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PARBHANI

EXECUTIVE SUMMARY (ENGLISH)

For

SAND MINING (MINOR MINERAL)
FOR FOLLOWING VILLAGES

SR.NO	NAME OF SANDGHAT	VILLAGE NAME	KHASRA NO	TOTAL LEASE AREA	Total Production/ Brass (TPA)	TOTAL PROJECT COST
1.	**JODPARALI**	**JODPARALI RIVER SAND MINE AT PURNA RIVER**	24,52,53,54,55,61,62, ,63,64,65,272,276,284, 285, 286,287,288,293	**2.87**	**5587**	1,82,91,838/-
2.	**SAMBHAR**	**SAMBHAR RIVER SAND MINE AT PURNA RIVER**	5,6,7,29,37,38,39,	**1.05**	**1855**	60,73,270/-

OF

TALUKA:-PARBHANI, DISTRICT – Parbhani (Maharashtra)

Valid for the 1 year from the date of EC-granted or until approved quantity exhausted/ Mined whichever is earlier

FOR

ENVIRONMENTAL CLEARANCE (PUBLIC HEARING)

("B" under category 1(a) of EIA Notification dated 2006, S.O. 141(E) dated 15. 01. 2016, MoEF & CC, S.O. 3611(E), Dated 25.07.2018, Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020

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Accredited by NABET: No.: - NABET/EIA/1922/RA0201/ April 18, 2022)

September – 2021

1.0 Introduction:

Executive summary is the brief of report prepared for Environmental Management Plan of Sand Spot Mines of Minor Minerals of Parbhani District, Tehsil Parbhani by M/s. District Mining Office, Parbhani, Maharashtra (Govt. of Maharashtra). The mining is confined to extraction of sand in surrounding villages of Jodparali (2.87 Ha), Sambhar (1.05Ha) Sand is exposed in the lease area, the deposit is being done by opencast manual mining method without drilling and blasting.

1.1.1 Project Identification

The sand is one of the minor minerals occurred in Parbhani district. The proposed project of sand mine by opencast method in the applied lease area of (2.87 Ha), located near village Jodparali (1.05 Ha) located near village Sambhar located near village Tehsil Parbhani , District:-Parbhani (Maharashtra). Mining Plan along with PMCP under Rule 16 (1) of MCR 2016 and PMCP under Rule 23B of MCDR 1988 is approved by Deputy Director, Directorate of Geology and Mining, Regional Office , Aurangabad vide letter no. STC-10/2020(M.P. Sand) 52 dated 04/02/2020. Proposed lease area is Government land.

1.1.2 Identification of Project Proponent

Table 1: Name and address of the Applicant

Applicant
District Mining Officer, Parbhani **(Govt. of Maharashtra)** **Gandhi Park, Parbhani, Maharashtra 431401** **Mob No:-7218655211** **Email Id:-dmocollectorpbn@gmail.com**

1.1.3 Location of Project

Table 2: Details of Project Location

Particulars	JODPARALI	SAMBHAR
Name of the applied mine area	**JODPARALI RIVER SAND MINE AT PURNA RIVER**	**SAMBHAR RIVER SAND MINE AT PURNA RIVER**
Near village	Mandwa ,Zari,	Matkarala , Mangangaon
Tehsil	Parbhani	Parbhani
District	Parbhani	Parbhani
State	**Maharashtra**	**Maharashrta**
Toposheet no.	56A/15 NE	56A/15 SE
Latitude (N)	19°25'15.83"N	19°21'30.50"N
Longitude (E)	76°55'0.68"E	76°53'21.98"E

1.1.4 NEED OF THE PROJECT

The sand and gravel are one of the most important construction materials. Ensuring their availability is vital for the development of the infrastructure in the country. As the requirement of these construction materials is on rise, and as entire Parbhani district comes under the Purna-Godavari and Godavari basin the district is covered by basaltic rock due to weathering activity by river Godavari and Purna by transportation, deposition and erosion has been taken place of pre existing rock form well sorted granular sand in Parbhani district which is favorable for building construction work. This indicates enough gaps between demand & supply which provides opportunities for Government of Maharashtra to increase its production.

1.2 PROJECT DESCRIPTION

Description of Applied Lease and Mining Process

Local geology: Parbhani districts large part is occupied of rocks of Deccan trap formation, represented by of most horizontal lava flows of basaltic composition, thought to have been emplaced from fissures towards the close of the Mesozoic era, on to the lower tertiary era.

Table 3: Available Brass and Life of Mine

Name of Village	JODPARALI	SAMBHAR
Quantity of sand for Excavation (Brass)	5587	1855
Life of Mine	1 YEAR	1 YEAR

Proposed Working

Opencast Manual Mining Method will be adopted for extraction of Sand deposits in Godavari River Bed.

Opencast Mine Working:-

As the mine lease is located in the River Bed and mineral is replenished every year. As per The Modified River bed Sand Mine Working Guidance No.11(1X) and 12 of the Notification of Revenue and Forest Department, Mantralaya Mumbai, The Government of Maharashtra vides Government Decision No. Gaukhani-10/0615/Pra.Kra. 289/Kha dated 03.01.2018; mining will be done manually only with the use of labours, man heads, spades (Pawadas), ghamelas/pans.

Each cycle of operation shall consist of the following operation.

i) Over Burden Removal: No overburden is anticipated. So there is no need of removal of Overburden.

ii) Digging of Sand: Digging of Sand will be done by manually by Labours with the help of Spades (Pawadas).

iii) Loading of Tractor Trolley: Loading of Tractor Trolley will be done by manually with the help of Man heads, Labours with the help of Spades (Pawadas) & Pans (Ghamelas) combination.

iv) Transportation of Sand by Tractor Trolley from River Bed Mine/Sand Ghat to Stack yard: Mine Owner will prepare the Stack yard outside the River bed or Sand Ghat on nearer road. By the use of Tractor Trolley the material will be transported from Sand Ghat to Stockyard.

v) Transportation of Sand from Stack yard to Customers: Transportation of Sand will be done by the use of tractors trolleys from Stack yard to various Customers with permissible quantity. Transportation will be done as per the rules and regulations.

vi) Reclamation: Applicant will do scientific mining so that in Monsoon the Mine Lease area will be automatically backfilled. Only plantation will be done by the applicant on the both bank side of the River and other free places.

Extent of Mechanization:

Mining Operations will be done by manual means only. No Mechanization. Services

1.3 DESCRIPTION OF THE ENVIRONMENT

The one time environmental monitoring was carried out during winter season of year December 2019. The various environmental components which are thoroughly studied during the study period include:

BASELINE ENVIRONMENT STATUS

1.3.1 Meteorological condition

During winter season Maximum temperature recorded 32 °C & Minimum temperature 21°C and wind blows from east and north. during winter season.

1.3.2 Ambient Air Quality

The mining operations will be carried out by manual method and no machinery, drilling & Blasting will be carried out. Hence impact on air quality is not envisaged. Only tractor-trolley will be used for transportation of the sand from the ghat to nearby depot or desired destination. The air quality at present is good. However the dust due to machine movement may form. The exhaust of the vehicles and Mining machinery may cause NO2, SO2 % higher. In such cases air sample will be drawn from near such activities analyzed & necessary protective measure for quality of air will be adopted from the SPM, APM, NO2,and SO2etc.Will be checked.

1.3.3 Ambient Noise Level

- Noise level shall be maintained with in prescribed quarry limits in the working zone (for12hr. Exposure).
- Speed of trucks entering or leaving the mine is limited to moderate speed of 10 kmph to prevent undue noise from empty trucks.
- No vibrations of notable levels will be generated

1.3.4 Water Quality

Ground Water Quality

- District is in "SAFE" Category from Ground Water Development point of view. Detailed Ground Water Scenario for the district.
- Hydrogeology Groundwater occurrence and movement in the area is influenced by its rock formations. Groundwater potentially depends upon porosity and permeability (both primary and secondary) of rock formations.
- Parbhani district is underlain by basaltic lava flows and alluvium only. The regional Static water level in the area varies from 20 mbgl to 25mbgl.
- Ground water extraction in the area is done mainly through dug wells and bore wells.
- The average depth range of dug wells in the area is 15.00m to 30.00 m. The average depth range of bore wells in the area is 60.00to 80.00 m.

Surface water quality

- Parbhani district has three main rivers Godavari, Purna & Dudhna etc. Godavari has tributaries like Palam, Dudhna, Purna rivers in the district. Kapra is a tributary of Purna river.

- The necessary water requirement for drinking & for water sprinkling will be met from Dug wells/Bore well outside the Sand Ghat area on purchase basis. The water is potable. There are no chances of any contamination as there is no chemical processing etc. are going to be done in the Sand Ghat area. The water analysis report of Dug well/ Bore well will be submitted to DGMMS every year. The ground water table is at upper level.

1.3.5 Soil Characteristics

The soil is rich in plant nutrients such as lime, iron, magnesium and potash. The soil is relatively rich and deep in the south especially in the Gangakhed and Pathri talukas as compared to the 6 soil in the north which is poor and shallow. The district should contrive encashing the opportunities from rich soil. The crops are cultivated in kharif and rabbi season in the district. Generally, the Jowar, cotton, pulses, rice and oil seeds

are grown in the Rabi season whereas; wheat sugarcane, bananas, turmeric etc. are cultivated in the district. Besides the crops like chilies, maize's are also cultivated in the district. Thus agriculture should be cultivated not merely a means of food but also a means of development.

TABLE 4: LAND USE PATTERN OF THE CORE AREA

S. No.	Particulars	JODPARALI		SAMBHAR	
		As on Today in Ha	After 1 Years in Ha	As on Today in Ha	After 1 Years in Ha
1.	Area of top soil spread for a forestation	-	**-**	**-**	-
2.	Storage for top soil	-	**-**	**-**	-
3.	Green Belt	-	**-**	**-**	-
4.	Over burden Dump	-	**-**	**-**	-
5.	Mineral Storage	-	**-**	**-**	-
6.	Infrastructure (Workshop, Admin. Building etc.)	-	**-**	**-**	-
7.	Mine road in Mine lease area	-	**-**	**-**	-
8.	Utilized area for Sand Mining	**0.000**	**2.87**	**0.000**	**1.05**
9.	Virgin lease area for Sand Mine & Other Uses	**2.87**	**0.000**	**1.05**	**0.000**
10.	Road				
11.	Railway	-	**-**	**-**	-
12.	Tailing Pond	-	**-**	**-**	-
13.	Effluent Treatment Plant	-	**-**	**-**	-
14.	Mineral separation plant	-	**-**	**-**	-
15.	Township Area	-	**-**	**-**	-

16.	Others to specify	-	**-**	**-**	-
17.	**Ownership**	Government River	Government River	Government River	Government River
Total		**2.87**	**2.87**	**1.05**	**1.05**

1.3.6 Biological Environment

Flora - The study area is mainly dominated by Southern Dry Mixed Deciduous Forests & the study area vegetation is dominated by Aam, Babul, Bel, Bor, Chandan, Jambhul, Karnj, Neem etc.

Fauna - The faunal species commonly encountered during study within the study area are Hare, Rat, Indian fox, etc. No endemic endangered or threatened species of flora & fauna observed during study period.

1.3.7 Demography and Socio- Economics

As per census of India 2011, study area consists of 127 nos. of villages with total population of 23,.06,640 nos. The number of households in the study area is 44,934.

1.4 ANTICIPATED ENVIRONMENTAL IMPACT & MITIGATION MEASURES

10.4.1 Impact on Air Quality

The mining operations will be carried out by manual method and no machinery, drilling & Blasting will be carried out. Hence impact on air quality is not envisaged. Only tractor-trolley will be used for transportation of the sand from the ghat to nearby depot or desired destination.

The transport routes are capable for handling this additional traffic.

Mitigative Measures: Following care will be taken for air pollution control.

- Water sprinkling will be done on the roads regularly. This will reduce dust emission further by 75%.
- Care will be taken to prevent spillage by covering the carrying vehicles with tarpaulin and sprinkling of water, if dry.
- Fortnightly scraping of road in order to keep the roads almost levelled. This will ensure smooth flow of vehicles and also prevent spillage.
- Overloading will be strictly prohibited.
- Proper tuning of vehicles to keep the gas emissions under check.

Plantation of trees along the roads to help reduce the impact of dust in the nearby villages.

10.4.2 Impact on Noise Quality:-

No significant noise will be generated due to sand mining as entire operation will be carried out manually. Noise will be generated only due to tractor trolley being used in sand transportation.

Mitigation measures: The off-site receptors are not significantly affected as noise generated by sand ghat is insignificant but some disturbances due to vehicle movement may not be avoidable. The tractor trolley will be maintained in good running condition so that noise will be reduced to minimum possible level.

Speed limits will be imposed on tractor trolleys used for sand transport.

10.4.3 Impact on Water Environment:-

Mining of sand from within or near a streambed has a direct impact on the stream's physical habitat characteristics. As the project activity is carried out in the dry part of the river bed, none of the project activities affect the water environment or riparian habitats. In the projects, it is not proposed to divert or truncate any stream. No proposal is envisaged for pumping of water either from the river or tapping the ground water. In the lean months, the proposed sand mining will not expose the base flow of the river and hence, there will not be any adverse impact on surface hydrology and ground water regime due to this project. The proponent will a dhere all guidelines and rules for proper and scientific method of mining during the period of extracting the sand.

Mitigation measures: The deposits occur in the middle/bottom of the river. During the lease period, the deposit will be worked from the top surface to approved depth of mining within the demarcated lease area only.

10.4.4 Impact on land Environment-

LAND ENVIRONMENT: The mining and allied activities involved in river bed mining are creation of temporary haul roads / transportation track and formation of mined pits inside river, etc. This sand mining project does not involve any waste generation. Thus no waste dump sites are needed for the project.

Impact Predicted	Suggestive measure
Disturbance to free movement /living of wild fauna viz. Birds, Reptiles etc.	• If birds are noticed crossing the core zone, they will not be disturbed at all; • Labourers will not be allowed to discard food, polythene waste etc., which can attract animals/birds near the core site; • Only low polluting vehicles having PUC will be allowed for carrying mining materials. • Noise level will be maintained within

	permissible limit (silent zone-50dB (A) during day time or residential zone 55dB (A)) as per Noise Pollution (Regulation and Control) Rules 2000, CPCB norms
Disturbance of riparian ecosystem/ wetlands	The riparian ecosystem or the wetlands will not be disturbed by the workers.
Monitoring of upstream and downstream water quality	Water quality will be monitored from upstream and downstream area once every month to assess the impact on water quality and mining activity will be controlled to maintain the clean water conditions.

Mitigative Measures:

- The mining will not be carried out below the water table.
- The contractor with the satisfaction of competent authority will provide drinking water, rest shelter, first aid box and welfare facilities as per prevailing laws.
- The river bed areas dug during dry season i .e. other than rainy season will get replenished during monsoon.
- Sand/Gravel deposit in rainy season in which the material so deposited will be available for fresh quarrying.
- The contractors will abide by the Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.

10.4.5 Impact on Biological Environment

Impact Predicted	Suggestive measure
Disturbance to free movement /living of wild fauna viz. Birds, Reptiles etc.	• If birds are noticed crossing the core zone, they will not be disturbed at all; • Labourers will not be allowed to discard food, polythene waste etc., which can attract animals/birds near the core site; • Only low polluting vehicles having PUC will be allowed for carrying mining materials. • Noise level will be maintained within permissible limit (silent zone-50dB (A) during day time or residential zone 55dB (A)) as per Noise Pollution (Regulation and Control) Rules 2000, CPCB norms
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Monitoring of upstream and downstream water quality	Water quality will be monitored from upstream and downstream area once every month to assess the impact on water quality and mining activity will be controlled to maintain the clean water

Impact Predicted	Suggestive measure
	conditions.

Anticipated impact and mitigation measures for biological environment

Ecological Impacts: Excessive and unscientific riverbed sand mining results in the destruction of aquatic and riparian habitat through large changes in the channel morphology. Impacts include bed degradation, bed coarsening, lowered water tables near the streambed, and channel instability. These physical impacts cause degradation of riparian and aquatic biota and may lead to the undermining of bridges and other structures. Continued extraction may also cause the entire streambed to degrade to the depth of excavation.

Sand mining generates extra vehicle traffic, which negatively impairs the environment. Where access roads cross riparian areas, the local environment may be impacted.

Mitigation measures: As the proposed mining will be carried out in a scientific manner as mentioned before, not much significant impact is anticipated, however, the following mitigation measure will be taken to further minimize it:

1. The activity will mainly be carried out manually to minimize associate loss, as stated earlier.
2. No mining will be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season.
3. As the mining site has no vegetation, no clearance of vegetation is required.
4. No mining will be carried out in the vicinity of important structure like bridges, dam and other structures if any.
5. Mining will be carried out on the dry part of the lease area to avoid disturbance to the aquatic habitat and movement of fish species.
6. No mining will be carried out during the rainy season to minimize impact on aquatic life.
7. The mining activity will deploy a tractor for transportation of sand from the mine to desired destination that may cause some loss to riparian habitat. Safe site / site having least impact will be selected for transportation, all the vehicles employed for transportation purpose will be PUC certified. On closure of mining operations / during the rainy season the eroded bank will be restored / reclaimed to minimize negative impacts.
8. No lighting will be allowed in the lease area.
9. No piling of sand will be allowed in the area.
10. No discard of food, polythene waste etc. will be allowed in the lease area which would distract/attract the wildlife.
11. No night time mining will be allowed which may catch the attention of wild life.

12. Access roads will not encroach into the riparian zones and no riparian vegetation cleared off for the mining transportation of sand.

10.5. ANALYSIS OF ALTERNATIVES

10.5.1. Site Alternatives- The mine is located along the where the sand exists in enough quantity to be economically extracted. Mining locations are preferred near the markets or along the transportation route.

10.5.2 Technology alternatives: - No alternative technology only opencast Manual Mining Method will be adopted for extraction of Sand deposits.

10.6 ENVIRONMENT MONITORING PROGRAM

Environmental Issue	Management Measures	Implementation
Air Environment	• To avoid fugitive dust emissions at the time of excavation, regular sprinkling of water will be done on regular basis. • Sand is transported to the sites by road through tractor trolleys. The sand carrying vehicles shall be covered by tarpaulin sheets. • The Green Belt development will be prepared along the haul roads, which will act as a pollution sink. • To minimize the vehicular pollution from the sand transporting vehicles, the following conditions will insist to permit the vehicles of the transporters	Project authorities through regular monitoring.
Noise & Vibration	• Phasing out of old and worn out tractor trolleys. • Provision of green belts along the road networks. • Care will be taken to produce minimum sound during sand loading. • Use of Backhoe and ear plugs may be provided to protect the labors working at the site.	Project authorities through regular monitoring.
Water environment	• Mining is avoided during the monsoon season and at the time of floods. This will help in replenishment of sand in the river bed.	Project authorities through regular monitoring.

	• River stream will not be diverted to form in active channels. • Utmost care will be taken to minimize or control leakage vehicles to be used for sand. • Transportation. • The washing of tractor trolleys in the river will be avoided. • The contractor will follow all guidelines and rules for proper and scientific method of • mining during the period of extracting the sand.	
Biological Environment	• Mining activities will be restricted to day-time so that fauna will not disturb at night. • Material will be covered with tarpaulin during transportation. • Water sprinkling will be done on haul roads to control fugitive emissions.	Project authorities through regular monitoring.
Occupational health & safety & public Health & safety.	• Regular water sprinkling on haul roads. • Dust mask will be provided to the workers. • Safety of the employee during mining will be taken care as per Mine regulations. • Medical records will be keep maintained.	Project authorities through regular monitoring.
Socio economic environment	• Employment will be given to local people. • Regular medical camps will be organized. • Funds will be provided for development activities in nearby villages.	Regular monitoring by Project authorities.

During the execution of the project activity, the sampling & analysis of various environmental attributes will be carried out as per guidelines of central pollution control board & State pollution control board Rajasthan. An Environment Management Cell will be set-up to implement the said program.

10.7 ADDITIONAL STUDIES

10.7.1 Risk Studies-Hazard identification and risk analysis involves identification of undesirable events that leads to a hazard, the analysis of hazard mechanism by which this undesirable event could occur and usually the estimation of extent, magnitude and likelihood of harmful effects

10.7.2 Disaster Studies:-

Proper disaster planning should be done to meet any emergency situation arising due to fire, explosion, sudden leakage of gas etc. Firefighting equipment and other safety appliances should be kept ready for use during disaster/emergency situation including natural calamities like earthquake/flood.

10.9 ENVIRONMENT MANAGEMENT PLAN

Opencast mining operation comprises of various activities related to digging and material handling which may be potential sources of environment pollution. The Sand Mine will be developed by systematically formed benches with over all pit slopes of 45° or angle of response which stabilizes the benches. Efforts will be made to suppress the dust at source by adequate watering. For this a mobile water of 2000 liters capacity will be engaged throughout the working shift.

