STANDARD TEMPLATE
FORM-1
PRE FEASIBILITY REPORT
ENVIRONMENT MANAGEMENT PLAN
&
MODIFIED MINING SCHEME

For

M/s. SOUTHERN SILICA MINES

(Silica Sand Mine 27.33 Acres/11.06 Ha.)

At

Sy.Nos. 1154/1, 1155, 1160 & 1161
Chintavaram Village,
Chillakur Mandal,
SPSR Nellore District,
Andhrapradesh

Prepared By

SRI SAI MANASA NATURE TECH (P) LIMITED
Hyderabad-500 038.

STANDARD TEMPLATE

STANDARD TEMPLATE FOR EVALUATION OF ALL PROJECTS/ ACTIVITIES

S.No	Information required	Information to be furnished by the Proponent
1.	Name of the project or activity	M/s. Southern Silica Mines (Silica Sand Mine) Mining Lease area: 27.33 Acres./ 11.06 Ha.
2.	Name of the organization/owner.	Mg.P: P. Siva Kumar Reddy
3.	Address for communication	Sri. P. Siva Kumar Reddy, H No:6/160,East Street, Gudur, Nellore District. Andhra Pradesh -524101
4.	Telephone numbers	8374257999
5.	Email ID of the organization or contact person	southernsilicamine@gmail.com
6.	Location of the Proposed project or activity	Sy.Nos.1154/1,1155,1160 & 1161 Yeruru Village Chillakur Mandal, Nellore District. Andhra Pradesh - 524412
7.	Appraisal Category (B2 or B1)	Category B2
8.	Nearest habitation and distance from the project or activity	Yeruvu village - 0.6 km (W)
9.	Installed capacity / Production Capacities	1,06,950 Metric Tons @annum
10.	Specify the Fuel (Coal / CNG / biomass/Others) and quantity required	Not required
11.	Details of Land use/Land Cover	The present land is using for Extraction of Silica Sand
12.	Occupancy, ownership of the land in which the activity is proposed: (Government land/Private land/ Forest land/Revenue land /Temple land /leased land/ land belongs to other Department)	Government waste Land
13.	If it is a Forest land, the following details shall be furnished: (Whether it is a Reserved forest/ Protected forest/Demarcated forest/ National Parks/Sanctuaries/any land in	Not Applicable

	possession of Forest Department.) (The village map with Sy.No. indicating nearest forest boundary line from the site shall be enclosed)	
14.	Total investment of the project/activity.	Rs. 30 Lakhs
	a. Funds allocated for EMP (capital cost and recurring cost per annum)	Rs. 1.0 Lakhs Rs: 4. 30Lakhs
15.	Brief description of the project with special reference to specific pollution and its control measures.	➢ During mining operations dust emissions will be generated. Water sprinkling will be adopted. ➢ No Noise levels increased during operations and No impact due to noise. ➢ No Vibrations. ➢ Solid waste will be generated @ 2%.
16.	Compliance report on the following :	
	i. Status of compliance of the conditions and environmental safeguards stipulated in the earlier clearance letters.	Present proposal is for Environmental Clearance
	ii. Details of the court cases, if any, pending in any Court of Law against the project as well as any directions passed by the Court relating to the project directly or indirectly.	No court case is pending against the proposed project
	iii. Details of the notices, if any, given to the project under Section 5 of the Environmental (Protection) Act, 1986 and Section 18 of the Air (Prevention & Control of Pollution) Act, 1981.	As this project has not taken Environment Clearance, credible action was initiated as per MoEF O.M. 12.12.2012.
17	Whether the project attracts the provisions laid under the OM dt.16.11.2010 issued by the MoEF, GOI, w.r.t. violation of EIA Notification, 2006 and its amendments there of ? (Yes / No)	Yes
	Present stage and status of the Project :	**Existing Mine** (Credible Action Completed)
18	Name of the Consultant:	M/s. Sri Sai Manasa Nature Tech Private Limited

FORM - 1

FORM - 1

(I) Basic Information

<table>
<tr><th>Sl.No.</th><th>Item</th><th>Details</th></tr>
<tr><td>1.</td><td>Name of the project/s</td><td>M/s. Southern Silica Mines
(Silica Sand Mine)</td></tr>
<tr><td>2.</td><td>S.No. in the schedule</td><td>Item- 1(a) Mining of Minerals</td></tr>
<tr><td>3.</td><td>Proposed capacity /area /length/ tonnage to be handled/ command area/ lease area/number of wells to be drilled.</td><td>1,06,950 Metric Tones @annum
Mining Lease area: 27.33 Acres./ 11.06 Ha.</td></tr>
<tr><td>4.</td><td>New/Expansion/Modernization</td><td>Existing Mine</td></tr>
<tr><td>5.</td><td>Existing Capacity/Area etc.</td><td>Not Applicable</td></tr>
<tr><td>6.</td><td>Category of Project i.e. ‘A’ or ‘B’</td><td>Category ‘B2’</td></tr>
<tr><td>7.</td><td>Does it attract the general condition? If yes, please specify.</td><td>No</td></tr>
<tr><td>8.</td><td>Does it attract the specific condition? If yes, please specify.</td><td>No</td></tr>
<tr><td>9.</td><td>Location

Plot/Survey/Khasra No.
Village
Tehsil
District
State</td><td>Geo-ordinates of Mine lease area:
<table>
<tr><th>S No</th><th>Latitude ‘N’</th><th>Longitude ‘E’</th></tr>
<tr><td>1</td><td>14° 10’21.0"</td><td>80° 02'50.5"</td></tr>
<tr><td>2</td><td>14° 10’36.6"</td><td>80° 02'48.0"</td></tr>
<tr><td>3</td><td>14° 10’23.1"</td><td>80° 02'48.0"</td></tr>
<tr><td>4</td><td>14° 10’26.3"</td><td>80° 02'43.8"</td></tr>
<tr><td>5</td><td>14° 10'28.9"</td><td>80° 02'39.1"</td></tr>
<tr><td>6</td><td>14° 10'35.0"</td><td>80° 02'41.4"</td></tr>
<tr><td>7</td><td>14° 10'35.9"</td><td>80° 02’39.1"</td></tr>
<tr><td>8</td><td>14° 10'41.0"</td><td>80° 02'40.8"</td></tr>
<tr><td>9</td><td>14° 10'40.4"</td><td>80° 02'43.3"</td></tr>
<tr><td>10</td><td>14° 10'39.4"</td><td>80° 02'43.0"</td></tr>
</table>
Sy.Nos.1154/1,1155,1160&1161
Yeruru Village
Chillakur Mandal,
Nellore District.
Andhra Pradesh - 524412</td></tr>
<tr><td>10.</td><td>Nearest railway station/Port along with distance in km.</td><td>Gudur Railway station - 20 km (West)
Tirupathi Airport - 80 Km (SW)</td></tr>
<tr><td>11.</td><td>Nearest Town, city, district Headquarters along with distance in kms.</td><td>Gudur (Town)-20 Km (West)
Nellore (District) -25 km (North)</td></tr>
<tr><td>12.</td><td>Village Panchayats, Zilla Parishad,</td><td>Yeruru Village</td></tr>
</table>

	Municipal Corporation, Local body (complete postal addresses with telephone nos. to be given)	Gudur Muncipal Corporation Nellore Zilla Parishad
13.	Name of the applicant	Sri. P. Siva Kumar Reddy
14.	Registered Address	H No:6/160,East Street, Gudur, Nellore District. Andhra Pradesh -524101
15.	Address for correspondence: Name Designation (Owner/Partner /CEO) E-mail Telephone No. Fax No.	 P. Siva Kumar Reddy Managing Partner southernsilicamine@gmail.com 8374257999 Nil
16.	Details of Alternative Sites examined, if any. Location of these sites should be shown on a topo sheet.	The mineral being extracted is site specific and hence no alternative sites were examined.
17.	Interlinked Projects	Nil
18.	Whether separate application of interlinked project has been submitted?	Not applicable
19.	If yes, date of submission	Not applicable
20.	If no, reason	Not applicable
21.	Whether the proposal involves approval/clearance under: if yes, details of the same and their status to be given. i. The Forest (Conservation) Act, 1980? ii. The Wildlife (Protection) Act, 1972? iii. The C.R.Z. Notification, 1991?	No.
22.	Whether there is any Government Order/Policy relevant /relating to the site?	Yes. 1. Mining Scheme approval Letter Number 114/SS/MMS/NLR/2016 dated 02.02.2016- **Deputy Director of Mines & Geology, Kakinada,**
23.	Forest land involved (hectares)	No forest land is involved
24.	Whether there is any litigation pending against the project and/or land in which the project is propose to be set up? a) Name of the Court b) Case No. c) Orders/directions of the Court, if any and its relevance with the proposed project.	No litigation or court case is pending against the proposed project.

(II) Activity

1. Construction, operation or decommissioning of the Project involving actions, which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.)

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
1.1	Permanent or temporary change in land use, land cover or topography including increase in intensity of land use (with respect to local land use plan)	Yes	• There will be permanent change in land use and topography due to the proposed activity. • Present land use is flat undulate sand. This will be changed to mining / burrow area. • Silica Sand operations will be carried out by depth of 2.5m.
1.2	Clearance of existing land, vegetation and buildings?	No	There are no buildings and vegetation is sparse in lease area.
1.3	Creation of new land uses?	No	No new land use is created.
1.4	Pre-construction investigations e.g. bore houses, soil testing?	Yes	Few trial pits were dug and collected samples from surface as well as trial pits for estimating the quality and quantity of silica sand available in the mine lease area.
1.5	Construction works?	Yes	Office room and Portable rest rooms will be constructed for Labours at Mine.
1.6	Demolition works?	No	There are no buildings in the quarry lease area. Hence, no demolition works envisaged.
1.7	Temporary sites used for construction works or housing of construction workers?	No	Not envisaged.
1.8	Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations	Yes	Silica sand will be excavated up to a Maximum depth of 2.5 m depth.
1.9	Underground works including mining or tunneling?	No	The mining will be carried out by Open cast semi mechanized mining method. No underground mining or tunneling is envisaged.

1.10	Reclamation works?	Yes	In proposed lease area, reclamation will be taken up after economically viable depth is explored.
1.11	Dredging?	No	Not applicable
1.12	Offshore structures?	No	Not applicable
1.13	Production and manufacturing processes?	Yes	About 1,06,950 Metric Tones of silica sand will be excavated by semi mechanized open cast method. Mining will be done by digging with JCB, cooping, spreading, collecting in basket and loading into trucks
1.14	Facilities for storage of goods or materials?	Yes	Not applicable
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?	Yes	Not applicable
1.16	Facilities for long term housing of operational workers?	No	All the workers will be employed from local villages. Hence long term housing facilities are n't involved.
1.17	New road, rail or sea traffic during construction or operation?	Yes	During operation phase there will be Slight increase in present traffic.
1.18	New road, rail, air waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc?	No	Existing facilities will be used. No other major road, rail, air waterborne transport network is envisaged for this silica sand project.
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	No	No closure or diversion of existing transport routes or infrastructure is involved during mining operation.
1.20	New or diverted transmission lines or pipelines?	No	Not envisaged.
1.21	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?	No	Not envisaged.
1.22	Stream crossings?	No	One small Sona Channel is passing through the lease area.
1.23	Abstraction or transfers of water from ground or surface waters?	Yes	Water required for the mining activities will be sourced through tankers from nearby villages.

1.24	Changes in water bodies or the land surface affecting drainage or run-off?	No	Not applicable.
1.25	Transport of personnel or materials for construction, operation or decommissioning?	No	The mined out Silica sand will be transported to consumers by Tippers/ Trucks
1.26	Long-term dismantling or decommissioning or restoration works?	No	Not envisaged.
1.27	Ongoing activity during decommissioning which could have an impact on the environment?	No	Not envisaged.
1.28	Influx of people to an area in either temporarily or permanently?	No	No influx of people is envisaged as the total manpower required during operational stage is 39 including labor.
1.29	Introduction of alien species?	No	Not envisaged.
1.30	Loss of native species or genetic diversity?	No	Not envisaged.
1.31	Any other actions?	No	Not envisaged.

2. Use of Natural resources for construction or operation of the Project (such as land, water, materials or energy, especially any resources which are non-renewable or in short supply):

S.No.	Information/checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever Possible) with source of information data
2.1	Land especially undeveloped or agricultural land (ha.)	Yes	Total Land area: 27.33 Ha. / 11.06 Acres Present lease area is Govt. Waste land, it is not an agricultural land.
2.2	Water (expected source & competing users) unit: KLD	Yes	Total water requirement of the mining operations is about 14 KL per day. Water will be sourced through tankers from nearby villages.
2.3	Minerals (MT)	No	Total Mineable reserves of silica sand 6,09,025 metric tones.
2.4	Construction material-stone, aggregates, sand/ soil (expected source – MT)	Yes	Common office room and rest shelter is already established near the mine lease area.
2.5	Forests and timber (source – MT)	No	Not applicable
2.6	Energy including electricity and fuels	Yes	Not applicable

	(source, competing users) Unit: fuel (MT), energy (MW)		
2.7	Any other natural resources (use appropriate standard units)	No	Not applicable

3. Use, storage, transport, handling or production of substances or materials, which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health.

S.No.	Information/ Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
3.1	Use of substances or materials, which are hazardous (as per MSIHC rules) to human health or the environment (flora, fauna, and water supplies)	No	Not envisaged.
3.2	Changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)	No	Not envisaged.
3.3	Affect the welfare of people e.g. by changing living conditions?	No	Workers will be employed from local villages, so increased their Livelihoods.
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the elderly etc.,	No	Not envisaged.
3.5	Any other causes	No	Not envisaged.

4. Production of solid wastes during construction or operation or decommissioning (MT/month)

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
4.1	Spoil, overburden or mine wastes	No	No waste generation from the mine
4.2	Municipal waste (domestic and or commercial wastes)	Yes	No Commercial waste generated, very little quantity of domestic waste will be generated.
4.3	Hazardous wastes (as per Hazardous Waste Management Rules)	No	No Hazardous waste will be generated
4.4	Other industrial process wastes	No	Not envisaged
4.5	Surplus product	No	Not envisaged
4.6	Sewage sludge or other sludge from effluent treatment	No	Not envisaged
4.7	Construction or demolition wastes	No	Not envisaged

4.8	Redundant machinery or equipment	No	Not envisaged
4.9	Contaminated soils or other materials	No	Not envisaged
4.10	Agricultural wastes	No	Not envisaged
4.11	Other solid wastes	No	Not envisaged

5. Release of pollutants or any hazardous, toxic or noxious substances to air (Kg/hr)

S. No.	Information/Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
5.1	Emissions from combustion of fossil fuels from stationary or mobile sources	Yes	The excavated sand will be transported through Lorries which will be a source of emissions
5.2	Emissions from production Processes	No	Not applicable
5.3	Emissions from materials handling including storage or transport	No	Not applicable
5.4	Emissions from construction activities including plant and equipment	No	Not applicable
5.5	Dust or odors from handling of materials including construction materials, sewage and waste	No	Not applicable
5.6	Emissions from incineration of waste	No	Not envisaged
5.7	Emissions from burning of waste in open air (e.g. slash materials, construction debris)	No	Not envisaged
5.8	Emissions from any other sources	No	Not envisaged

6. Generation of Noise and Vibration, and Emissions of Light and Heat:

S. No.	Information/Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/rates, wherever possible) with source of information
6.1	From operation of equipment e.g. engines, ventilation plant, crushers	No	Not applicable
6.2	From industrial or similar processes	No	Not envisaged
6.3	From construction or demolition	No	Not applicable
6.4	From blasting or piling	No	Not applicable.
6.5	From construction or operational traffic	Yes	Noise and emissions will be generated during transportation of Silica sand

6.6	From lighting or cooling systems	No	Not envisaged
6.7	From any other sources	No	Not envisaged

7. Risks of contamination of land or water from releases of pollutants into the ground or into sewers, surface waters, groundwater, coastal waters or the sea:

S. No.	Information/Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
7.1	From handling, storage, use or spillage of hazardous materials	No	Not envisaged.
7.2	From discharge of sewage or other effluents to water or the land (expected mode and place of discharge)	No	Not envisaged.
7.3	By deposition of pollutants emitted to air into the land or into water	No	Not envisaged.
7.4	From any other sources	No	-
7.5	Is there a risk of long term build up of pollutants in the environment from these sources?	No	-

8. Risk of accidents during construction or operation of the Project, which could affect human health or the environment

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
8.1	From explosions, spillages, fires etc. from storage, handling, use or production of hazardous substances	No	No Explosives are not required for these operations.
8.2	From any other causes	No	Not envisaged.
8.3	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, cloudburst etc.)?	No	Not envisaged.

9. **Factors which should be considered (such as consequential development) which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality.**

S. No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
9.1	Lead to development of supporting facilities, ancillary development or development stimulated by the project which could have impact on the environment e.g.: ⇨ Supporting infrastructure (roads, power supply, waste or wastewater treatment, etc.) ⇨ Housing ⇨ Development ⇨ Extractive industries ⇨ Supply industries ⇨ Other	No	No facilities or ancillary Development is proposed. Not envisaged.
9.2	Lead to after-use of the site, which could have an impact on the environment	No	Not applicable
9.3	Set a precedent for later developments	No	Not applicable
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects	No	Not applicable

(III) Environmental Sensitivity

S.No.	Areas	Name/ Identity	Aerial distance (within 15km.) Proposed project location boundary
1.	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value.	None	Not applicable
2.	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests.	**Reserved Forests** Momidi R.F Kottapattnam R.F Thammenapatnam RF **Water Bodies** Upputeru River Yeruvu Cheruvu Kakinedu Cheruvu Buckingham Cannal Bay of Bengal	1.25 Km (E) 4.88 Km (SE) 8.00 Km (NE) 2.00 Km(NW) 2.57 Km(W) 8.40 Km(NW) 5.10 Km (E) 8.67 km(E)
3.	Areas used by protected, important or sensitive species of flora or fauna for bree ding, nesting, foraging, resting, over wintering, migration	None	-
4.	Inland, coastal, marine or underground waters	None	-
5.	State, National boundaries	None	No Interstate boundaries with in 15 kms
6.	Routes or facilities used by the public for access to recreation or other tourist, pilgrim area	None	-
7.	Defense installations	None	-
8.	Densely populated or built-up area	None	-
9.	Areas occupied by sensitive man-made land uses hospitals, schools, places of worship, community facilities)	Hospital Facilities available at Chintavaram Mandal	2 km from lease area.
10.	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	None	-

11.	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	None	-
12.	Areas susceptible to natural hazard which could cause the project to present environmental problems(earthquakes, subsidence,landslides,erosion, flooding or extreme or adverse climatic conditions)	Area is prone to cyclones	-

I hereby given undertaking that the data and information given in the application and enclosures are true to the best of my knowledge and belief and I am aware that if any part of the data and information submitted is found to be false or misleading at any stage, the project will be rejected and clearance give, if any to the project will be revoked at our risk and cost.

