (Sand)
THIS IS TO CERTIFY THAT THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE.
PROJECTION
Indian Bureau of Mines
New Delhi

SATELLITE IMAGE (CORE ZONE AREA)



Legend

Road

0 5000 10,000 Meters

SCALE

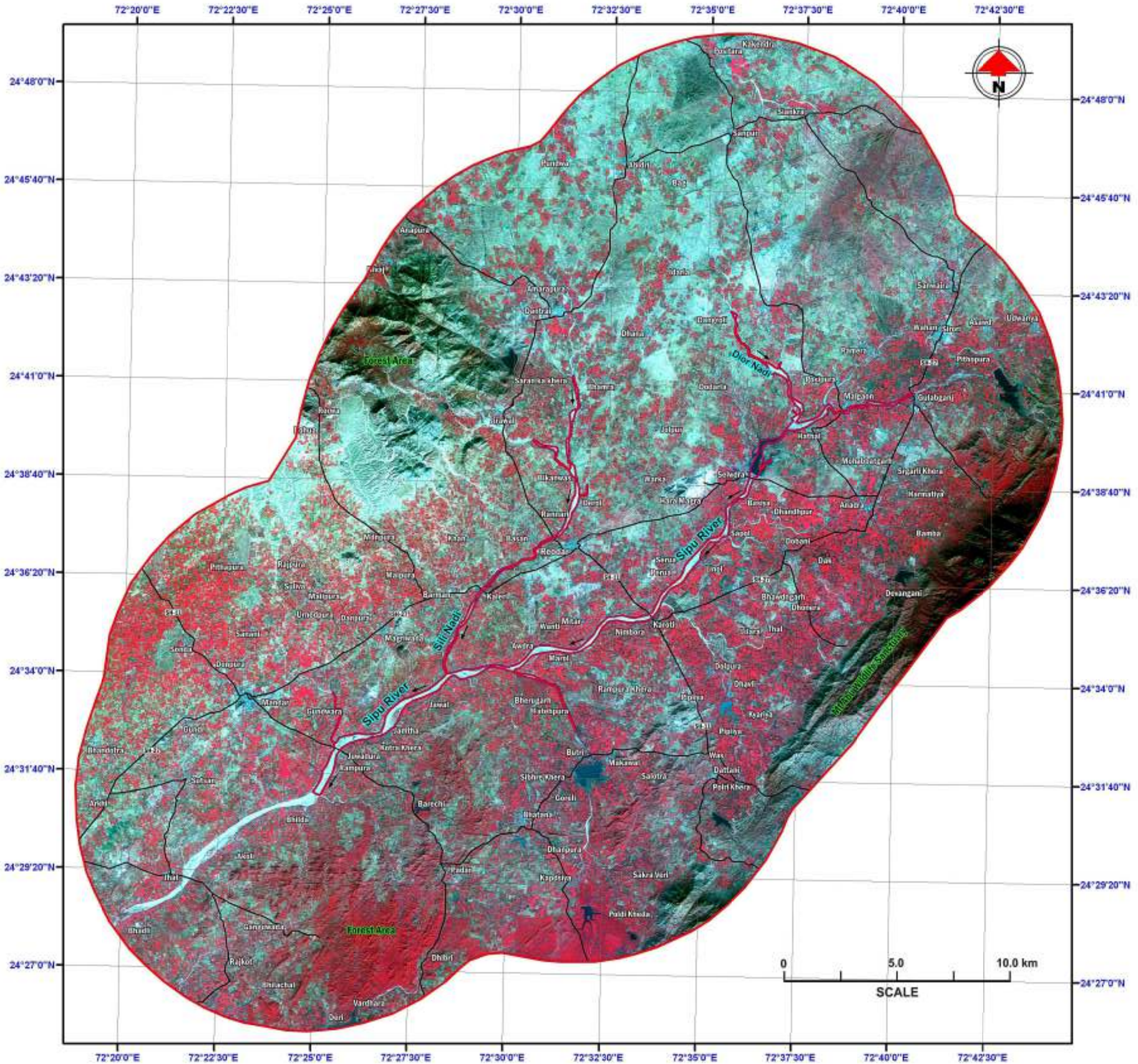
Mine Site Boundary
(Area - 1286.00 Ha.)