TABLE 6: COST ESTIMATES OF EMP IMPLEMENTATION
(Investment and recurring cost in lacs /year)

S.No	Component	Description	JODPARALI		SAMBHAR	
			Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)
1	Environmental Monitoring programme	Monitoring for Air, water, noise & groundwater	0.90	1.00	0.90	1.00
2	Air Pollution Control	Water sprinkling during mining activities	0.80	2.30	1.00	4.30
3	Approach road maintenance		0	1.20	0	1.20
4	Plantation (790 plants planted)	790 plants on barrier zone @ Rs 350/per plant 200 plants on approach road & village @ Rs. 150/ plant	3.4	4.2	1.22	2.50
5	Gabian structure for	Gabian wall with the help of old	1.00	0.20	1.00	0.20

	arresting gravels	cement bags rivers pebbles etc to arrest erosion of boundary wall intermixing of gravels etc.				
6	Monitoring of sand	CCTV cameras (15000x2)	0.30	0.60	0.30	0.60
7	Water Pollution Control	Construction of bund along lease boundary & mobile Toilet	0.50	Nil	0.50	Nil
8	Noise pollution	Plantation including Tree Guard	1.00	0.50	1.00	0.50
9	Occupational Health & safety	Periodic Health check up of workers	-	1.00	-	1.00
TOTAL			**7.9**	**11**	**3.92**	**11.3**

TABLE 7: MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

Particulars	Monitoring Frequencies	Duration of Station	Important Monitoring Parameters
Surface water / Tube well	Twice in a year	Grab	pH, SS, TDS, Iron, Hardness, Alkalinity Chlorides, Nitrates Sulphate & Fluorides
Ambient air monitoring	Twice in a year	24 hr.	PM10, PM2.5, SOx and NOx
Noise Pollution	Twice in a year	-	Level in dB(A) and dB(C)
Working environment	Once in a year	-	PH, Conductivity, Sulphate, Nitrate, Phosphates, Alkalinity & texture

MANVAT

EXECUTIVE SUMMARY (ENGLISH)

For

SAND MINING (MINOR MINERAL)
FOR FOLLOWING VILLAGES

SR.NO	NAME OF SANDGHAT	VILLAGE NAME	KHASRA NO	TOTAL LEASE AREA	Total Production/ Brass (TPA)	TOTAL PROJECT COST
1.	KUMBHARI	KUMBHARI RIVER SAND MINE AT GODAVARI RIVER	1, 10, 13, 14 , 49	2.40	4664	1,52,69,936
2.	SHEWDI JAHANGIR	SHEWDI JAHANGIR RIVER SAND MINE AT DUDHANA RIVER	94, 95, 96, 150	1.00	1767	57,85,158

OF

TALUKA:-MANVAT, DISTRICT – Parbhani (Maharashtra)

Valid for the 1 year from the date of EC-granted or until approved quantity exhausted/ Mined whichever is earlier

FOR

ENVIRONMENTAL CLEARANCE (PUBLIC HEARING)

("B" under category 1(a) of EIA Notification dated 2006, S.O. 141(E) dated 15. 01. 2016, MoEF & CC, S.O. 3611(E), Dated 25.07.2018, Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020

Applicant District Mining Officer, Parbhani
Government of India

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September – 2021

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1.1.1 Project Identification

The sand is one of the minor minerals occurred in Parbhani district. The proposed project of sand mine by opencast method in the applied lease area of (2.40 Ha), located near village Kumbhari (1.00 Ha) located near village Shewdijahangir Tehsil Manwat, District:- Parbhani (Maharashtra). Mining Plan along with PMCP under Rule 16 (1) of MCR 2016 and PMCP under Rule 23B of MCDR 1988 is approved by Deputy Director, Directorate of Geology and Mining, Regional Office , Aurangabad vide letter no. STC-10/2020(M.P. Sand) 52 dated 04/02/2020. Proposed lease area is Government land.

1.1.2 Identification of Project Proponent

Table 1: Name and address of the Applicant

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District Mining Officer, Parbhani **(Govt. of Maharashtra)** **Gandhi Park, Parbhani, Maharashtra 431401** **Mob No:-7218655211** **Email Id:-dmocollectorpbn@gmail.com**

1.1.3 Location of Project

Table 2: Details of Project Location

Particulars	KUMBHARI	SHEWDI JAHANGIR
Name of the applied mine area	**KUMBHARI RIVER SAND MINE AT GODAVARI RIVER**	**SHEWDIJAHANGIR RIVER SAND MINE AT DUDHANA RIVER**
Near village	Sarangapur (3 KM) , Pimpalgaon Gayake (3 KM) , Jawala Khurd (5 KM) , Arvi (6 KM) , Simangaon (7 KM)	kothla, pardi, wadgaon, rajura,
Tehsil	**Manvat**	
District	**Parbhani**	
State	**Maharashtra**	
Toposheet no.	**56A/12**	**56A/11**

Latitude (N)	19° 5'48.52"N	19°23'58.68"N
Longitude (E)	76°30'12.00"E	76°37'18.33"E

1.1.4 NEED OF THE PROJECT

The sand and gravel are one of the most important construction materials. Ensuring their availability is vital for the development of the infrastructure in the country. As the requirement of these construction materials is on rise, and as entire Parbhani district comes under the Purna - Godavari and Godavari basin the district is covered by basaltic rock due to weathering activity by river Godavari and Purna by transportation, deposition and erosion has been taken place of pre existing rock form well sorted granular sand in Parbhani district which is favourable for building construction work. This indicates enough gaps between demand & supply which provides opportunities for Government of Maharashtra to increase its production.

1.2 PROJECT DESCRIPTION

Description of Applied Lease and Mining Process

Local geology: Parbhani districts large part is occupied of rocks of Deccan trap formation, represented by of most horizontal lava flows of basaltic composition, thought to have been emplaced from fissures towards the close of the Mesozoic era, on to the lower tertiary era.

Table 3: Available Brass and Life of Mine

Name of Village	**KUMBHARI**	**SHEWDI JAHANGIR**
Quantity of sand for Excavation (Brass)	**4664**	**1767**
Life of Mine	**1 YEAR**	**1 YEAR**

Proposed Working

Opencast Manual Mining Method will be adopted for extraction of Sand deposits in Godavari , Dudhana River Bed.

Opencast Mine Working:-

As the mine lease is located in the River Bed and mineral is replenished every year. As per The Modified River bed Sand Mine Working Guidance No.11(1X) and 12 of the Notification of Revenue and Forest Department, Mantralaya Mumbai, The Government of Maharashtra vides Government Decision No. Gaukhani- 10/0615/Pra. Kra. 289/Kha dated 03.01.2018; mining will be done manually only with the use of labours, man heads, spades (Pawadas), ghamelas/pans.

Each cycle of operation shall consist of the following operation.

i) Over Burden Removal: No overburden is anticipated. So there is no need of removal of Overburden.

ii) Digging of Sand: Digging of Sand will be done by manually by Labours with the help of Spades (Pawadas).

iii) Loading of Tractor Trolley: Loading of Tractor Trolley will be done by manually with the help of Man heads, Labours with the help of Spades (Pawadas) & Pans (Ghamelas) combination.

iv) Transportation of Sand by Tractor Trolley from River Bed Mine/Sand Ghat to Stack yard: Mine Owner will prepare the Stack yard outside the River bed or Sand Ghat on nearer road. By the use of Tractor Trolley the material will be transported from Sand Ghat to Stockyard.

v) Transportation of Sand from Stack yard to Customers: Transportation of Sand will be done by the use of tractors trolleys from Stack yard to various Customers with permissible quantity. Transportation will be done as per the rules and regulations.

vi) Reclamation: Applicant will do scientific mining so that in Monsoon the Mine Lease area will be automatically backfilled. Only plantation will be done by the applicant on the both bank side of the River and other free places.

Extent of Mechanization:

Mining Operations will be done by manual means only. No Mechanization. Services

1.3 DESCRIPTION OF THE ENVIRONMENT

The one time environmental monitoring was carried out during winter season of year December 2019. The various environmental components which are thoroughly studied during the study period include:

BASELINE ENVIRONMENT STATUS

1.3.1 Meteorological condition

During winter season Maximum temperature recorded 32 °C & Minimum temperature 21°C and wind blows from east and north. during winter season.

1.3.2 Ambient Air Quality

The mining operations will be carried out by manual method and no machinery, drilling & Blasting will be carried out. Hence impact on air quality is not envisaged. Only tractor-trolley will be used for transportation of the sand from the ghat to nearby depot or desired destination. The air quality at present is good. However the dust due to machine movement may form. The exhaust of the vehicles and Mining machinery may cause NO2, SO2 % higher. In such cases air sample will be drawn from near such activities analyzed & necessary protective measure for quality of air will be adopted from the SPM, APM, NO2,and SO2etc.Will be checked.

1.3.3 Ambient Noise Level

- Noise level shall be maintained with in prescribed quarry limits in the working zone (for12hr. Exposure).
- Speed of trucks entering or leaving the mine is limited to moderate speed of 10 k mph to prevent undue noise from empty trucks.
- No vibrations of notable levels will be generated

1.3.4 Water Quality

Ground Water Quality

- District is in "SAFE" Category from Ground Water Development point of view. Detailed Ground Water Scenario for the district.
- Hydrogeology Groundwater occurrence and movement in the area is influenced by its rock formations. Groundwater potentially depends upon porosity and permeability (both primary and secondary) of rock formations.
- Parbhani district is underlain by basaltic lava flows and alluvium only. The regional Static water level in the area varies from 20 mbgl to 25mbgl.
- Ground water extraction in the area is done mainly through dug wells and bore wells.
- The average depth range of dug wells in the area is 15.00m to 30.00 m. The average depth range of bore wells in the area is 60.00to 80.00 m.

Surface water quality

- Parbhani district has three main rivers Godavari, & Dudhna etc. Godavari has tributaries like Palam, Dudhna, Purna rivers in the district. Kapra is a tributary of Godavri river.

- The necessary water requirement for drinking & for water sprinkling will be met from Dug wells/Bore well outside the Sand Ghat area on purchase basis. The water is potable. There are no chances of any contamination as there is no chemical processing etc. are going to be done in the Sand Ghat area. The water analysis report of Dug well/ Bore well will be submitted to DGMMS every year. The ground water table is at upper level.

1.3.5 Soil Characteristics

The soil is rich in plant nutrients such as lime, iron, magnesium and potash. The soil is relatively rich and deep in the south especially in the Gangakhed and Pathri talukas as

compared to the 6 soil in the north which is poor and shallow. The district should contrive en cashing the opportunities from rich soil. The crops are cultivated in kharif and rabbi season in the district. Generally, the Jowar, cotton, pulses, rice and oil seeds are grown in the Rabi season whereas; wheat sugarcane, bananas, turmeric etc. are cultivated in the district. Besides the crops like chilies, maize's are also cultivated in the district. Thus agriculture should be cultivated not merely a means of food but also a means of development.

TABLE 4: LAND USE PATTERN OF THE CORE AREA

S. No.	Particulars	KUMBHARI		SHEWADIJAHANGIR	
		As on Today in Ha	After 1 Years in Ha	As on Today in Ha	After 1 Years in Ha
1.	Area of top soil spread for a forestation	-	-	-	-
2.	Storage for top soil	-	-	-	-
3.	Green Belt	-	-	-	-
4.	Over burden Dump	-	-	-	-
5.	Mineral Storage	-	-	-	-
6.	Infrastructure (Workshop, Admin. Building etc.)	-	-	-	-
7.	Mine road in Mine lease area	-	-	-	-
8.	Utilized area for Sand Mining	0.000	2.40	0.000	1.00
9.	Virgin lease area for Sand Mine & Other Uses	2.40	0.000	1.00	0.000
10.	Road				
11.	Railway	-	-	-	-
12.	Tailing Pond	-	-	-	-
13.	Effluent Treatment Plant	-	-	-	-
14.	Mineral separation plant	-	-	-	-

15.	Township Area	-	**-**	**-**	-
16.	Others to specify	-	**-**	**-**	-
17.	**Ownership**	Government River	Government River	Government River	Government River
Total		**2.40**	**2.40**	**1.00**	**1.00**

1.3.6 Biological Environment

Flora - The study area is mainly dominated by Southern Dry Mixed Deciduous Forests & the study area vegetation is dominated by Aam, Babul, Bel, Bor, Chandan, Jambhul, Karnj, Neem etc.

Fauna - The faunal species commonly encountered during study within the study area are Hare, Rat, Indian fox, etc. No endemic endangered or threatened species of flora & fauna observed during study period.

1.3.7 Demography and Socio- Economics

As per census of India 2011, study area consists of 55 nos. of villages with total population of 32,488 nos. The number of households in the study area is 18,339.

1.4 ANTICIPATED ENVIRONMENTAL IMPACT & MITIGATION MEASURES

10.4.1 Impact on Air Quality

The mining operations will be carried out by manual method and no machinery, drilling & Blasting will be carried out. Hence impact on air quality is not envisaged. Only tractor-trolley will be used for transportation of the sand from the ghat to nearby depot or desired destination.

The transport routes are capable for handling this additional traffic.

Mitigative Measures: Following care will be taken for air pollution control.

- Water sprinkling will be done on the roads regularly. This will reduce dust emission further by 75%.
- Care will be taken to prevent spillage by covering the carrying vehicles with tarpaulin and sprinkling of water, if dry.
- Fortnightly scraping of road in order to keep the roads almost levelled. This will ensure smooth flow of vehicles and also prevent spillage.
- Overloading will be strictly prohibited.
- Proper tuning of vehicles to keep the gas emissions under check.

Plantation of trees along the roads to help reduce the impact of dust in the nearby villages.

10.4.2 Impact on Noise Quality:-

No significant noise will be generated due to sand mining as entire operation will be carried out manually. Noise will be generated only due to tractor trolley being used in sand transportation.

Mitigation measures: The off-site receptors are not significantly affected as noise generated by sand ghat is insignificant but some disturbances due to vehicle movement may not be avoidable. The tractor trolley will be maintained in good running condition so that noise will be reduced to minimum possible level.

Speed limits will be imposed on tractor trolleys used for sand transport.

10.4.3 Impact on Water Environment:-

Mining of sand from within or near a streambed has a direct impact on the stream's physical habitat characteristics. As the project activity is carried out in the dry part of the river bed, none of the project activities affect the water environment or riparian habitats. In the projects, it is not proposed to divert or truncate any stream. No proposal is envisaged for pumping of water either from the river or tapping the ground water. In the lean months, the proposed sand mining will not expose the base flow of the river and hence, there will not be any adverse impact on surface hydrology and ground water regime due to this project. The proponent will a dhere all guidelines and rules for proper and scientific method of mining during the period of extracting the sand.

Mitigation measures: The deposits occur in the middle/bottom of the river. During the lease period, the deposit will be worked from the top surface to approved depth of mining within the demarcated lease area only.

10.4.4 Impact on land Environment-

LAND ENVIRONMENT: The mining and allied activities involved in river bed mining are creation of temporary haul roads / transportation track and formation of mined pits inside river, etc. This sand mining project does not involve any waste generation. Thus no waste dump sites are needed for the project.

Mitigative Measures:

- The mining will not be carried out below the water table.
- The contractor with the satisfaction of competent authority will provide drinking water, rest shelter, first aid box and welfare facilities as per prevailing laws.
- The river bed areas dug during dry season i .e. other than rainy season will get replenished during monsoon.
- Sand/Gravel deposit in rainy season in which the material so deposited will be available for fresh quarrying.

- The contractors will abide by the Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.

10.4.5 Impact on Biological Environment

Anticipated impact and mitigation measures for biological environment

Impact Predicted	Suggestive measure
Disturbance to free movement /living of wild fauna viz. Birds, Reptiles etc.	• If birds are noticed crossing the core zone, they will not be disturbed at all; • Labourers will not be allowed to discard food, polythene waste etc., which can attract animals/birds near the core site; • Only low polluting vehicles having PUC will be allowed for carrying mining materials. • Noise level will be maintained within permissible limit (silent zone-50dB (A) during day time or residential zone 55dB (A)) as per Noise Pollution (Regulation and Control) Rules 2000, CPCB norms
Disturbance of riparian ecosystem/ wetlands	The riparian ecosystem or the wetlands will not be disturbed by the workers.
Monitoring of upstream and downstream water quality	Water quality will be monitored from upstream and downstream area once every month to assess the impact on water quality and mining activity will be controlled to maintain the clean water conditions.

Ecological Impacts: Excessive and unscientific riverbed sand mining results in the destruction of aquatic and riparian habitat through large changes in the channel morphology. Impacts include bed degradation, bed coarsening, lowered water tables near the streambed, and channel instability. These physical impacts cause degradation of riparian and aquatic biota and may lead to the undermining of bridges and other structures. Continued extraction may also cause the entire streambed to degrade to the depth of excavation.

Sand mining generates extra vehicle traffic, which negatively impairs the environment. Where access roads cross riparian areas, the local environment may be impacted.

Mitigation measures: As the proposed mining will be carried out in a scientific manner as mentioned before, not much significant impact is anticipated, however, the following mitigation measure will be taken to further minimize it:

1. The activity will mainly be carried out manually to minimize associate loss, as stated earlier.

2. No mining will be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season.
3. As the mining site has no vegetation, no clearance of vegetation is required.
4. No mining will be carried out in the vicinity of important structure like bridges, dam and other structures if any.
5. Mining will be carried out on the dry part of the lease area to avoid disturbance to the aquatic habitat and movement of fish species.
6. No mining will be carried out during the rainy season to minimize impact on aquatic life.
7. The mining activity will deploy a tractor for transportation of sand from the mine to desired destination that may cause some loss to riparian habitat. Safe site / site having least impact will be selected for transportation, all the vehicles employed for transportation purpose will be PUC certified. On closure of mining operations / during the rainy season the eroded bank will be restored / reclaimed to minimize negative impacts.
8. No lighting will be allowed in the lease area.
9. No piling of sand will be allowed in the area.
10. No discard of food, polythene waste etc. will be allowed in the lease area which would distract/attract the wildlife.
11. No night time mining will be allowed which may catch the attention of wild life.
12. Access roads will not encroach into the riparian zones and no riparian vegetation cleared off for the mining transportation of sand.

10.5. ANALYSIS OF ALTERNATIVES

10.5.1. Site Alternatives- The mine is located along the where the sand exists in enough quantity to be economically extracted. Mining locations are preferred near the markets or along the transportation route.

10.5.2 Technology alternatives: - No alternative technology only opencast Manual Mining Method will be adopted for extraction of Sand deposits.

10.6 ENVIRONMENT MONITORING PROGRAM

During the execution of the project activity, the sampling & analysis of various environmental attributes will be carried out as per guidelines of central pollution control board & State pollution control board Rajasthan. An Environment Management Cell will be set-up to implement the said program.

10.7 ADDITIONAL STUDIES

10.7.1 Risk Studies-Hazard identification and risk analysis involves identification of undesirable events that leads to a hazard, the analysis of hazard mechanism by which

this undesirable event could occur and usually the estimation of extent, magnitude and likelihood of harmful effects

10.7.2 Disaster Studies:-

Proper disaster planning should be done to meet any emergency situation arising due to fire, explosion, sudden leakage of gas etc. Fire fighting equipment and other safety appliances should be kept ready for use during disaster/emergency situation including natural calamities like earthquake/flood.

10.9 ENVIRONMENT MANAGEMENT PLAN

Opencast mining operation comprises of various activities related to digging and material handling which may be potential sources of environment pollution. The Sand Mine will be developed by systematically formed benches with over all pit slopes of 45° or angle of response which stabilizes the benches. Efforts will be made to suppress the dust at source by adequate watering. For this a mobile water of 2000 liters capacity will be engaged throughout the working shift.

Environmental Issue	Management Measures	Implementation
Air Environment	• To avoid fugitive dust emissions at the time of excavation, regular sprinkling of water will be done on regular basis. • Sand is transported to the sites by road through tractor trolleys. The sand carrying vehicles shall be covered by tarpaulin sheets. • The Green Belt development will be prepared along the haul roads, which will act as a pollution sink. • To minimize the vehicular pollution from the sand transporting vehicles, the following conditions will insist to permit the vehicles of the transporters	Project authorities through regular monitoring.
Noise & Vibration	• Phasing out of old and worn out tractor trolleys. • Provision of green belts along the road networks. • Care will be taken to produce minimum sound during sand loading. • Use of Backhoe and ear plugs may be	Project authorities through regular monitoring.

	provided to protect the labors working at the site.	
Water environment	• Mining is avoided during the monsoon season and at the time of floods. This will help in replenishment of sand in the river bed. • River stream will not be diverted to form in active channels. • Utmost care will be taken to minimize or control leakage vehicles to be used for sand. • Transportation. • The washing of tractor trolleys in the river will be avoided. • The contractor will follow all guidelines and rules for proper and scientific method of • mining during the period of extracting the sand.	Project authorities through regular monitoring.
Biological Environment	• Mining activities will be restricted to day-time so that fauna will not disturb at night. • Material will be covered with tarpaulin during transportation. • Water sprinkling will be done on haul roads to control fugitive emissions.	Project authorities through regular monitoring.
Occupational health & safety & public Health & safety.	• Regular water sprinkling on haul roads. • Dust mask will be provided to the workers. • Safety of the employee during mining will be taken care as per Mine regulations. • Medical records will be keep maintained.	Project authorities through regular monitoring.
Socio economic environment	• Employment will be given to local people. • Regular medical camps will be organized. • Funds will be provided for development activities in nearby villages.	Regular monitoring by Project authorities.