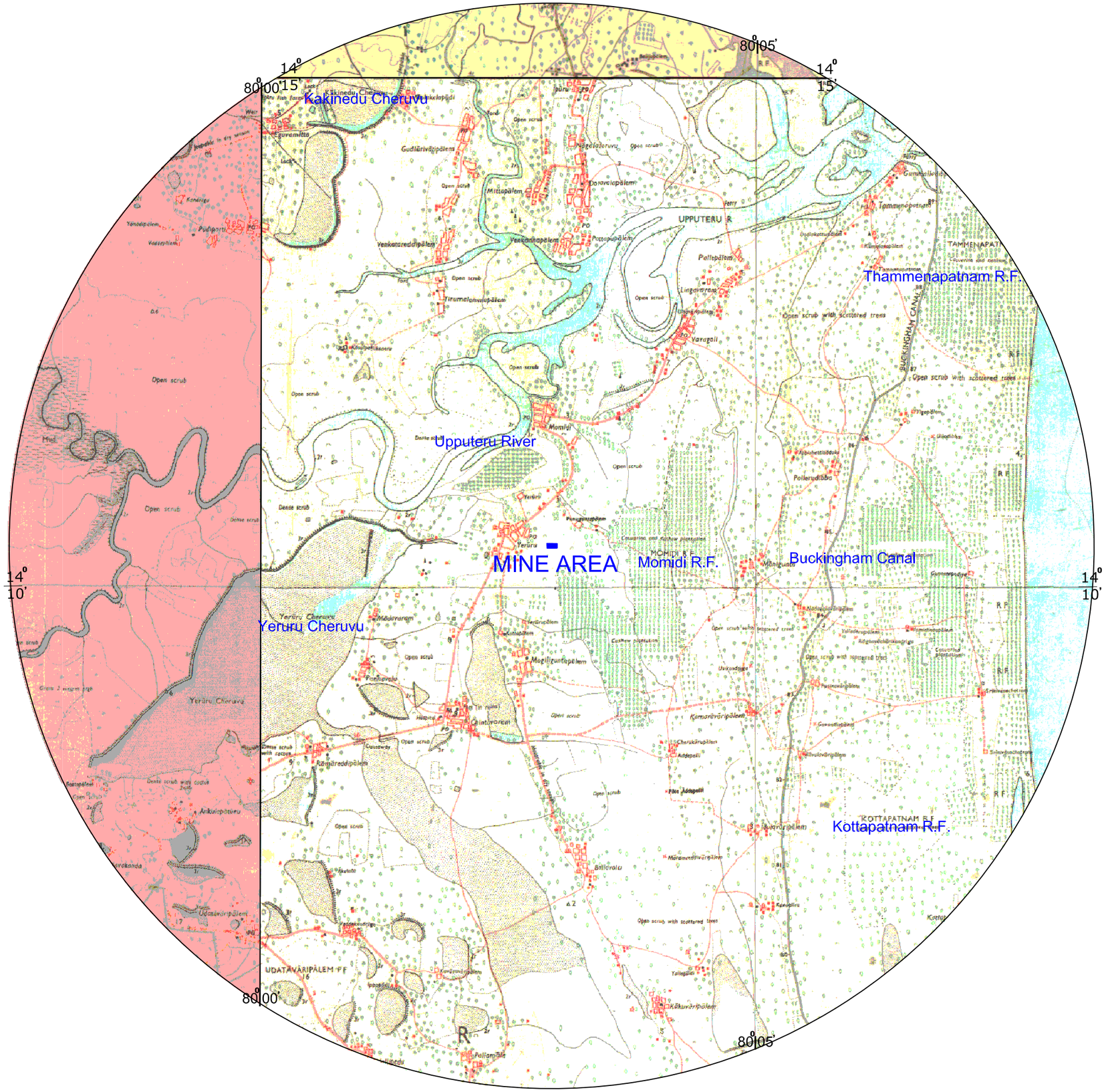
For SOUTHERN SILICA MINES

MANAGING PARTNER

P. Siva Kumar Reddy

Date: 07.11.2016

Place: Gudur



N

LEGEND

- ROAD
- STREAMS/ TANKS
- SETTLEMENTS
- MINE LEASE AREA
- CONTOURS
- FOREST
- MINE LEASE AREA

INDEX TO
SURVEY OF INDIA TOPOSHEETS

$57\frac{N}{15}$	$66\frac{B}{3}$	Sea
$57\frac{N}{16}$	$66\frac{B}{4}$	Sea
$57\frac{O}{13}$	$66\frac{C}{1}$	$66\frac{C}{5}$

SCALE

0 1 2 3 4 5KM

PROJECT :

M/s. SOUTHERN SILICA MINES

(27.33 Ac/11.06 Ha.), Silica Sand Mine

Sy. No's. 1154/1, 1155, 1160 & 1160,
YERURU VILLAGE,
CHILLAKUR MANDAL,
SPSR NELLORE DISTRICT,
ANDHRA PRADESH.

TITLE :

TOPOGRAPHICAL MAP SHOWING 10 km RADIUS

PREPARED BY

SSMNT

SRI SAI MANASA NATURE TECH PVT. LTD.
HYDERABAD

PRE-FEASIBILITY REPORT

1.0 EXECUTIVE SUMMARY

1.1 Introduction

M/s. Southern Silica Mines is a private partnership firm. They applied for a mining lease for Silica Sand over an extent of 27.33 Acres./11.06 Ha. in Sy. No. 1154/1,1155,1160 & 1161 of Yeruru Village, Chillakur Mandal, Nellore District, A. P. Director of Mines and Geology .

The salient features of the project are given **Table 1.1.**

Table 1.1
Salient features of the project

Mining Lease Area	27.33 Acres/ 11.06 Ha.
Location	Yeruru Villages Chillakur Mandal, Nellore District, A.P.
Top sheet No.	66B/4
Topography	Flat undulated sand bearing terrain
Minerals of mine	Silica Sand
Proposed production of mine	1,06,950 Metric Tones
Method of mining	Opencast Manual Method
Water demand	14 KLD
Sources of water	Water Tankers Nearby village
Ultimate depth of Mining	2.5 m
Man power	39
Nearest railway station	Gudur Railway station - 21.6 km (West)
Nearest state highway/national highway	NH-5 is 18.km (W)
Nearest Airport	Tirupathi Airport – 80 Km (SW)
Project Cost	Rs. 30 Lakhs

2.0 INTRODUCTION OF THE PROJECT/ BACKGROUND INFORMATION

2.1 Project identification, location & reasons for submission details:

Introduction: The proposed project is for mining of Silica sand mineral by semi mechanized opencast method. The lessee is said mining project is Silica sand mine situated at Yerruru Village, Chillakur Mandal, S.P.S.R Nellore district, Andhra Pradesh. It is a Government land. This lease in an area of 11.06 Ha. has been sanctioned to on 26.02.2000 To 26.02.2000 (20 Years). The first renewal of mining lease was granted in favor of M/s. Southern Silica Mines over an extent of 11.06 Ha/27.33 Acres in Sy. Nos 1154/1, 1155, 1160 & 1161 of Yeruru Village, Chillakur Mandal, and SPSR Nellore District. Vide G.O.Ms.No702 of Industries & commerce (M.I) Dept., dated 03.12.1981, for a period of twenty years to mine silica sand. The ML was executed for a period of 20 years.

The Asst. Director, Mines & Geology, Nellore, Vide Notice No 2634/NGT/2015 dated 02-07-2015, issued guidelines to be followed by the Mining Lease holders in Kota & Chillkur Mandals of Nellore District to be conducted as per the Environmental, Ground Water Department and Mining Norms. They are reproduced below.

Reasons for the present submission: After the approval of modified mining scheme with new guidelines, the lessee is required to submit application for prior EC, and accordingly this application is being submitted.

Sub-Committee of SEAC on Nellore Silica Sand project environmental conditions: SEAC (AP) identified the present area of operations as eco-sensitive and accordingly issued a few guidelines after detailed study, for protection of environment, in which the existing approved mining plan/scheme was modified. Accordingly the present modifications are being submitted for approval. The same guide lines are issued by AD Mines and Geology also.

The Asst. Director, Mines & Geology, Nellore, Vide Notice No 2634/NGT/2015 dated 02-07-2015, issued guidelines to be followed by the Mining Lease holders in Momidi & Chillakur and Kota Mandals of Nellore District to be conducted as per the Environmental, Ground Water Department and Mining Norms.

Accordingly the lessee has prepared the modified scheme of mining and got it approved vide letter No. 149/Silica Sand/MMS/NLR/2016 Dated 04-02-16. The conditions incorporated are as below.

1. *Mining is permitted only to a level of >1 M above water table.*
2. *To establish the level of water table in lease for monitoring reference, sufficient number of trial pits of suitable size have to be formed by lessee at a minimum*

spacing of 30 m interval both along the gradient of water and perpendicular to it. The water table in these trial pits is considered as initial water table depth and mining should be permitted a level of 1m above the identified level.

3. *In the areas with "Sona Kaluvas" (Spring Channels) no mining should be permitted within 50 m distance from any point of either side of channels and even existing mine lease areas also need to submit a closure plan of such areas, if they have already been excavated.*

4. *Conditions for safe transportation of mined out sand for avoiding fugitive emissions and similar conditions for laying approach roads and haul roads to ensure mineral conservation, should be invariably and specifically be made as general conditions.*

5. *Permanent Monitoring stations at strategic locations be established by all mine lessees of a village and ensure that the silica content is less than 3µğ /M^3 and similarly, well inventory of dug wells be maintained for every village*

6. *Certain guidelines for mining are also proposed as here under*

   - *"If a Sona Channel is found within 50 m from the applied boundary in any direction and extent, the lease shall not be granted and accordingly the lease granting authority has to be intimated.*

   - *If the Mining operations that were done are observed to be within 50 m of any "Spring Channel" the side should not be cleared for Environmental Clearance unless the lease document is corrected accordingly by correcting mineable boundaries.*

   - *For appraising any case for environmental clearance, the survey drawing of the site with contours of 1 m interval shall be provided and proponent should be asked to provide the same by getting endorsed with DMG surveyor. The Contour survey shall be conducted with spot level density of at least 1 point for every 2 SqM.*

   - *The area map showing the leases will be helpful in deciding other adjacent leases to decide the cluster condition. In the case of cluster conditions they should be deal accordingly.*

   - *The depth of excavation in permissible mining area shall in no case exceed 2.5 m from stay level in "Minus-Z direction".*

   - *If a Mining Plan that is having conditions against the above recommendations, the Mining Plan shall be suitably modified and re-submitted and get approved by the lessee.*

The above mentioned guidelines necessitated for preparation of Modifications to the Approved Document.

2.2 Identification of Project and Project Proponent

M/s. Southern Silica Mines is a private partnership firm. Sri. P. Shiva Kuamr Reddy the Managing Partner of the firm.

The proposed silica sand mine is located in 1154/1, 1155, 1160 &1161 of Yeruvu Village Chillakur Mandal, Nellore District, Andhra Pradesh over an area of 11.06 Ha.

The silica sand available in the proposed mine is useful for manufacture of glass, in foundries and chemicals.

2.3 Brief Information about the Project

The mining lease area of 11.06 Hectares Opencast manual mining is followed and it has been proposed to produce approximately 1,06,950 Metric Tonnes of Silica Sand. The nearest habitation is Yeruvu village.

2.4 Need for the Project and Its Importance to the Country or Region

The production of silica sand at 2,283 thousand tonnes in 2009 – 10 decreased by about 19 % over that of the previous year due to lack of demand from cement plants and labour problems. Andhra Pradesh the major producing state reported decrease of about 28% in comparison with the previous year due to of request labour problems. During the year under review, there were 133 reporting mines as against 138 in the preceding year. Besides, the production of silica sand was also reported as an associated mineral by four mines during the year. Ten principal producers accounted for about 54% of the total production. The share of public sector in the total production was 5% in 2009-10 as against 1% in the preceding year. Andhra Pradesh, the leading producing state accounted for 39% of the total production during the year followed by Gujarat (17%), Rajasthan (14%), Maharashtra (13%), Uttar Pradesh (7%), Jharkhand and Karnataka (4%each). The remaining two percent productions was the contribution of Kerala, Odisha and Tamil Nadu. About 62% of the total production of silica sand was contributed by 15 silica sand mine sand two associated mines, each mine producing more than 50 thousand tonnes annually and about 33% by 56 silica sand mines and one associated mine, each producing five thousand to fifty thousand tonnes. The remaining 5% of the output was contributed by 62 silica sand mine sand one associated mine, each producing less than 5000 tonnes annually. Mine-head stocks of silica sand at the end of 2009-10 were 3,260 thousand tonnes as against of 1,280 thousand tonnes in the beginning of the year. The average daily employment of labourers in 2009-10 was 2,401 as against 2,257 in the previous year. Domestic prices of silica sand are furnished in the General Review on Prices.

(Source: Indian Minerals Yearbook 2011 (Part- II) by Indian Bureau of Mines.)

2.5 Employment Generation

Mining will be done in Open cast semi mechanized method. About 39 workers are going to be engaged for at least 300 days in a year for loading silica sand in to trucks / tractors/ tippers. It will provide indirect employment to several workers in the area.

3.0 PROJECT DESCRIPTION

3.1 Type of Project Including Interlinked and Interdependent Projects, If Any.

No interlinked projects were associated with this project.

3.2 Location

The proposed project is located in Yeruru Village of Chiiakur Mandal Nellore District; Andhra Pradesh over an area of 27.33Acres/ 11.06 Ha. The mining lease area falls in Survey of India Topo sheet No.66B/4.

The Geo Co-ordinates of the mine lease are:-

S No	Latitude 'N'	Longitude 'E'
1	14° 10'21.0"	80° 02'50.5"
2	14° 10'36.6"	80° 02'48.0"
3	14° 10'23.1"	80° 02'48.0"
4	14° 10'26.3"	80° 02'43.8"
5	14° 10'28.9"	80° 02'39.1"
6	14° 10'35.0"	80° 02'41.4"
7	14° 10'35.9"	80° 02'39.1"
8	14° 10'41.0"	80° 02'40.8"
9	14° 10'40.4"	80° 02'43.3"
10	14° 10'39.4"	80° 02'43.0"

Location of the mining lease in Nellore District is shown in **Fig – 1**.

Google Image of Lease Area enclosed as **Fig - 2.**

FIG - 1

LOCATION MAP

Fig - 2

Google Image of Lease Area

3.3 Details of Alternate Sites

No alternate site was considered as the project is mineral specific and site specific.

3.4 Size or magnitude of operation

The proposed mine has lease over an area of 27.33 Acres./11.06 Ha. and the production rate is 1,06,950 Metric Tones, The lease follows open cast manual mining.

Geology and Reserves

3.4.1 Topography

The physiography of the area is flat undulated sand bearing terrain with very less number of small plants, bushes and shrubs. The height of the dunes existing in the area varies from 3 m from the ground level. The dunes are very less in number. The area is almost flat with slant topography. The height increase towards east from western side. Except this the physiography of the area is uniform.

3.4.2 Local Geology

Local geology and Lithology of the area is as follows:

Silica Sand	Silica Sand 2 to 3 m thick
Fine grade sandy soil	Sand with sedimentation of clayey material
Schists and other rocks	Below 6 m (not confirmed in any of the existing operating mines)

3.4.3 Regional Geology

The regional geology of the area is comprised of Nellore Schist belt overlaid by sand formed due to vigorous cyclone effect and by back water of Bay of Bengal years and years ago. The sand is widely exposed into surface; rather the area is fully covered by sand everywhere. The schist sand and sandy soil incorporates the general geology of the applied area. The main geological sequence is as follows:

Recents	Silica sand and clay
Nellore Schist belt	Alumina and silica rich products
Dharwars	Schists, phyllite etc.
Archaeons	Igneous rocks

(Source: Mining plan)

3.5 PROJECT DESCRIPTION WITH PROCESS DETAILS

3.5.1 Method of Mining

The proposed quarrying operation is by opencast semi-mechanized quarrying. Mining of silica sand is through digging, scooping, spreading collection in basket and loading into trucks and occasionally using excavator/ loaders. Therefore no development is required in this area. However it is proposed to undertake other development works such as laying of mine-haul road from the main road to the pit-head, and maintenance of mine-layout road. The portable rest rooms will be constructed for labors at mines.

Initially proposing to start the mining at North-eastern side of the area and it will progress towards West as shown in the 5 years working plan, Since the silica sand is soft and loose mineral, the simple manual opencast method of digging, scooping and excavating with the help of pawda by forming simple ditch is adopted in this mine. The digging will be done in 2 attempts for 1 m depth each to produce silica sand.

3.6 Raw Material Required Along With Estimated Quantity, Likely Source, Marketing Area of Final Product/S, Mode of Transport of Raw Material and Finished Product

No raw material will be required in the proposed project. The operation involves the extraction of sand in its existing form and it will be transported to the Non Local market through Lorry's. The existing roads will be utilized for the transport of silica sand from mine site to market.

3.6.1 Use of Mineral

Silica sand is used for manufacture of glass and molding industries in Chennai, Banglore and Hyderabad etc.

3.8 Resource Optimization/ Recycling and Reuse

Not envisaged.

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

3.9.1 Solid Waste Generation& its Disposal

No waste is anticipated in Ordinary Sand Mining

3.10.2 Liquid Effluent

No liquid effluent will be generated at the mine site.

4.0 SITE ANALYSIS

4.1 Connectivity

4.1.1 Nearest Railway Station

Gudur Railway station - 20 km west direction from mine lease area

4.1.2 Nearest Airport

Renigunta Airport (Tirupathi) - 77 km from mine lease area

4.2 LANDFORM, LANDUSE AND LAND OWNERSHIP

The mining lease is located in Government land. The working project portion is devoid of any vegetation.

4.3 Topography

The Physiography of the area is flat undulated sand bearing terrain with very less number of Small plants, bushes and shrubs. The height of the dunes existing in the area varies from 1-1.50 m. from the ground level. The dunes are very less in number. The area is almost flat with slant topography. The height increases towards west from eastern side. The mining lease area is located 8.5 km. due West of the shoreline at an elevation of 90 m.

5.0 PLANNING BRIEF

5.1 Planning Concept

It is proposed to produce Two years total of 2,15,700 Metric Tonnes of Silica Sand from the mining lease.

5.2 Population projection

The project will employ mostly workers from nearby villages; About 30 persons will be employed as workers for this proposed mine. There will not be any increase in population due to the project.

5.3 Land use planning

The project is located in 27.33 Acres/ 11.06 Ha. of Government land. There will be change in land use as the sand mine will be excavated.

5.4 Assessment of Infrastructure Demand (Physical & Social)

On the basis of the preliminary site visit, the infrastructure demand in the villages was assessed on the basis of need and priority. The assessment will be made in the socio economic survey and will be submitted at the time of final presentation regarding EC.

5.5 Amenities/Facilities

First aid box and drinking water facility will be available at the site. Rest shelter will be provided at the site.

6.0 PROPOSED INFRASTRUCTURE

6.1 Residential Area (Non Processing Area)

As the local persons will be given employment, no residential area/ housing is proposed within the mining lease area.

6.2 Water Management

Total water requirement in the mine will be 14.0 KLD. It will be sourced through tankers for domestic usage purpose, green belt development and domestic usage for water requirement in the mine is given in below Table.