River Sand Mining Project
(Lease Area - 1286.00 ha)

M/s Sher Singh Solanki

Revenue Villages-Aabda & Others,
Tehsil-Reodar,
District - Sirohi (Rajasthan)

10 KM AREA SATELLITE IMAGE



SATELLITE IMAGE
RESOURCESAT - 2 (L4FMX)

Mine Site Boundary
(Area - 1286.00 Ha.)

Legend

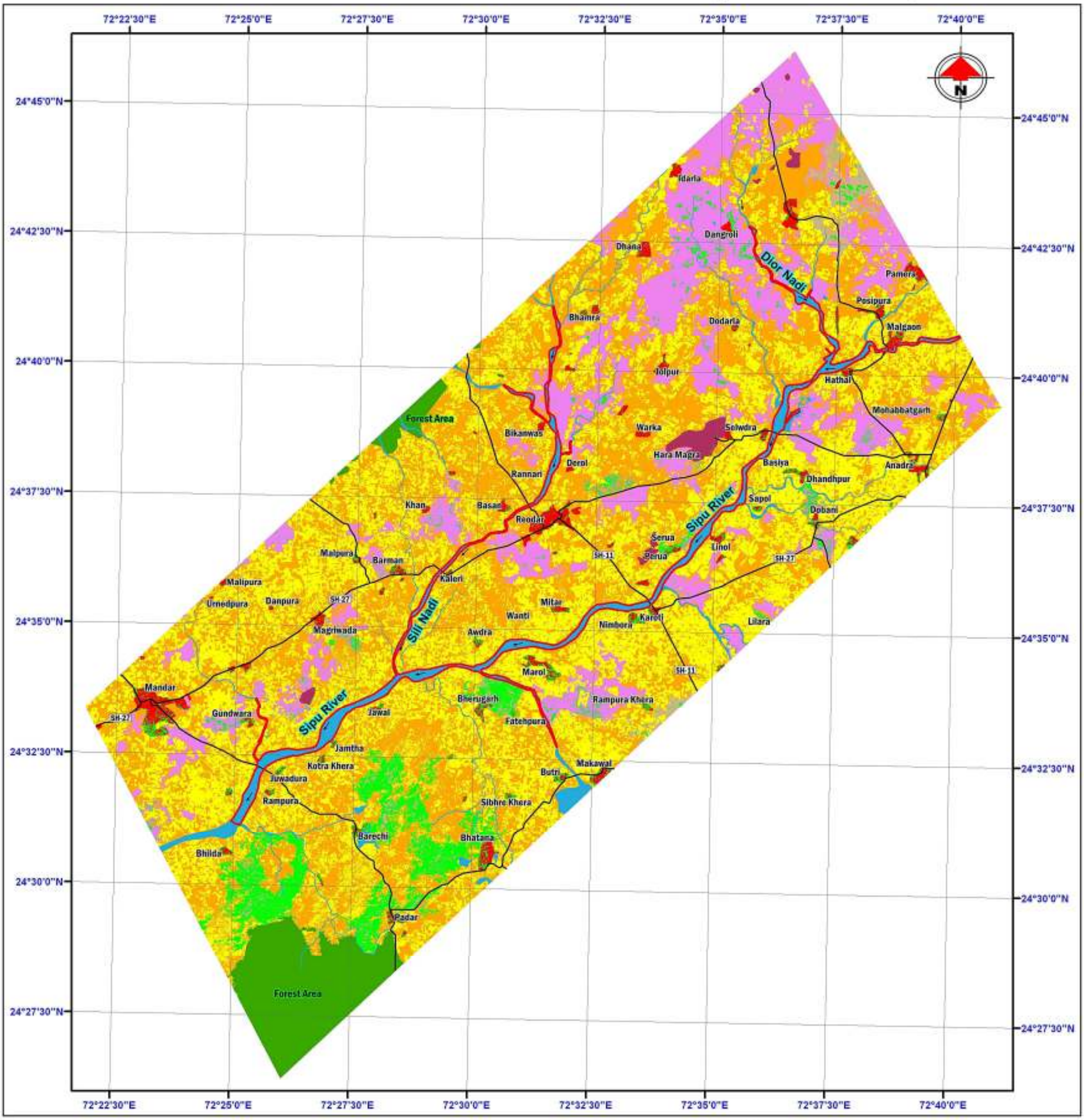
Road