TABLE 6: COST ESTIMATES OF EMP IMPLEMENTATION
(Investment and recurring cost in lacs /year)

S.No	Particulars		KUMBHARI	SHEWADIJAHANGIR

			Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)
1.	Environmental Monitoring programme	Monitoring for Air, water, noise & groundwater	0.90	1.00	0.80	1.00
2.	Air Pollution Control	Water sprinkling during mining activities	1.00	2.30	1.00	2.53
3.	Approach road maintenance		0	1.20	0	1.20
4.	Plantation (790 plants planted)	790 plants on barrier zone @ Rs 350/per plant	3.46	4.80	1.85	2.60
		200 plants on approach road & village @ Rs. 150/ plant				
5.	Gabian structure for arresting gravels	Gabian wall with the help of old cement bags rivers pebbles etc to arrest erosion of boundary wall intermixing of gravels etc.	1.00	0.20	1.00	0.20
6.	Monitoring of sand	CCTV cameras (15000x2)	0.30	0.60	0.30	0.60
7.	Water pollution control	Construction of bund along lease boundary & mobile Toilet	0.50	Nil	0.50	Nil
8.	Noise pollution control	Plantation including Tree Guard	1.00	0.50	1.00	0.50
9.	Occupational health and safety	Periodic Health check up of workers	-	1.00	-	1.00
TOTAL		**Total =**	**8.16**	**11.6**	**6.45**	**9.63**

TABLE 7: MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

Particulars	Monitoring Frequencies	Duration of Station	Important Monitoring Parameters
Surface water / Tube well	Twice in a year	Grab	pH, SS, TDS, Iron, Hardness, Alkalinity Chlorides, Nitrates Sulphate & Fluorides
Ambient air monitoring	Twice in a year	24 hr.	PM10, PM2.5, SOx and NOx
Noise Pollution	Twice in a year	-	Level in dB(A) and dB(C)
Working environment	Once in a year	-	PH, Conductivity, Sulphate, Nitrate, Phosphates, Alkalinity & texture

GANGAKHED

EXECUTIVE SUMMARY (ENGLISH)

For

SAND MINING (MINOR MINERAL)
FOR FOLLOWING VILLAGES

SR. NO	NAME OF SANDGHAT	VILLAGE NAME	KHASRA NO	TOTAL LEASE AREA	Total Production/ Brass (TPA)	TOTAL PROJECT COST
1.	ZOLA	ZOLA RIVER SAND MINE AT Godavari	19,20,22,23,24,56,54,53,58	1.82	5167	1,69,16,758
2.	MAIRALSAWANGI	MAIRALSAWANGI RIVER SAND MINE AT GODAVARI RIVAR	172,173,174,175,187	2.32	4923	1,61,17,902
3	DUSALGAON	DUSALGAON RIVER SAND MINE GODAVARI RIVER	29,33,34,35	1.59	3956	1,29,51,944

OF

TALUKA:-GANGAKHED

, DISTRICT – Parbhani (Maharashtra)

Valid for the 1 year from the date of EC-granted or until approved quantity exhausted/ Mined whichever is earlier

FOR

ENVIRONMENTAL CLEARANCE (PUBLIC HEARING)

("B" under category 1(a) of EIA Notification dated 2006, S.O. 141(E) dated 15. 01. 2016, MoEF & CC, S.O. 3611(E), Dated 25.07.2018, Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020

MANTRAS GREEN RESOURCES LTD
QCI-NABET ACCREDITED EIA CONSULTANT,
Hall No.1, First Floor, NICE Sankul, MIDC
Satpur, Nashik, Maharashtra

Email: Info@mantrasresources.com,
uksharma@mantrasresources.com

Accredited by NABET: No.: - NABET/EIA/1922/RA0201/ April 18, 2022)

September – 2021

1.0 Introduction:

Executive summary is the brief of report prepared for Environmental Management Plan of Sand Spot Mines of Minor Minerals of Parbhani District, Tehsil Gangakhed by M/s. District Mining Office, Parbhani, Maharashtra (Govt. of Maharashtra). The mining is confined to extraction of sand in surrounding villages of Zola (1.82 Ha), Mairalsawangi (2.32Ha), Dusalgaon (1.59 Ha),. Sand is exposed in the lease area, the deposit is being done by opencast manual mining method without drilling and blasting.

1.1.1 Project Identification

The sand is one of the minor minerals occurred in Parbhani district. The proposed project of sand mine by opencast method in the applied lease area of (1.82 Ha), located near village Zola (2.32 Ha) located near village Mairalsawangi, (1.59Ha) located near village Dusalgaon Tehsil Gangakhed, District:-Parbhani (Maharashtra). Mining Plan along with PMCP under Rule 16 (1) of MCR 2016 and PMCP under Rule 23B of MCDR 1988 is approved by Deputy Director, Directorate of Geology and Mining, Regional Office , Aurangabad vide letter no. STC-10/2020(M.P. Sand) 52 dated 04/02/2020. Proposed lease area is Government land.

1.1.2 Identification of Project Proponent

Table 1: Name and address of the Applicant

Applicant
District Mining Officer, Parbhani **(Govt. of Maharashtra)** **Gandhi Park, Parbhani, Maharashtra 431401** **Mob No:-7218655211** **Email Id:-dmocollectorpbn@gmail.com**

1.1.3 Location of Project

Table 2: Details of Project Location

Particulars	ZOLA	MAIRALSAWANGI	DUSALGAON
Name of the applied mine area	ZOLA RIVER SAND MINE AT GODVARI RIVER	MAIRALSAWANGI RIVER SAND MINE AT GODAVARI RIVER	DUSALGAON RIVER SAND MINE AT GODAVARI RIVER
Near village	MULI NAGTHANA	JALWA,RUMNA SAYALA	DARKHED ,MAHATOURI
Tehsil	Gangakhed	GANGAKHED	GANGAKHED
District	Parbhani	PARBHANI	PARBHANI
State	Maharashtra	MAHARASHTRA	MAHARASHTRA
Toposheet no.	56B/13NW	56A/12SW	56A/12SE

Latitude (N)	18°59'37.13"N	19° 0'19.71"N	19° 0'24.58"N
Longitude (E)	76°46'38.72"E	76°38'41.36"E	76°44'38.17"E

1.1.4 NEED OF THE PROJECT

The sand and gravel are one of the most important construction materials. Ensuring their availability is vital for the development of the infrastructure in the country. As the requirement of these construction materials is on rise, and as entire Parbhani district comes under the Purna-Godavari and Godavari basin the district is covered by basaltic rock due to weathering activity by river Godavari and Purna by transportation, deposition and erosion has been taken place of pre existing rock form well sorted granular sand in Parbhani district which is favorable for building construction work. This indicates enough gaps between demand & supply which provides opportunities for Government of Maharashtra to increase its production.

1.2 PROJECT DESCRIPTION

Description of Applied Lease and Mining Process

Local geology: Parbhani districts large part is occupied of rocks of Deccan trap formation, represented by of most horizontal lava flows of basaltic composition, thought to have been emplaced from fissures towards the close of the Mesozoic era, on to the lower tertiary era.

Table 3: Available Brass and Life of Mine

Name of Village	**ZOLA**	**MAORALSAWANGI**	**DUSAKGAON**
Quantity of sand for Excavation (Brass)	5167	4923	3956
Life of Mine	**1 YEAR**	**1 YEAR**	**1 YEAR**

Proposed Working

Opencast Manual Mining Method will be adopted for extraction of Sand deposits in Gangakhed ,on Godavari River Bed.

Opencast Mine Working:-

As the mine lease is located in the River Bed and mineral is replenished every year. As per The Modified River bed Sand Mine Working Guidance No.11(1X) and 12 of the Notification of Revenue and Forest Department, Mantralaya Mumbai, The Government of Maharashtra vides Government Decision No. Gaukhani-10/0615/Pra. Kra. 289/Kha dated 03.01.2018; mining will be done manually only with the use of labours, man heads, spades (Pawadas), ghamelas/pans.

Each cycle of operation shall consist of the following operation.

i) Over Burden Removal: No overburden is anticipated. So there is no need of removal of Overburden.

ii) Digging of Sand: Digging of Sand will be done by manually by Labours with the help of Spades (Pawadas).

iii) Loading of Tractor Trolley: Loading of Tractor Trolley will be done by manually with the help of Man heads, Labours with the help of Spades (Pawadas) & Pans (Ghamelas) combination.

iv) Transportation of Sand by Tractor Trolley from River Bed Mine/Sand Ghat to Stack yard: Mine Owner will prepare the Stack yard outside the River bed or Sand Ghat on nearer road. By the use of Tractor Trolley the material will be transported from Sand Ghat to Stockyard.

v) Transportation of Sand from Stack yard to Customers: Transportation of Sand will be done by the use of tractors trolleys from Stack yard to various Customers with permissible quantity. Transportation will be done as per the rules and regulations.

vi) Reclamation: Applicant will do scientific mining so that in Monsoon the Mine Lease area will be automatically backfilled. Only plantation will be done by the applicant on the both bank side of the River and other free places.

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- Noise level shall be maintained with in prescribed quarry limits in the working zone (for12hr. Exposure).
- Speed of trucks entering or leaving the mine is limited to moderate speed of 10 kmph to prevent undue noise from empty trucks.
- No vibrations of notable levels will be generated

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Ground Water Quality

- District is in "SAFE" Category from Ground Water Development point of view. Detailed Ground Water Scenario for the district.
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- Ground water extraction in the area is done mainly through dug wells and bore wells.
- The average depth range of dug wells in the area is 15.00m to 30.00 m. The average depth range of bore wells in the area is 60.00to 80.00 m.

Surface water quality

- Parbhani district has three main rivers Godavari, Purna & Dudhna etc. Godavari has tributaries like Palam, Dudhna, Purna rivers in the district. Kapra is a tributary of Purna river.

- The necessary water requirement for drinking & for water sprinkling will be met from Dug wells/Bore well outside the Sand Ghat area on purchase basis. The water is potable. There are no chances of any contamination as there is no chemical processing etc. are going to be done in the Sand Ghat area. The water analysis report of Dug well/ Bore well will be submitted to DGMMS every year. The ground water table is at upper level.

1.3.5 Soil Characteristics

The pH values of the collected samples were in the range of 6.14 to 8.31, organic matter in the range of 0.786(%) to 1.96 (%), water holding capacity in the range of 5.56 to 7.70%, potassium in the range of 0.07 to 173, total nitrogen in the range of 0.012 to

0.013 %, bulk density in the range of 1.22 to 1.45gm/cc. These all parameter indicate that soil is not so fertile in this area.

TABLE 4: LAND USE PATTERN OF THE CORE AREA

S. No.	Particulars	ZOLA		MAIRALSAWANGI		DUSALGAON	
		As on Today in Ha	After 1 Years in Ha	As on Today in Ha	After 1 Years in Ha	After 1 Years in Ha	After 1 Year in Ha
1.	Area of top soil spread for a forestation	-	-	-	-	-	-
2.	Storage for top soil	-	-	-	-	-	-
3.	Green Belt	-	-	-	-	-	-
4.	Over burden Dump	-	-	-	-	-	-
5.	Mineral Storage	-	-	-	-	-	-
6.	Infrastructure (Workshop, Admin. Building etc.)	-	-	-	-	-	-
7.	Mine road in Mine lease area	-	-	-	-	-	-
8.	Utilized area for Sand Mining	**0.000**	**1.82**	**0.000**	**2.32**	**0.000**	**1.59**
9.	Virgin lease area for Sand Mine & Other Uses	**1.82**	**0.000**	**2.23**	**0.000**	**1.59**	**0.000**
10.	Road						
11.	Railway	-	-	-	-	-	-
12.	Tailing Pond	-	-	-	-	-	-
13.	Effluent Treatment Plant	-	-	-	-	-	-
14.	Mineral separation plant	-	-	-	-	-	-
15.	Township Area	-	-	-	-	-	-
16.	Others to specify	-	-	-	-	-	-
17.	**Ownership**	Government River	Government River	Government River	Government River	-	-
Total		**1.82**	**1.82**	**2.23**	**2.23**	**1.59**	**1.59**

1.3.6 Biological Environment

Flora - The study area is mainly dominated by Southern Dry Mixed Deciduous Forests & the study area vegetation is dominated by Aam, Babul, Bel, Bor, Chandan, Jambhul, Karnj, Neem etc.

Fauna - The faunal species commonly encountered during study within the study area are Hare, Rat, Indian fox, etc. No endemic endangered or threatened species of flora & fauna observed during study period.

1.3.7 Demography and Socio- Economics

As per census of India 2011, study area consists of 32 nos. of villages with total population of 1,52,976 nos. The number of households in the study area is 31,012

1.4 ANTICIPATED ENVIRONMENTAL IMPACT & MITIGATION MEASURES

10.4.1 Impact on Air Quality

The mining operations will be carried out by manual method and no machinery, drilling & Blasting will be carried out. Hence impact on air quality is not envisaged. Only tractor-trolley will be used for transportation of the sand from the ghat to nearby depot or desired destination.

The transport routes are capable for handling this additional traffic.

Mitigative Measures: Following care will be taken for air pollution control.

- Water sprinkling will be done on the roads regularly. This will reduce dust emission further by 75%.
- Care will be taken to prevent spillage by covering the carrying vehicles with tarpaulin and sprinkling of water, if dry.
- Fortnightly scraping of road in order to keep the roads almost levelled. This will ensure smooth flow of vehicles and also prevent spillage.
- Overloading will be strictly prohibited.
- Proper tuning of vehicles to keep the gas emissions under check.

Plantation of trees along the roads to help reduce the impact of dust in the nearby villages.

10.4.2 Impact on Noise Quality:-

No significant noise will be generated due to sand mining as entire operation will be carried out manually. Noise will be generated only due to tractor trolley being used in sand transportation.

Mitigation measures: The off-site receptors are not significantly affected as noise generated by sand ghat is insignificant but some disturbances due to vehicle movement may not be avoidable. The tractor trolley will be maintained in good running condition so that noise will be reduced to minimum possible level.

Speed limits will be imposed on tractor trolleys used for sand transport.

10.4.3 Impact on Water Environment:-

Mining of sand from within or near a streambed has a direct impact on the stream's physical habitat characteristics. As the project activity is carried out in the dry part of the river bed, none of the project activities affect the water environment or riparian habitats. In the projects, it is not proposed to divert or truncate any stream. No proposal is envisaged for pumping of water either from the river or tapping the ground water. In the lean months, the proposed sand mining will not expose the base flow of the river and hence, there will not be any adverse impact on surface hydrology and ground water regime due to this project. The proponent will a dhere all guidelines and rules for proper and scientific method of mining during the period of extracting the sand.

Mitigation measures: The deposits occur in the middle/bottom of the river. During the lease period, the deposit will be worked from the top surface to approved depth of mining within the demarcated lease area only.

10.4.5 Impact on Biological Environment

Anticipated impact and mitigation measures for biological environment

Impact Predicted	Suggestive measure
Disturbance to free movement /living of wild fauna viz. Birds, Reptiles etc.	• If birds are noticed crossing the core zone, they will not be disturbed at all; • Labourers will not be allowed to discard food, polythene waste etc., which can attract animals/birds near the core site; • Only low polluting vehicles having PUC will be allowed for carrying mining materials. • Noise level will be maintained within permissible limit (silent zone-50dB (A) during day time or residential zone 55dB (A)) as per Noise Pollution (Regulation and Control) Rules 2000, CPCB norms
Disturbance of riparian ecosystem/ wetlands	The riparian ecosystem or the wetlands will not be disturbed by the workers.
Monitoring of upstream and downstream water quality	Water quality will be monitored from upstream and downstream area once every month to assess the impact on water quality and mining activity will be controlled to maintain the clean water conditions.

Ecological Impacts: Excessive and unscientific riverbed sand mining results in the destruction of aquatic and riparian habitat through large changes in the

channel morphology. Impacts include bed degradation, bed coarsening, lowered water tables near the streambed, and channel instability. These physical impacts cause degradation of riparian and aquatic biota and may lead to the undermining of bridges and other structures. Continued extraction may also cause the entire streambed to degrade to the depth of excavation.

Sand mining generates extra vehicle traffic, which negatively impairs the environment. Where access roads cross riparian areas, the local environment may be impacted.

Mitigation measures: As the proposed mining will be carried out in a scientific manner as mentioned before, not much significant impact is anticipated, however, the following mitigation measure will be taken to further minimize it:

1. The activity will mainly be carried out manually to minimize associate loss, as stated earlier.
2. No mining will be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season.
3. As the mining site has no vegetation, no clearance of vegetation is required.
4. No mining will be carried out in the vicinity of important structure like bridges, dam and other structures if any.
5. Mining will be carried out on the dry part of the lease area to avoid disturbance to the aquatic habitat and movement of fish species.
6. No mining will be carried out during the rainy season to minimize impact on aquatic life.
7. The mining activity will deploy a tractor for transportation of sand from the mine to desired destination that may cause some loss to riparian habitat. Safe site / site having least impact will be selected for transportation, all the vehicles employed for transportation purpose will be PUC certified. On closure of mining operations / during the rainy season the eroded bank will be restored / reclaimed to minimize negative impacts.
8. No lighting will be allowed in the lease area.
9. No piling of sand will be allowed in the area.
10. No discard of food, polythene waste etc. will be allowed in the lease area which would distract/attract the wildlife.
11. No night time mining will be allowed which may catch the attention of wild life.
12. Access roads will not encroach into the riparian zones and no riparian vegetation cleared off for the mining transportation of sand.

10.4.4 Impact on land Environment-

LAND ENVIRONMENT: The mining and allied activities involved in river bed mining are creation of temporary haul roads / transportation track and formation of mined pits inside river, etc. This sand mining project does not involve any waste generation. Thus no waste dump sites are needed for the project.

Mitigative Measures:

- The mining will not be carried out below the water table.
- The contractor with the satisfaction of competent authority will provide drinking water, rest shelter, first aid box and welfare facilities as per prevailing laws.
- The river bed areas dug during dry season i .e. other than rainy season will get replenished during monsoon.
- Sand/Gravel deposit in rainy season in which the material so deposited will be available for fresh quarrying.
- The contractors will abide by the Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.

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- Sand/Gravel deposit in rainy season in which the material so deposited will be available for fresh quarrying.
- The contractors will abide by the Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.

10.5. ANALYSIS OF ALTERNATIVES

10.5.1. Site Alternatives- The mine is located along the where the sand exists in enough quantity to be economically extracted. Mining locations are preferred near the markets or along the transportation route.

10.5.2 Technology alternatives: - No alternative technology only opencast Manual Mining Method will be adopted for extraction of Sand deposits.

10.6 ENVIRONMENT MONITORING PROGRAM

During the execution of the project activity, the sampling & analysis of various environmental attributes will be carried out as per guidelines of central pollution control board & State pollution control board Rajasthan. An Environment Management Cell will be set-up to implement the said program.

10.7 ADDITIONAL STUDIES

10.7.1 Risk Studies-Hazard identification and risk analysis involves identification of undesirable events that leads to a hazard, the analysis of hazard mechanism by which this undesirable event could occur and usually the estimation of extent, magnitude and likelihood of harmful effects

10.7.2 Disaster Studies:-

Proper disaster planning should be done to meet any emergency situation arising due to fire, explosion, sudden leakage of gas etc. Fire fighting equipment and other safety appliances should be kept ready for use during disaster/emergency situation including natural calamities like earthquake/flood.

10.8 ENVIRONMENT MANAGEMENT PLAN

Opencast mining operation comprises of various activities related to digging and material handling which may be potential sources of environment pollution. The Sand Mine will be developed by systematically formed benches with over all pit slopes of 45° or angle of response which stabilizes the benches. Efforts will be made to suppress the dust at source by adequate watering. For this a mobile water of 2000 liters capacity will be engaged throughout the working shift.

Environmental Issue	Management Measures	Implementation
Air Environment	• To avoid fugitive dust emissions at the time of excavation, regular sprinkling of water will be done on regular basis. • Sand is transported to the sites by road through tractor trolleys. The sand carrying vehicles shall be covered by tarpaulin sheets. • The Green Belt development will be prepared along the haul roads, which will act as a pollution sink. • To minimize the vehicular pollution from the sand transporting vehicles, the following conditions will insist to permit the vehicles of the transporters	Project authorities through regular monitoring.
Noise & Vibration	• Phasing out of old and worn out tractor trolleys.	Project authorities

	• Provision of green belts along the road networks. • Care will be taken to produce minimum sound during sand loading. • Use of Backhoe and ear plugs may be provided to protect the labors working at the site.	through regular monitoring.
Water environment	• Mining is avoided during the monsoon season and at the time of floods. This will help in replenishment of sand in the river bed. • River stream will not be diverted to form in active channels. • Utmost care will be taken to minimize or control leakage vehicles to be used for sand. • Transportation. • The washing of tractor trolleys in the river will be avoided. • The contractor will follow all guidelines and rules for proper and scientific method of • mining during the period of extracting the sand.	Project authorities through regular monitoring.
Biological Environment	• Mining activities will be restricted to day-time so that fauna will not disturb at night. • Material will be covered with tarpaulin during transportation. • Water sprinkling will be done on haul roads to control fugitive emissions.	Project authorities through regular monitoring.
Occupational health & safety & public Health & safety.	• Regular water sprinkling on haul roads. • Dust mask will be provided to the workers. • Safety of the employee during mining will be taken care as per Mine regulations. • Medical records will be keep maintained.	Project authorities through regular monitoring.
Socio economic environment	• Employment will be given to local people. • Regular medical camps will be organized. • Funds will be provided for development activities in nearby villages.	Regular monitoring by Project authorities.