Water Requirement Details

Enduse	Quantity (KLD)
Dust suppression	8.0
Green Belt Development	4.0
Domestic Use	2.0
Total	**14.0**

The total water requirement is 14.0 KLD.

6.3 Sewerage System

Disposal in to soak pit outside the river bank

6.4 Industrial Waste Management

Not applicable.

6.5 Solid Waste management

No solid waste generation from the mine lease area.

7.0 REHABILITATION AND RESETTLEMENT (R&R) PLAN

Not Applicable.

8.0 PROJECT SCHEDULE & COST ESTIMATES

The Total cost of project would be around Rs. 35 lakhs

9.0 ANALYSIS OF PROPOSAL (FINAL RECOMMENDATIONS)

9.1 Financial and Social Benefits with Special Emphasis on the Benefit to the Local People Including Tribal Population, If Any, In the Area.

The project involves collection of sand. This is very essential primarily to meet the demands of sand for construction and secondarily to prevent flooding and damage to the adjoining areas. This can only be achieved by maintaining the existing course of the river.

****

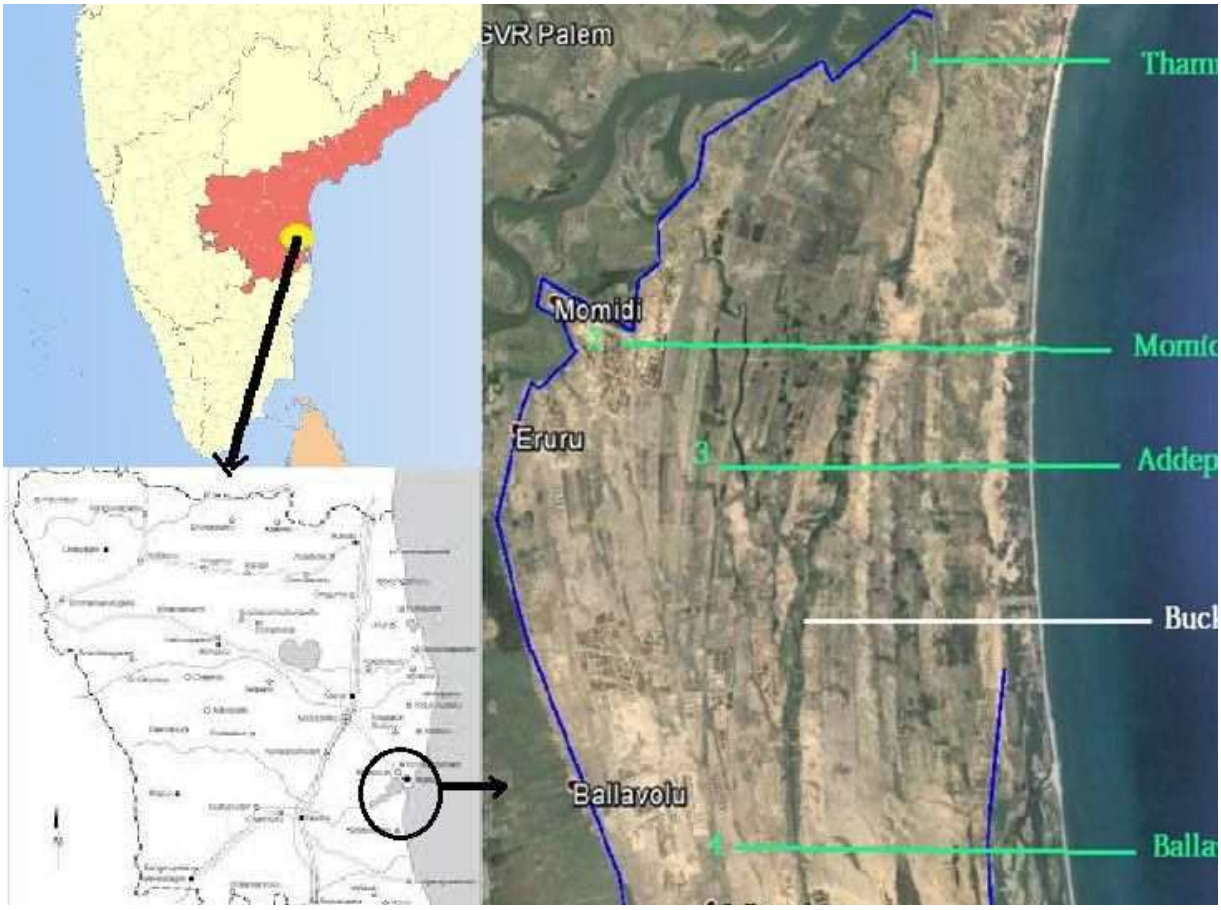
ENVIRONMENT MANAGEMENT PLAN

ENVIRONMENT MANAGEMENT PLAN

PROJECT : M/s. Southern Slica Mines
(Silica Sand Mine)
PRODUCTION : 1,06,950 Metric Tons @annum
LOCATION : Sy.Nos.1154/1,1155,1160 & 1161,
Yeruru Village, Chillakur Mandal,
Nellore District, A.P.

A. ENVIRONMENTAL IMPACT & BASE LINE INFORMATION:

(Site observation & SEAC Sub-Committee's report):
Chillakur and ***Kota*** Mandals of *Sri Potti Sree Ramulu Nellore* district, lies between North Latitudes 14°02" and 14°10" and East Longitudes 79°51" and 80°09" in the Survey of India topographic maps 57 N/16 and 66 C/1 on a scale of 1:50,000. A figure of the same is given below. These mandals are the coastal mandals of the southern part of the district and lie in between the mouths of two rivers, Kandaleru in the north and Swarnamukhi in the south. Agriculture is the major occupation in this rural part of the district while, mining and industrialization are expanding rapidly.



B. ENVIRONMENTAL IMPACT ASSESSMENT

i) Land Degradation

A pit of 51400 M2 to a depth of 2.00 M depth will be formed in the ML area. These pits will remain as they are and there are less chances of naturally getting backfilled in the near future.

ii) Impact on Air Quality

The machines in general will operate in the moist atmosphere due to the watery nature of the area. Thus the dust generation during the loading operations will be nil. However while transporting the material through trucks the dust can raise on the roads. In general the grain size being larger the dust will not rise as clouds in the air.

iii) Impact on Water Regime

Spring Channels (Locally termed as "Duruvus) do exist in the area, whose water levels are fluctuating on seasonal basis. The impact on these systems is more fully described in the previous sections. However in the lease area there are no such daruvus or spring channels.

iv) Noise Levels

Noise emitted from the machines is due to engine sounds. The operators are more exposed to the noise pollution. The noise pollution effects more the machine operators than the persons working away from machines.

v) Vibration Levels

Vibrations of notable level will not be generated. This is due to the reason that the digging operations are only in soft and loose sand deposits. The machine operators are effected due to vibrations of machines, all the more when the machines are not maintained properly.

vi) Socio Economics

The mining lease area is surrounded by 5 villages within a distance of 5 Km. Agriculture is the most important profession of the people living in the village besides involving themselves in mining activity. Within or near to the present lease area there are no agricultural lands.

vii) Waste generation (Liquid and solid):

The nature of Silica Sand mining operations is such there is hardly any waste. The over burden levels are also nil. The waste quantum can be assessed to a maximum of 2% of the Silica Sand material mined. This material is stacked separately and is blended with high grade material as and when it is possible. Therefore there is no solid waste generated from the mined out material. Other form of solid waste generated from the Mines is very little quantity of plastics, papers, scrape of iron or other metals generated from the machine maintenance. The only liquid waste generated from the Silica Sand Mines is the used waste oil that is removed periodically from the machines during maintenance. If not managed properly this oil can be harmful if it gets mixed in the soil.

C. Environmental management

i) Management of land Degraded

As explined above in impact assessment a pit of 51400 M2 to a depth of 2.00 M depth will be formed in the ML area. After completion of the mining activities these pits will remain as they are and there are less chances of naturally getting backfilled in the near future. Since the mine is left with a buffer zone of 7.5 meters around, the water will be held within the pit. After some settlement it can flow to other areas by seeping action. These store houses of water can be used for water supply to the needy. Flow of water will be ensured to avoid etrufication.

ii) Air Quality management

The machines in general will operate in the moist atmosphere due to the watery nature of the area. Thus the dust generation during the loading operations will be nil. However while transporting the material through trucks the dust can raise on the roads. The following measures are proposed for air quality management.

a. To reduce the speed of the trucks to only 15kmph,
b. To maintain a minimum distance of 100 meters between truck to truck,
c. To provide for one way traffic as far as possible,
d. To continuously sprinkle water on roads to keep them moist,
e. To provide bottom guards to the fan housing to prevent air flushing,
f. To periodically tune the engines for emission regulation and conducting 'Emission tests' through authorized dealers, and
g. To provide dust masks to the persons working purely as a contingency measure,

iii) Water Regime management

Spring Channels (Locally termed as "Duruvus) do exist in the area, whose water levels are fluctuating on seasonal basis. The impact on these systems is more fully described in the previous sections. However in the lease area there are no such daruvus or spring channels. For protection of the spring channel in this area a boundary of 50 meters is left for its protection. This will ensure that there will not be any serious effect on the hydrology of spring channel. For reduction of impact on water regime the following steps are proposed.

a. To meticulously maintain the spring channel protection barrier meant for, by providing a barrier line with markers for the operators to identify.
b. To maintain a standing platform height of at least 2.5 meters above the water level to see that the load impact is reduced on the water table.
c. To see that no pollutants from the machines are discharged into the water
d. To direct wash water separately and to see that it does not mix with water table.
e. To collect the oils and lubricants (Waste) and disperse them to local vendors, and
f. To keep the diesel and oil filling operation areas away from the working areas.

iv) Noise Level management

Noise emitted from the machines is due to engine sounds. The operators are more exposed to the noise pollution. The noise pollution affects more the machine operators than the persons working away from machines. For this purpose the only way proposed is to maintain the machines periodically to reduce the metal to metal contact noises, and also to provide earmuffs to the operators as a contingency measure.

v) Reduction of Vibration Levels

Vibrations of notable level will not be generated. This is due to the reason that the digging operations are only in soft and loose sand deposits. The only category of persons affected due to vibration is machine operators. It is planned to see that the daily dosage of exposure is limited for every machine operator, and also to see that the machines are maintained properly. Some of the measures proposed are as under.

a. To provide cushion matting in the cabins,
b. To protect the company provided acoustic packing of the cabin,
c. To regularly lubricate the metal, and journal contacts,
d. To tune the engines especially during idling for the frequency match, and
e. To stop waste running during waiting which will not only reduce vibration exposure but also will reduce diesel consumption and thus the air pollution.

vi) Socio Economics

The mining lease area is surrounded by 5 villages within a distance of 5 Km. Agriculture is the most important profession of the people living in the village besides involving themselves in mining activity. Within or near to the present lease area there are no agricultural lands. There are no specific measures planned under this head. As it is the persons working are locals.

viii) Proposal for progressive reclamation of land affected by mining activities

Proper digging plan is key to this reclamation. It is proposed to divide the working areas in to large independent areas like checker boxes and operate these areas with temporary barrier between them. This will ensure sudden collapse or sudden merger of the entire area. Once an area is complete the machine will shift to the next area and only after new barrier is formed. Thus the area excavated will be forming gradually with the hydraulic pressure settling after taking its own time.

ix) In case of abandoned Quarries / Pits are proposed to be used as reservoir, their size, water holding capacity and proposal for utilization of such water be given:

The mine will form as a pit. But these pits will not be holding water. Rather they will serve as stock houses for excess inflows and there will be continuous out flow depending on the hydraulic gradient.

x) Program of afforestation year wise for the initial four years indicating number of plants with name of species to be afforested under different areas in hectares

The lessee proposes to raise the cashew plantation all along the buffer zone of 7.5 M in phased manner covering an area of 400 M2.

Year	Area (M^2)	No. of Plants
5th (2016 - 17)	200	60
TOTAL	**200**	**60**

xi) Stabilisation and vegetation of dumps along with waste dump Management year wise for next four years

The waste generated is 2% of the production quantity. This quantity does not need any additional dump. This material will be dumped in the places that need strong retaining walls for

proper water storage. Therefore the need of stabilization and vegetation of dumps will not arise.

xii) Measures to control erosion / sedimentation of water course

Due to mining activity there will not be any erosion or any sedimentation of water course.

xiii) Treatment and disposal of water from mines

No water will outflow from the mine with any contamination. Thus this is not applicable

xiv) Measures for protecting Historical monuments and for rehabilitation of human settlements likely to be disturbed due to mining activity

No historical monuments exist in the area and as the human settlements are far away from the mining area, no disturbances are likely to be foreseen.

xv) Solid Waste

There will not be any solid waste generation in the proposed operations.

D) Site Services

Rest Shelter, Drinking Water Facilitate, Public Utilities, First Aid are provided by the lessee.

E) POST PROJECT MONITORING PROGRAMME

There are no guidelines available for post project monitoring for such Silica Sand projects. However the following monitoring schedule is proposed.

1. To guard the area with a guard to see that there will not be any inadvertent entry,
2. To divert the local drainage in such a way that the water in the area will be fully absorbed by the ground and will recharge the ground water,
3. To construct bunds or some sort of parapet protection around the excavation in such a way that the holding capacity (Artificial) will be increasing during monsoon.

F) OCCUPATIONAL HEALTH

- Dust masks will be provided for protecting persons from exposure to dust.
- Ear plugs will be provided to employees to reduce the Noise impact on them.
- Health check up will be carried out for all employees in an external hospital as per the statute that is once in Five years.

G) BUDGET FOR ENVIRONMENT MANAGEMENT PLAN

Total cost for the proposed project is 45 lacks. Budget allocated for EMP is 1.0 (Capital Cost), 4.30Lakh (Recurring Cost).

Budget for Environmental Management Plan (Rs)

S. No.	Description	Item	Capital Cost In Rs.	Recurring Cost/ Year Rs
1	Air pollution	Dust masks	Nil	5,000
		Dust Suppression	Nil	1,50,000
		Plantation in Quarry lease area, along Approach road & maintenance	10000	1,50,000
2	Noise pollution	Maintenance of machinery	Nil	(Comes under prodn., cost
3	Environmental monitoring	Ambient Air Quality monitoring (PM10 & PM2..5)	Nil	75,000
		Noise level		
4	Occupation Health (for Max. no of Employees)	For conducting Health Tests for employees	Nil	50,000
Total			**1,00,000**	**4,30,000**

APPROVED MINING SCHEME

GOVERNMENT OF ANDHRA PRADESH
DEPARTMENT OF MINES AND GEOLOGY

From
V. Koteswara Raju, M.Sc.,
Deputy Director of Mines and Geology,
Kakinada &
Approving Authority for Guntur Region.

To
M/s Southern Silica Mines,
Mg.P: Sri P. Siva Kumar Reddy,
7/105, Mittapalem Street, Gudur,
SPSR Nellore District.

Letter No. 114/SS/MMS/NLR/2016, dated: 2-02-2016.

Sir,

Sub:- Mines & Minerals – Mining Lease held by M/s Southern Silica Mines for Silica Sand over an extent of 27.33 Acres in Sy. Nos. 1154/1, 1155, 1160 and 1161 of Yeruru Village, Chillakur Mandal, SPSR Nellore District – Modified Mining Scheme – Approval – Regarding.

Ref:
1. Proceedings No. 28594/RQP/2001, dated 25.09.2015 of the Director of Mines and Geology, Andhra Pradesh, Hyderabad.
2. Draft Modified Mining Scheme submitted by M/s Southern Silica Mines on 28.01.2016.
3. Letter No. 114/SS/MMS/NLR/2016, dated 30.01.2016 of the DDM&G, Kakinada.
4. Letter dated 01.02.2016, received on 01.02.2016 along with 6 sets of fair modified Mining Scheme from the RQP.

*****

In exercise of the powers conferred by the Director of Mines and Geology, Andhra Pradesh, Hyderabad through the reference 1st cited, I hereby approve the modified Mining Scheme for the ensuing 1 years period i.e., for 2016-17 for Silica Sand over an extent of 27.33 Acres in Sy. Nos. 1154/1, 1155, 1160 and 1161 of Yeruru Village, Chillakur Mandal, SPSR Nellore District in favour of M/s Southern Silica Mines under Rule 12(4) of MCDR, 1988. This approval is subject to the following conditions.

1. This modified Mining Scheme 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.
2. It is clarified that this approval of the modified Mining Scheme does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act 1957 or the Mineral Concession Rules1960 and any other laws including the Forest Conservation Act, 1980.
3. The modified Mining Scheme is approved subject to strictly adhering to the Relevant Regulations of MMR 1961 and obtaining prior permission from Director General Mines Safety whenever and where ever it is required.
4. The approval authority does not owe the responsibility with regard to Assessment of the reserves, erroneous certification made by the R.Q.P. if any and approval is tentative subject to modification on new findings at a later date as per the provisions of (23 B & 23 D) of M.C.D.R. 1988 since the evaluation is done on random basis.
5. The Mine owner should follow the conditions stipulated by the Environmental Engineer, Nellore in Silica Sand mine without any deviation.

Encl: A.M.M.S.

Yours faithfully,

Deputy Director of Mines and Geology,
Kakinada &
Approving Authority for Guntur Region

Copy submitted to the Director of Mines and Geology, Andhra Pradesh, Hyderabad alongwith A.M.M.S.
Copy to Sri P. Viswam, RQP, C/o R. Sekhar Naidu, Near Sivalayam Temple, Sydapuram Village and Mandal, S.P.S.R. Nellore District, for information.
Copy submitted to the Member Secretary, Andhra Pradesh Pollution Control Board, Hyderabad alongwith Approved Modified Mining Scheme for information.
Copy submitted to the Regional Controller of Mines, IBM, Room No.603, 6th Floor, C.G.O Towers, Kavadiguda, Secunderabad – 500080 alongwith A.M.M.S.
Copy submitted to the Director of Mines Safety, Hyderabad Region -2, Room No-701, 7th Floor, C.G.O Towers, Kavadiguda, Secunderabad – 500080, for favour of information.
Copy to the Asst. Director of Mines and Geology, Nellore alongwith A.M.M.S.

MODIFIED SECOND MINING SCHEME FOR SILICA SANDOVER ANEXTENT OF 27.33 ACRES. IN SY.No.1154/1,1155,1160AND 1161 OF YERURU VILLAGE, CHILLAKUR MANDAL,NELLORE DISTRICT, A.P

(Under Rule 10 (1) of M.C.D. Rules '1988 & PMCP Under Rule 23 of MCDR '1988)

'B' Category manual mine

LESSEE

M/S SOUTHERN SILICA MINE,

Mg.Partner.P.Shivkumar Reddy,

House No.7/1054MP.Street,

Kadur

SPSR Nellore District, A.P

PREPARED BY

P.VISWAM

RQP/BNG/346/2015/A

C/O R.SEKHAR NAIDU,

NEAR SIVALAYAM TEMPLE,

SYDAPURAM (V), (PO) & (M)-524407

SPSR Nellore Dist.

A.P

DECLARATION

This is Modified Second Mining Scheme for silica sand over an extent of 27.33 acres in Sy. No. 1154/1, 1155, 1160 and 1161 of Yeruru village, Chillakur Mandal, Nellore District, and A.P. have been prepared by P.Viswam (RQP/BNG/346/2015/A) in full consultation with me and I understand its contents and agree to implement the same in accordance with the law.