River Sand Mining Project
(Lease Area - 1286.00 ha)

M/s Sher Singh Solanki

Revenue Villages-Aabda & Others,
Tehsil-Reodar,
District - Sirohi (Rajasthan)

LAND USE PATTERN BASED ON SATELLITE IMAGERY (CORE ZONE AREA)



Legend

Road

0 5000 10,000 Meters

SCALE

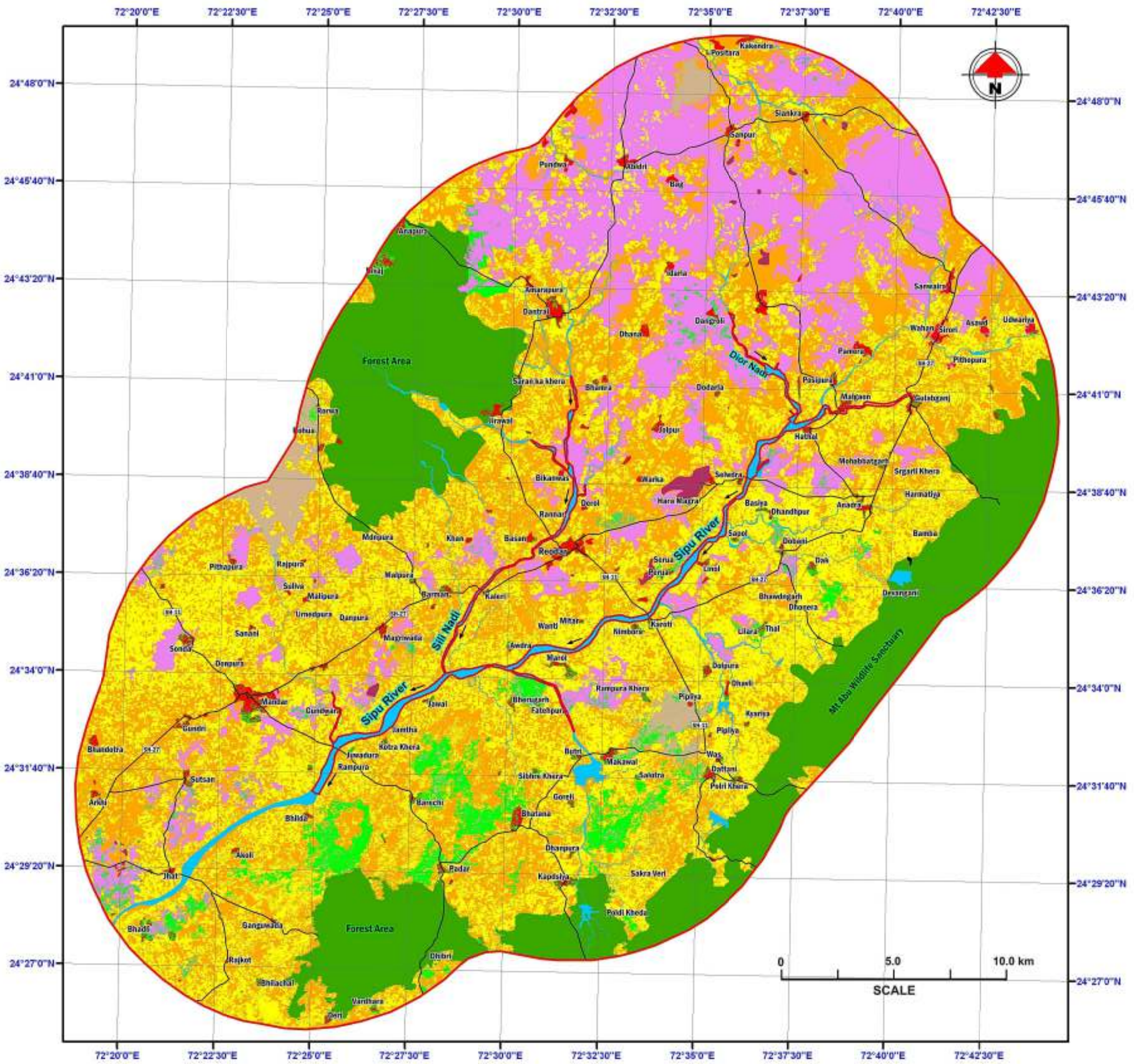
Mine Site Boundary
(Area - 1286.00 Ha.)