TABLE 6: COST ESTIMATES OF EMP IMPLEMENTATION
(Investment and recurring cost in lacs /year)

S:NO	Component	Description	ZOLA		MAIRALSAWANGI		DUSALGAON	
			Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs/,in Lacs/year)
1	Environmental Monitoring programme	Monitoring for Air, water, noise & groundwater	0.90	1.00	1.00	1.20	0.80	1.00
2	Air Pollution Control	Water sprinkling during mining activities	1.00	4.00	1.00	3.30	1.00	4.30
3	Approach road maintenance		0	1.20	0	1.20	0	1.20
4	Plantation (500 plants planted)	500 plants on barrier zone @ Rs 350/per plant	2.45	3.50	2.95	3.80	2.22	3.60
		200 plants on approach road & village @ Rs. 150/ plant						
5	Gabian structure for arresting gravels	Gabian wall with the help of old cement bags rivers pebbles etc to arrest erosion of boundary wall intermixing of gravels etc.	1.00	0.20	1.00	0.20	1.00	0.20

6..	Monitoring of sand	CCTV cameras (15000x2)	0.30	0.60	0.30	0.60	0.30	060
7	Water pollution control	Construction of bund along lease boundary & mobile Toilet	0.50	nil	0.50	nil	0.50	nil
8	Noise pollution control	Plantation including Tree Guard	1.00	0.50	1.00	0.50	1.00	0.50
9	Occupational health and safety	Periodic Health check up of workers	-	1.00	-	1.00	-	1.00
TOTAL			**7.15**	**12.00**	7.75	**11.8**	**6.82**	**12.4**

TABLE 7: MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

Particulars	Monitoring Frequencies	Duration of Station	Important Monitoring Parameters
Surface water / Tube well	Twice in a year	Grab	pH, SS, TDS, Iron, Hardness, Alkalinity Chlorides, Nitrates Sulphate & Fluorides
Ambient air monitoring	Twice in a year	24 hr.	PM10, PM2.5, SOx and NOx
Noise Pollution	Twice in a year	-	Level in dB(A) and dB(C)
Working environment	Once in a year	-	PH, Conductivity, Sulphate, Nitrate, Phosphates, Alkalinity & texture

PALAM

EXECUTIVE SUMMARY (ENGLISH)

For

SAND MINING (MINOR MINERAL)
FOR FOLLOWING VILLAGES

SR.NO	NAME OF SANDGHAT	VILLAGE NAME	KHASRA NO	TOTAL LEASE AREA	Total Production/ Brass (TPA)	TOTAL PROJECT COST
1.	RAORAJUR	RAORAJUR RIVER SAND MINE AT GODAVARI RIVER	7, 28, 9, 10, 11, 22, 23, 29.	4.50	7951	2,60,31,574

OF

TALUKA:-PALAM, DISTRICT – Parbhani (Maharashtra)

Valid for the 1 year from the date of EC-granted or until approved quantity exhausted/ Mined whichever is earlier

FOR

ENVIRONMENTAL CLEARANCE (PUBLIC HEARING)

("B" under category 1(a) of EIA Notification dated 2006, S.O. 141(E) dated 15. 01. 2016, MoEF & CC, S.O. 3611(E), Dated 25.07.2018, Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020

Applicant District Mining Officer, Parbhani
Government of India

MANTRAS GREEN RESOURCES LTD
QCI-NABET ACCREDITED EIA CONSULTANT,
Hall No.1, First Floor, NICE Sankul, MIDC
Satpur, Nashik, Maharashtra

Email: Info@mantrasresources.com,
uksharma@mantrasresources.com

Accredited by NABET: No.: - NABET/EIA/1922/RA0201/ April 18, 2022)

September – 2021

1.0 Introduction:

Executive summary is the brief of report prepared for Environmental Management Plan of Sand Spot Mines of Minor Minerals of Raorajur (4.50) Parbhani District Tehsil: Palam by M/s. District Mining Office, Parbhani, Maharashtra (Govt. of Maharashtra).. Sand is exposed in the lease area, the deposit is being done by opencast manual mining method without drilling and blasting.

1.1.1 Project Identification

The sand is one of the minor minerals occurred in Parbhani district. The proposed project of sand mine by opencast method in the applied lease area of Raorajur (4.50 Ha) Tehsil Palam, District:-Parbhani (Maharashtra). Mining Plan along with PMCP under Rule 16 (1) of MCR 2016 and PMCP under Rule 23B of MCDR 1988 is approved by Deputy Director, Directorate of Geology and Mining, Regional Office , Aurangabad vide letter no. STC-10/2020(M.P. Sand) 52 dated 04/02/2020. Proposed lease area is Government land.

1.1.2 Identification of Project Proponent

Table 1: Name and address of the Applicant

Applicant
District Mining Officer, Parbhani **(Govt. of Maharashtra)** **Gandhi Park, Parbhani, Maharashtra 431401** **Mob No:-7218655211** **Email Id:-dmocollectorpbn@gmail.com**

1.1.3 Location of Project

Table 2: Details of Project Location

Particulars	RAORAJUR
Name of the applied mine area	**RAORAJUR RIVER SAND MINE AT GODAVARI RIVER**
Near village	Dhanewadi, Khurlewadi
Tehsil	**Palam**
District	**Palam**
State	**Maharashtra**
Toposheet no.	**56A/16**
Latitude (N)	19° 3'43.36"N
Longitude (E)	76°51'3.18"E

1.1.4 NEED OF THE PROJECT

The sand and gravel are one of the most important construction materials. Ensuring their availability is vital for the development of the infrastructure in the country. As the requirement of these construction materials is on rise, and as entire Parbhani district comes under the Purna-Godavari and Godavari basin the district is covered by basaltic rock due to weathering activity by river Godavari and Purna by transportation, deposition and erosion has been taken place of pre existing rock form well sorted granular sand in Parbhani district which is favorable for building construction work. This indicates enough gaps between demand & supply which provides opportunities for Government of Maharashtra to increase its production.

1.2 PROJECT DESCRIPTION

Description of Applied Lease and Mining Process

Local geology: Parbhani districts large part is occupied of rocks of Deccan trap formation, represented by of most horizontal lava flows of basaltic composition, thought to have been emplaced from fissures towards the close of the Mesozoic era, on to the lower tertiary era.

Table 3: Available Brass and Life of Mine

Name of Village	RAORAJUR
Quantity of sand for Excavation (Brass)	7951
Life of Mine	1 YEAR

Proposed Working

Opencast Manual Mining Method will be adopted for extraction of Sand deposits in Palam, Godavari River Bed.

Opencast Mine Working:-

As the mine lease is located in the River Bed and mineral is replenished every year. As per The Modified River bed Sand Mine Working Guidance No.11(1X) and 12 of the Notification of Revenue and Forest Department, Mantralaya Mumbai, The Government of Maharashtra vides Government Decision No. Gaukhani- 10/0615/Pra. Kra. 289/Kha dated 03.01.2018; mining will be done manually only with the use of labours, man heads, spades (Pawadas), ghamelas/pans.

Each cycle of operation shall consist of the following operation.

i) Over Burden Removal: No overburden is anticipated. So there is no need of removal of Overburden.

ii) Digging of Sand: Digging of Sand will be done by manually by Labours with the help of Spades (Pawadas).

iii) Loading of Tractor Trolley: Loading of Tractor Trolley will be done by manually with the help of Man heads, Labours with the help of Spades (Pawadas) & Pans (Ghamelas) combination.

iv) Transportation of Sand by Tractor Trolley from River Bed Mine/Sand Ghat to Stack yard: Mine Owner will prepare the Stack yard outside the River bed or Sand Ghat on nearer road. By the use of Tractor Trolley the material will be transported from Sand Ghat to Stockyard.

v) Transportation of Sand from Stack yard to Customers: Transportation of Sand will be done by the use of tractors trolleys from Stack yard to various Customers with permissible quantity. Transportation will be done as per the rules and regulations.

vi) Reclamation: Applicant will do scientific mining so that in Monsoon the Mine Lease area will be automatically backfilled. Only plantation will be done by the applicant on the both bank side of the River and other free places.

Extent of Mechanization:

Mining Operations will be done by manual means only. No Mechanization. Services

1.3 DESCRIPTION OF THE ENVIRONMENT

The one time environmental monitoring will carried out in future. The various environmental components which are thoroughly studied during the study period include:

BASELINE ENVIRONMENT STATUS

1.3.1 Meteorological condition

During winter season Maximum temperature recorded 32 °C & Minimum temperature 21°C and wind blows from east and north. during winter season.

1.3.2 Ambient Air Quality

The mining operations will be carried out by manual method and no machinery, drilling & Blasting will be carried out. Hence impact on air quality is not envisaged. Only tractor-trolley will be used for transportation of the sand from the ghat to nearby depot or desired destination. The air quality at present is good. However the dust due to machine movement may form. The exhaust of the vehicles and Mining machinery may cause NO2, SO2 % higher. In such cases air sample will be drawn from near such activities analyzed & necessary protective measure for quality of air will be adopted from the SPM, APM, NO2,and SO2etc.Will be checked.

1.3.3 Ambient Noise Level

- Noise level shall be maintained with in prescribed quarry limits in the working zone (for12hr. Exposure).

- Speed of trucks entering or leaving the mine is limited to moderate speed of 10 kmph to prevent undue noise from empty trucks.
- No vibrations of notable levels will be generated

1.3.4 Water Quality

Ground Water Quality

- District is in "SAFE" Category from Ground Water Development point of view. Detailed Ground Water Scenario for the district.
- Hydrogeology Groundwater occurrence and movement in the area is influenced by its rock formations. Groundwater potentially depends upon porosity and permeability (both primary and secondary) of rock formations.
- Parbhani district is underlain by basaltic lava flows and alluvium only. The regional Static water level in the area varies from 20 mbgl to 25mbgl.
- Ground water extraction in the area is done mainly through dug wells and bore wells.
- The average depth range of dug wells in the area is 15.00m to 30.00 m. The average depth range of bore wells in the area is 60.00to 80.00 m.

Surface water quality

- Parbhani district has three main rivers Godavari, Purna & Dudhna etc. Godavari has tributaries like Palam, Dudhna, Purna rivers in the district. Kapra is a tributary of Purna river.

- The necessary water requirement for drinking & for water sprinkling will be met from Dug wells/Bore well outside the Sand Ghat area on purchase basis. The water is potable. There are no chances of any contamination as there is no chemical processing etc. are going to be done in the Sand Ghat area. The water analysis report of Dug well/ Bore well will be submitted to DGMMS every year. The ground water table is at upper level.

1.3.5 Soil Characteristics

The soil is rich in plant nutrients such as lime, iron, magnesium and potash. The soil is relatively rich and deep in the south especially in the Gangakhed and Pathri talukas as compared to the 6 soil in the north which is poor and shallow. The district should contrive encashing the opportunities from rich soil. The crops are cultivated in kharif and rabbi season in the district. Generally, the Jowar, cotton, pulses, rice and oil seeds are grown in the Rabi season whereas; wheat sugarcane, bananas, turmeric etc. are cultivated in the district. Besides the crops like chilies, maize's are also cultivated in the

district. Thus agriculture should be cultivated not merely a means of food but also a means of development.

TABLE 4: LAND USE PATTERN OF THE CORE AREA

S. No.	Particulars	RAORAJUR	
		As on Today in Ha	After 1 Years in Ha
1.	Area of top soil spread for a forestation	-	**-**
2.	Storage for top soil	-	**-**
3.	Green Belt	-	**-**
4.	Over burden Dump	-	**-**
5.	Mineral Storage	-	**-**
6.	Infrastructure (Workshop, Admin. Building etc.)	-	**-**
7.	Mine road in Mine lease area	-	**-**
8.	Utilized area for Sand Mining	**0.000**	**4.50**
9.	Virgin lease area for Sand Mine & Other Uses	**4.50**	**0.000**
10.	Road		
11.	Railway	-	**-**
12.	Tailing Pond	-	**-**
13.	Effluent Treatment Plant	-	**-**
14.	Mineral separation plant	-	**-**
15.	Township Area	-	**-**
16.	Others to specify	-	**-**
17.	**Ownership**	Government River	Government River
Total		**4.50**	**4.50**

1.3.6 Biological Environment

Flora - The study area is mainly dominated by Southern Dry Mixed Deciduous Forests & the study area vegetation is dominated by Aam, Babul, Bel, Bor, Chandan, Jambhul, Karnj, Neem etc.

Fauna - The faunal species commonly encountered during study within the study area are Hare, Rat, Indian fox, etc. No endemic endangered or threatened species of flora & fauna observed during study period.

1.3.7 Demography and Socio- Economics

As per census of India 2011, study area consists of 81 nos. of villages with total population of 14, 286 nos. The number of households in the study area is 24, 232.

1.4 ANTICIPATED ENVIRONMENTAL IMPACT & MITIGATION MEASURES

10.4.1 Impact on Air Quality

The mining operations will be carried out by manual method and no machinery, drilling & Blasting will be carried out. Hence impact on air quality is not envisaged. Only tractor-trolley will be used for transportation of the sand from the ghat to nearby depot or desired destination.

The transport routes are capable for handling this additional traffic.

Mitigative Measures: Following care will be taken for air pollution control.

- Water sprinkling will be done on the roads regularly. This will reduce dust emission further by 75%.
- Care will be taken to prevent spillage by covering the carrying vehicles with tarpaulin and sprinkling of water, if dry.
- Fortnightly scraping of road in order to keep the roads almost levelled. This will ensure smooth flow of vehicles and also prevent spillage.
- Overloading will be strictly prohibited.
- Proper tuning of vehicles to keep the gas emissions under check.

Plantation of trees along the roads to help reduce the impact of dust in the nearby villages.

10.4.2 Impact on Noise Quality:-

No significant noise will be generated due to sand mining as entire operation will be carried out manually. Noise will be generated only due to tractor trolley being used in sand transportation.

Mitigation measures: The off-site receptors are not significantly affected as noise generated by sand ghat is insignificant but some disturbances due to vehicle movement may not be avoidable. The tractor trolley will be maintained in good running condition so that noise will be reduced to minimum possible level.

Speed limits will be imposed on tractor trolleys used for sand transport.

10.4.3 Impact on Water Environment:-

Mining of sand from within or near a streambed has a direct impact on the stream's physical habitat characteristics. As the project activity is carried out in the dry part of the river bed, none of the project activities affect the water environment or riparian habitats. In the projects, it is not proposed to divert or truncate any stream. No proposal is envisaged for pumping of water either from the river or tapping the ground water. In the lean months, the proposed sand mining will not expose the base flow of the river and hence, there will not be any adverse impact on surface hydrology and ground water regime due to this project. The proponent will adhere all guidelines and rules for proper and scientific method of mining during the period of extracting the sand.

Mitigation measures: The deposits occur in the middle/bottom of the river. During the lease period, the deposit will be worked from the top surface to approved depth of mining within the demarcated lease area only.

10.4.4 Impact on land Environment-

LAND ENVIRONMENT: The mining and allied activities involved in river bed mining are creation of temporary haul roads / transportation track and formation of mined pits inside river, etc. This sand mining project does not involve any waste generation. Thus no waste dump sites are needed for the project.

Mitigative Measures:

- The mining will not be carried out below the water table.
- The contractor with the satisfaction of competent authority will provide drinking water, rest shelter, first aid box and welfare facilities as per prevailing laws.
- The river bed areas dug during dry season i .e. other than rainy season will get replenished during monsoon.
- Sand/Gravel deposit in rainy season in which the material so deposited will be available for fresh quarrying.
- The contractors will abide by the Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.

10.4.5 Impact on Biological Environment

Anticipated impact and mitigation measures for biological environment

Impact Predicted	Suggestive measure

Impact Predicted	Suggestive measure
Disturbance to free movement /living of wild fauna viz. Birds, Reptiles etc.	• If birds are noticed crossing the core zone, they will not be disturbed at all; • Labourers will not be allowed to discard food, polythene waste etc., which can attract animals/birds near the core site; • Only low polluting vehicles having PUC will be allowed for carrying mining materials. • Noise level will be maintained within permissible limit (silent zone-50dB (A) during day time or residential zone 55dB (A)) as per Noise Pollution (Regulation and Control) Rules 2000, CPCB norms
Disturbance of riparian ecosystem/ wetlands	The riparian ecosystem or the wetlands will not be disturbed by the workers.
Monitoring of upstream and downstream water quality	Water quality will be monitored from upstream and downstream area once every month to assess the impact on water quality and mining activity will be controlled to maintain the clean water conditions.

Ecological Impacts: Excessive and unscientific riverbed sand mining results in the destruction of aquatic and riparian habitat through large changes in the channel morphology. Impacts include bed degradation, bed coarsening, lowered water tables near the streambed, and channel instability. These physical impacts cause degradation of riparian and aquatic biota and may lead to the undermining of bridges and other structures. Continued extraction may also cause the entire streambed to degrade to the depth of excavation.

Sand mining generates extra vehicle traffic, which negatively impairs the environment. Where access roads cross riparian areas, the local environment may be impacted.

Mitigation measures: As the proposed mining will be carried out in a scientific manner as mentioned before, not much significant impact is anticipated, however, the following mitigation measure will be taken to further minimize it:

1. The activity will mainly be carried out manually to minimize associate loss, as stated earlier.
2. No mining will be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season.
3. As the mining site has no vegetation, no clearance of vegetation is required.
4. No mining will be carried out in the vicinity of important structure like bridges, dam and other structures if any.

5. Mining will be carried out on the dry part of the lease area to avoid disturbance to the aquatic habitat and movement of fish species.
6. No mining will be carried out during the rainy season to minimize impact on aquatic life.
7. The mining activity will deploy a tractor for transportation of sand from the mine to desired destination that may cause some loss to riparian habitat. Safe site / site having least impact will be selected for transportation, all the vehicles employed for transportation purpose will be PUC certified. On closure of mining operations / during the rainy season the eroded bank will be restored / reclaimed to minimize negative impacts.
8. No lighting will be allowed in the lease area.
9. No piling of sand will be allowed in the area.
10. No discard of food, polythene waste etc. will be allowed in the lease area which would distract/attract the wildlife.
11. No night time mining will be allowed which may catch the attention of wild life.
12. Access roads will not encroach into the riparian zones and no riparian vegetation cleared off for the mining transportation of sand.

10.5. ANALYSIS OF ALTERNATIVES

10.5.1. Site Alternatives- The mine is located along the where the sand exists in enough quantity to be economically extracted. Mining locations are preferred near the markets or along the transportation route.

10.5.2 Technology alternatives: - No alternative technology only opencast Manual Mining Method will be adopted for extraction of Sand deposits.

10.6 ENVIRONMENT MONITORING PROGRAM

During the execution of the project activity, the sampling & analysis of various environmental attributes will be carried out as per guidelines of central pollution control board & State pollution control board Rajasthan. An Environment Management Cell will be set-up to implement the said program.

10.7 ADDITIONAL STUDIES

10.7.1 Risk Studies-Hazard identification and risk analysis involves identification of undesirable events that leads to a hazard, the analysis of hazard mechanism by which this undesirable event could occur and usually the estimation of extent, magnitude and likelihood of harmful effects

10.7.2 Disaster Studies:-

Proper disaster planning should be done to meet any emergency situation arising due to fire, explosion, sudden leakage of gas etc. Firefighting equipment and other safety appliances should be kept ready for use during disaster/emergency situation including natural calamities like earthquake/flood.

10.9 ENVIRONMENT MANAGEMENT PLAN

Opencast mining operation comprises of various activities related to digging and material handling which may be potential sources of environment pollution. The Sand Mine will be developed by systematically formed benches with over all pit slopes of 45° or angle of response which stabilizes the benches. Efforts will be made to suppress the dust at source by adequate watering. For this a mobile water of 2000 liters capacity will be engaged throughout the working shift.

Environmental Issue	Management Measures	Implementation
Air Environment	• To avoid fugitive dust emissions at the time of excavation, regular sprinkling of water will be done on regular basis. • Sand is transported to the sites by road through tractor trolleys. The sand carrying vehicles shall be covered by tarpaulin sheets. • The Green Belt development will be prepared along the haul roads, which will act as a pollution sink. • To minimize the vehicular pollution from the sand transporting vehicles, the following conditions will insist to permit the vehicles of the transporters	Project authorities through regular monitoring.
Noise & Vibration	• Phasing out of old and worn out tractor trolleys. • Provision of green belts along the road networks. • Care will be taken to produce minimum sound during sand loading. • Use of Backhoe and ear plugs may be provided to protect the labors working at the site.	Project authorities through regular monitoring.
Water environment	• Mining is avoided during the monsoon season and at the time of floods. This will help in replenishment of sand in the river	Project authorities through regular

	bed. • River stream will not be diverted to form in active channels. • Utmost care will be taken to minimize or control leakage vehicles to be used for sand. • Transportation. • The washing of tractor trolleys in the river will be avoided. • The contractor will follow all guidelines and rules for proper and scientific method of • mining during the period of extracting the sand.	monitoring.
Biological Environment	• Mining activities will be restricted to day-time so that fauna will not disturb at night. • Material will be covered with tarpaulin during transportation. • Water sprinkling will be done on haul roads to control fugitive emissions.	Project authorities through regular monitoring.
Occupational health & safety & public Health & safety.	• Regular water sprinkling on haul roads. • Dust mask will be provided to the workers. • Safety of the employee during mining will be taken care as per Mine regulations. • Medical records will be keep maintained.	Project authorities through regular monitoring.
Socio economic environment	• Employment will be given to local people. • Regular medical camps will be organized. • Funds will be provided for development activities in nearby villages.	Regular monitoring by Project authorities.