For SOUTHERN SILICA MINES

MANAGING PARTNER
Signature of Lessee

Place: Gudur,

Date:

CERTIFICATE

The provisions of Mines Act, Rules and Regulations made there under have been observed in the Modified second mining scheme belonging to **M/s. Southern Silica Mine** and wherever specific permissions are required, the lessee will approach the Director General of Mines Safety. Further standards prescribed by the DGMS in respect of Miners Health will be strictly implemented.

Deputy Director of Mines & Geology

For SOUTHERN SILICA MINES

MANAGING PARTNER
Signature of Lessee

Place: Gudur,

Date :

CERTIFICATE

This is to certify that the Modified Second Mining Scheme for silica sand in Sy.No. 1154/1, 1155, 1160 and 1161 over an extent 27.33 Ac. in Yeruru Village, Chillakur Mandal, Nellore District, and A.P has been prepared complying with the provisions of Mines Act 1952, Mines Rules 1955 and Metalliferous Mines Regulations 1961. The lessee will approach the authorities of Directorate General of Mines Safety wherever specific permissions are required under the above statutes.

This is further to certify that the information furnished in the Modified second Mining Scheme is correct and true to the best of my knowledge.

Place: Sydapuram,

Date:

P.Viswam

(RQP/BNG/346/2015/A)

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02	LEASE PLAN	1:2000
03	SURFACE CUM GEOLOGICAL PLAN	1:1000
03 (A)	GEOLOGICAL CROSS SECTIONS	1:1000
04	MINE LAYOUT PLAN	1:1000
04A	MINE LAYOUT SECTIONS	1:1000
05	ENVIRONMENT PLAN	1:5000
06	FINANCIAL ASSURANCE PLAN	1:1000
07	CONCEPTUAL PLAN	1:1000
08	ENVIRONMENT MANAGEMENT PLAN	1:1000

MODIFIED SECOND MINING SCHEME FOR SILICA SAND IN S.NO.1154/1, 1155,1160 & 1161 OVER AN EXTENT OF 27.33 ACRES (11.06 HA) IN YERURU VILLAGE, CHILLAKUR MANDAL, NELLORE DISTRICT, A.P.

INTRODUCTION

The present mine was originally belongs to prabhu silica sand mine owned by Sri G.B. Rajasekhar in Yeruru village, Chillakur mandal, Nellore district. The mining lease was granted over an extent of 27.33 acres (11.06Hect) in Sy. Nos. 1154/1, 1155, 1160 and 1161, vide G.O.M.s No.702, Industries and Commerce department Dt.03-12-1981 for a period of 20 years. The lease was executed on 20-01-1982. Vide proceedings No.5899/MI/82 Dt.20-01-1982 of Assistant Director of Mines and Geology, Nellore, Andhra Pradesh.

Then the lease was transferred in favour of Southern silica mines in 2000 and the renewal was granted for a period of 20 years i.e. from 20-01-2002 to 19-01-2022 vide G.O.M.s No.174, Ind & com.(M-I) dept. Dated 06-06-2003. In respect of this renewal of ML, the mining plan was approved vide letter No. 30185/MP/-II/2002 Dated 03.10.2002 of DM & G, Hyd for a period of 5 years from 20.01.2002 to 19.01.2007. The lease would have to apply for 1st scheme of mining plan at least one hundred twenty days before the expiry of the five years period, for which it was approved on the last occasion as required under Rule 12(3) of MCDR 1988. But, they have not done so. However, the lessee submitted the scheme of mining on 30.12.2014 i.e. after lapse of about 8 years. It is evident that the 1st scheme of mining period of 5 years was already lapsed and hence 1st scheme of mining period of 5 years deemed to have been lapsed or treated as lapsed from 20.01.2007 to 19.01.2012. In the 2nd scheme of mining period of 5 years, 20.01.2012 to 19.01.2017 a period of 3 years from 20.01.2012 to 20.01.2015 was already lapsed and same was approved on 02.03.2015 by the JDM&G O/o DM&G Hyd, Vide letter No: 2331/MS/NLR/2014 dated:28.05.2015 only for ensuing 2 years period from 20.01.2015 to 19.01.2017

APPROVED

V. KOTESWARA RAJU
(Approving Authority for Guntur Zone)
Deputy Director of Mines & Geology
KAKINADA

This Mining Plan is Approved subject to the Conditions Stipulations indicated in the Mining Plan Approval Letter
No. 114/SS/mms/nlr/2016
Date 02/02/2016

The Asst. Director, Mines & Geology, Nellore, Vide Notice No 2634/NGT/2015 dated 02-07-2015, issued guidelines to be followed by the Mining Lease holders in Kota & Chillkur Mandals of Nellore District to be conducted as per the Environmental, Ground Water Department and Mining Norms. They are reproduced below.

1. *Mining is permitted only to a level of >1 M above water table.*
2. *To establish the level of water table in lease for monitoring reference, sufficient number of trial pits of suitable size have to be formed by lessee at a minimum spacing of 30 m interval both along the gradient of water and perpendicular to it. The water table in these trial pits is considered as initial water table depth and mining should be permitted a level of 1m above the identified level.*
3. *In the areas with "SonaKaluvas" (Spring Channels) no mining should be permitted within 50 m distance from any point of either side of channels and even existing mine lease areas also need to submit a closure plan of such areas, if they have already been excavated.*
4. *Conditions for safe transportation of mined out sand for avoiding fugitive emissions and similar conditions for laying approach roads and haul roads to ensure mineral conservation, should be invariably and specifically be made as general conditions.*
5. *Permanent Monitoring stations at strategic locations be established by all mine lessees of a village and ensure that the silica content is less than 3µğ /M³and similarly, well inventory of dug wells be maintained for every village*
6. *Certain guidelines for mining are also proposed as here under*
   - *The Mining operations in the subject are categorised as*
     The Mines those are operating and stopped presently
   - *"If a Sona Channel is found within 50 m from the applied boundary in any direction and extent, the lease shall not be granted and accordingly the lease granting authority has to be intimated.*

- *If the Mining operations that were done are observed to be within 50 m of any "Spring Channel" the side should not be cleared for Environmental Clearance unless the lease document is corrected accordingly by correcting mineable boundaries.*
- *For appraising any case for environmental clearance, the survey drawing of the site with contours of 1 m interval shall be provided and proponent should be asked to provide the same by getting endorsed with DMG surveyor. The Contour survey shall be conducted with spot level density of at least 1 point for every 2 SqM.*
- *The area map showing the leases will be helpful in deciding other adjacent leases to decide the cluster condition. In the case of cluster conditions they should be dealt accordingly.*
- *The depth of excavation in permissible mining area shall in no case exceed 2.5 m from stay level in "Minus 2 direction".*
- *If a Mining Plan that is having conditions against the above recommendations, the Mining Plan shall be suitably modified and re-submitted and get approved by the lessee.*

The above mentioned guidelines necessitated for preparation of Modifications to the Approved Document.

M/s Southern Silica Mines, Gudur, has approached Sri P.VISWAM, Mining engineer & RQP, for preparing the Modifications to the Approved Second Scheme of Mining for the period from 2016 – 17 . The Modified Second Scheme of Mining is prepared under Rule 10 (1) of M.C.D. Rules '1988 under 'B' category manual opencast method of mining and PMCP under Rule 23 (B) of MCDR '1988.

PART – I

1.0 REVIEW OF MINING PLAN

1.1 Name of Mine : **M/s Southern Silica Mines,**
Yeruru(V),
Chillakur(M),
SPSR Nellore District,
Andhra Pradesh State.

1.2 Location

The mining lease area falls in the Survey of India Toposheet No. 66 B / 4.

BP	NORTH LATITUDE	EAST LONGITUDE
1	N14⁰ 10' 21.0"	E80⁰ 02' 50.5"
2	N14⁰ 10' 36.6"	E80⁰ 02' 48.0"
3	N14⁰ 10' 23.1"	E80⁰ 02' 48.9"
4	N14⁰ 10' 26.3"	E80⁰ 02' 43.8"
5	N14⁰ 10' 28.9"	E80⁰ 02' 39.1"
6	N14⁰ 10' 35.0"	E80⁰ 02' 41.4"
7	N14⁰ 10' 35.9"	E80⁰ 02' 39.1"
8	N14⁰ 10' 41.0"	E80⁰ 02' 40.8"
9	N14⁰ 10' 40.4"	E80⁰ 02' 43.3"
10	N14⁰ 10' 39.4"	E80⁰ 02' 43.0"

The mining lease area falls in Sy No. 1154/1, 1155, 1160 & 1161of Yeruru(v) and, Chillakur Mandal.The mining lease area is approachable by road from Nellore via. Gudur, Chinthavaram and Momidi. It is situated at East side of Yeruru road at a distance of 0.50 Km.The location of the area is indicated in Key – Cum - Location Map (Plate –I).

TOPOGRAPHICAL SURVEY: The levels are taken covering the total area and spot levels are shown in relevant plates.

The Assumed Bench Mark is taken as 100 M in North part of mining lease area. The details of the area are as tabulated below:

District State	Mandal	Village	Sy. No.	Extent (Hectares)	Ownership of Occupancy
SPSR Nellore Andhra Pradesh	Chillakur	Yeruru	1154/1,1155,1160 & 1161	11.06 Hectares (27.33 Acres)	Govt. Waste Land

1.3 PARTICULARS OF APPROVED MINING PLAN :

The mining plan was approved vide letter No. 30185/MP/-II/2002 Dated 03.10.2002 of DM & G, Hyd for a period of 5 years from 20.01.2002 to 19.01.2007.

2nd scheme of mining was approved on 02.03.2015 by the JDM&G O/o DM&G Hyd, Vide letter No: 2331/MS/NLR/2014 dated:28.05.2015 only for last 2 years period from 20.01.2015 to 19.01.2017

1.4 Infrastructure & Communications

Availability of Water	The ground water is available 5-6 M BGL. The agricultural fields around the mining lease area are irrigated by ground water.
Availability of Electricity	Electricity is available in all the villages and in the agricultural lands for borewells.
Communication Network	Tele Communications are available at the Chintavaram Village
Road Network	State Transport Bus Services ply from Nellore & Gudur, frequently, Private Transport is also available on this road network.
Nearest Rail Head	Gudur Railway Station is 35 Km from the Site.
Port Facility	Krishnapatnam Port is about 65 Km from the Site.
School	Primary School Education is available Yeruru Village. Higher Education is available at Chintavaram& Gudur Town.
Medical Facility	Registered Medical Practioner is available at Chintavaram Village. Nellore Town is well placed for Doctors, Nursing Homes & Hospitals.

BOUNDARIES

North	Sampath Kumar Silica Mines
South	P.Shivkuamr Reddy Silica Mine
East	Sampath Kumar Silica Mines
West	Govt. Land

1.5 DATE OF COMMENCEMENT OF MINING OPERATIONS:

The lease was granted in favour of M/s southern silica mine vide G.O.Ms.No.702 dt 03.12.1981 by the Industries and Commerce department for a period of 20 years. The mining operations were commenced from 25.01.1982 ever since the mine is under working.

1.6 STATUS OF MINE WORKING IN RESPECT OF MINING PLAN (REVIEW)

- Mining of Silica Sand has been in progress since 1982 and the working pit Existing in the area is an expression and results of it.
- No explosive were used as there is no existence of rock and the question of use of jack hammers, manual splitting the rock does not arise.
- 5 pits were excavated.

i) REVIEW OF IMPORTANT CHAPTERS OF MINING PLAN:

Year	Production in tons	
	Proposed	Achieved
2002-03	20280	49400
2003-04	22266	28000
2004-05	21096	35000
2005-06	21192	25000
2006-07	21530	20000
2007-08	---	20100
2008-09	---	28851
2009-10	---	27438
2010-11	---	46109
2011-12	---	2200
2012-13	---	73164
2013-14	---	16567
2014-15	---	5604
2015-16	71290	2470
TOTAL		**3,79,903**

ii) Details of measurements pits already excavated in Canal & Power line 50mts buffer zone.

Measurements of the existing pits	Length	Width	Depth	Volume in M^3	Tonnage in MT
Power line	113	36	2.3	9356	23390
	90	42	2.1	7938	19845
	200	56	2.0	22400	56000
	35	25	2.0	1750	4375
Canal	50	111	2.0	11100	27750
				TOTAL =	**1,31,360**
Note :The tonnage figures are arrived after considering its bulk density 2.5 MT					

iii) Year wise Development plan as per the Approved Mining scheme

	Approved Mining scheme	**Target Achieved**
Production	75500 sand were proposed for the second mining scheme period.	97,805 Tons of Production was achieved during the period 2015-16 up to 31.10.2015.
Exploitation	Manual open cast method of digging, scooping and excavating with the help of simple tools like spade / pawdas	No mining activity
Afforestation	It was proposed to plant Eucalyptus 50 Plants every year along the 7.5M buffer zone under green belt development.	Not survived
Reclamation & Rehabilitation	No proposal were made	No proposal is made
Control of Dust, Noise & Ground Vibrations	No proposals were made for control of dust.	No action was initiated

Compliance to the Guide lines issued by The Asst. Director, Mines & Geology, Nellore, Vide Notice No 2634 / NGT / 2015 dated 02-07-2015 for taking up the Mining operations

S.No.	GuideLines	Compliance
1	To establish the level of water table in lease for monitoring reference, a "Doruvu" of 2x2m size has to be executed by lessee @ of 2 its / along the slope gradient and at least 30 m interval. The water table in these Doruvus be considered as initial water table depth and mining should be permitted a level of 1m above the identified level.	The Lessee has excavated the Durvus upto the depth to water encountered level, @ 30 m x 30 m grid the water in elevated zones is upto 3.60 m below un-disturbed surface and Within the excavated mine pits 3.5 m. Hence, after leaving the safety barrier of one meter above the water level, the proposed mining will be taken up to 2.50 m from surface in un-disturbed surface and within the pits up to 2.5 m from Pit Bottom
2	In the areas with "Sona Kaluvas" (Spring Channels) no mining should be permitted in the 50 m wide area on either side of channels and even existing mine lease areas also need to submit a closure plan of such areas, if they have already been excavated.	One Spring channel is existing in the outside of the M.L area on South side. The lessee is not intended to do any mining operation in buffer zone.
3	Conditions for safe transportation of mined out sand for avoiding fugitive emissions and similar conditions for laying approach roads and haul roads to ensure mineral conservation, should be invariably and specifically be made as general conditions.	Will be Complied after initiating the Mining Operations
4	Permanent Monitoring stations at strategic locations be established by all mine lessees of a village and ensure that the silica content is less than 3µğ /M3 and similarly, well inventory of dug wells be maintained for every village	Will be Complied after initiating the Mining Operations

5	For appraising any case for environmental clearance, the Survey drawing of the site with contours of 1 m interval shall be provided and proponent should be asked to provide the same by getting endorsed with DMG surveyor. The Contour survey shall be conducted with spot level density of at least 1 point for every 2 SqM.	Detailed Topographical survey was carried out by taking spot levels at every 2 M^2 in the entire area and Contour map of 1m is generated duly showing the pits (Duruvu) excavated all the Plans and sections are generated from the Surface Plan
6	The area map showing the leases will be helpful in deciding other adjacent leases to decide the cluster condition. In the case of cluster conditions they should be dealt accordingly.	The Demarcated Sketch of ADMG Nellore is enclosed.
7	The depth of excavation in permissible mining area shall in no case exceed 2.5m from stay level in "Minus-Z direction".	The depth of excavation will be restricted from surface by scooping the sand in retreading direction of mine face developed, precautions are mentioned in the proposed method of mining
8	If a mining Plan that is having conditions against the above recommendations, the Mining Plan shall be suitably modified and re-submitted and get approved by the lessee.	Modifications to the Approved document is prepared

PART – II

CHAPTER - II

2.0 PROPOSALS UNDER MODIFIED MINING SCHEME FOR THE NEXT ONE YEAR

2.1 GENERAL:

Name and address of the lessee:

M/S SOUTHERN SILICA MINES,

Mg.Partner P.Shivkumar Reddy,

7/105, Mittapalem. Street,

Gudur-524 101,

SPSR Nellore District,

A.P.

Name, address and registration number of the recognized person

Who prepared the mining plan:

P.VISWAM

RQP/BNG/346/2015/A

C/O R.SEKHAR NAIDU

NEAR SIVALAYAM

SYDAPURAM (V), (PO) & (M)-524407

SPSR Nellore Dist

RQP/BNG/346/2015/A

(Valid up to 29.03.2025)

2.2 MINERAL TO BE MINED:

SILICA SAND.

2.3 AREA AND DATE OF EXPIRY OF MINING LEASE:

i) Extent: 27.33 acres.

ii) Date of expiry (Mining Lease): 19.01.2022.

2.4 DATE OF EXPIRY OF FIVE YEARS PERIOD FOR WHICH APPROVAL WAS GIVEN DURING LAST OCASSION:

The mining plan was approved vide letter No. 30185/MP/-II/2002 Dated 03.10.2002 of DM & G, Hyd for a period of 5 years from 20.01.2002 to 19.01.2007.

2nd scheme of mining was approved on 02.03.2015 by the JDM&G O/o DM&G Hyd, Vide letter No: 2331/MS/NLR/2014 dated 28.05.2015 only for last 2 years period from 20.01.2015 to 19.01.2017

2.5 PERIOD OF MODIFIED SECOND MINING SCHEME:

2016-17

CHAPTER – III

RESERVES

3.0 EXPLORATION AND RESERVES:

3.1 GEOLOGY:

The area is fully covered with silica sand. No other outcrops of any rock type are present in the area. The silica sand must have resulted from the back water of Bay of Bengal. A little quantity of silt and ferruginous material associated with silica sand. This was transported by waves and deposited near the shore line. The sand size available at mine site is in between 20 meshes to 100 meshes. It will be separated and stocked in sheds. The average grade of the silica sand is 95.54 % of SIO_2 up to 100 meshes.

3.1.1 Reserves estimation in the approved Mining Plan with grade:

The geological reserves of sand were estimated under the in-suit categories are 1, 84,187T

The average chemical analysis of sand samples is given as

Al_2O_3 = 2.95 %; SiO_2 = 95.40 % & Fe_2O_3= 0.46%

3.2 Depletion of reserves during the period of mining scheme:

During the last 15 years about **3,79,903** T of sand was excavated from the leased area.

3.3 Grade:

There is no change in the grade of the silica sand that is obtained from mining and to the reports furnished, in approved mining plan. The analysis report is enclosed in this scheme as annexure – IV.

The present mine working and surface features show the occurrence of Silica Sand as a Marine depositional formation the strike direction of NE – SW with the depth of the sand body is proved up to 2.5 M RL by Pits. So the reserves, which are available up to 2.5 M below along is considered for proved (UNFC – 111) category.

The reserves are estimated by multiplying the cross sectional area with the influence distance of section, tonnage factor (T.F) and recovery factor (R.F). The tonnage factor of Silica Sand is considered as 2.5 and total reserves are mineable reserves. Since, the Silica Sand is formed by tidal action to entire width and length of the mining lease area. So the float Silica Sand reserves are estimated to an average thickness of 2.5 M from the surface under proved category. The calculation Silica Sand reserves are given below.