River Sand Mining Project
(Lease Area - 1286.00 ha)

M/s Sher Singh Solanki

Revenue Villages-Aabda & Others,
Tehsil-Reodar,
District - Sirohi (Rajasthan)

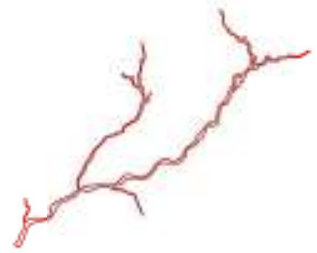
10 KM RADIUS LAND USE PATTERN BASED ON SATELLITE IMAGERY



SOURCE :

SATELLITE IMAGE
RESOURCESAT - 2 (L4FMX)

Mine Site Boundary
(Area - 1286.00 Ha.)



Legend

Road

Color	Class Names	Area(Ha)	%(Area)
	River/Ponds	3064.11	2.52
	Stony Area	2015.79	1.66
	Open Scrub Land	18186.56	14.94
	Forest Area	19664.15	16.16
	Plantation/Vegetation	3703.49	3.04
	Fallow Land	37748.65	31.02
	Crop Land	35483.50	29.15
	Human Settlement	1536.91	1.26
	Mine Quarry	303.74	0.25
	Total	121706.90	100.00

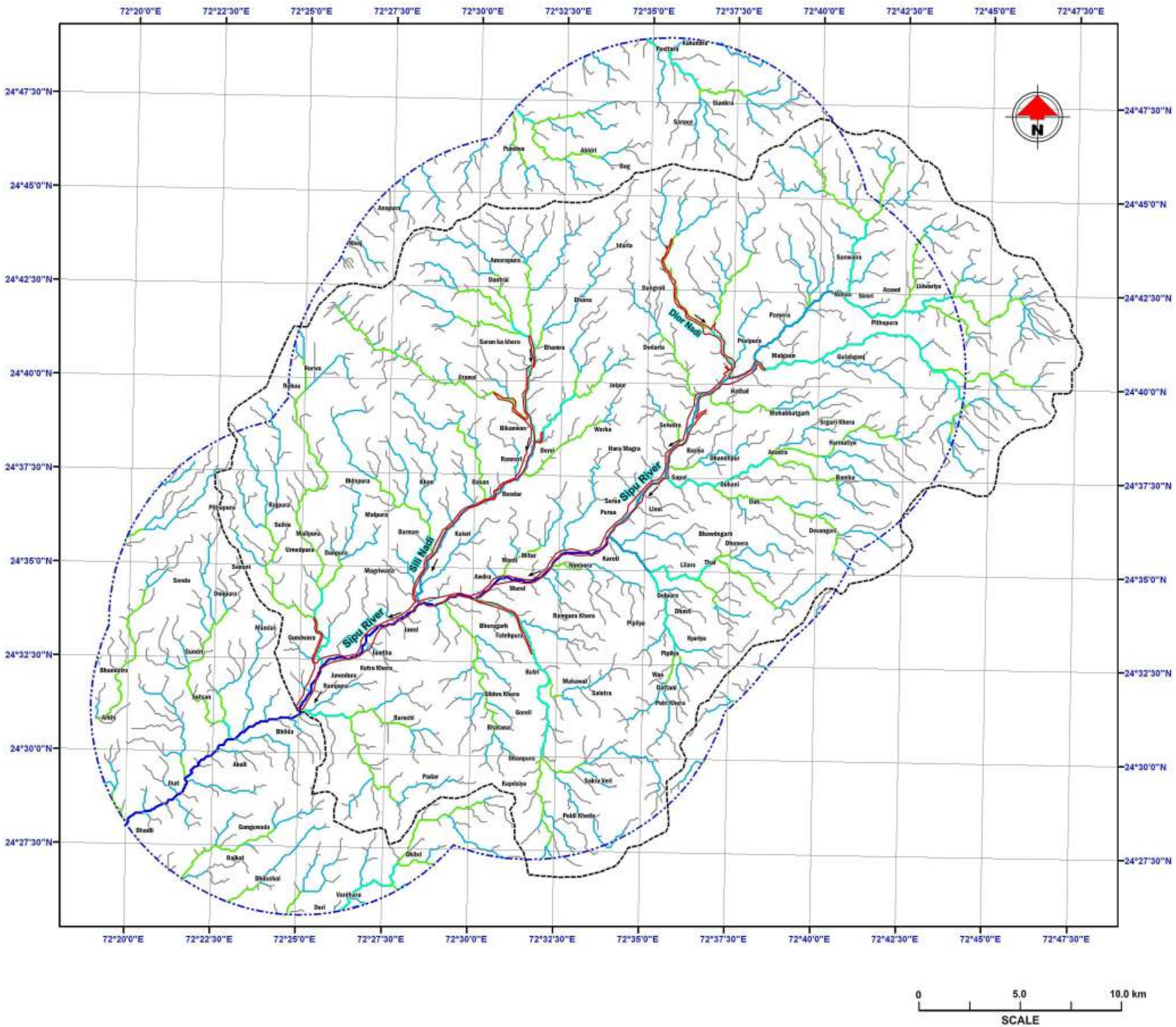
River Sand Mining Project

(Lease Area - 1286.00 ha)

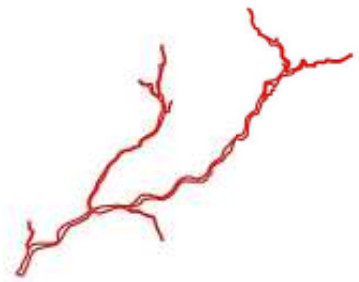
M/s Sher Singh Solanki

Revenue Villages-Aabda & Others,
Tehsil-Reodar,
District - Sirohi (Rajasthan)

DRAINAGE MAP
of 10 km Radius Study Area



Mine Site Boundary
(Area - 1286.00 Ha.)



Legend

River Catchment
(Area - 95524.2959 hectare)

Buffer Zone Boundary

Legend

- 1 Order Stream
- 2 Order Stream
- 3 Order Stream
- 4 Order Stream
- 5 Order Stream
- 6 Order Stream

River Sand Mining Project
(Lease Area - 1286.00 ha)

M/s Sher Singh Solanki

Revenue Villages-Aabda & Others,
Tehsil-Reodar,
District - Sirohi (Rajasthan)