TABLE 6: COST ESTIMATES OF EMP IMPLEMENTATION
(Investment and recurring cost in lacs /year)

S.No	Particulars	Description	RAORAJUR	
			Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)
1	Environmental Monitoring programme	Monitoring for Air, water, noise & groundwater	0.80	1.00

2	Air Pollution Control	Water sprinkling during mining activities	1.00	2.50
3	Approach road maintenance		0	1.20
4	Plantation (1200plants planted)	1200 plants on barrier zone @ Rs 350/per plant	4.27	5.30
		200 plants on approach road & village @ Rs. 150/ plant		
5.	Gabian structure for arresting gravels	Gabian wall with the help of old cement bags rivers pebbles etc to arrest erosion of boundary wall intermixing of gravels etc.	1.00	0.20
6.	Monitoring of sand	CCTV cameras (15000x2)	0.30	**0.60**
7.	Water pollution control	Construction of bund along lease boundary & mobile Toilet	0.50	**Nil**
8.	Noise pollution control	Plantation including Tree Guard	1.00	**0.50**
9.	Occupational health and safety	Periodic Health check up of workers	**-**	**1.00**
	Total =		**7.87**	**12.3**

TABLE 7: MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

Particulars	Monitoring Frequencies	Duration of Station	Important Monitoring Parameters
Surface water / Tube well	Twice in a year	Grab	pH, SS, TDS, Iron, Hardness, Alkalinity Chlorides, Nitrates Sulphate & Fluorides
Ambient air monitoring	Twice in a year	24 hr.	PM10, PM2.5, SOx and NOx
Noise Pollution	Twice in a year	-	Level in dB(A) and dB(C)
Working environment	Once in a year	-	PH, Conductivity, Sulphate,

			Nitrate, Phosphates, Alkalinity & texture

PATHRI

EXECUTIVE SUMMARY (ENGLISH)

For

SAND MINING (MINOR MINERAL)

FOR FOLLOWING VILLAGES

SR. NO	NAME OF SANDGHAT	VILLAGE NAME	KHASRA NO	TOTAL LEASE AREA	Total Production/ Brass (TPA)	TOTAL PROJECT COST
1.	DAKUPIMPRI	DAKUPIMPRI RIVER SAND MINE AT GODAVARI RIVER	93,89,99,111,116,117,139,140,141,144,145,92	1.82	6431	2,10,55,094/-

OF

TALUKA:-PATHRI, DISTRICT – Parbhani (Maharashtra)

Valid for the 1 year from the date of EC-granted or until approved quantity exhausted/ Mined whichever is earlier

FOR

ENVIRONMENTAL CLEARANCE (PUBLIC HEARING)

("B" under category 1(a) of EIA Notification dated 2006, S.O. 141(E) dated 15. 01. 2016, MoEF & CC, S.O. 3611(E), Dated 25.07.2018, Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020

Applicant District Mining Officer, Parbhani
Government of India

MANTRAS GREEN RESOURCES LTD
QCI-NABET ACCREDITED EIA CONSULTANT,
Hall No.1, First Floor, NICE Sankul, MIDC
Satpur, Nashik, Maharashtra

Email: Info@mantrasresources.com,
uksharma@mantrasresources.com

Accredited by NABET: No.: - NABET/EIA/1922/RA0201/ April 18, 2022)

September – 2021

1.0 Introduction:

Executive summary is the brief of report prepared for Environmental Management Plan of Sand Spot Mines of Minor Minerals of Parbhani District, Tehsil Pathri by M/s. District Mining Office, Parbhani, Maharashtra (Govt. of Maharashtra). The mining is confined to

extraction of sand in surrounding village of Dakupimpri (1.82 Ha), Sand is exposed in the lease area, the deposit is being done by opencast manual mining method without drilling and blasting.

1.1.1 Project Identification

The sand is one of the minor minerals occurred in Parbhani district. The proposed project of sand mine by opencast method in the applied lease area of **(**1.82 **Ha), located near village** Dakupimpri, **Tehsil Pathri,** District:-Parbhani (Maharashtra). Mining Plan along with PMCP under Rule 16 (1) of MCR 2016 and PMCP under Rule 23B of MCDR 1988 is approved by Deputy Director, Directorate of Geology and Mining, Regional Office , Aurangabad vide letter no. STC-10/2020(M.P. Sand) 52 dated 04/02/2020. Proposed lease area is Government land.

1.1.2 Identification of Project Proponent

Table 1: Name and address of the Applicant

Applicant
District Mining Officer, Parbhani **(Govt. of Maharashtra)** **Gandhi Park, Parbhani, Maharashtra 431401** **Mob No:-7218655211** **Email Id:-dmocollectorpbn@gmail.com**

1.1.3 Location of Project

Table 2: Details of Project Location

Particulars	DAKUPIMPRI
Name of the applied mine area	**DAKUPIMPRI RIVER SAND MINE AT GODAVARI RIVER**
Near village	**Limba (5 KM) , Umara (5 KM) , Gaundgaon (6 KM) , Phularwadi (6 KM) , Babhulgaon (6 KM)**
Tehsil	**Pathri**
District	**Parbhani**
State	**Maharashtra**
Toposheet no.	**56A/8**
Latitude (N)	**19° 5'46.67"N**
Longitude (E)	**76°24'26.47"E**

1.1.4 NEED OF THE PROJECT

The sand and gravel are one of the most important construction materials. Ensuring their availability is vital for the development of the infrastructure in the country. As the requirement of these construction materials is on rise, and as entire Parbhani district comes under the Godavari-Godavari and Godavari basin the district is covered by basaltic rock due to weathering activity by river Godavari and Godavari by transportation, deposition and erosion has been taken place of pre existing rock form well sorted granular sand in Parbhani district which is favorable for building construction work. This indicates enough gaps between demand & supply which provides opportunities for Government of Maharashtra to increase its production.

1.2 PROJECT DESCRIPTION

Description of Applied Lease and Mining Process

Local geology: Parbhani districts large part is occupied of rocks of Deccan trap formation, represented by of most horizontal lava flows of basaltic composition, thought to have been emplaced from fissures towards the close of the Mesozoic era, on to the lower tertiary era.

Table 3: Available Brass and Life of Mine

Name of Village	DAKUPIMPRI
Quantity of sand for Excavation (Brass)	6431
Life of Mine	1 YEAR

Proposed Working

Opencast Manual Mining Method will be adopted for extraction of Sand deposits in Godavari , River Bed.

Opencast Mine Working:-

As the mine lease is located in the River Bed and mineral is replenished every year. As per The Modified River bed Sand Mine Working Guidance No.11(1X) and 12 of the Notification of Revenue and Forest Department, Mantralaya Mumbai, The Government of Maharashtra vides Government Decision No. Gaukhani-10/0615/Pra.Kra. 289/Kha dated 03.01.2018; mining will be done manually only with the use of labours, man heads, spades (Pawadas), ghamelas/pans.

Each cycle of operation shall consist of the following operation.

i) Over Burden Removal: No overburden is anticipated. So there is no need of removal of Overburden.

ii) Digging of Sand: Digging of Sand will be done by manually by Labours with the help of Spades (Pawadas).

iii) Loading of Tractor Trolley: Loading of Tractor Trolley will be done by manually with the help of Man heads, Labours with the help of Spades (Pawadas) & Pans (Ghamelas) combination.

iv) Transportation of Sand by Tractor Trolley from River Bed Mine/Sand Ghat to Stack yard: Mine Owner will prepare the Stack yard outside the River bed or Sand Ghat on nearer road. By the use of Tractor Trolley the material will be transported from Sand Ghat to Stockyard.

v) Transportation of Sand from Stack yard to Customers: Transportation of Sand will be done by the use of tractors trolleys from Stack yard to various Customers with permissible quantity. Transportation will be done as per the rules and regulations.

vi) Reclamation: Applicant will do scientific mining so that in Monsoon the Mine Lease area will be automatically backfilled. Only plantation will be done by the applicant on the both bank side of the River and other free places.

Extent of Mechanization:

Mining Operations will be done by manual means only. No Mechanization. Services

1.3 DESCRIPTION OF THE ENVIRONMENT

The one time environmental monitoring was carried out during winter season of year December 2019. The various environmental components which are thoroughly studied during the study period include:

BASELINE ENVIRONMENT STATUS

1.3.1 Meteorological condition

During winter season Maximum temperature recorded 32 °C & Minimum temperature 21°C and wind blows from east and north. during winter season.

1.3.2 Ambient Air Quality

The mining operations will be carried out by manual method and no machinery, drilling & Blasting will be carried out. Hence impact on air quality is not envisaged. Only tractor-trolley will be used for transportation of the sand from the ghat to nearby depot or desired destination. The air quality at present is good. However the dust due to machine movement may form. The exhaust of the vehicles and Mining machinery may cause NO2, SO2 % higher. In such cases air sample will be drawn from near such activities analyzed & necessary protective measure for quality of air will be adopted from the SPM, APM, NO2,and SO2etc.Will be checked.

1.3.3 Ambient Noise Level

- Noise level shall be maintained with in prescribed quarry limits in the working zone (for12hr. Exposure).

- Speed of trucks entering or leaving the mine is limited to moderate speed of 10 kmph to prevent undue noise from empty trucks.
- No vibrations of notable levels will be generated

1.3.4 Water Quality

Ground Water Quality

- District is in "SAFE" Category from Ground Water Development point of view. Detailed Ground Water Scenario for the district.
- Hydrogeology Groundwater occurrence and movement in the area is influenced by its rock formations. Groundwater potentially depends upon porosity and permeability (both primary and secondary) of rock formations.
- Parbhani district is underlain by basaltic lava flows and alluvium only. The regional Static water level in the area varies from 20 mbgl to 25mbgl.
- Ground water extraction in the area is done mainly through dug wells and bore wells.
- The average depth range of dug wells in the area is 15.00m to 30.00 m. The average depth range of bore wells in the area is 60.00to 80.00 m.

Surface water quality

- Parbhani district has three main rivers Godavari, Godavari & Dudhna etc. Godavari has tributaries like Palam, Dudhna, Godavari rivers in the district. Kapra is a tributary of Godavari river.

- The necessary water requirement for drinking & for water sprinkling will be met from Dug wells/Bore well outside the Sand Ghat area on purchase basis. The water is potable. There are no chances of any contamination as there is no chemical processing etc. are going to be done in the Sand Ghat area. The water analysis report of Dug well/ Bore well will be submitted to DGMMS every year. The ground water table is at upper level.

1.3.5 Soil Characteristics

The soil is rich in plant nutrients such as lime, iron, magnesium and potash. The soil is relatively rich and deep in the south especially in the Gangakhed and Pathri talukas as compared to the 6 soil in the north which is poor and shallow. The district should contrive encashing the opportunities from rich soil. The crops are cultivated in kharif and rabbi season in the district. Generally, the Jowar, cotton, pulses, rice and oil seeds are grown in the Rabi season whereas; wheat sugarcane, bananas, turmeric etc. are cultivated in the district. Besides the crops like chilies, maize's are also cultivated in the

district. Thus agriculture should be cultivated not merely a means of food but also a means of development.

TABLE 4: LAND USE PATTERN OF THE CORE AREA

S. No.	Particulars	DAKUPIMPRI	
		As on Today in Ha	**After 1 Years in Ha**
1.	Area of top soil spread for a forestation	-	**-**
2.	Storage for top soil	-	**-**
3.	Green Belt	-	**-**
4.	Over burden Dump	-	**-**
5.	Mineral Storage	-	**-**
6.	Infrastructure (Workshop, Admin. Building etc.)	-	**-**
7.	Mine road in Mine lease area	-	**-**
8.	Utilized area for Sand Mining	**0.000**	**1.82**
9.	Virgin lease area for Sand Mine & Other Uses	**1.82**	**0.000**
10.	Road		
11.	Railway	-	**-**
12.	Tailing Pond	-	**-**
13.	Effluent Treatment Plant	-	**-**
14.	Mineral separation plant	-	**-**
15.	Township Area	-	**-**
16.	Others to specify	-	**-**
17.	**Ownership**	Government River	Government River
Total		**1.82**	**1.82**

1.3.6 Biological Environment

Flora - The study area is mainly dominated by Southern Dry Mixed Deciduous Forests & the study area vegetation is dominated by Aam, Babul, Bel, Bor, Chandan, Jambhul, Karnj, Neem etc.

Fauna - The faunal species commonly encountered during study within the study area are Hare, Rat, Indian fox, etc. No endemic endangered or threatened species of flora & fauna observed during study period.

1.3.7 Demography and Socio- Economics

As per census of India 2011, study area consists of 56 nos. of villages with total population of 1,39,401 nos. The number of households in the study area is 27,910.

1.4 ANTICIPATED ENVIRONMENTAL IMPACT & MITIGATION MEASURES

10.4.1 Impact on Air Quality

The mining operations will be carried out by manual method and no machinery, drilling & Blasting will be carried out. Hence impact on air quality is not envisaged. Only tractor-trolley will be used for transportation of the sand from the ghat to nearby depot or desired destination.

The transport routes are capable for handling this additional traffic.

Mitigative Measures: Following care will be taken for air pollution control.

- Water sprinkling will be done on the roads regularly. This will reduce dust emission further by 75%.
- Care will be taken to prevent spillage by covering the carrying vehicles with tarpaulin and sprinkling of water, if dry.
- Fortnightly scraping of road in order to keep the roads almost levelled. This will ensure smooth flow of vehicles and also prevent spillage.
- Overloading will be strictly prohibited.
- Proper tuning of vehicles to keep the gas emissions under check.

Plantation of trees along the roads to help reduce the impact of dust in the nearby villages.

10.4.2 Impact on Noise Quality:-

No significant noise will be generated due to sand mining as entire operation will be carried out manually. Noise will be generated only due to tractor trolley being used in sand transportation.

Mitigation measures: The off-site receptors are not significantly affected as noise generated by sand ghat is insignificant but some disturbances due to vehicle movement may not be avoidable. The tractor trolley will be maintained in good running condition so that noise will be reduced to minimum possible level.

Speed limits will be imposed on tractor trolleys used for sand transport.

10.4.3 Impact on Water Environment:-

Mining of sand from within or near a streambed has a direct impact on the stream's physical habitat characteristics. As the project activity is carried out in the dry part of the river bed, none of the project activities affect the water environment or riparian habitats. In the projects, it is not proposed to divert or truncate any stream. No proposal is envisaged for pumping of water either from the river or tapping the ground water. In the lean months, the proposed sand mining will not expose the base flow of the river and hence, there will not be any adverse impact on surface hydrology and ground water regime due to this project. The proponent will a dhere all guidelines and rules for proper and scientific method of mining during the period of extracting the sand.

Mitigation measures: The deposits occur in the middle/bottom of the river. During the lease period, the deposit will be worked from the top surface to approved depth of mining within the demarcated lease area only.

10.4.4 Impact on land Environment-

LAND ENVIRONMENT: The mining and allied activities involved in river bed mining are creation of temporary haul roads / transportation track and formation of mined pits inside river, etc. This sand mining project does not involve any waste generation. Thus no waste dump sites are needed for the project.

Mitigative Measures:

- The mining will not be carried out below the water table.
- The contractor with the satisfaction of competent authority will provide drinking water, rest shelter, first aid box and welfare facilities as per prevailing laws.
- The river bed areas dug during dry season i .e. other than rainy season will get replenished during monsoon.
- Sand/Gravel deposit in rainy season in which the material so deposited will be available for fresh quarrying.
- The contractors will abide by the Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.

10.4.5 Impact on Biological Environment

Anticipated impact and mitigation measures for biological environment

Impact Predicted	Suggestive measure
Disturbance to free movement /living of wild fauna viz. Birds, Reptiles etc.	• If birds are noticed crossing the core zone, they will not be disturbed at all; • Labourers will not be allowed to discard food, polythene waste etc., which can attract animals/birds near the core site; • Only low polluting vehicles having PUC will be allowed for carrying mining materials. • Noise level will be maintained within permissible limit (silent zone-50dB (A) during day time or residential zone 55dB (A)) as per Noise Pollution (Regulation and Control) Rules 2000, CPCB norms
Disturbance of riparian ecosystem/ wetlands	The riparian ecosystem or the wetlands will not be disturbed by the workers.
Monitoring of upstream and downstream water quality	Water quality will be monitored from upstream and downstream area once every month to assess the impact on water quality and mining activity will be controlled to maintain the clean water conditions.

Ecological Impacts: Excessive and unscientific riverbed sand mining results in the destruction of aquatic and riparian habitat through large changes in the channel morphology. Impacts include bed degradation, bed coarsening, lowered water tables near the streambed, and channel instability. These physical impacts cause degradation of riparian and aquatic biota and may lead to the undermining of bridges and other structures. Continued extraction may also cause the entire streambed to degrade to the depth of excavation.

Sand mining generates extra vehicle traffic, which negatively impairs the environment. Where access roads cross riparian areas, the local environment may be impacted.

Mitigation measures: As the proposed mining will be carried out in a scientific manner as mentioned before, not much significant impact is anticipated, however, the following mitigation measure will be taken to further minimize it:

1. The activity will mainly be carried out manually to minimize associate loss, as stated earlier.

2. No mining will be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season.
3. As the mining site has no vegetation, no clearance of vegetation is required.
4. No mining will be carried out in the vicinity of important structure like bridges, dam and other structures if any.
5. Mining will be carried out on the dry part of the lease area to avoid disturbance to the aquatic habitat and movement of fish species.
6. No mining will be carried out during the rainy season to minimize impact on aquatic life.
7. The mining activity will deploy a tractor for transportation of sand from the mine to desired destination that may cause some loss to riparian habitat. Safe site / site having least impact will be selected for transportation, all the vehicles employed for transportation purpose will be PUC certified. On closure of mining operations / during the rainy season the eroded bank will be restored / reclaimed to minimize negative impacts.
8. No lighting will be allowed in the lease area.
9. No piling of sand will be allowed in the area.
10. No discard of food, polythene waste etc. will be allowed in the lease area which would distract/attract the wildlife.
11. No night time mining will be allowed which may catch the attention of wild life.
12. Access roads will not encroach into the riparian zones and no riparian vegetation cleared off for the mining transportation of sand.

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Noise & Vibration	• Phasing out of old and worn out tractor trolleys. • Provision of green belts along the road networks. • Care will be taken to produce minimum sound during sand loading. • Use of Backhoe and ear plugs may be	Project authorities through regular monitoring.

	provided to protect the labors working at the site.	
Water environment	• Mining is avoided during the monsoon season and at the time of floods. This will help in replenishment of sand in the river bed. • River stream will not be diverted to form in active channels. • Utmost care will be taken to minimize or control leakage vehicles to be used for sand. • Transportation. • The washing of tractor trolleys in the river will be avoided. • The contractor will follow all guidelines and rules for proper and scientific method of • mining during the period of extracting the sand.	Project authorities through regular monitoring.
Biological Environment	• Mining activities will be restricted to day-time so that fauna will not disturb at night. • Material will be covered with tarpaulin during transportation. • Water sprinkling will be done on haul roads to control fugitive emissions.	Project authorities through regular monitoring.
Occupational health & safety & public Health & safety.	• Regular water sprinkling on haul roads. • Dust mask will be provided to the workers. • Safety of the employee during mining will be taken care as per Mine regulations. • Medical records will be keep maintained.	Project authorities through regular monitoring.
Socio economic environment	• Employment will be given to local people. • Regular medical camps will be organized. • Funds will be provided for development activities in nearby villages.	Regular monitoring by Project authorities.

TABLE 6: COST ESTIMATES OF EMP IMPLEMENTATION
(Investment and recurring cost in lacs /year)

S.No	Particulars	DAKUPIMPRI	
		Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)
1	Environmental Monitoring programme	0.90	1.00
2	Air Pollution Control	1.00	2.40
3	Approach road maintenance	0	1.20
4	Plantation (600 plants planted)	2.80	4.00
5.	Gabian structure for arresting gravels	1.00	0.20
6	Monitoring of sand	0.30	0.60
7	Water pollution control	0.50	Nil
8	Noise pollution control	1.00	0.50
9	Occupational health and safety	-	1.00
TOTAL		**7.5**	**10.9**

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Surface water / Tube well	Twice in a year	Grab	pH, SS, TDS, Iron, Hardness, Alkalinity Chlorides, Nitrates Sulphate & Fluorides
Ambient air monitoring	Twice in a year	24 hr.	PM10, PM2.5, SOx and NOx
Noise Pollution	Twice in a year	-	Level in dB(A) and dB(C)
Working environment	Once in a year	-	PH, Conductivity, Sulphate, Nitrate, Phosphates, Alkalinity & texture

PURNA

EXECUTIVE SUMMARY (ENGLISH)

For

SAND MINING (MINOR MINERAL)
FOR FOLLOWING VILLAGES

SR.NO	NAME OF SANDGHAT	VILLAGE NAME	KHASRA NO	TOTAL LEASE AREA	Total Production/ Brass (TPA)	TOTAL PROJECT COST
1.	PIMPALGAON BALAPUR	PIMPALGAON BALAPUR RIVER SAND MINE AT PURNA RIVER	133, 150, 151, 152, 153, 154, 155, 156, 192, 193, 194, 195, 196, 197.	3.40	7208	2,35,98,992
2.	SANDLAPUR	SANDLAOUR RIVER SAND MINE AT PURNA RIVER	10, 09, 08, 07, 06, 05	2.70	3816	27,97,340
3	KANDKHED	KANKHED RIVER SAND MINE AT PURNA RIVER	333, 332, 330, 329, 324, 325.	1.80	3498	1,14,52,452

OF

TALUKA:-PURNA, DISTRICT – Parbhani (Maharashtra)

Valid for the 1 year from the date of EC-granted or until approved quantity exhausted/ Mined whichever is earlier

FOR

ENVIRONMENTAL CLEARANCE (PUBLIC HEARING)

("B" under category 1(a) of EIA Notification dated 2006, S.O. 141(E) dated 15. 01. 2016, MoEF & CC, S.O. 3611(E), Dated 25.07.2018, Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020

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Government of India

MANTRAS GREEN RESOURCES LTD
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Accredited by NABET: No.: - NABET/EIA/1922/RA0201/ April 18, 2022)

September – 2021

1.0 Introduction:

Executive summary is the brief of report prepared for Environmental Management Plan of Sand Spot Mines of Minor Minerals of Parbhani District, Tehsil Parbhani by M/s. District Mining Office, Parbhani, Maharashtra (Govt. of Maharashtra). The mining is confined to extraction of sand in surrounding villages of Pimpalgaon Balapur (3.40 Ha), Sandlapur (2.70Ha), Kanadkhed (1.80 Ha), Sand is exposed in the lease area, the deposit is being done by opencast manual mining method without drilling and blasting.