3.4.1 Category of Deposit as per UNFC guidelines

As per the UNFC guidelines the reserves are categorized as III category for the following reasons.

Geological axis

A) Geological Survey

A topographical survey with total station was carried out in the total lease area. The boundary pillars were demarcated in the mine. A topographical map is prepared in 1: 1,000 scale and all the surface features like position of existing pit, ramps, approach roads, office, contours etc., are shown.

The Geological mapping is not very critical to be marked as the entire areas under study is only sand. There are no surface exposures to be marked on the geological plan. However important ecological features like dunal springs, and 'Sona Channels' are marked on the mapped drawing wherever they are observed

B) Geochemical Survey

This site does not need any geochemical survey and hence is not carried out.

C) Geophysical Survey

The entire material that is proposed for mining is lying within 3.5 to 2.5 meters from the surface. It is also physically visible and thus does not need any geophysical survey for truth establishment.

D) DTH Drilling and Core Drilling

The entire material that is under proposal for mining is on the top of the surface only with the first 3 to 5 meters. This does not need any additional establishment of the deposit properties. Thus the DTH drilling and Core drilling is not needed in this project.

With the above exploration conducted in this mining lease area, it is classified under G1 axis and thus the geological parameter as '1'.

Feasibility Axis Considered for Proved Category (F1)

a) Geological feasibility:

The Silica Sand is mineralized in the entire area in the form of sand dunes. These dunes do not have any dip or strike. These are outcome of Marine Tidal action (Deposition) over prolonged periods. The geological feasibility of the material is generally effected due to contaminations if any, major structural disturbances if any, or any other factors that are geological in nature and detrimental to the operations. In the present case the reserves are geologically feasible as these do not have any shortcomings of above geological nature. To further establish the fact that the deposit is geologically feasible, __ numbers of pits are dug as evidence.

b) Mining feasibility/ Mineability

The deposit is feasible technically for mining operations. The operations do not present any technical difficulty in planning, transport, stability or other technical factors. Thus the area is mineable and is thus feasible from mining point of view.

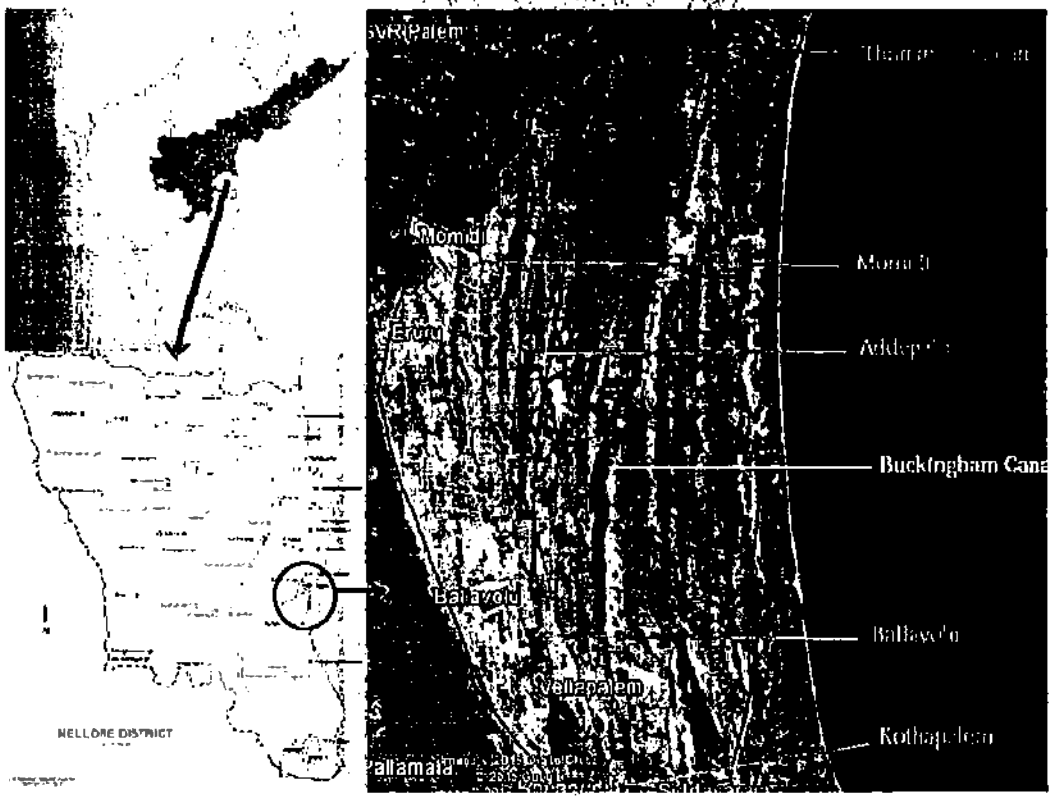
c) Environmental feasibility: The environmental feasibility is addressed in two contexts. One is the local environment and climate that is feasible for mining operations. Second one is the environmental sensitivity.

The area is environmentally favorable for mining as for as the climatic environment, the habitat, and other environmental features are concerned.

However the environment is sensitive as far as the eco-sensitivity is concerned. A brief description of the same is given below.

A committee from SEAC AP has inspected Chillakur and Kota Mandals of this area and found the eco-sensitive nature of this area. Some important points of the report are reproduced below.

Chillakur and ***Kota*** Mandals of *Sri PottiSreeRamulu Nellore* district, lies between North Latitudes 14°02" and 14°10" and East Longitudes 79°51" and 80°09" in the Survey of India topographic maps 57 N/16 and 66 C/1 on a scale of 1:50,000 (Fig. 1) and are the coastal Chillakur Mandals of the southern part of the district and lies in between the mouths of two rivers, Kappaleru in the north and Swarnamukhi in the south.



The climate of the district is moderate and characterized by sub-tropical climate. The period from December to middle of February is generally the season of fine weather. The summer season is from March to May. This is followed by monsoon period from June to September, the post monsoon from October to December and the winter season from January to February. The annual normal rainfall of the district is 1084 mm.

The peculiarity of this district is that contribution of SW monsoon is far less than the contribution of NE monsoon rainfall. About 70% of the annual rainfall is contributed by the NE monsoon. In general the amount of rainfall is increases from west to east about 900 to 1300 mm in the district.

The mean daily maximum temperature in the district is about 38°C in May and the mean daily minimum temperature is about 20°C in December/ January. Temperature in the district begins to rise from the middle of February till May. With the onset of southwest monsoon in June, the temperature decreases to about 20°C and is more or less uniform during the monsoon period. The relative humidity ranges from 60 to 80% in the mornings, whereas in the evenings it varies from about 45 to more than 70%.

The annual rainfall during 2012 is 889 mm and the long term Normal Annual Rainfall as was reported by the CGWB (2013) was at 1,084 mm. October and November months have shown relatively high rainfall compared to all the other months.

Geology:

Pennar and Swarnamukhi rivers are the major contributors to the formation of the deltaic plains in the district. The deltaic and coastal plain extends from north to south along the eastern margin of the district all along the coast (CGWB, 2013). The southern fringe of the coastal plain is occupied by Pulicatlake, few kilometres North to this lake, a vast stretch of sandy coastal plains region occurs between the mouths of Swarnamukhi river and Kandaleru Creek. This sandy coastal plain extends up to a distance of 5 to 6 km from sea coast, and appears in a crescent shape, with deposition of sands up to 8 m msl, indicating a formation of the coastal dunal systems. This ***coastal dunal system*** is the specific interest of the present study, which involves the Eastern Part of the Chillakur Mandal, and the northern part of the Kota Mandal.

As per Geological Survey of India, District Resource Maps, these deposits belong to marine to fluvio-marine origin containing tidal flat (Qmb) and deltaic (Qfm) deposits with unconsolidated sand, silt and clay sediments in varying amounts with variable effective porosity to carry fresh to saline groundwater in varying amounts and dune sands have an aeolian origin (Phani, 2014). Ayyavariah et al.,

2013 opine that the land of the present dunal system was once (Pleistocene to Holocene period) submerged under sea water, and exposed after a long spell of global glaciations, which was followed by sand deposition and consequently through aeolin process the present dunal system appeared.

Hydrology:

The general drainage pattern was Dendritic to sub-dendritic. Both, Kandaleru and Swarnamukhi rivers are non-perennial at the upstream lands. The water table, as was observed by the study team in the Mined areas, was exposed at depth of 2.0 to 5.0 m, from the general ground level. The study area, being Coastal dunal landforms, in all probability formed over an impervious clay beds, the water table is shallow. CGWB (2013) reports that fresh water aquifers occur under phreatic to confined conditions in the sand dunes of Nellore district.

However, unfortunately the CGWB did not mention about the Sandy Springs and Spring Channels (***Sonas***and ***SonaKaluvas***, as they are popularly called by the natives), the sensitivity of which is a specific subject of this study. The district Irrigation department has also not specified anything about the *Sonas*and *SonaKaluvas.*

Demography:

The study area, as described earlier, covers the Eastern Part of the Chillakur Mandal, and the northern part of the Kota Mandal. In this region there are 12 main villages with a total population of 25803 in 7611 Households (Census of India, 2011).

Ecology of coastal dunes:

The crescent shaped sandy region all along the 15 to 18 km length of the coastline in the study region, and the greater depths of the sand deposition, indicate that the region was formed of the coastal sand dunes, and over a long period of ecological succession, the present ***Psammosere***stage has emerged, which is being mainly used for agriculture by the local communities.

The ecosystem formed in the region is unique and perhaps the study region is the only region with such ecosystem being reported, and can be called as "***Dunal***

Wetlands". Geologically the region favoured the formation of dunes, and the climate has favoured the formation of dunal springs, while the people's traditional knowledge has contributed for the wise use of the spring for their livelihoods. Thus, a brief description of the formation of the dunal wetlands system is presented.

Formation of the Dunes:

Dunes form on coasts where the onshore winds encourage sand blown inland from off a beach while the backshore can support the accumulation of the sand. Any part of the upper beach, once dry, can lose sand to the wind, especially if the sand is fine, and dune formation proceeds in the direction towards which the wind direction is predominant.

The region had a north-south strike of coastline (the general strike of the Indian east coast is NE-SW) could have made the winds more stronger compared to the other regions, and enabled the dunal drifts to as far as 6 to 7 km from the coastline, and the predominant landward winds have shaped the dunal region in to crescent shape.

Primary dunes are drifted backwards along the wind direction and helps formation of another set of dunes, ***back dunes***. A ***Slack*** zone can be clearly seen between the zones of fore dunes and back dunes, and also between different sets of back dunes. The contours of these slack zones determine the flow of groundwater in the dunes formed over beds of impervious soils.

Ecosystems:

The dunes and their associated springs have become the support for two types of ecosystems in the region: *Psammosere grasslands* and *Dunal agro-ecosystems.* The former is a natural ecosystem, while the latter one is a man-made ecosystem. Both are connected through the third ecosystem, the **lotic** ecosystem of SonaKaluvas.

Biodiversity of the Psammosere grasslands and the lotic (Flowing water) spring channel systems were not so far explored. However, a preliminary observation of the Psammos, reveal that the dominant plant species are ***Portulacaquadrifida, Borreriahispida, Pedalium murex, Solanum surretense;*** and grasses like ***Fimbristylisbis-umbellata, Dactylocteniumaegyptium***and

Perotisindica. Plantations of Casuarina, ***Borassus***(Palmyra). Among the fauna, the study team could find evidence of several species of boreal habitat, like Bandicoot, Sand Boa etc.

In the lotic systems, SonaKaluvas, the aquatic vegetation resembles like a lentic body. A Lotus species and Pistia species seem to be the most dominant components, while four species of terrestrial grass species dominated the banks. Of the fauna, the lotic system was evidently supporting a good number of lower animals like insects and molluscs, while some species of fish also were seen in one sonakaluva at Kothapalem. Thus, the *sonakaluvas*are delicate and fragile ecotones of natural dunal ecosystems (psammoseres) and manmade agro ecosystem.

d) Processing

No Processing is required for Silica Sand.

e) Infrastructure, constructions and services

Temporary office building, rest house for labor, drinking water and toilets are developed in the Mines and they will be used for the coming plan/scheme period also.

f) Costing

i) **Capital Cost**: The capital investment is to be made towards mining activities and other infrastructure.

ii) **Operating Cost / Ton:** This component includes the share of capital invested, interest on capital invested, the cost of salaries, safety and environment costs, statutory payments like royalties, and other miscellaneous costs.

Economic Axis Considered for Proved Category (E1)

a) Detailed Exploration

The detailed exploration data including geological observation, sand probing and trenching has indicated remaining recoverable / saleable silica sand reserves of 2,15,700 Tons, which is a feasible quantity for economic operations versus the investment and return on investment.

b) Mining Report / Mining Plan / Working Mines

The present modifications to the approved Mining plan are being prepared after detail study of exploration and proper design implemented as per guidelines of IBM. The observations of workings of this mine and nearby working mines indicate that the mines can economically mineable upto3 m depth by taking into consideration the guidelines of SEAC.

c) Specific end use grades of reserves

All the reserves assessed are above the cut off grade of above 99% Silica Sand. At present depth, the total ore extracted in the mine is economically consumed in the Glass Industry.

d) Specific knowledge of Forest/Non-forest and other Land use data

The total land 27.33 Acres of land is non-forest land and belongs to Govt. The total land is economically used for mining purpose.

Based on the detail study under EFC classification of UNFC, the reserves estimated will come under proved reserves of category IV, or as '111'

RESERVES CALCULATION:

The reserves are arrived in the 'Cross-sectional' method. For this purpose the cross sections are drawn at an interval of 30 and the areas of cross sections are utilized for multiplying with the areas of influence. The volumes thus arrived and their category is given below.

SECTIONS	SECTIONAL AREA (M^2)	SECTIONAL INFLUENCE (M)	VOLUME (M^3)	TONNAGE (VOLUME X 2.5)
A-A'	658	30	19740	49350
B-B'	660	30	19800	49500
C-C'	742	30	22260	55650
D-D'	816	30	24480	61200
TOTAL				**215700**
Note :The tonnage figures are arrived after considering its bulk density 2.5 MT				

Below table shows the ore reserves re-established afresh after re-casting all the geology and its section as on December 2015 and hence the depleted reserves are excluded in re- estimation

MINEABLE RESERVES AND ANTICIPATED LIFE OF MINE

Total mineable reserves	--	2,15,700 T
The average production per year	--	1,06,950T
Anticipated life of the mine	--	2.01 say 2 years

Total Waste (OB) Generation from Final Pit Slope	Nil
Total Waste Generation from Silica Sand	Nil
Total Silica Sand Resources from Reef of the Ore Body	Nil

3.4.2) RESERVES BLOCKED UNDER 50 M BUFFER ZONE FOR SPRING CHANNEL

Area = 4776 m^2 (0.47 Hect) X 2.5(depth)

= 11940M^3 X 2.5(B.D)

= 29,850 T (not available for mining)

3.4.3) RESERVES BLOCKED UNDER 50 M BUFFER ZONE FOR POWER LINE

Area = 46272 m^2 (4.62 Hect) X 2.5(depth)

= 115680 M^3 X 2.5(B.D)

= 2, 89,200 T (not available for mining)

i) Details of measurements pits already excavated in Canal & Power line 50mts buffer zone.

Measurements of the existing pits	Length	Width	Depth	Volume in M^3	Tonnage in MT
Power line	113	36	2.3	9356	23390
	90	42	2.1	7938	19845
	200	56	2.0	22400	56000
	35	25	2.0	1750	4375
Canal	50	111	2.0	11100	27750
				TOTAL =	**1,31,360**
Note :The tonnage figures are arrived after considering its bulk density 2.5 MT					

3.4.5) The reserves blocked under the buffer zone of 7.5m within the boundary over an extent

Of Area = 11884 m^2 (1.18 Hect) X 2.5(depth)

= 29710 M^3 X 2.5(B.D)

= 74275 T (not available for mining)

Non- Minable reserves

Silica Sand reserves will be blocked under 7.5 M and Canal, Power line barrier zone

a)	Under 7.5 M Barrier	74275
b)	Under 50 M Safety Barrier for Canal, Power line	319050
	TOTAL	**3,93,325T**

UNFC CLASSIFICATION OF RESERVES ESTIMATION

Classification	Code	Quantity (T)	Grade
Total Mineral Resources (A + B)		**6,09,025**	SiO_2 = 95.54 % Fe_2O_3 = 0.49%
A. Mineable Reserves			
1. Proved Mineral Reserve	111	2,15,700	SiO_2 = 95.54 % Fe_2O_3 = 0.49%
2. Probable Mineral Reserve	122	-	
B. Remaining Resources			
1. Feasibility Mineral Resource	211	-	-
2. Prefeasibility Mineral Resource	222	3,93,325	-
3. Measured Mineral Resource	331	-	-
4. Indicated Mineral Resource	332	-	-
5. Inferred Mineral Resource	333	-	-
6. Reconnaissance Resource	334	-	-

A copy of the analysis certificate is enclosed as Annexure No. IV .The limit of the proved mineral reserves is marked on the geological plan & cross section is enclosed as Plate No.3&3A.

CHAPTER – IV

4.0 CONCEPTUAL MINING SCHEME

The firm has initiated the mining operations during '2002.

Land Use Pattern of the mine area during the next one year is as follows

Area			Hectares
Active Mine Area	Broken	63524	6.35
	To be broken	8851	0.88
		72375	7.23
7.5 Wide Safety Zone		11880	1.18
Infrastructure		Outside the mining lease area	
Dumps (Existing)/Stack yards		---	---
Roads		4651	0.46
Mineral stacking		500	0.05
TOTAL AREA UTILISED		77526	7.75
TOTAL MINE LEASE AREA		110603	11.06

LAND USE

The on-going mining and the downstream activities are as detailed bellow:

1	Working Pit	72375 (7.23 Ha. Approx.)
2	Dumps/ Stack Yards	Nil
3	Building, Mill and Ore Stacks	Nil
4	Road Ways	4651 (0.46Ha.Approx.)
5	Mineral stacking	500 (0.05 Ha. Approx)

CHAPTER - V

MINING

5.1 MINING:

The sand is available in entire mining lease area. However, it is proposed to work in lease area East side of the lease boundary by excavating two benches (i.e 1.5 m & 1 m). The area has been examined in the light of the Norms/Guidelines given by Environmental, Ground water table department. The water table has been encountered at a depth 3.60 mts.Hence the proposed mining is confined up to depth of 2.50 m i.e., 1m above ground water table existing in the ML area. The maximum depth of the proposed mining is 2.5 mts only .The bench height will be maintained 1.5m &1 m and bench width maintained more than bench height. In this scheme period it is proposed to rise about 1,06,950 tons of sand by advancing the East face of the working pits towards North as shown in plate no. 4.

5.2 YEAR WISE DEVELOPMENT FOR THE ENSUING ONE YEAR PERIOD (2016-17)

During the last scheme period there was no development work involved. For next one year also there will not be any overburden removal in the mining lease area.