1.1.1 Project Identification

The sand is one of the minor minerals occurred in Parbhani district. The proposed project of sand mine by opencast method in the applied lease area of (3.40 Ha), located near village Pimpalgaon Balapur (2.70 Ha) located near village Sandlapur, (1.80 Ha) located near village, Tehsil Purna, Parbhani, District:-Parbhani (Maharashtra). Mining Plan along with PMCP under Rule 16 (1) of MCR 2016 and PMCP under Rule 23B of MCDR 1988 is approved by Deputy Director, Directorate of Geology and Mining, Regional Office , Aurangabad vide letter no. STC-10/2020(M.P. Sand) 52 dated 04/02/2020. Proposed lease area is Government land.

1.1.2 Identification of Project Proponent

Table 1: Name and address of the Applicant

Applicant
District Mining Officer, Parbhani **(Govt. of Maharashtra)** **Gandhi Park, Parbhani, Maharashtra 431401** **Mob No:-7218655211** **Email Id:-dmocollectorpbn@gmail.com**

1.1.3 Location of Project

Table 2: Details of Project Location

Particulars	PIMPALGAON BALAPUR	SANDLAPUR	KANADKHED
Name of the applied mine area	**PIMPALGAON BALAPUR RIVER SAND MINE AT PURNA RIVER**	**SANDLAPUR RIVER SAND MINE AT PURNA RIVER**	**KANADKHED RIVER SAND MINE AT PURNA RIVER**
Near village	**Sandlapur,Aherwadi**	**Surwadi,Mategaon**	**Hatkarwadi,Ajdapur**
Tehsil	**Purna**	**Purna**	**Purna**
District	**Parbhani**	**Parbhani**	**Parbhani**
State	**Maharashtra**	**Maharashtra**	**Maharashtra**
Toposheet no.	**56A/16**	**56A/16**	**56E/4**
Latitude (N)	19°14'8.42"N	19°14'54.84"N	19° 9'1.20"N

Longitude (E)	76°56'51.95"E	76°55'37.97"E	77° 0'38.63"E

1.1.4 NEED OF THE PROJECT

The sand and gravel are one of the most important construction materials. Ensuring their availability is vital for the development of the infrastructure in the country. As the requirement of these construction materials is on rise, and as entire Parbhani district comes under the Purna-Godavari and Godavari basin the district is covered by basaltic rock due to weathering activity by river Godavari and Purna by transportation, deposition and erosion has been taken place of pre existing rock form well sorted granular sand in Parbhani district which is favorable for building construction work. This indicates enough gaps between demand & supply which provides opportunities for Government of Maharashtra to increase its production.

1.2 PROJECT DESCRIPTION

Description of Applied Lease and Mining Process

Local geology: Parbhani districts large part is occupied of rocks of Deccan trap formation, represented by of most horizontal lava flows of basaltic composition, thought to have been emplaced from fissures towards the close of the Mesozoic era, on to the lower tertiary era.

Table 3: Available Brass and Life of Mine

Name of Village	PIMPALGAON BALAPUR	SANDLAPUR	KANADKHED
Quantity of sand for Excavation (Brass)	**7208**	**3816**	**3498**
Life of Mine	**1 YEAR**	**1 YEAR**	**1 YEAR**

Proposed Working

Opencast Manual Mining Method will be adopted for extraction of Sand deposits in Purna , River Bed.

Opencast Mine Working:-

As the mine lease is located in the River Bed and mineral is replenished every year. As per The Modified River bed Sand Mine Working Guidance No.11(1X) and 12 of the Notification of Revenue and Forest Department, Mantralaya Mumbai, The Government of Maharashtra vides Government Decision No. Gaukhani-10/0615/Pra.Kra. 289/Kha dated 03.01.2018; mining will be done manually only with the use of labours, man heads, spades (Pawadas), ghamelas/pans.

Each cycle of operation shall consist of the following operation.

i) Over Burden Removal: No overburden is anticipated. So there is no need of removal of Overburden.

ii) Digging of Sand: Digging of Sand will be done by manually by Labours with the help of Spades (Pawadas).

iii) Loading of Tractor Trolley: Loading of Tractor Trolley will be done by manually with the help of Man heads, Labours with the help of Spades (Pawadas) & Pans (Ghamelas) combination.

iv) Transportation of Sand by Tractor Trolley from River Bed Mine/Sand Ghat to Stack yard: Mine Owner will prepare the Stack yard outside the River bed or Sand Ghat on nearer road. By the use of Tractor Trolley the material will be transported from Sand Ghat to Stockyard.

v) Transportation of Sand from Stack yard to Customers: Transportation of Sand will be done by the use of tractors trolleys from Stack yard to various Customers with permissible quantity. Transportation will be done as per the rules and regulations.

vi) Reclamation: Applicant will do scientific mining so that in Monsoon the Mine Lease area will be automatically backfilled. Only plantation will be done by the applicant on the both bank side of the River and other free places.

Extent of Mechanization:

Mining Operations will be done by manual means only. No Mechanization. Services

1.3 DESCRIPTION OF THE ENVIRONMENT

The one time environmental monitoring was carried out during winter season of year December 2019. The various environmental components which are thoroughly studied during the study period include:

BASELINE ENVIRONMENT STATUS

1.3.1 Meteorological condition

During winter season Maximum temperature recorded 32 °C & Minimum temperature 21°C and wind blows from east and north. during winter season.

1.3.2 Ambient Air Quality

The mining operations will be carried out by manual method and no machinery, drilling & Blasting will be carried out. Hence impact on air quality is not envisaged. Only tractor-trolley will be used for transportation of the sand from the ghat to nearby depot or desired destination. The air quality at present is good. However the dust due to machine movement may form. The exhaust of the vehicles and Mining machinery may cause NO2, SO2 % higher. In such cases air sample will be drawn from near such activities analyzed & necessary

protective measure for quality of air will be adopted from the SPM, APM, NO2,and SO2etc.Will be checked.

1.3.3 Ambient Noise Level

- Noise level shall be maintained with in prescribed quarry limits in the working zone (for12hr. Exposure).
- Speed of trucks entering or leaving the mine is limited to moderate speed of 10 kmph to prevent undue noise from empty trucks.
- No vibrations of notable levels will be generated

1.3.4 Water Quality

Ground Water Quality

- District is in "SAFE" Category from Ground Water Development point of view. Detailed Ground Water Scenario for the district.
- Hydrogeology Groundwater occurrence and movement in the area is influenced by its rock formations. Groundwater potentially depends upon porosity and permeability (both primary and secondary) of rock formations.
- Parbhani district is underlain by basaltic lava flows and alluvium only. The regional Static water level in the area varies from 20 mbgl to 25mbgl.
- Ground water extraction in the area is done mainly through dug wells and bore wells.
- The average depth range of dug wells in the area is 15.00m to 30.00 m. The average depth range of bore wells in the area is 60.00to 80.00 m.

Surface water quality

- Parbhani district has three main rivers Godavari, Purna & Dudhna etc. Godavari has tributaries like Palam, Dudhna, Purna rivers in the district. Kapra is a tributary of Purna river.

- The necessary water requirement for drinking & for water sprinkling will be met from Dug wells/Bore well outside the Sand Ghat area on purchase basis. The water is potable. There are no chances of any contamination as there is no chemical processing etc. are going to be done in the Sand Ghat area. The water analysis report of Dug well/ Bore well will be submitted to DGMMS every year. The ground water table is at upper level.

1.3.5 Soil Characteristics

The soil is rich in plant nutrients such as lime, iron, magnesium and potash. The soil is relatively rich and deep in the south especially in the Gangakhed and Pathri talukas as compared to the 6 soil in the north which is poor and shallow. The district should contrive encashing the opportunities from rich soil. The crops are cultivated in kharif and rabbi season in the district. Generally, the Jowar, cotton, pulses, rice and oil seeds are grown in the Rabi season whereas; wheat sugarcane, bananas, turmeric etc. are cultivated in the district. Besides the crops like chilies, maize's are also cultivated in the district. Thus agriculture should be cultivated not merely a means of food but also a means of development.

TABLE 4: LAND USE PATTERN OF THE CORE AREA

S. No.	Particulars	PIMPALGAON BALAPUR		SANDLAPUR		KANADKHED	
		As on Today in Ha	After 1 Years in Ha	As on Today in Ha	After 1 Years in Ha	As on Today in Ha	After 1 Years in Ha
1.	Area of top soil spread for a forestation	-	**-**	**-**	-		
2.	Storage for top soil	-	**-**	**-**	-		
3.	Green Belt	-	**-**	**-**	-		
4.	Over burden Dump	-	**-**	**-**	-		
5.	Mineral Storage	-	**-**	**-**	-		
6.	Infrastructure (Workshop, Admin. Building etc.)	-	**-**	**-**	-		
7.	Mine road in Mine lease area	-	**-**	**-**	-		
8.	Utilized area for Sand Mining	**0.000**	**3.40**	**0.000**	**2.70**	**0.000**	**1.80**
9.	Virgin lease area for Sand Mine & Other Uses	**3.40**	**0.000**	**2.70**	**0.000**	**1.80**	**0.000**
10.	Road					-	-
11.	Railway	-	**-**	**-**	-	-	-
12.	Tailing Pond	-	**-**	**-**	-	-	-

13.	Effluent Treatment Plant	-	**-**	**-**	-	-	-
14.	Mineral separation plant	-	**-**	**-**	-	-	-
15.	Township Area	-	**-**	**-**	-	-	-
16.	Others to specify	-	**-**	**-**	-		
17.	**Ownership**	Government River	Government River	Government River	Government River	Government River	Government River
Total		**3.40**	**3.40**	**2.70**	**2.70**	**1.80**	**1.80**

1.3.6 Biological Environment

Flora - The study area is mainly dominated by Southern Dry Mixed Deciduous Forests & the study area vegetation is dominated by Aam, Babul, Bel, Bor, Chandan, Jambhul, Karnj, Neem etc.

Fauna - The faunal species commonly encountered during study within the study area are Hare, Rat, Indian fox, etc. No endemic endangered or threatened species of flora & fauna observed during study period.

1.3.7 Demography and Socio- Economics

As per census of India 2011, study area consists of 92 nos. of villages with total population of 1,82,652 nos. The number of households in the study area is 35,123

1.4 ANTICIPATED ENVIRONMENTAL IMPACT & MITIGATION MEASURES

10.4.1 Impact on Air Quality

The mining operations will be carried out by manual method and no machinery, drilling & Blasting will be carried out. Hence impact on air quality is not envisaged. Only tractor-trolley will be used for transportation of the sand from the ghat to nearby depot or desired destination.

The transport routes are capable for handling this additional traffic.

Mitigative Measures: Following care will be taken for air pollution control.

- Water sprinkling will be done on the roads regularly. This will reduce dust emission further by 75%.

- Care will be taken to prevent spillage by covering the carrying vehicles with tarpaulin and sprinkling of water, if dry.
- Fortnightly scraping of road in order to keep the roads almost levelled. This will ensure smooth flow of vehicles and also prevent spillage.
- Overloading will be strictly prohibited.
- Proper tuning of vehicles to keep the gas emissions under check.

Plantation of trees along the roads to help reduce the impact of dust in the nearby villages.

10.4.2 Impact on Noise Quality:-

No significant noise will be generated due to sand mining as entire operation will be carried out manually. Noise will be generated only due to tractor trolley being used in sand transportation.

Mitigation measures: The off-site receptors are not significantly affected as noise generated by sand ghat is insignificant but some disturbances due to vehicle movement may not be avoidable. The tractor trolley will be maintained in good running condition so that noise will be reduced to minimum possible level.

Speed limits will be imposed on tractor trolleys used for sand transport.

10.4.3 Impact on Water Environment:-

Mining of sand from within or near a streambed has a direct impact on the stream's physical habitat characteristics. As the project activity is carried out in the dry part of the river bed, none of the project activities affect the water environment or riparian habitats. In the projects, it is not proposed to divert or truncate any stream. No proposal is envisaged for pumping of water either from the river or tapping the ground water. In the lean months, the proposed sand mining will not expose the base flow of the river and hence, there will not be any adverse impact on surface hydrology and ground water regime due to this project. The proponent will adhere all guidelines and rules for proper and scientific method of mining during the period of extracting the sand.

Mitigation measures: The deposits occur in the middle/bottom of the river. During the lease period, the deposit will be worked from the top surface to approved depth of mining within the demarcated lease area only.

10.4.4 Impact on land Environment-

LAND ENVIRONMENT: The mining and allied activities involved in river bed mining are creation of temporary haul roads / transportation track and formation of mined pits inside river, etc. This sand mining project does not involve any waste generation. Thus no waste dump sites are needed for the project.

Mitigative Measures:

- The mining will not be carried out below the water table.
- The contractor with the satisfaction of competent authority will provide drinking water, rest shelter, first aid box and welfare facilities as per prevailing laws.
- The river bed areas dug during dry season i .e. other than rainy season will get replenished during monsoon.
- Sand/Gravel deposit in rainy season in which the material so deposited will be available for fresh quarrying.
- The contractors will abide by the Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.

10.4.5 Impact on Biological Environment

Anticipated impact and mitigation measures for biological environment

Impact Predicted	Suggestive measure
Disturbance to free movement /living of wild fauna viz. Birds, Reptiles etc.	• If birds are noticed crossing the core zone, they will not be disturbed at all; • Labourers will not be allowed to discard food, polythene waste etc., which can attract animals/birds near the core site; • Only low polluting vehicles having PUC will be allowed for carrying mining materials. • Noise level will be maintained within permissible limit (silent zone-50dB (A) during day time or residential zone 55dB (A)) as per Noise Pollution (Regulation and Control) Rules 2000, CPCB norms
Disturbance of riparian ecosystem/ wetlands	The riparian ecosystem or the wetlands will not be disturbed by the workers.
Monitoring of upstream and downstream water quality	Water quality will be monitored from upstream and downstream area once every month to assess the impact on water quality and mining activity will be controlled to maintain the clean water conditions.

Ecological Impacts: Excessive and unscientific riverbed sand mining results in the destruction of aquatic and riparian habitat through large changes in the channel morphology. Impacts include bed degradation, bed coarsening, lowered

water tables near the streambed, and channel instability. These physical impacts cause degradation of riparian and aquatic biota and may lead to the undermining of bridges and other structures. Continued extraction may also cause the entire streambed to degrade to the depth of excavation.

Sand mining generates extra vehicle traffic, which negatively impairs the environment. Where access roads cross riparian areas, the local environment may be impacted.

Mitigation measures: As the proposed mining will be carried out in a scientific manner as mentioned before, not much significant impact is anticipated, however, the following mitigation measure will be taken to further minimize it:

1. The activity will mainly be carried out manually to minimize associate loss, as stated earlier.
2. No mining will be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season.
3. As the mining site has no vegetation, no clearance of vegetation is required.
4. No mining will be carried out in the vicinity of important structure like bridges, dam and other structures if any.
5. Mining will be carried out on the dry part of the lease area to avoid disturbance to the aquatic habitat and movement of fish species.
6. No mining will be carried out during the rainy season to minimize impact on aquatic life.
7. The mining activity will deploy a tractor for transportation of sand from the mine to desired destination that may cause some loss to riparian habitat. Safe site / site having least impact will be selected for transportation, all the vehicles employed for transportation purpose will be PUC certified. On closure of mining operations / during the rainy season the eroded bank will be restored / reclaimed to minimize negative impacts.
8. No lighting will be allowed in the lease area.
9. No piling of sand will be allowed in the area.
10. No discard of food, polythene waste etc. will be allowed in the lease area which would distract/attract the wildlife.
11. No night time mining will be allowed which may catch the attention of wild life.
12. Access roads will not encroach into the riparian zones and no riparian vegetation cleared off for the mining transportation of sand.

10.5. ANALYSIS OF ALTERNATIVES

10.5.1. Site Alternatives- The mine is located along the where the sand exists in enough quantity to be economically extracted. Mining locations are preferred near the markets or along the transportation route.

10.5.2 Technology alternatives: - No alternative technology only opencast Manual Mining Method will be adopted for extraction of Sand deposits.

10.6 ENVIRONMENT MONITORING PROGRAM

During the execution of the project activity, the sampling & analysis of various environmental attributes will be carried out as per guidelines of central pollution control board & State pollution control board Rajasthan. An Environment Management Cell will be set-up to implement the said program.

10.7 ADDITIONAL STUDIES

10.7.1 Risk Studies-Hazard identification and risk analysis involves identification of undesirable events that leads to a hazard, the analysis of hazard mechanism by which this undesirable event could occur and usually the estimation of extent, magnitude and likelihood of harmful effects

10.7.2 Disaster Studies:-

Proper disaster planning should be done to meet any emergency situation arising due to fire, explosion, sudden leakage of gas etc. Firefighting equipment and other safety appliances should be kept ready for use during disaster/emergency situation including natural calamities like earthquake/flood.

10.9 ENVIRONMENT MANAGEMENT PLAN

Opencast mining operation comprises of various activities related to digging and material handling which may be potential sources of environment pollution. The Sand Mine will be developed by systematically formed benches with over all pit slopes of 45° or angle of response which stabilizes the benches. Efforts will be made to suppress the dust at source by adequate watering. For this a mobile water of 2000 liters capacity will be engaged throughout the working shift.

Environmental Issue	Management Measures	Implementation
Air Environment	• To avoid fugitive dust emissions at the time of excavation, regular sprinkling of water will be done on regular basis. • Sand is transported to the sites by road through tractor trolleys. The sand carrying vehicles shall be covered by tarpaulin sheets. • The Green Belt development will be prepared along the haul roads, which will	Project authorities through regular monitoring.

	act as a pollution sink. • To minimize the vehicular pollution from the sand transporting vehicles, the following conditions will insist to permit the vehicles of the transporters	
Noise & Vibration	• Phasing out of old and worn out tractor trolleys. • Provision of green belts along the road networks. • Care will be taken to produce minimum sound during sand loading. • Use of Backhoe and ear plugs may be provided to protect the labors working at the site.	Project authorities through regular monitoring.
Water environment	• Mining is avoided during the monsoon season and at the time of floods. This will help in replenishment of sand in the river bed. • River stream will not be diverted to form in active channels. • Utmost care will be taken to minimize or control leakage vehicles to be used for sand. • Transportation. • The washing of tractor trolleys in the river will be avoided. • The contractor will follow all guidelines and rules for proper and scientific method of • mining during the period of extracting the sand.	Project authorities through regular monitoring.
Biological Environment	• Mining activities will be restricted to day-time so that fauna will not disturb at night. • Material will be covered with tarpaulin during transportation. • Water sprinkling will be done on haul roads to control fugitive emissions.	Project authorities through regular monitoring.
Occupational health & safety & public Health & safety.	• Regular water sprinkling on haul roads. • Dust mask will be provided to the workers. • Safety of the employee during mining will	Project authorities through regular monitoring.

	be taken care as per Mine regulations. • Medical records will be keep maintained.	
Socio economic environment	• Employment will be given to local people. • Regular medical camps will be organized. • Funds will be provided for development activities in nearby villages.	Regular monitoring by Project authorities.