5.3 YEAR WISE PRODUCTION FOR THE MODIFIED SCHEME PERIOD (2016-17)

In this scheme period it is proposed to rise about 1,06,950 tons of sand by advancing the East face of the working pits towards North as shown in plate no. 4.

Cross Section	Sectional Area in M^2	Average Strike Length	Volume in M^3	Tonnage in ' MT
V th YEAR (2016-17)				
A–A'	596	30	17880	44700
B –B'	613	30	18390	45975
C –C'	651	10	6510	16275
TOTAL				**1,06,950**
Note :The tonnage figures are arrived after considering its bulk density 2.5 MT				

5.4 **Any change in the proposed Method of Mining / Deployment of Machinery**

'B' category manual opencast method of digging, scooping and excavating with the help of simple tools like spade / pawdas and occasionally using excavator / loaders.

5.5 **Proposed Method of Mining**

The mining will be 'B' category manual opencast method of digging, scooping and excavating with the help of simple tools like spade / pawdas. Excavator / Loaders will be deployed occasionally.

The depth of excavation will be restricted from surface by scooping the sand in retreading direction of mine face developed, precautions are mentioned in the proposed method of mining.

The depth of excavation in permissible mining area shall in no case exceed 2.5 m from stay level in "Minus-Z direction" (The Safety Barrier Zone of 1 m will not be disturbed with Excavators proper care will be taken to scoop the mineral from 2.5 m above the Safety Zone of Water Table).

a. **Over Burden Removal**

No overburden is anticipated.

b. **Loading**

The Silica Sand will be loaded by manually.

c. **Hauling**

Silica Sand is transported through trucks of 17 T capacities. Water sprinkling on haul road will be done with water tanker provided with sprinkler arrangement to suppress the air borne dust during transportation.

5.6 **Extent of Mechanization**

Excavator / Loaders will be deployed occasionally.

Employment Potential

The human resources proposed to be deployed are as follows:

S.No.	Category	No's
1.	Mine Manager (Cert. of Competence of Permit Manage) / Mate	1
2.	Mining Supervisor / Clerk	1
4.	Mine Watchman	2
5.	Mining Labour (On Contract Basis)	35

6.0 HANDLING OF WASTE / SUB-GRADE MINERAL

6.1 Rate of Yearly Generation of Waste:

Nil (No waste is generated)

7.0 USE OF MINERAL

The mineral is used for mainly glass industry. The sub-grade generated can be on longer run utilized for blending with high grade material to bring it down to a required grade.

7.1. Changes in the proposed use of mineral: No changes in use of mineral are proposed.

7.2 Changes in the specification, if any imposed by the user industries: As on now there is no change in the specification of the mineral produced, imposed by end user.

8.0 MINERAL BENEFICIATION

The material mined is not subjected to any beneficiation at the site. However the user industries will subject it to washing.

9.0 ENVIRONMENTAL MANAGEMENT PLAN

9.1 Baseline information

a. Existing Land Use Pattern

The mining lease area is one part of the sandy zone, with sparse vegetation small bushes form the vegetal cover. The deposit is occupying entire mining lease area. The areas adjacent are active with mining of the mineral.

b. Water Regime

Spring Channels (Locally termed as Duruvus) exist in the area. Their use and dependence of locals on them are described in the previous sections.

c. Flora & Fauna

Vegetation is sparse. Trees like Lotus species and Pistia species grow more in these areas.

d. Quality of Air, Ambient Noise Level and Water

- In general the air does not contain dust at higher levels. This is due to two reasons. One is that the silica sand contains inherent moisture in it due to which the dust does not rise. Second one is that the roads are sprinkled frequently.
- There is no noise generation except while transportation of the production/dispatch of mineral from mine to destination.

e. Climatic Conditions

The mining lease area experience semi arid climatic conditions. The area experience 800 mm average annual rainfall during August - November months. The day temperature varies 28°c in winter to 47°c in summer season. The general wind direction is SW to NE & SE- NW.

f. Human Settlement

The nearest village Yeruru is situated 1 Km due West side of the mining lease area, having a population of 800. Agriculture and sheep breeding are important profession of the people living in the village besides involving themselves in mining activity.

S.No.	Village	Direction	Distance (Km)	Approx. Population (No's)
1	Chintavaram	SW	2.0	3000
2	Addepalli	SE	2.0	1000
3	Yeruru	West	1.0	800
4	Momidi	NW	1.0	2000

g. Public buildings places & Monuments

No public buildings, important places and monuments are seen in and around the mining lease area. The lessee will adopt the safety measures while conducting the mining operations as per the Regulations of Metalliferrous Mines Regulation '1961.

h. Does the area (Partly or fully) fall under notified area under water (Prevention and control of pollution) Act 1974.

Not Applicable

9.2 Environmental Impact Assessment

1. Land Degradation

Land Degraded by pits own an area of 63524 m^2 as follow the land degraded of the ML area. These pits will be the store houses of fresh water and will serve as reservoirs and when the tidal action is severe they may get filled eventually.

2. Air Quality

There will not be any additional change in the air quality with the proposed modifications in the mining scheme/plan. This is due to the reason that there will not be any additional machinery used for the proposed changes.

3. Water Regime

Spring Channels (Locally termed as 'Burrows') do exist in the area, which are fluctuating on seasonal basis.

Although there will be effect on the spring channels due to conventional mining, there will be no major effect on them with the guidelines issued on the methodology of mining. As the modifications to mining plan/scheme are made by following the guidelines, there will be no effect on the system of sona channels.

4. Noise Levels

There is no noise generation except while transportation of the production/dispatch of mineral from mine to destination.

5. Vibration Levels

No vibrations of notable level will be generated, as there is no drilling and blasting

6. Socio Economics

The mining lease area is surrounded by 4 villages within a distance of 5 Km. Agriculture is the most important profession of the people living in the village besides involving themselves in mining activity. The present mining activity will not cause any additional impact on the socio-economics of the persons in the vicinity.

9.3 Environmental Management

i) Temporary utilization of top soil

No top soil generation is envisaged and hence no storage needed.

ii) Year wise proposal for reclamation of land effected by mining activities in next one year

After total removal of silica sand small lake like structures will be formed. These cannot be filled back in any case. Once the mining activity is complete the lakes will be formed and they will continue to serve as channels for water flow into the downstream systems.

iii) In case of abandoned Quarries / Pits are proposed to be used as reservoir, their size,water holding capacity and proposal for utilization of such water be given

The mine will form as a pit. But this pits will not be holding water. Rather they will serve as stock houses for excess inflows and there will be continuous out flow depending on the hydraulic gradient.

iv) Program of afforestation year wise for the initial one year indicating number of plants with name of species to be afforested under different areas in hectares

The lessee proposes to raise the cushew plantation all along the buffer zone of 7.5 M in phased manner covering an area of 400 M^2.

Year	Area (M^2)	No. of Plants
5th (2016 – 17)	200	60
TOTAL	**200**	**60**

v) **Stabilisation and vegetation of dumps along with waste dump Management year wise for next one year**

No waste is generated

vi) **Measures to control erosion / sedimentation of water coarses**

Not applicable.

vii) **Treatment and disposal of water from mines**

Not Applicable

viii) **Measures for Minimising adverse effects on Water regime**

With the new guidelines issued by SEIAA and DMG, no adverse effect on water regime is anticipated. However, a safety barrier 50m is imposed on either side of the Spring Channels as NO MINING ZONE.

ix) **Protective Measures for Ground Vibrations**

'B' category manual open cast method of mining. Hence no ground vibrations are anticipated.

x) **Measures for protecting Historical monuments and for rehabilitation of human settlements likely to be disturbed due to mining activity**

No historical monuments exist in the area and as the human settlements are far away from the mining area, no disturbances are likely to be foreseen.

xi) **Socio – Economic benefits arising from the Mining**

- Employment generation.

xii) **SITE SERVICES**

Rest Shelter, Drinking Water Facilitate, Public Utilities, First Aid are provided by the lessee.

10.0 PROGRESSIVE MINE CLOSURE PLAN

(Under rule 23 (B) MCDR '1988)

10.1 INTRODUCTION

The Progressive Mine Closure Plan is prepared under Rule 23 (B) MCDR '1988. The main paras are common points, which are already discussed in main document of Modified Second Scheme of Mining.

a) **Name of the Lessee** : **M/S SOUTHERN SILICA MINES,**
Mg.Partner P.Shivkumar Reddy,
7/105, Mittapalem. Street,
Gudur-524 101,
SPSR Nellore District,
A.P.

b) **Location**
Discussed under Chapter – 1.2 of Modified Second Scheme of Mining

c) Type of area (Forest or Non – Forest area etc.,)
The mining lease area is non-forest area.

d) **Address of RQP**
Discussed under Chapter – 2.1 of Modified Second Scheme of Mining

e) **The present land use pattern**
The mining lease hold area is in a part of barren, which is not fit for agriculture and even for grazing purpose.

Therefore, the lessee filed for mining lease over this area.

f) **Method of Mining & Mineral Processing Operations**
The mining of Silica Sand are by 'B' category manual open cast method of mining. Major operations are envisaged manually. The tippers and trucks will be used for transportation of Silica Sand.

g) **Reasons for Closure**

No Mine Closure is anticipated during the lease period.

h) **Statutory Obligations**

The lessee erected boundary pillars around the leased area and maintaining during subsistence of lease. The lessee shall observe conditions under the Mines Act 52 and the rules made there under.

10.2.0 **Mine Description**

10.2.1 **Geology**

i) **Topography**

The physiography of the area is flat sand bearing terrain with very less number of small bushes and shrubs. The height of the dunes existing in the area varies from 1 – 1.50 M from the ground level.. The dunes are very less in number, the area is almost flat with slant topography. The height increases towards west from eastern side.

The mining lease area is located 8.5 Km due West of the shorline at an elevation of + 11 m.

ii) **Regional Geology**

The geology of the area is comprised of Nellore Schist belt covered by sand formed in recent period by continuous weathering and deposition of silica rich rocks and deposition of sand by back water of Bay of Bengal years ago. The sand is widely exposed into surface; rather the area is fully covered by sand everywhere. Whereas the Nellore Schist and Silica rich quartz veins are available as country rock situated much away from the lease area.

The sand is formed due to sand deposition occurring by air borne weathering in the form of dunes, which normally migrates from place to place. In this area due to the influence of migration of sand deposit the ditches and worked out pits will be filled with fresh sand in no time. Therefore the possibility of exposure of clayee ground is very less for long time. The schist, sand and sandy soil incorporates the general geology of the mining lease area. The main geological sequence is as follows:

13BRecents	Silica Sand and Clay
Nellore Schist Belt	Micasious Schist Belt

iii) **Local / Area Geology**

Local Geology and Lithology of the area is as follows :

Silt and Sand	0.1 – 0.3 M
Fine Silica Sand	0.3 – 5.2 M
Coarse Silica Sand	5.2 – 11 M
Black Sands	11.0 – 13 M
Marine sediments with Shells	Below 13 M (Not confirmed in any of the existing operating mines)

The area is fully sandy in appearance throughout. Therefore the geological sequences are referred in general way.

10.2.2 Reserves

Discussed under Chapter 3.0 - Reserves.

10.2.3 Mining Method

The mining of Silica Sand are by 'B' category Manuel mining open cast method. Major operations are envisaged manually. The tippers and trucks will be used for transportation of silica sand.

10.2.4 Mineral Beneficiation

No mineral beneficiation is required excepting to the sand screening to the required mesh size as per the demand of the market.

10.2.5 Review of implementation of Mining Plan / Second Scheme of Mining including one year Progressive Closure Plan up to the Final Closure of Mine

It is too early to review the mine closure in next one year period.

10.3 MINE CLOSURE PLAN

10.3.1 Mined – Outland

Proposals of reclamation and rehabilitation of mined out land in next one year period.

In this area the mining incorporates only degradation and depletion of elevated land. The excavation of mineral will not be completed in next one year. Therefore, the reclamation is not proposed in next four years.

10.3.2 Water Quality Management

The mining lease area is among the sona channels on both the sides. The mining operations do not create any pollutants that may pollute the quality of the water either physically or chemically. However as a part of the conditions compliance of ensuing CFO, yearly water quality will be tested. The same will be furnished to the appropriate authorities.

10.3.3 Air Quality Management

The planned operations will create some dust in the air. The silica sand generated is not in the micron size. However as a part of the conditions compliance of ensuing CFO, yearly air quality will be tested. The same will be furnished to the appropriate authorities. Some measures that are proposed for maintaining proper air quality are by water sprinkling, reduction of speed of moving machinery, and limiting the dumping height of the material into the trucks.

10.3.4 Waste Management

No waste management is required.

10.3.5 Top Soil Management

No soil exists in the mining lease area.

10.3.6 Tailing Dam Management

In this area no tailing dams are there.

10.3.7 Infrastructure

The infrastructure is temporary in nature; the roads will be shifted from time to time within mining lease area as per the location of the excavation. The permanent road, electric lines, telephone lines not belonging to the lessee are far away.

10.3.8 Disposal of Mining Machinery

In this area machinery deployed is on hire basis. However, the mining operations are continuous in this mine. Hence, the question of disposal of machinery will not arise.

10.3.9 Safety & Security

In this area the mining is proposed at reasonably elevated area therefore, the safety of pits will not hurt. However, the area will be protected by barbed wire fencing avoid untoward incidences in mining area.

10.3.10 Disaster Management and Risk Assessment

The area had recently seen a major flood due to the rains. This type of rains was previously ruled out. But now taking such calamities into consideration, the preparedness is given below.

Preparedness to face disaster: The meteorological department has method of pre-warning on possible heavy rains or floods or cyclones. During any such fore warning all the machinery and persons will be withdrawn and the mining site will be evacuated. In addition to prevent inadvertent entry of persons in to the flooded area where the excavator pits cannot be observed, long poles will be grouted in to the mined out areas before men and machinery are withdrawn. Additionally warning boards in local language will be displayed in such a manner that they will not be disturbed. If possible the area will be fenced to prevent entry of persons.

10.3.11 Care and Maintenance during temporary discontinuance

For the protection of mine and mined – out pits the watchman will be engaged when the mine is temporarily discontinued.

10.3.12 Economic Repercussions of Closure of Mine and Man Power Retrenchments

The Silica Sand mining in this area will continue for very longer period. No retrenchments of man power is envisaged in next 6 years.

10.4 Time Schedule for Abandonment

The time schedule of the silica mining in this area does not arise and will continue for very longer period.

10.5 Abandonment Cost

The mining in the area is active, therefore the abandonment cost is not examined.

PROPOSALS UNDER ITEMS 10.4 & 10.5 (DURING THE SCHEME PERIOD) OF NEXT ONE YEAR (2016 - 17).

Items	Details	Area (Ha)	Quantity	Expenditure	Remarks
		Proposed	Proposed	Proposed	
Reclamation & Rehabilation of mined out land	Back filling	No proposals are made for the next ong year			
	Afforestation & back filled Area				
	Others (Please specify) e.g afforestation on exhausted benches				
	Pisciculture				
	Converting into water reservoir				
	Picnic Spot				
Stabilisation & Rehabilation of Dumps (within lease)	Terracing				
	Pitching				
	Construction of Parapet walls / Retaining wall at Toe of Dumps	A barbed wire fence will be erected around the along the mining lease area in next one year		$ 13,50,000	
	Construction of Check dams along slope of Val ties etc				
	Construction of settling ponds, (garland drains etc)				
	Desilting of settling ponds, channels				
Rehabilation of barren area within Lease	Afforestation on dumps				
	Others (Please Specify)			At the rate of `15,000/- Per Quarter. A total of 60,000 will be spent per Annum ` 3,00,000	
Environmental Monitoring (Core zone & Buffer zone)	Ambient air quality				
	Water quality				
	Noise Level survey				
	Ground Vibration				
	Others (Please Specify)				
	Total			$ 16,50,000	

10.6 FINANCIAL ASSURANCE:

The financial assurance as required under rule 23 F (2) of MCDR 1988.

S.No.	Head	Area put on use at start of plan (Ha.)	Additional requirement during the scheme period (Ha.)	Total (Ha.)	Area considered as fully reclaimed & rehabilitated	Net area considered for calculation (Ha.)
1.	Area under mining	6.35	0.88	7.23	---	7.23
2.	Storage for topsoil	---	---	---	---	---
3.	Overburden/dump	--	---	---	---	0.16
4.	Mineral storage	---	0.05	0.05	---	0.05
5.	Infrastructure	---	---	---	---	---
6.	Roads	0.46	---	0.46	---	0.46
7.	Railways	---	---	---	---	---
8.	Green belt	---	0.02	0.02	---	0.02
9.	Tailing pond	---	----	---	---	---
10.	Effluent treatment plant	---	---	---	---	---
11.	Mineral separation plant	---	---	---	---	---
12.	Township area	---	---	---	---	---
13.	Others to specify	---	--	---	---	---
	Total	6.81	0.95	7.76	---	7.76

Area considered for calculation of financial assurance: 7.76 Ha.

The Financial Assurance required is Rs 1,16,400/- @ 15,000/- per hect for 'B' category over an area put to use for mining and alloid activities on is 7.76 hect

10.7 PLANS AND SECTIONS:

Plans and sections are enclosed

For SOUTHERN SILICA MINES

MANAGING PARTNER
LESSEE:

Place:
Date:

P.VISWAM
(RQP/BNG/346/2015/A)

APPROVED

V. KOTESWARA RAJU
(Approving Authority for Guntur Zone)
Deputy Director of Mines & Geology
KAKINADA

This Mining Plan is Approved subject to the Conditions Stipulations indicated in the Mining Plan Approval Letter
No .....
Date.....

CERTIFICATE

This is to certify that the Modified second mining scheme with Progressive Mine Closure Plan comply all statutory rules, regulations, orders made by the Central or State Government, statutory organizations, court etc., have been taken in to consideration and wherever any specific permission is required, the lessee will approach the concerned authorities. The undertaking also given herewith stating that all measures proposed in this Modified second mining scheme with progressive mine closure plan will be implemented in a time bound manner as proposed.

UNDER TAKING

It is hereby undertaken that all the measures proposed in this "Modified second mining scheme with Progressive Mine Closure Plan" will be implemented in a time bound manner as proposed.

For SOUTHERN SILICA MINES

MANAGING PARTNER
Signature of Lessee

Place:

Date:

ANNEXURE-I

खनन योजना तैयार करने के लिए अहर्ता प्राप्त व्यक्ति के रूप में मान्यता

प्रमाण पत्र

CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON TO PREPARE MINING PLAN

(खनिज रियायत नियमावली 1960 के नियम 22C के अन्तर्गत)

(Under Rule 22C of Mineral Concession Rules, 1960)

श्री पूनामल्ली विश्वम पुत्र श्री पी. सुब्बा झेट्टी, निवासी - 13/2, 2nd मेन रोड, मंजामाबागारहरा, चामराजपेट, जिला- बैंगलोर, बैंगलोर-560018, राज्य- कर्नाटका, जिनकी फोटो एवं हस्ताक्षर दिया गया है उनकी योग्यता तथा अनुभव का संतोषजनक प्रमाण पत्र देने के एवज में एतद द्वारा खनिज रियायत नियमावली 1960 के नियम 22 के अन्तर्गत खनन योजना/ खनन अभियोजना/उत्तरोत्तर खान बंद/ अंतिम खान बंद करने की योजना तैयार करने के लिये अहर्ता प्राप्त व्यक्ति के रूप में मान्यता दी जाती है.

Shri Poonamalli Viswam son of P.Subba Jhetty resident of :-13/2, 2nd Main road, Manjamabaagarhara, Chamrajpet, District- Bangalore, Bangalore- 560018, State Karnataka whose Photograph and Signature is appended herewith having give satisfactory evidence of his qualifications & experience is hereby granted RECOGNITION under Rule 22C of the Mineral Concession Rules,1960 as a Qualified Person to prepare Mining Plan / Scheme of Mining / Progressive Mine Closure Plan / Final Mine closure plan.

उनका पंजीकरण क्रमांक/ His Registration Number is

आर.क्यू.पी./बैंग/346/2015/ए / RQP/BNG/346/2015/A

यह मान्यता दस वर्ष की अवधि के लिए वैध है जो दिनांक 29.03.2025 को समाप्त होगी।

The recognition is valid for a period of Ten Years ending on 29.03.2015.

खनन योजना / खनन अभियोजना /उत्तरोत्तर खान बंद/ अंतिम खान बंद करने की योजना में यदि कोई गलत जानकारी सूचनाएं दी गई हो तो उनका यह प्रमाण पत्र वापस ले लिया जाएगा।

Furnishing any wrong/false information in the Mining Plan/Scheme of Mining / PMCP / FMCP may lead to withdrawal of this certificate.

आर.क्यू.पी. के हस्ताक्षर / Signature of RQP

स्थान/Place: बैंगलोर/Bangalore

दिनांक/Date: 30.03.2015

क्षेत्रीय खान नियंत्रक/

Regional Controller Of Mines

ANNEXURE-II

GOVERNMENT OF ANDHRA PRADESH

ABSTRACT

MINES & MINERALS – Renewal of Mining Lease for Silica Sand over an extent of Ac.27.33 in S.No.1154/1, 1155, 1160 and 1161 of Yeruru (V), Chillakur (M), Nellore (Dist.) for a further period of 20 years with effect from 20-1-02, in favour of M/s. Southern Silica Mines – Sanctioned – Orders – Issued.

INDUSTRIES & COMMERCE (M) DEPARTMENT

G.O.Ms.No.74 Dated 6-6-2002

Director of Mines read the following

1. G.O.Ms.No.702, Industries & Commerce (Mines-I) Dept., dt.[illegible]
2. G.O.Ms.No.634, Industries & Commerce (M) Dept., dt.26-10-2000.
3. M/s. Southern Silica Mines ROML application dt.[illegible]
4. Govt. Memo.No.4782/M(2)/02-1, Pt.6-4-02.
5. D.O. from the Director of Mines and Geology W.No.32563/M(2)/2001 Dt.24-10-02.

***

ORDER

In the G.O. 1st read above, Government have granted a Mining Lease for Silica Sand over an extent of 27.33 acres in S.No.1154/1, 1155, 1160, 1161 of Yeruru (V), Chillakur (M), Nellore (Dist.) for a period of 10 years in favour of Sri. G.B. Rajasekhar. The Mining Lease deed was executed on 20-1-1982 which was in force upto 19-1-2002.

Subsequently the lease was transferred in favour of M/s. Southern Silica Mines vide G.O. 2nd read above, for the unexpired lease period i.e. upto 19-1-2002. M/s. Southern Silica Mines submitted Renewal of Mining Lease application vide reference 3rd read above.

In the reference 4th read above, a notice has been issued to M/s. Southern Silica Mines to submit Approved Mining Plan for considering grant of Renewal of Mining Lease for Silica Sand over an extent of Ac.27.33 in S.No.1154/1, 1155, 1160 and 1161 of Yeruru (V), Chillakur (M), Nellore (Dist.) for a further period of 20 years with effect from 20-1-02.

4. In the reference 5th read above, the Director of Mines & Geology has recommended to grant Mining Lease for Silica Sand over an extent of Ac.27.33 in S.No.1154/1, 1155, 1160 and 1161 of Yeruru (V), Chillakur (M), Nellore (Dist.) for a period of 20 years.

After careful examination, Government hereby grant Renewal of Mining Lease for Silica Sand over an extent of Ac.27.33 in S.No.1154/1, 1155, 1160 and 1161 of Yeruru (V), Chillakur (M), Nellore (Dist.) for a further period of 20 years with effect from 20-1-02 in favour of M/s. Southern Silica Mines subject to the provisions of Mines and Minerals (R&D) Act, 1957 and the rules made thereunder in general, subject also to the conditions in Form-K prescribed under the Mineral Concession Rules, 1960 and to the additional conditions specified in the Appendix to this order.

The rates of royalty, dead rent and surface rent and water charges shall be collectable as follows:

Rate of Royalty for Silica Sand – Fifteen rupees per tonne or as revised from time to time.

Rates of Dead Rent (Rupees per hectare per annum) or as revised from time to time.

Category of the Mining Lease	11th year of the lease and onwards
Lease area up to 30 Hectares	200

Directorate of Mines & Geology ★ Government of A.P. Hyderabad ★

GOVERNMENT OF ANDHRA PRADESH
DEPARTMENT OF MINES & GEOLOGY

PROCEEDINGS OF THE ASST. DIRECTOR OF MINES & GEOLOGY, NELLORE
(Present:- Sri R.V.Subba Reddy, B.Sc., Asst. Director)

-:oOo:-

Proc. No. 2611/M1/2005 Dated 21.07.2005.

Sub:- Mines and Minerals – 1st Renewal of Mining lease for Silica sand - over an extent of 27.33 acres in S.No's. 1154/1, 1155, 1160 & 1161 of Yeruru village, Chillakur mandal, Nellore District for a further period of 20 years – lease granted to M/s. Southern silica mines – commencement of Mining operations – Orders issued.

Ref:- 1. G.O.Ms.No. 174 Inds. & Commerce (M) Department, dated 06.06.2005 on 1st Renewal of Mining lease granted to M/s. Southern silica mines on 02.12.2003.
2. Executed mining lease deed registered by sub-registrar, Gudur, dated 21.06.2005.

O R D E R:

The Government through the G.O. 1st cited have sanctioned 1st renewal of mining lease for Silica sand for a further period of 20 years w.e.from 20.01.2002 over an extent of 27.33 acres in S.No's. 1154/1, 1155, 1160 & 1161 of Yeruru village, Chillakur mandal, Nellore District in favour of **M/s. Southern silica mines.**

In view of the above, sanction is hereby accorded to M/s. Southern silica mines for commencement of Mining operations for extraction of Silica sand over extent of 27.33 acres in S.No's. 1154/1, 1155, 1160 & 1161 of Yeruru village, Chillakur mandal, Nellore District for a further period of 20 years w.e.from 20.01.2002 to 19.01.2022. The lease deed in Form K5 has been registered with the sub-register, Gudur vide Registration No. 1623/2005, dated 24.06.2005 as required under Rule 31(2) of M.C.Rules of 1960 and the rules made hereunder in general and also the conditions of lease deed under M.C.Rules, 1960 and the additional conditions specified in the appendix to the lease deed. The lessee should maintain all the records and accounts in the form prescribed by the Government and they should submit all the concerned Monthly / Annual returns and reports in the forms prescribed under M.C.Rules 1960 and Mines & Minerals (Regulation & Development) Act, 1957.

Under Section 16 of the Indian Mines Act, 1952 notice of opening of the mine should be given to the Director General of Mines Safety, Dhanbad and to all the concerned.

Asst. Director of Mines & Geology,
NELLORE.

To
M/s. Southern silica mines,
7/105, Mittapalem street,
Gudur 524 101, Nellore District.

P.T.O

Directorate of Mines & Geology, Government of A.P. Hyderabad

Annexure IV

REGD. OFFICE
MEHER HOUSE
15, CAWASJI PATEL ST
BOMBAY-1

Italab Private Ltd.

Industrial Testing & Analytical Laboratories

149, GOVINDAPPA NAICKEN STREET
MADRAS-600 001. Telephone : [illegible]

Sanction
Drawing Vs

CERTIFICATE OF ANALYSIS

PARTICULARS OF SAMPLE SUBMITTED BY M/s. [illegible] Silica Mines, [illegible] GUDUR, Nellore Dt. (A.P.).

Nature of Sample : SILICA SAND

Received : Personally handed over

Date of Receipt : 16-5-2002

Quantity : [illegible]

[illegible] 1154 etc of [illegible] village Chillakur mandal

RESULTS OF ANALYSIS

Sample dried at 105°c

Silica	SiO_2	.. 95.54 %
Alumina	Al_2O_3	.. 2.29 %
Ferric oxide	Fe_2O_3	.. 0.49 %

Dry Sieve Analysis

Retention on 45 mesh	.. 19.80 %
Retention on 72 mesh	.. 82.40 %
Retention on 150 mesh	.. 93.20
Passing through 150 mesh	

Directorate of Mines & Geology ★ Government of A.P. Hyderabad

Dated 23-5-2002

For ITALAB PVT. LTD.

Branch Manager

Annexure V

SECOND MINING SCHEME FOR SILICA SAND IN SY.NO 515/P OVER AN EXTENT OF 50.00 ACRES IN BALLAVOLU VILLAGE, CHILLAKUR MANDAL, NELLORE DISTRICT, A.P.

This Mining Plan is Approved subject to the Conditions Stipulations indicated in the Mining Plan Approval Letter No. 233/ / MS/ NLR / 2014. Date 02/03/2015

PART – I

CHAPTER - I

1.0 REVIEW OF MINING SCHEME

1.0 REVIEW OF MINING SCHEME:

The present mine was originally belongs to prabhu silica sand mine owned by Sri G.B. Rajasekhar in Yeruru village, Chillakur mandal, Nellore district. The mining lease was granted over an extent of 27.33 acres (11.06Hect) in Sy. Nos. 1154/1, 1155, 1160 and 1161, vide G.O.M.s No.702, Industries and Commerce department Dt.03-12-1981 for a period of 20 years. The lease was executed on 20-01-1982. Vide proceedings No.5899/MI/82 Dt.20-01-1982 of Assistant Director of Mines and Geology, Nellore, Andhra Pradesh.

Then the lease was transferred in favour of Southern silica mines in 2000 and the renewal was granted for a period of 20 years w.e. from 20-01-2002 to 19-01-2022 vide G.O.M.s No.174, Ind & com.(M-I) dept. Dated 06-06-2003. In respect of this renewal of ML; the mining plan was approved vide letter No. 30185/MP/-II/2002 Dated 03.10.2002 of DM & G, Hyd for a period of 5 years from 20.01.2002 to 19.01.2007. The lease would have to apply for 1st scheme of mining plan at least one hundred twenty days before the expiry of the five years period, for which it was approved on the last occasion as required under Rule 12(3) of MCDR 1988. But, they have not done so. However, the lessee submitted the scheme of mining on 30.12.2014 i.e. after lapse of about 8 years. It is evident that the 1st scheme of mining period of 5 years was already lapsed and hence 1st scheme of mining period of 5 years deemed to have been lapsed or treated as lapsed from 20.01.2007 to 19.01.2012. In the 2nd scheme of mining period of 5 years,

APPROVED

(K.C.L. NARASIMHA REDDY)
JOINT DIRECTOR OF MINES & GEOLOGY
O/o. The Director of Mines
& Geology, A.P. HYDERABAD

Directorate of Mines & Geology, Government of A.P. Hyderabad

Chillakur and Kota Mandals of Sri Potti Sree Ramulu Nellore district, lies between North Latitudes 14°02″ and 14°10″ and East Longitudes 79°51″ and 80°09″ in the Survey of India topographic maps 57 N/16 and 66 C/1 on a scale of 1:50,000 (Fig. 1) and are the coastal mandals of the southern part of the district and lies in between the mouths of two rivers, Kandaleru in the north and Swarnamukhi in the south. Until recently, agriculture appears to be the major occupation in this rural part of the district while, mining and industrialization are awaiting rapid expansion with the establishment of a recently developed port near Kandaleru mouth (Krishnapatnam Port) and the upcoming Duggirajupatnam port in the south.

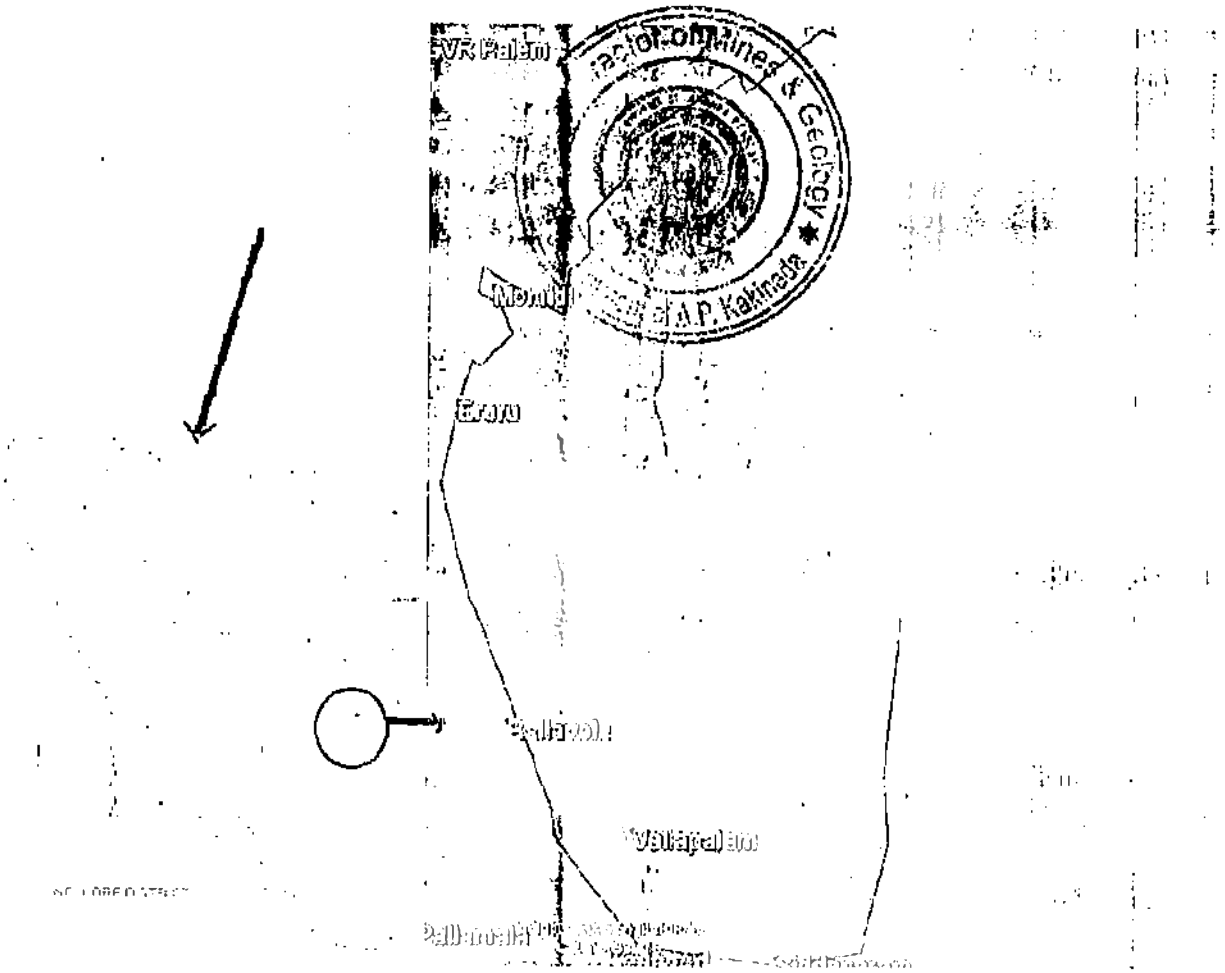


Fig. 1. Crecent shaped Silica Mine area of SPSR Nellore District.

The study area is well connected by air, rail, road and sea. Gudur, is the nearest major Railway Station of the South-Central Railway, on Howrah – Chennai, route. The National Highway No. 5 connecting Kolkata and Chennai, passes parallel to the SA by 18 km West. Nearest Air-ports are Tirupati (100 km Southwest) and Chennai (150 km South).

Climate:

The climate of the district is moderate and characterized by sub-tropical climate. The period from December to middle of February is generally the season of fine weather. The summer season is from March to May. This is followed by monsoon period from June to

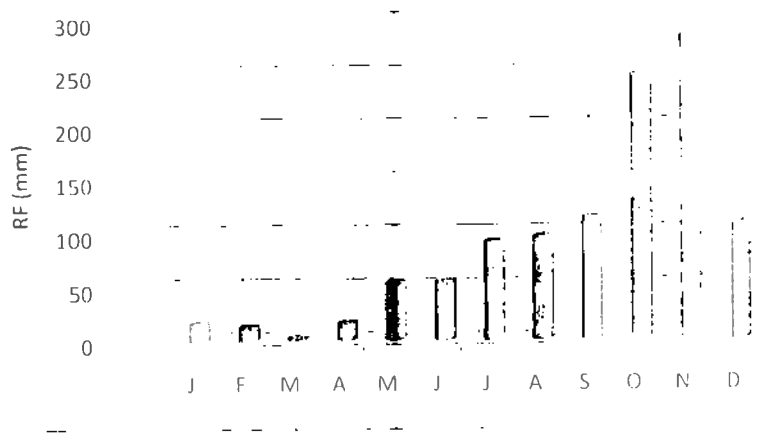
September, the post monsoon from October to December and the winter season from January to February. The annual normal rainfall of the district is 1084 mm.

The peculiarity of this district is that contribution of SW monsoon is far less than the contribution of NE monsoon rainfall. About 70% of the annual rainfall is contributed by the NE monsoon. In general the amount of rainfall is increases from west to east about 900 to 1300 mm in the district.

The mean daily maximum temperature in the district is about 38°C in May and the mean daily minimum temperature is about 20°C in December/January. Temperature in the district begins to rise from the middle of February till May. With the onset of southwest monsoon in June, the temperature decreases to about 20°C and is more or less uniform during the monsoon period. The relative humidity ranges from 60 to 80% in the mornings, whereas in the evenings it varies from about 45 to more than 70%.

The annual rainfall during 2012 is 889 mm and the long term Normal Annual Rainfall as was reported by the CGWB (2013) was at 1,084 mm. October and November months have shown relatively high rainfall compared to all the other months. January to April were the months with lowest rain fall (Fig. 2).

Fig. 2. Normal Rainfall of Nellore District



Geology:

Pennar and Swarnamukhi rivers are the major contributors to the formation of the deltaic plains in the district. The deltaic and coastal plain extends from north to south along the eastern margin of the district all along the coast (CGWB, 2013). The southern fringe of the coastal plain is occupied by Pulicat lake, few kilometres North to this lake, a vast stretch of sandy coastal plains region occurs between the mouths of Swarnamukhi river and Kandaleru

Creek. This sandy coastal plain extends up to a distance of 5 to 6 km from sea coast, and appears in a crescent shape. with deposition of sands up to 8 m msl, indicating a formation of the coastal dunal systems. This ***coastal dunal system*** is the specific interest of the present study, which involves the Eastern Part of the Chillaku mandal, and the northern part of the Kota mandal.