TABLE 6: COST ESTIMATES OF EMP IMPLEMENTATION
(Investment and recurring cost in lacs /year)

S.No	Particulars	PIMPALGAON BALAPUR		SANDLAPUR		KANADKHED	
		Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)
1	Environmental Monitoring programme	0.90	1.00	0.80	1.00	0.80	1.00
2	Air Pollution Control	1.00	2.50	1.00	2.6	1.00	2.65
3	Approach road maintenance	0	1.20	0	1.20	0	1.20
4	Plantation (600 plants planted)	3.90	4.5	3.32	4.50	2.43	4.13
5.	Gabian structure for arresting gravels	1.00	0.20	1.00	0.20	1.00	0.20
6	Monitoring of sand	0.30	0.60	0.30	0.60	0.30	0.60
7	Water pollution control	0.50	Nil	0.50	Nil	0.50	Nil
8	Noise pollution control	1.00	0.50	1.00	0.50	1.00	0.50
9	Occupational health and safety	-	1.00	-	1.00	-	1.00
TOTAL		**8.6**	**11.5**	**7.92**	**11.6**	**7.03**	**11.28**

TABLE 7: MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

Particulars	Monitoring Frequencies	Duration of Station	Important Monitoring Parameters
Surface water / Tube well	Twice in a year	Grab	pH, SS, TDS, Iron, Hardness, Alkalinity Chlorides, Nitrates Sulphate & Fluorides
Ambient air monitoring	Twice in a year	24 hr.	PM10, PM2.5, SOx and NOx
Noise Pollution	Twice in a year	-	Level in dB(A) and dB(C)
Working environment	Once in a year	-	PH, Conductivity, Sulphate, Nitrate, Phosphates, Alkalinity & texture

SELU

EXECUTIVE SUMMARY (ENGLISH)

For

SAND MINING (MINOR MINERAL)

FOR FOLLOWING VILLAGES

SR.NO	NAME OF SANDGHAT	VILLAGE NAME	KHASRA NO	TOTAL LEASE AREA	Total Production/ Brass (TPA)	TOTAL PROJECT COST
1.	PIMPRI BK	PIMPRI BK RIVER SAND MINE AT DUDHANA RIVER	108, 109, 110, 112.	1.12	1789	58,57,186/-
2.	KHADGAON	KHADGAON RIVER SAND MINE AT DUDHANA RIVER	21, 23, 26, 27, 28, 29, 30.	1.00	2120	69,40,880/-
3.	SONNA	SONNA RIVER SAND MINE AT DUDHANA RIVER	154, 155, 156, 157, 162, 163, 164, 165..	1.75	3092	1,01,23,208/-

OF

TALUKA:-SELU, DISTRICT – Parbhani (Maharashtra)

Valid for the 1 year from the date of EC-granted or until approved quantity exhausted/ mined whichever is earlier

FOR

ENVIRONMENTAL CLEARANCE (PUBLIC HEARING)

("B" under category 1(a) of EIA Notification dated 2006, S.O. 141(E) dated 15. 01. 2016, MoEF & CC, S.O. 3611(E), Dated 25.07.2018, Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020

Applicant District Mining Officer, Parbhani
Government of India

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Hall No.1, First Floor, NICE Sankul, MIDC
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September – 2021

1.0 Introduction:

Executive summary is the brief of report prepared for Environmental Management Plan of Sand Spot Mines of Minor Minerals of Parbhani District, Tehsil Selu by M/s. District Mining Office, Parbhani, Maharashtra (Govt. of Maharashtra). The mining is confined to extraction of sand in surrounding villages of Pimpri bk (1.12 Ha), Khadgav (1.00Ha), sonna (1.75 Ha), Sand is exposed in the lease area, the deposit is being done by opencast manual mining method without drilling and blasting.

1.1.1 Project Identification

The sand is one of the minor minerals occurred in Parbhani district. The proposed project of sand mine by opencast method in the applied lease area of Pimpri bk (1.12 Ha), Khadgav (1.00Ha), Sonna (1.75 Ha), Tehsil Selu , District:-Parbhani (Maharashtra).

1.1.2 Identification of Project Proponent

Table 1: Name and address of the Applicant

Applicant
District Mining Officer, Parbhani **(Govt. of Maharashtra)** **Gandhi Park, Parbhani, Maharashtra 431401** **Mob No:-7218655211** **Email Id:-dmocollectorpbn@gmail.com**

1.1.3 Location of Project

Table 2: Details of Project Location

Particulars	PIMPRI BK	KHADGAV	SONNA
Name of the applied mine area	**PIMPRI BK RIVER SAND MINE AT DUDHANA RIVER**	**KHADGAV RIVER SAND MINE AT DUDHANA RIVER**	**SONNA RIVER SAND MINE AT DUDHANA RIVER**
Near village	Moregav & Sonvati	Moregav & Sonvati	Karadgav & ambegav digar
Tehsil	**Selu**	**Selu**	**Selu**
District	**Parbhani**	**Parbhani**	**Parbhani**
State	**Maharashtra**	**Maharashtra**	**Maharashtra**
Toposheet no.	**56A/08**	**56A/16**	**56A/11**
Latitude (N)	19°30'53.81"N	19°31'0.36"N	19°25'37.60"N
Longitude (E)	76°26'36.92"E	76°25'57.73"E	76°31'57.24"E

1.1.4 NEED OF THE PROJECT

The sand and gravel are one of the most important construction materials. Ensuring their availability is vital for the development of the infrastructure in the country. As the requirement of these construction materials is on rise, and as entire Parbhani district comes under the Purna-Godavari and Godavari basin the district is covered by basaltic rock due to weathering activity by river Godavari and Purna by transportation, deposition and erosion has been taken place of pre existing rock form well sorted granular sand in Parbhani district which is favorable for building construction work. This indicates enough gaps between demand & supply which provides opportunities for Government of Maharashtra to increase its production.

1.2 PROJECT DESCRIPTION

Description of Applied Lease and Mining Process

Local geology: Parbhani districts large part is occupied of rocks of Deccan trap formation, represented by of most horizontal lava flows of basaltic composition, thought to have been emplaced from fissures towards the close of the Mesozoic era, on to the lower tertiary era.

Table 3: Available Brass and Life of Mine

Name of Village	PIMPRI BK	KHADGAV	SONNA
Quantity of sand for Excavation (Brass)	1.12	1.00	1.75
Life of Mine	1 YEAR	1 YEAR	1 YEAR

Proposed Working

Opencast Manual Mining Method will be adopted for extraction of Sand deposits in Dudhana River Bed.

Opencast Mine Working:-

As the mine lease is located in the River Bed and mineral is replenished every year. As per The Modified River bed Sand Mine Working Guidance No.11(1X) and 12 of the Notification of Revenue and Forest Department, Mantralaya Mumbai, The Government of Maharashtra vides Government Decision No. Gaukhani-10/0615/Pra. Kra. 289/Kha dated 03.01.2018; mining will be done manually only with the use of labours, man heads, spades (Pawadas), ghamelas/pans.

Each cycle of operation shall consist of the following operation.

i) Over Burden Removal: No overburden is anticipated. So there is no need of removal of Overburden.

ii) Digging of Sand: Digging of Sand will be done by manually by Labours with the help of Spades (Pawadas).

iii) Loading of Tractor Trolley: Loading of Tractor Trolley will be done by manually with the help of Man heads, Labours with the help of Spades (Pawadas) & Pans (Ghamelas) combination.

iv) Transportation of Sand by Tractor Trolley from River Bed Mine/Sand Ghat to Stack yard: Mine Owner will prepare the Stack yard outside the River bed or Sand Ghat on nearer road. By the use of Tractor Trolley the material will be transported from Sand Ghat to Stockyard.

v) Transportation of Sand from Stack yard to Customers: Transportation of Sand will be done by the use of tractors trolleys from Stack yard to various Customers with permissible quantity. Transportation will be done as per the rules and regulations.

vi) Reclamation: Applicant will do scientific mining so that in Monsoon the Mine Lease area will be automatically backfilled. Only plantation will be done by the applicant on the both bank side of the River and other free places.

Extent of Mechanization:

Mining Operations will be done by manual means only. No Mechanization. Services

1.3 DESCRIPTION OF THE ENVIRONMENT

The one time environmental monitoring was carried out during winter season of year December 2019. The various environmental components which are thoroughly studied during the study period include:

BASELINE ENVIRONMENT STATUS

1.3.1 Meteorological condition

During winter season Maximum temperature recorded 32 °C & Minimum temperature 21°C and wind blows from east and north. during winter season.

1.3.2 Ambient Air Quality

The mining operations will be carried out by manual method and no machinery, drilling & Blasting will be carried out. Hence impact on air quality is not envisaged. Only tractor-trolley will be used for transportation of the sand from the ghat to nearby depot or desired destination. The air quality at present is good. However the dust due to machine movement may form. The exhaust of the vehicles and Mining machinery may cause NO2, SO2 % higher. In such cases air sample will be drawn from near such activities analyzed & necessary protective measure for quality of air will be adopted from the SPM, APM, NO2,and SO2etc.Will be checked.

1.3.3 Ambient Noise Level

- Noise level shall be maintained with in prescribed quarry limits in the working zone (for12hr. Exposure).
- Speed of trucks entering or leaving the mine is limited to moderate speed of 10 kmph to prevent undue noise from empty trucks.
- No vibrations of notable levels will be generated

1.3.4 Water Quality

Ground Water Quality

- District is in "SAFE" Category from Ground Water Development point of view. Detailed Ground Water Scenario for the district.
- Hydrogeology Groundwater occurrence and movement in the area is influenced by its rock formations. Groundwater potentially depends upon porosity and permeability (both primary and secondary) of rock formations.
- Parbhani district is underlain by basaltic lava flows and alluvium only. The regional Static water level in the area varies from 20 mbgl to 25mbgl.
- Ground water extraction in the area is done mainly through dug wells and bore wells.
- The average depth range of dug wells in the area is 15.00m to 30.00 m. The average depth range of bore wells in the area is 60.00to 80.00 m.

Surface water quality

- Parbhani district has three main rivers Godavari, Purna & Dudhna etc. Godavari has tributaries like Palam, Dudhna, Purna rivers in the district. Kapra is a tributary of Purna river.

- The necessary water requirement for drinking & for water sprinkling will be met from Dug wells/Bore well outside the Sand Ghat area on purchase basis. The water is potable. There are no chances of any contamination as there is no chemical processing etc. are going to be done in the Sand Ghat area. The water analysis report of Dug well/ Bore well will be submitted to DGMMS every year. The ground water table is at upper level.

1.3.5 Soil Characteristics

The soil is rich in plant nutrients such as lime, iron, magnesium and potash. The soil is relatively rich and deep in the south especially in the Gangakhed and Pathri talukas as

compared to the 6 soil in the north which is poor and shallow. The district should contrive encashing the opportunities from rich soil. The crops are cultivated in kharif and rabbi season in the district. Generally, the Jowar, cotton, pulses, rice and oil seeds are grown in the Rabi season whereas; wheat sugarcane, bananas, turmeric etc. are cultivated in the district. Besides the crops like chilies, maize's are also cultivated in the district. Thus agriculture should be cultivated not merely a means of food but also a means of development.

TABLE 4: LAND USE PATTERN OF THE CORE AREA

S. No.	Particulars	PIMPRI BK		KHADGAV		SONNA	
		As on Today in Ha	After 1 Years in Ha	As on Today in Ha	After 1 Years in Ha	As on Today in Ha	After 1 Years in Ha
1.	Area of top soil spread for a forestation	-	-	-	-	-	-
2.	Storage for top soil	-	-	-	-	-	-
3.	Green Belt	-	-	-	-	-	-
4.	Over burden Dump	-	-	-	-	-	-
5.	Mineral Storage	-	-	-	-	-	-
6.	Infrastructure (Workshop, Admin. Building etc.)	-	-	-	-	-	-
7.	Mine road in Mine lease area	-	-	-	-	-	-
8.	Utilized area for Sand Mining	**0.000**	**1.12**	**0.000**	**1.00**	**0.000**	**1.75**
9.	Virgin lease area for Sand Mine & Other Uses	**1.12**	**0.000**	**1.00**	**0.000**	**1.75**	**0.000**
10.	Road						
11.	Railway	-	-	-	-	-	-
12.	Tailing Pond	-	-	-	-	-	-

13.	Effluent Treatment Plant	-	**-**	**-**	-	**-**	-
14.	Mineral separation plant	-	**-**	**-**	-	**-**	-
15.	Township Area	-	**-**	**-**	-	**-**	-
16.	Others to specify	-	**-**	**-**	-	**-**	-
17.	**Ownership**	Government River	Government River	Government River	Government River	Government River	Government River
Total		**1.12**	**1.12**	**1.00**	**1.00**	**1.75**	**1.75**

1.3.6 Biological Environment

Flora - The study area is mainly dominated by Southern Dry Mixed Deciduous Forests & the study area vegetation is dominated by Aam, Babul, Bel, Bor, Chandan, Jambhul, Karnj, Neem etc.

Fauna - The faunal species commonly encountered during study within the study area are Hare, Rat, Indian fox, etc. No endemic endangered or threatened species of flora & fauna observed during study period.

1.3.7 Demography and Socio- Economics

As per census of India 2011, study area consists of 94 nos. of villages with total population of 169174 nos. The number of households in the study area is 33815.

1.4 ANTICIPATED ENVIRONMENTAL IMPACT & MITIGATION MEASURES

10.4.1 Impact on Air Quality

The mining operations will be carried out by manual method and no machinery, drilling & Blasting will be carried out. Hence impact on air quality is not envisaged. Only tractor-trolley will be used for transportation of the sand from the ghat to nearby depot or desired destination.

The transport routes are capable for handling this additional traffic.

Mitigative Measures: Following care will be taken for air pollution control.

- Water sprinkling will be done on the roads regularly. This will reduce dust emission further by 75%.

- Care will be taken to prevent spillage by covering the carrying vehicles with tarpaulin and sprinkling of water, if dry.
- Fortnightly scraping of road in order to keep the roads almost levelled. This will ensure smooth flow of vehicles and also prevent spillage.
- Overloading will be strictly prohibited.
- Proper tuning of vehicles to keep the gas emissions under check.

Plantation of trees along the roads to help reduce the impact of dust in the nearby villages.

10.4.2 Impact on Noise Quality:-

No significant noise will be generated due to sand mining as entire operation will be carried out manually. Noise will be generated only due to tractor trolley being used in sand transportation.

Mitigation measures: The off-site receptors are not significantly affected as noise generated by sand ghat is insignificant but some disturbances due to vehicle movement may not be avoidable. The tractor trolley will be maintained in good running condition so that noise will be reduced to minimum possible level.

Speed limits will be imposed on tractor trolleys used for sand transport.

10.4.3 Impact on Water Environment:-

Mining of sand from within or near a streambed has a direct impact on the stream's physical habitat characteristics. As the project activity is carried out in the dry part of the river bed, none of the project activities affect the water environment or riparian habitats. In the projects, it is not proposed to divert or truncate any stream. No proposal is envisaged for pumping of water either from the river or tapping the ground water. In the lean months, the proposed sand mining will not expose the base flow of the river and hence, there will not be any adverse impact on surface hydrology and ground water regime due to this project. The proponent will adhere all guidelines and rules for proper and scientific method of mining during the period of extracting the sand.

Mitigation measures: The deposits occur in the middle/bottom of the river. During the lease period, the deposit will be worked from the top surface to approved depth of mining within the demarcated lease area only.

10.4.4 Impact on land Environment-

LAND ENVIRONMENT: The mining and allied activities involved in river bed mining are creation of temporary haul roads / transportation track and formation of mined pits inside river, etc. This sand mining project does not involve any waste generation. Thus no waste dump sites are needed for the project.

Mitigative Measures:

- The mining will not be carried out below the water table.
- The contractor with the satisfaction of competent authority will provide drinking water, rest shelter, first aid box and welfare facilities as per prevailing laws.
- The river bed areas dug during dry season i .e. other than rainy season will get replenished during monsoon.
- Sand/Gravel deposit in rainy season in which the material so deposited will be available for fresh quarrying.
- The contractors will abide by the Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.

10.4.5 Impact on Biological Environment

Anticipated impact and mitigation measures for biological environment

Impact Predicted	Suggestive measure
Disturbance to free movement /living of wild fauna viz. Birds, Reptiles etc.	• If birds are noticed crossing the core zone, they will not be disturbed at all; • Labourers will not be allowed to discard food, polythene waste etc., which can attract animals/birds near the core site; • Only low polluting vehicles having PUC will be allowed for carrying mining materials. • Noise level will be maintained within permissible limit (silent zone-50dB (A) during day time or residential zone 55dB (A)) as per Noise Pollution (Regulation and Control) Rules 2000, CPCB norms
Disturbance of riparian ecosystem/ wetlands	The riparian ecosystem or the wetlands will not be disturbed by the workers.
Monitoring of upstream and downstream water quality	Water quality will be monitored from upstream and downstream area once every month to assess the impact on water quality and mining activity will be controlled to maintain the clean water conditions.

Ecological Impacts: Excessive and unscientific riverbed sand mining results in the destruction of aquatic and riparian habitat through large changes in the channel morphology. Impacts include bed degradation, bed coarsening, lowered water tables near the streambed, and channel instability. These physical impacts cause degradation of riparian and aquatic biota and may lead to the undermining

of bridges and other structures. Continued extraction may also cause the entire streambed to degrade to the depth of excavation.

Sand mining generates extra vehicle traffic, which negatively impairs the environment. Where access roads cross riparian areas, the local environment may be impacted.

Mitigation measures: As the proposed mining will be carried out in a scientific manner as mentioned before, not much significant impact is anticipated, however, the following mitigation measure will be taken to further minimize it:

1. The activity will mainly be carried out manually to minimize associate loss, as stated earlier.
2. No mining will be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season.
3. As the mining site has no vegetation, no clearance of vegetation is required.
4. No mining will be carried out in the vicinity of important structure like bridges, dam and other structures if any.
5. Mining will be carried out on the dry part of the lease area to avoid disturbance to the aquatic habitat and movement of fish species.
6. No mining will be carried out during the rainy season to minimize impact on aquatic life.
7. The mining activity will deploy a tractor for transportation of sand from the mine to desired destination that may cause some loss to riparian habitat. Safe site / site having least impact will be selected for transportation, all the vehicles employed for transportation purpose will be PUC certified. On closure of mining operations / during the rainy season the eroded bank will be restored / reclaimed to minimize negative impacts.
8. No lighting will be allowed in the lease area.
9. No piling of sand will be allowed in the area.
10. No discard of food, polythene waste etc. will be allowed in the lease area which would distract/attract the wildlife.
11. No night time mining will be allowed which may catch the attention of wild life.
12. Access roads will not encroach into the riparian zones and no riparian vegetation cleared off for the mining transportation of sand.

10.5. ANALYSIS OF ALTERNATIVES

10.5.1. Site Alternatives- The mine is located along the where the sand exists in enough quantity to be economically extracted. Mining locations are preferred near the markets or along the transportation route.

10.5.2 Technology alternatives: - No alternative technology only opencast Manual Mining Method will be adopted for extraction of Sand deposits.

10.6 ENVIRONMENT MONITORING PROGRAM

During the execution of the project activity, the sampling & analysis of various environmental attributes will be carried out as per guidelines of central pollution control board & State pollution control board Rajasthan. An Environment Management Cell will be set-up to implement the said program.

10.7 ADDITIONAL STUDIES

10.7.1 Risk Studies-Hazard identification and risk analysis involves identification of undesirable events that leads to a hazard, the analysis of hazard mechanism by which this undesirable event could occur and usually the estimation of extent, magnitude and likelihood of harmful effects

10.7.2 Disaster Studies:-

Proper disaster planning should be done to meet any emergency situation arising due to fire, explosion, sudden leakage of gas etc. Firefighting equipment and other safety appliances should be kept ready for use during disaster/emergency situation including natural calamities like earthquake/flood.

10.9 ENVIRONMENT MANAGEMENT PLAN

Opencast mining operation comprises of various activities related to digging and material handling which may be potential sources of environment pollution. The Sand Mine will be developed by systematically formed benches with over all pit slopes of 45° or angle of response which stabilizes the benches. Efforts will be made to suppress the dust at source by adequate watering. For this a mobile water of 2000 liters capacity will be engaged throughout the working shift.

Environmental Issue	Management Measures	Implementation
Air Environment	• To avoid fugitive dust emissions at the time of excavation, regular sprinkling of water will be done on regular basis. • Sand is transported to the sites by road through tractor trolleys. The sand carrying vehicles shall be covered by tarpaulin sheets. • The Green Belt development will be prepared along the haul roads, which will act as a pollution sink.	Project authorities through regular monitoring.

	• To minimize the vehicular pollution from the sand transporting vehicles, the following conditions will insist to permit the vehicles of the transporters	
Noise & Vibration	• Phasing out of old and worn out tractor trolleys. • Provision of green belts along the road networks. • Care will be taken to produce minimum sound during sand loading. • Use of Backhoe and ear plugs may be provided to protect the labors working at the site.	Project authorities through regular monitoring.
Water environment	• Mining is avoided during the monsoon season and at the time of floods. This will help in replenishment of sand in the river bed. • River stream will not be diverted to form in active channels. • Utmost care will be taken to minimize or control leakage vehicles to be used for sand. • Transportation. • The washing of tractor trolleys in the river will be avoided. • The contractor will follow all guidelines and rules for proper and scientific method of • mining during the period of extracting the sand.	Project authorities through regular monitoring.
Biological Environment	• Mining activities will be restricted to day-time so that fauna will not disturb at night. • Material will be covered with tarpaulin during transportation. • Water sprinkling will be done on haul roads to control fugitive emissions.	Project authorities through regular monitoring.
Occupational health & safety & public Health & safety.	• Regular water sprinkling on haul roads. • Dust mask will be provided to the workers. • Safety of the employee during mining will be taken care as per Mine regulations.	Project authorities through regular monitoring.

	• Medical records will be keep maintained.	
Socio economic environment	• Employment will be given to local people. • Regular medical camps will be organized. • Funds will be provided for development activities in nearby villages.	Regular monitoring by Project authorities.

TABLE 6: COST ESTIMATES OF EMP IMPLEMENTATION
(Investment and recurring cost in lacs /year)

S:NO	Component	Description	PIMPRI BK		KHADGAV		SONNA	
			Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs/,in Lacs/year)
1	Environmental Monitoring programme	Monitoring for Air, water, noise & groundwater	0.90	1.00	0.90	1.00	1.00	1.20
2	Air Pollution Control	Water sprinkling during mining activities	1.00	2.30	1.00	4.30	1.00	3.30
3	Approach road maintenance		0	1.20	0	1.20	0	1.20
4	Plantation (500 plants planted)	500 plants on barrier zone @ Rs 350/per plant 200 plants on approach road & village @ Rs. 150/ plant	1.85	3.10	2.95	2.50	2.42	3.50
5	Gabian structure for arresting gravels	Gabian wall with the help of old cement bags rivers pebbles etc to arrest	1.00	0.20	1.00	0.20	1.00	0.20

		erosion of boundary wall intermixing of gravels etc.						
6..	Monitoring of sand	CCTV cameras (15000x2)	0.30	0.60	0.30	0.60	0.30	060
7	Water pollution control	Construction of bund along lease boundary & mobile Toilet	0.50	nil	0.50	nil	0.50	nil
8	Noise pollution control	Plantation including Tree Guard	1.00	0.50	1.00	0.50	1.00	0.50
9	Occupational health and safety	Periodic Health check up of workers	-	1.00	-	1.00	-	1.00
TOTAL			**6.55**	**9.9**	6.55	**11.3**	**7.22**	**11.5**

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SONPETH

EXECUTIVE SUMMARY (ENGLISH)

For

SAND MINING (MINOR MINERAL) FOR FOLLOWING VILLAGES

SR.NO	NAME OF SANDGHAT	VILLAGE NAME	KHASRA NO	TOTAL LEASE AREA	Total Production/ Brass (TPA)	TOTAL PROJECT COST
1.	LASINA	LASINA RIVER SAND MINE AT GODAVARI RIVER	264, 270, 271, 276, 277, 278, 279, 300, 309, 5, 6, 8, 7, 13, 15, 35, 36, 50, 37, 51, 52, 54.	2.85	6042	1,97,81,508/-
2.	WADIPIMPALGAON	WADIPIMPALGAON RIVER SAND MINE AT GODAVARI RIVER	1, 4, 5, 12 Gayran	1.20	4240	1,38,81,760/-

OF

TALUKA:-SONPETH, DISTRICT – Parbhani (Maharashtra)

Valid for the 1 year from the date of EC-granted or until approved quantity exhausted/ Mined whichever is earlier

FOR

ENVIRONMENTAL CLEARANCE (PUBLIC HEARING)

("B" under category 1(a) of EIA Notification dated 2006, S.O. 141(E) dated 15. 01. 2016, MoEF & CC, S.O. 3611(E), Dated 25.07.2018, Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020

Applicant District Mining Officer, Parbhani
Government of India

MANTRAS GREEN RESOURCES LTD
QCI-NABET ACCREDITED EIA CONSULTANT,
Hall No.1, First Floor, NICE Sankul, MIDC
Satpur, Nashik, Maharashtra

Email: Info@mantrasresources.com,
uksharma@mantrasresources.com

Accredited by NABET: No.: - NABET/EIA/1922/RA0201/ April 18, 2022)

September – 2021

1.0 Introduction:

Executive summary is the brief of report prepared for Environmental Management Plan of Sand Spot Mines of Minor Minerals of Parbhani District, Tehsil Sonpeth by M/s. District Mining Office, Parbhani, Maharashtra (Govt. of Maharashtra). The mining is confined to extraction of sand in surrounding village of Lasina (2.85 Ha), and Wadipimpalgaon (1.20Ha) Sand is exposed in the lease area, the deposit is being done by opencast manual mining method without drilling and blasting

1.1.1 Project Identification

The sand is one of the minor minerals occurred in Parbhani district. The proposed project of sand mine by opencast method in the applied lease area of Lasina **(**2.85 **Ha), and Near village Wadipimpalgaon (1.20 Ha) Tehsil Sonpeth,** District:-Parbhani (Maharashtra). Mining Plan along with PMCP under Rule 16 (1) of MCR 2016 and PMCP under Rule 23B of MCDR 1988 is approved by Deputy Director, Directorate of Geology and Mining, Regional Office , Aurangabad vide letter no. STC-10/2020(M.P. Sand) 52 dated 04/02/2020. Proposed lease area is Government land.

1.1.2 Identification of Project Proponent

Table 1: Name and address of the Applicant

Applicant
District Mining Officer, Parbhani **(Govt. of Maharashtra)** **Gandhi Park, Parbhani, Maharashtra 431401** **Mob No:-7218655211** **Email Id:-dmocollectorpbn@gmail.com**

1.1.3 Location of Project

Table 2: Details of Project Location

Particulars	JODPARALI	WADIPIMPALGAON
Name of the applied mine area	**LASINA RIVER SAND MINE AT GODAVARI RIVER**	**WADIPIMPALGAON RIVER SAND MINE AT GODAVARI RIVER**
Near village	**Gangapimpri,(2km) waghala(3km)**	**(2 KM) , Lasina (3 KM) , Ganga Pimpri (3 KM) ,**
Tehsil	**Sonpeth**	**Sonpeth**

District	**Parbhani**	**Parbhani**
State	**Maharashtra**	
Toposheet no.	**56A/12**	**56A/12**
Latitude (N)	**19° 5'29.65"N**	**19° 6'0.82"N**
Longitude (E)	**76°30'3.88"E**	**76°31'3.25"E**

1.1.4 NEED OF THE PROJECT

The sand and gravel are one of the most important construction materials. Ensuring their availability is vital for the development of the infrastructure in the country. As the requirement of these construction materials is on rise, and as entire Parbhani district comes under the Purna-Godavari and Godavari basin the district is covered by basaltic rock due to weathering activity by river Godavari and Purna by transportation, deposition and erosion has been taken place of pre existing rock form well sorted granular sand in Parbhani district which is favourable for building construction work. This indicates enough gaps between demand & supply which provides opportunities for Government of Maharashtra to increase its production.

1.2 PROJECT DESCRIPTION

Description of Applied Lease and Mining Process

Local geology: Parbhani districts large part is occupied of rocks of Deccan trap formation, represented by of most horizontal lava flows of basaltic composition, thought to have been emplaced from fissures towards the close of the Mesozoic era, on to the lower tertiary era.

Table 3: Available Brass and Life of Mine

Name of Village	**LASINA**	**WADIPIMPALGAON**
Quantity of sand for Excavation (Brass)	6042	4240
Life of Mine	**1 YEAR**	**1 YEAR**

Proposed Working

Opencast Manual Mining Method will be adopted for extraction of Sand deposits in Godavari Bed.

Opencast Mine Working:-

As the mine lease is located in the River Bed and mineral is replenished every year. As per The Modified River bed Sand Mine Working Guidance No.11(1X) and 12 of the Notification of Revenue and Forest Department, Mantralaya Mumbai, The Government of Maharashtra wides Government Decision No. Gaukhani- 10/0615/Pra. Kra. 289/Kha

dated 03.01.2018; mining will be done manually only with the use of labours, man heads, spades (Pawadas), ghamelas/pans.

Each cycle of operation shall consist of the following operation.

i) Over Burden Removal: No overburden is anticipated. So there is no need of removal of Overburden.

ii) Digging of Sand: Digging of Sand will be done by manually by Labours with the help of Spades (Pawadas).

iii) Loading of Tractor Trolley: Loading of Tractor Trolley will be done by manually with the help of Man heads, Labours with the help of Spades (Pawadas) & Pans (Ghamelas) combination.

iv) Transportation of Sand by Tractor Trolley from River Bed Mine/Sand Ghat to Stack yard: Mine Owner will prepare the Stack yard outside the River bed or Sand Ghat on nearer road. By the use of Tractor Trolley the material will be transported from Sand Ghat to Stockyard.

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- Noise level shall be maintained with in prescribed quarry limits in the working zone (for12hr. Exposure).
- Speed of trucks entering or leaving the mine is limited to moderate speed of 10 kmph to prevent undue noise from empty trucks.
- No vibrations of notable levels will be generated

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Ground Water Quality

- District is in "SAFE" Category from Ground Water Development point of view. Detailed Ground Water Scenario for the district.
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- Parbhani district is underlain by basaltic lava flows and alluvium only. The regional Static water level in the area varies from 20 mbgl to 25 mbgl.
- Ground water extraction in the area is done mainly through dug wells and bore wells.
- The average depth range of dug wells in the area is 15.00m to 30.00 m. The average depth range of bore wells in the area is 60.00to 80.00 m.

Surface water quality

- Parbhani district has three main rivers Godavari, Purna & Dudhna etc. Godavari has tributaries like Palam, Dudhna, Purna rivers in the district. Kapra is a tributary of Purna river.

- The necessary water requirement for drinking & for water sprinkling will be met from Dug wells/Bore well outside the Sand Ghat area on purchase basis. The water is potable. There are no chances of any contamination as there is no chemical processing etc. are going to be done in the Sand Ghat area. The water analysis report of Dug well/ Bore well will be submitted to DGMMS every year. The ground water table is at upper level.

1.3.5 Soil Characteristics

The soil is rich in plant nutrients such as lime, iron, magnesium and potash. The soil is relatively rich and deep in the south especially in the Gangakhed and Pathri talukas as compared to the 6 soil in the north which is poor and shallow. The district should contrive en cashing the opportunities from rich soil. The crops are cultivated in kharif and rabbi season in the district. Generally, the Jowar, cotton, pulses, rice and oil seeds are grown in the Rabi season whereas; wheat sugarcane, bananas, turmeric etc. are cultivated in the district. Besides the crops like chilies, maize's are also cultivated in the district. Thus agriculture should be cultivated not merely a means of food but also a means of development.

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		As on Today in Ha	After 1 Years in Ha	As on Today in Ha	After 1 Years in Ha
1.	Area of top soil spread for a forestation	-	**-**	**-**	-
2.	Storage for top soil	-	**-**	**-**	-
3.	Green Belt	-	**-**	**-**	-
4.	Over burden Dump	-	**-**	**-**	-
5.	Mineral Storage	-	**-**	**-**	-
6.	Infrastructure (Workshop, Admin. Building etc.)	-	**-**	**-**	-
7.	Mine road in Mine lease area	-	**-**	**-**	-
8.	Utilized area for Sand Mining	**0.000**	**2.85**	**0.000**	**1.20**
9.	Virgin lease area for Sand Mine & Other Uses	**2.85**	**0.000**	**1.20**	**0.000**
10.	Road				
11.	Railway	-	**-**	**-**	-
12.	Tailing Pond	-	**-**	**-**	-
13.	Effluent Treatment Plant	-	**-**	**-**	-

14.	Mineral separation plant	-	**-**	**-**	-
15.	Township Area	-	**-**	**-**	-
16.	Others to specify	-	**-**	**-**	-
17.	**Ownership**	Government River	Government River	Government River	Government River
Total		**2.85**	**2.85**	**1.20**	**1.20**

1.3.6 Biological Environment

Flora - The study area is mainly dominated by Southern Dry Mixed Deciduous Forests & the study area vegetation is dominated by Aam, Babul, Bel, Bor, Chandan, Jambhul, Karnj, Neem etc.

Fauna - The faunal species commonly encountered during study within the study area are Hare, Rat, Indian fox, etc. No endemic endangered or threatened species of flora & fauna observed during study period.

1.3.7 Demography and Socio- Economics

As per census of India 2011, study area consists of 57 nos. of villages with total population of 73,897 nos. The number of households in the study area is 15,058

1.4 ANTICIPATED ENVIRONMENTAL IMPACT & MITIGATION MEASURES

10.4.1 Impact on Air Quality

The mining operations will be carried out by manual method and no machinery, drilling & Blasting will be carried out. Hence impact on air quality is not envisaged. Only tractor-trolley will be used for transportation of the sand from the ghat to nearby depot or desired destination.

The transport routes are capable for handling this additional traffic.

Mitigative Measures: Following care will be taken for air pollution control.

- Water sprinkling will be done on the roads regularly. This will reduce dust emission further by 75%.
- Care will be taken to prevent spillage by covering the carrying vehicles with tarpaulin and sprinkling of water, if dry.
- Fortnightly scraping of road in order to keep the roads almost levelled. This will ensure smooth flow of vehicles and also prevent spillage.

- Overloading will be strictly prohibited.
- Proper tuning of vehicles to keep the gas emissions under check.

Plantation of trees along the roads to help reduce the impact of dust in the nearby villages.

10.4.2 Impact on Noise Quality:-

No significant noise will be generated due to sand mining as entire operation will be carried out manually. Noise will be generated only due to tractor trolley being used in sand transportation.

Mitigation measures: The off-site receptors are not significantly affected as noise generated by sand ghat is insignificant but some disturbances due to vehicle movement may not be avoidable. The tractor trolley will be maintained in good running condition so that noise will be reduced to minimum possible level.

Speed limits will be imposed on tractor trolleys used for sand transport.

10.4.3 Impact on Water Environment:-

Mining of sand from within or near a streambed has a direct impact on the stream's physical habitat characteristics. As the project activity is carried out in the dry part of the river bed, none of the project activities affect the water environment or riparian habitats. In the projects, it is not proposed to divert or truncate any stream. No proposal is envisaged for pumping of water either from the river or tapping the ground water. In the lean months, the proposed sand mining will not expose the base flow of the river and hence, there will not be any adverse impact on surface hydrology and ground water regime due to this project. The proponent will adhere all guidelines and rules for proper and scientific method of mining during the period of extracting the sand.

Mitigation measures: The deposits occur in the middle/bottom of the river. During the lease period, the deposit will be worked from the top surface to approved depth of mining within the demarcated lease area only.

10.4.4 Impact on land Environment-

LAND ENVIRONMENT: The mining and allied activities involved in river bed mining are creation of temporary haul roads / transportation track and formation of mined pits inside river, etc. This sand mining project does not involve any waste generation. Thus no waste dump sites are needed for the project.

Mitigative Measures:

- The mining will not be carried out below the water table.

- The contractor with the satisfaction of competent authority will provide drinking water, rest shelter, first aid box and welfare facilities as per prevailing laws.
- The river bed areas dug during dry season i .e. other than rainy season will get replenished during monsoon.
- Sand/Gravel deposit in rainy season in which the material so deposited will be available for fresh quarrying.
- The contractors will abide by the Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.

10.4.5 Impact on Biological Environment

Anticipated impact and mitigation measures for biological environment

Impact Predicted	Suggestive measure
Disturbance to free movement /living of wild fauna viz. Birds, Reptiles etc.	• If birds are noticed crossing the core zone, they will not be disturbed at all; • Labourers will not be allowed to discard food, polythene waste etc., which can attract animals/birds near the core site; • Only low polluting vehicles having PUC will be allowed for carrying mining materials. • Noise level will be maintained within permissible limit (silent zone-50dB (A) during day time or residential zone 55dB (A)) as per Noise Pollution (Regulation and Control) Rules 2000, CPCB norms
Disturbance of riparian ecosystem/ wetlands	The riparian ecosystem or the wetlands will not be disturbed by the workers.
Monitoring of upstream and downstream water quality	Water quality will be monitored from upstream and downstream area once every month to assess the impact on water quality and mining activity will be controlled to maintain the clean water conditions.

Ecological Impacts: Excessive and unscientific riverbed sand mining results in the destruction of aquatic and riparian habitat through large changes in the channel morphology. Impacts include bed degradation, bed coarsening, lowered water tables near the streambed, and channel instability. These physical impacts cause degradation of riparian and aquatic biota and may lead to the undermining

of bridges and other structures. Continued extraction may also cause the entire streambed to degrade to the depth of excavation.

Sand mining generates extra vehicle traffic, which negatively impairs the environment. Where access roads cross riparian areas, the local environment may be impacted.

Mitigation measures: As the proposed mining will be carried out in a scientific manner as mentioned before, not much significant impact is anticipated, however, the following mitigation measure will be taken to further minimize it:

1. The activity will mainly be carried out manually to minimize associate loss, as stated earlier.
2. No mining will be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season.
3. As the mining site has no vegetation, no clearance of vegetation is required.
4. No mining will be carried out in the vicinity of important structure like bridges, dam and other structures if any.
5. Mining will be carried out on the dry part of the lease area to avoid disturbance to the aquatic habitat and movement of fish species.
6. No mining will be carried out during the rainy season to minimize impact on aquatic life.
7. The mining activity will deploy a tractor for transportation of sand from the mine to desired destination that may cause some loss to riparian habitat. Safe site / site having least impact will be selected for transportation, all the vehicles employed for transportation purpose will be PUC certified. On closure of mining operations / during the rainy season the eroded bank will be restored / reclaimed to minimize negative impacts.
8. No lighting will be allowed in the lease area.
9. No piling of sand will be allowed in the area.
10. No discard of food, polythene waste etc. will be allowed in the lease area which would distract/attract the wildlife.
11. No night time mining will be allowed which may catch the attention of wild life.
12. Access roads will not encroach into the riparian zones and no riparian vegetation cleared off for the mining transportation of sand.

10.5. ANALYSIS OF ALTERNATIVES

10.5.1. Site Alternatives- The mine is located along the where the sand exists in enough quantity to be economically extracted. Mining locations are preferred near the markets or along the transportation route.

10.5.2 Technology alternatives: - No alternative technology only opencast Manual Mining Method will be adopted for extraction of Sand deposits.

10.6 ENVIRONMENT MONITORING PROGRAM

During the execution of the project activity, the sampling & analysis of various environmental attributes will be carried out as per guidelines of central pollution control board & State pollution control board Rajasthan. An Environment Management Cell will be set-up to implement the said program.

10.7 ADDITIONAL STUDIES

10.7.1 Risk Studies-Hazard identification and risk analysis involves identification of undesirable events that leads to a hazard, the analysis of hazard mechanism by which this undesirable event could occur and usually the estimation of extent, magnitude and likelihood of harmful effects

10.7.2 Disaster Studies:-

Proper disaster planning should be done to meet any emergency situation arising due to fire, explosion, sudden leakage of gas etc. Fire fighting equipment and other safety appliances should be kept ready for use during disaster/emergency situation including natural calamities like earthquake/flood.

10.9 ENVIRONMENT MANAGEMENT PLAN

Opencast mining operation comprises of various activities related to digging and material handling which may be potential sources of environment pollution. The Sand Mine will be developed by systematically formed benches with over all pit slopes of 45° or angle of response which stabilizes the benches. Efforts will be made to suppress the dust at source by adequate watering. For this a mobile water of 2000 liters capacity will be engaged throughout the working shift.

Environmental Issue	Management Measures	Implementation
Air Environment	• To avoid fugitive dust emissions at the time of excavation, regular sprinkling of water will be done on regular basis. • Sand is transported to the sites by road through tractor trolleys. The sand carrying vehicles shall be covered by tarpaulin sheets. • The Green Belt development will be prepared along the haul roads, which will act as a pollution sink. • To minimize the vehicular pollution from	Project authorities through regular monitoring.

	the sand transporting vehicles, the following conditions will insist to permit the vehicles of the transporters	
Noise & Vibration	• Phasing out of old and worn out tractor trolleys. • Provision of green belts along the road networks. • Care will be taken to produce minimum sound during sand loading. • Use of Backhoe and ear plugs may be provided to protect the labors working at the site.	Project authorities through regular monitoring.
Water environment	• Mining is avoided during the monsoon season and at the time of floods. This will help in replenishment of sand in the river bed. • River stream will not be diverted to form in active channels. • Utmost care will be taken to minimize or control leakage vehicles to be used for sand. • Transportation. • The washing of tractor trolleys in the river will be avoided. • The contractor will follow all guidelines and rules for proper and scientific method of • mining during the period of extracting the sand.	Project authorities through regular monitoring.
Biological Environment	• Mining activities will be restricted to day-time so that fauna will not disturb at night. • Material will be covered with tarpaulin during transportation. • Water sprinkling will be done on haul roads to control fugitive emissions.	Project authorities through regular monitoring.
Occupational health & safety & public Health & safety.	• Regular water sprinkling on haul roads. • Dust mask will be provided to the workers. • Safety of the employee during mining will be taken care as per Mine regulations. • Medical records will be keep maintained.	Project authorities through regular monitoring.

Socio economic environment	• Employment will be given to local people. • Regular medical camps will be organized. • Funds will be provided for development activities in nearby villages.	Regular monitoring by Project authorities.

TABLE 6: COST ESTIMATES OF EMP IMPLEMENTATION
(Investment and recurring cost in lacs /year)

S.No	Particulars	Description	LASINA		WADIPIMPALGAON	
			Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)
1	Environmental Monitoring programme	Monitoring for Air, water, noise & groundwater	0.90	1.00	0.80	1.00
2	Air Pollution Control	Water sprinkling during mining activities	1.00	3.80	1.00	3.50
3	Approach road maintenance		0	1.30	0	1.20
4	Plantation (750 plants planted)	750 plants on barrier zone @ Rs 350/per plant 200 plants on approach road & village @ Rs. 150/ plant	3.32	4.90	2.24	4.55
5.	Gabian structure for arresting gravels	Gabian wall with the help of old cement bags rivers pebbles etc to arrest erosion of boundary wall intermixing of gravels etc.	1.00	0.20	1.00	0.20
6.	Monitoring of Sand	CCTV cameras (15000x2)	0.30	0.60	0.30	0.60
7.	Water pollution control	Construction of bund along lease boundary & mobile Toilet	0.50	Nil	0.50	Nil
8.	Noise pollution control	Plantation including Tree Guard	1.00	0.50	1.00	0.50

9.	Occupational health and safety	Periodic Health check up of workers	**-**	**1.00**	**-**	1.00
Total =			**8.02**	**13.3**	**6.84**	**12.55**

TABLE 7: MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

Particulars	**Monitoring Frequencies**	**Duration of Station**	**Important Monitoring Parameters**
Surface water / Tube well	Twice in a year	Grab	pH, SS, TDS, Iron, Hardness, Alkalinity Chlorides, Nitrates Sulphate & Fluorides
Ambient air monitoring	Twice in a year	24 hr.	PM10, PM2.5, SOx and NOx
Noise Pollution	Twice in a year	-	Level in dB(A) and dB(C)
Working environment	Once in a year	-	PH, Conductivity, Sulphate, Nitrate, Phosphates, Alkalinity & texture