As per Geological Survey of India, District Resource Maps, these deposits belong to marine to fluvio-marine origin containing tidal flat (Qmb) and deltaic (Qfm) deposits with unconsolidated sand, silt and clay sediments in varying amounts with variable effective porosity to carry fresh to saline groundwater in varying amounts and dune sands have an aeolian origin (Phani, 2014) Ayyavariah et al., 2013 opine that the land of the present dunal system was once (Pleistocene to Holocene period) submerged under sea water and exposed after a long spell of global glaciations, which was followed by sand deposition and consequently through aeolin process the present dunal system appeared.

Hydrology:

The general drainage pattern was Dendritic to sub-dendritic. Both, Kandaleru and Swarnamukhi rivers are non-perennial at the upstream lands. The water table, as was observed by the study team in the Mined areas, was exposed at depth of 1.0 to 2.0 m, from the general ground level The study area, being Coastal dunal landforms, in all probability formed over an impervious clay beds, the water table is shallow. CGWB (2013) reports that fresh water aquifers occur under phreatic to confined conditions in the sand dunes of Nellore district.

However, unfortunately the CGWB did not mention about the Sandy Springs and Spring Channels (***Sonas*** and ***Sona Kaluvas***, as they are popularly called by the natives), the sensitivity of which is a specific subject of this study. The district Irrigation department has also not specified anything about the *Sonas* and *Sona Kaluvas*.

Demography:

The study area, as described earlier, covers the Eastern Part of the Chillakur mandal, and the northern part of the Kota mandal. In this region there are 12 main villages with a total population of 25803 in 7611 Households (Census of India, 2011). Literacy was slightly above 49% and of a total of 13531 (52.44% of the total population) workers in the region, 6588 (48.69% of the total workers) depend on the agriculture (Tab. 1).

	Particulars	Chillakur	Kota	Total
1	No. of Main Villages	9	3	12
2	Total Population	19986	5817	25803
3	No. of Households	5910	1701	7611
4	SC Population	4890	1809	6699
5	ST Population	2891	1332	4223
6	Totl Workers	10592	2939	13531
7	Agr. Workers	5186	1402	6588
8	Literacy (%)	50.26	45.01	49.08

Table 1: Demographic details of the two mandals of Silica Mine areas of SPSR Nellore district.

Mining Activities:

Silica sand deposits are widely spread over in the study area and as per reports of Indian Bureau of Mines, the silica sand deposits of the study area can be compared with those of Langholme sand mine in Humberside of United Kingdom (IBM, 1993). As per government reports, number of mining leases are 74 covering an area of 1202.51 Hectares (IBM, 2012) in Nellore district. The list provided by the AD Mines Department of Govt. of AP reveal that a total of 1218.63 ha of area is under mining operated with 77 leases in the SA (AD Mines, 2014)

No.	Village	No. of leases	Lease Area (ha)
1	Thamminapatnam	2	24.29
2	Momidi	11	252.24
3	Yeruru	5	48.05
4	Ponnavolu	0	0
5	Chinthavaram	9	125.03
6	Addepalle	10	81.53
7	Turpu Kanupur	6	51.64
8	Ballavolu	7	101.35
9	Vellapalem	14	164.96
10	Karlapudi	2	25.27
11	Siddavaram	6	221.11
12	Kothapatnam	5	123.11
	TOTAL	77	1218.63

The silica sand in this area consists of mostly SiO_2. Generally ordinary sand consists of many other materials like Zircon, Rutile, and other contaminants. In this area the sand is pure in its form. This is what makes it more attractive to the industries. Therefore many mining companies had obtained mining leases in this area. This sand is being supplied to the glass industries, automobile casting industries and other chemical industries.

Mining activity in the region appears to have rapidly expanded in the last fifteen years As per this information, the first mine lease was given in1978, and since then, the decadal

growth in the mine lease areas is presented in Fig. X. Similarly, as was reported by Ayyavariah et Al., (2013) the production of silica mining in the area has increased from 0.39 M tons/annum in 2001-02 to 1.91 M tons/annum in 2010-11.

Fig.3: Increment in the silica mine lease area in different decades.

According to Ayyavaraiah et al (2013) the details of production reported by Indian Bureau of Mines and State Mines & Geology department are not identical. The year-wise production of Nellore silica sand from 2000-01 to 2010-11 as collected at the Office of the Assistant Director of Mines Geology, Nellore ranges from 0.39 million tonnes in 2001-02 to 1.91 million tonnes in 2010-11 with a mean of 0.97 thousand tonnes. In contrast, the production of Nellore silica sand as reported by the Indian Bureau of Mines is consistently lower. For example, IBM (2011b) reports production of Nellore silica sand in 2009-10 to be 948 thousand tonnes as against 1.5 million tonnes reported by the State Department of Mines and Geology

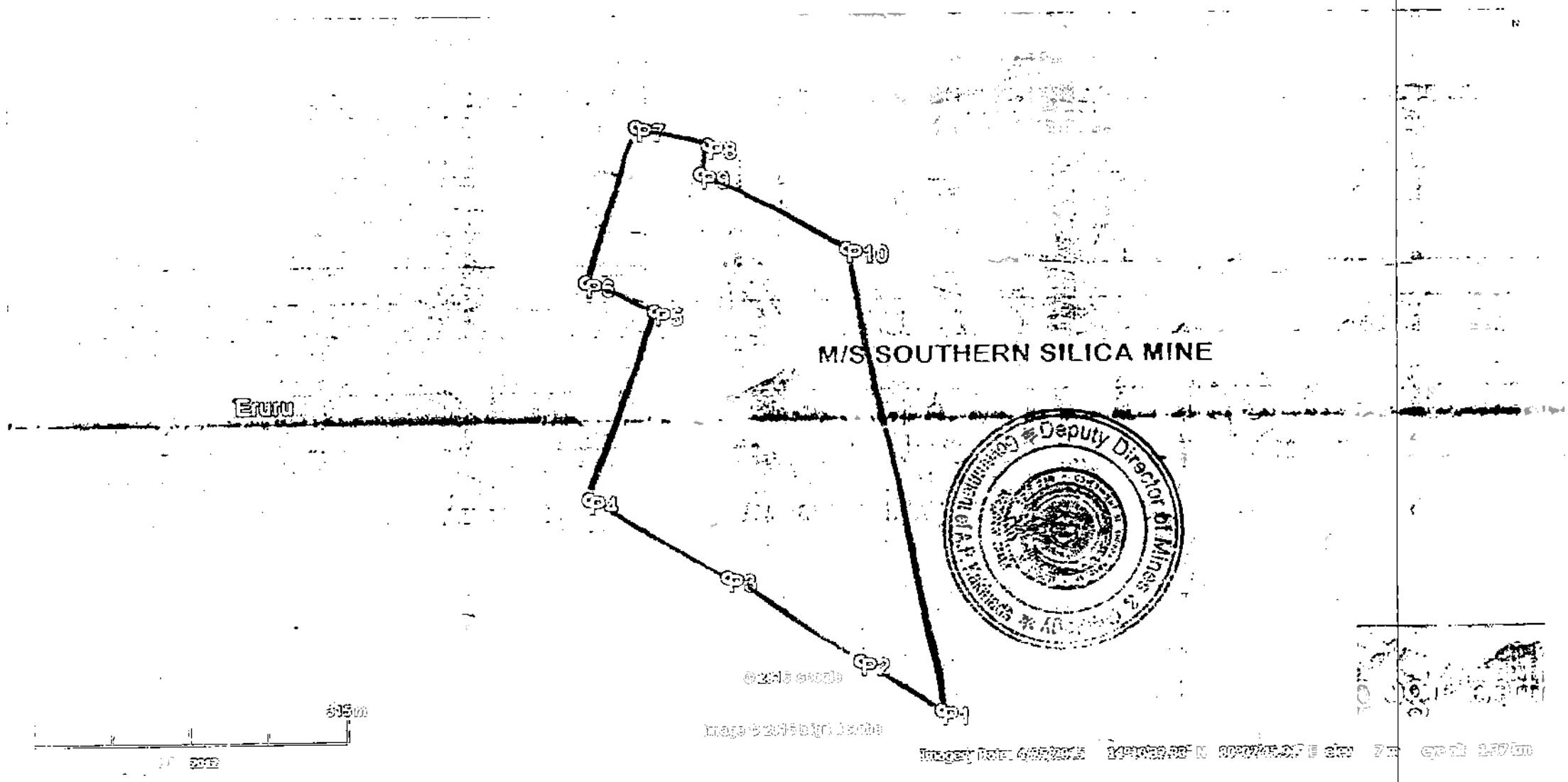
Thus, the figure arrived at by the IBM is 63% of what the State Department of Mines and Minerals had reported and the need for the Government Departments to report data of definitive nature without discrepancies was emphasized by Ayyavaraiah et al., (2013). However, in both the cases, in all probability, the production from the illegal mining was not accounted for, and as per the perception of the natives, the illegal mining accounts for more than 20% of the total mining area. Some of the sites of illegal mining were observed by this team in the Vellapalem-Ballovolu region, and Momidi region.

As reported by Phani (2014) 117 Million Tons of silica sand covering 9.53 Sq.Km has already mined to the possible depth until which washable sand is excavated and still about 59 Million Tons of sand is available for mining in currently active mine sites. Further 849 Million Tons of silica sand can be prospected w.r.t industry requirements over an area of 70 Sq.Km. This implies that on average, 122900 tons of sand/ha or 12.29 tons/m2 is being mined, indicating that the mining depth could have reached up to 8 m.

Dependence of locals:

Dependence of locals on **"sona kaluvalu" (spring channels) and dug-wells for agricultural & Drinking water needs**: The locals are totally dependent for their drinking water needs and agricultural needs on the spring channels and dug-wells. Culturally most of the persons live on agriculture. The water from these spring channels and dug-wells was catering needs for 3 time crops (paddy) in this area. This is the best possible for any paddy crop in the country. Apart from this the water being sweet in its nature this was catering the needs of the drinking water for more or less all the local villagers. This is more fully described in the ***Ecology*** section that is to follow.

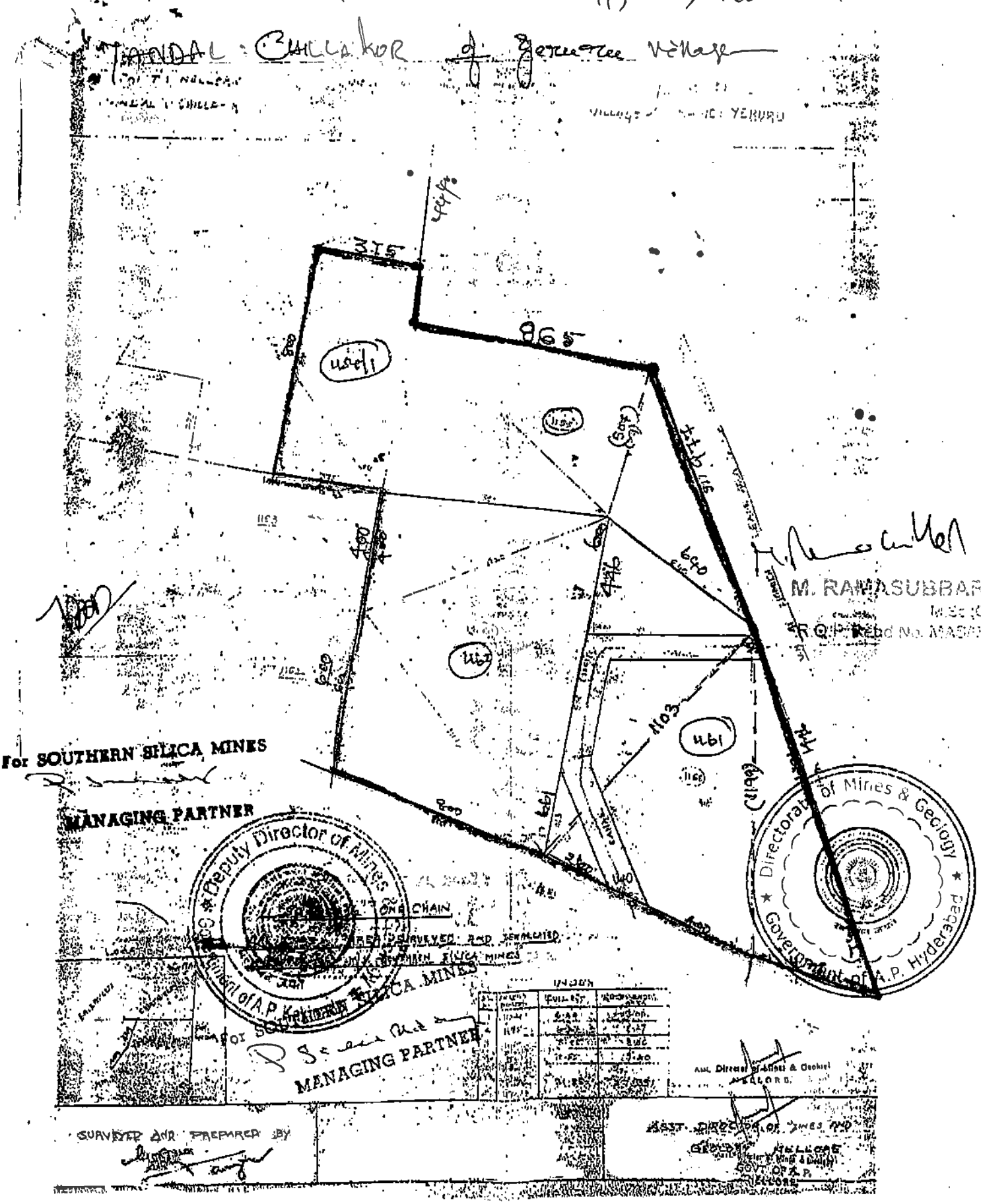
The native elders informed the committee members in a formal group discussion that the fields depending on these *sona kaluvas* had no lean season for agriculture wherein they were able to grow three crops a year. The committee members also could see, through a little extent, paddy and groundnut crops growing in the month of March (Pre-summer).


M/S SOUTHERN SILICA MINE
Eruru
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10
Deputy Director of Mines
Commissioner of Mines
Kenya
515m

M/s Southern Silica Mines

DISTRICT : NELLORE Field Nos 1154/1, 1155, 1160 and 1161

MANDAL : CHILLAKUR of Gerenepee Village



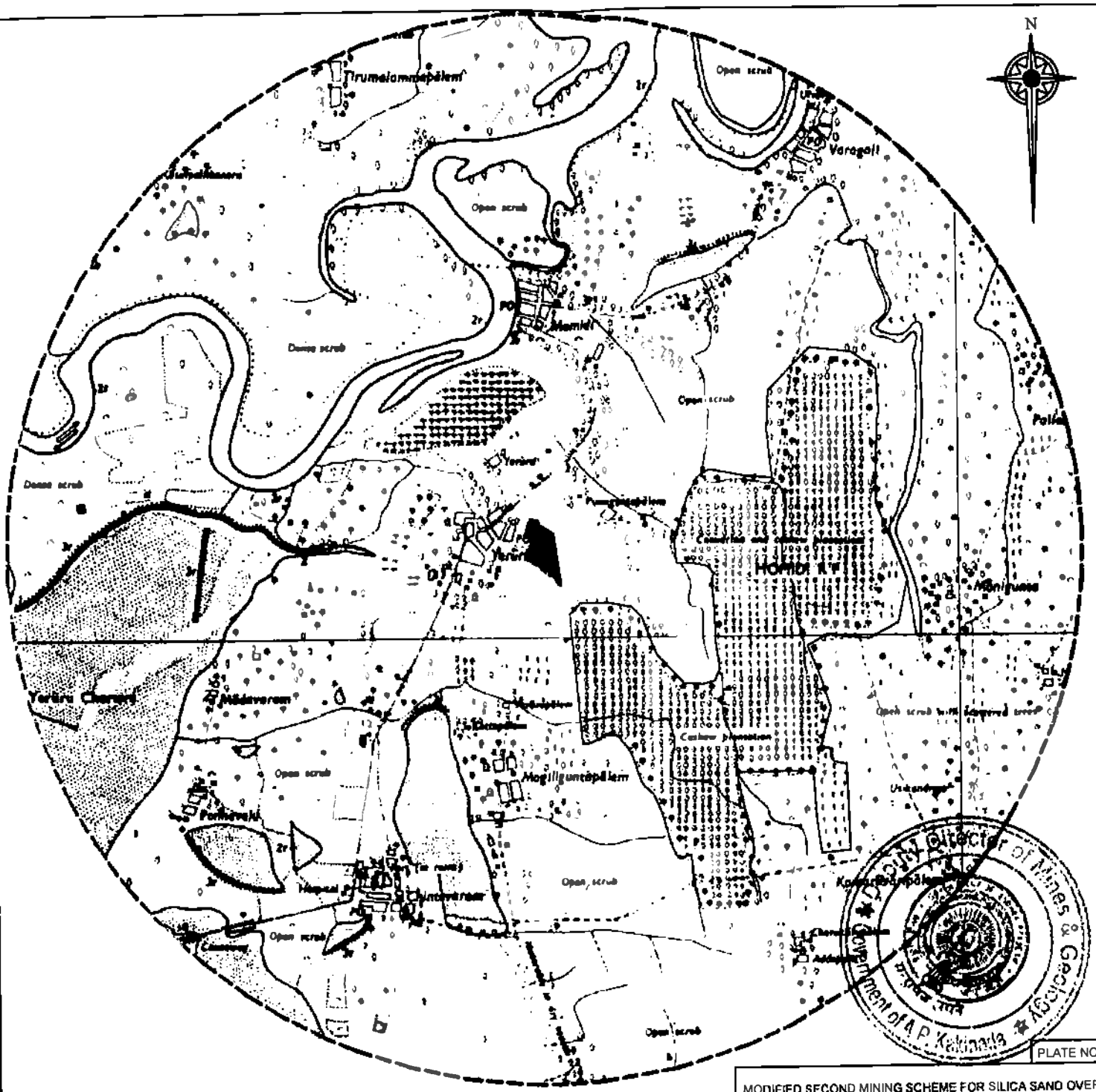


PLATE NO. 1

MODIFIED SECOND MINING SCHEME FOR SILICA SAND OVER AN EXTENT OF 27.33 ACRES IN SURVEY NO. 1154/1,1155, & 1161 OF YERURU (VI), CHILLAKUR(M), NELLORE (DT), A P

LESSEE: SOUTHERN SILICA MINE

TOPOSHEET NO: 66 B/4

SCALE :- 1 : 50,000 (1cm = 500m)

CERTIFIED THAT THE ABOVE PLAN IS CORRECT

For SOUTHERN SILICA MINES

MANAGING PARTNER

SIGN OF LESSEE

SIGN OF R.Q.P

DATUM BASED ON WGS - 84

GEO CO-ORDINATES LATITUDE: N14 10' 31"
LONGITUDE :E80 02' 44"

INDEX

- M.L AREA
- 5 Km LINE
- VILLAGES
- WATER SOURCE
- B.T ROAD
- RESERVE FOREST