

**EXECUTIVE SUMMARY ON  
DRAFT ENVIRONMENTAL MANAGEMENT PLAN**

**FOR**

**SAND GHATS**

**AT**

**LATUR DISTRICT**

**STATE – MAHARASHTRA**

**FOR PUBLIC HEARING FOR 05 SAND GHATS**

**PROPONENT**

**DISTRICT MINING OFFICER, COLLECTOR OFFICE, LATUR**

**CONSULTANT**

**ENVIRO TECHNO CONSULT PRIVATE LIMITED**

68,MAHAKALI NAGAR-2  
NEAR MANEWADA SQUARE  
NAGPUR 440 024

**JUNE 2020**

**Introduction :**

District Collector, Latur intends to auction sand ghats and appointed District Mining Officer Latur as project proponent as per sand mining guidelines dated 03.09.2019. Total 05 sand ghats are identified by Taluka level Technical Committee chaired by Tahsildar and Dy. Engineer Irrigation, Junior Geologist, Directorate of Geology and Mining, Junior Geologist G.S.D.A., representative of Maharashtra Pollution Control Board for scooping of sand by manual method.

List of sand ghats proposed for auction prior environmental clearance are as below

Table 1.0 Details of Sand Ghat :

**Table 1.0 Details of Sand Ghat :**

Sr. No.	Taluka	Name of Sand Ghat	Name of Village	Name of River/Stream	Nearest Gut no.	Dimensions of Sand Ghat			Area of sand Ghat in Ha.	Sand Proposed for scooping in Brass	Length of Approach Road in m.	Width of Approach in m	No. of Workers	No. of Tractors	No of Trees along Bank	No of Trees along village Road	Water Requirement in cum/day	EMP cost in Rs.
						Length	Width	Depth										
1	Latur	Salgara	Salgara	Manjara	384,385	170 m	18 m	0.5 m	0.3060	541	900	6	28	2	35	363	1.560	650300.00
2	Latur	Umarga	Umarga	Manjara	128	160 m	23 m	0.5 m	0.3680	650	790	6	28	2	35	315	1.560	641000.00
3	Renapur	Andalgaon	Andalgaon	Manjara	77,94	180 m	20 m	0.5 m	0.3600	636	1200	6	28	2	35	480	1.560	763500.00
4	Deoni	Batanpur	Batanpur	Manjara	48,49,50	210 m	25 m	0.5 m	0.5250	928	870	6	28	2	45	350	1.560	663500.00
5	Deoni	Gaudgaon	Gaudgaon	Manjara	83,84	250m	20 m	0.5 m	0.5000	883	740	6	28	2	50	300	1.560	631000.00

● **Status of Statutory Clearances for Sand Ghat**

Name & Address of Allottee	District Mining Officer Latur / Successful Bidder Latur District, Latur
Status of the lease	New, Individual/ Project Proponent/Succesful Bidder for auction of sand ghat by District Collector Latur.
Mineral for which lessee intends to mine	Ordinary Sand for Construction purpose
Name & Address of the Prospecting Agency	Taluka level Technical Committee chaired by Tahsildar and Dy. Engineer Irrigation, Junior Geologist, Directorate of Geology and Mining, Junior Geologist G.S.D.A., representative of Maharashtra Pollution Control Board.
Grampanchayat NOC	Received from Gramsabha as per public consultation procedure defined in sand mining guidelines of Maharashtra State dated 03.09.2019.
Plan Period for Activity	Up to one year from the date of allotment of sand ghat or up to scooping of Allotted/Permitted quantity mined out, whichever is earlier excluding stipulated monsoon period between 10 June -30 September

● **Method of Mining :**

The mining will be manual opencast mining method of scooping using simple tool like spade/pawdas.

- a. Over burden/Soil Removal:  
No overburden/Soil is anticipated.
- b. Scooping of Sand /Loading  
The ordinary sand will be loaded manually by labours.
- c. Hauling  
Ordinary sand is transported through tractors /trucks with permissible quantity.
- d. No machinery will be utilized.
- e. Period of scooping of sand will be for one year excluding monsoon period of 10<sup>th</sup> June -30<sup>th</sup> Sept or as defined by district collector.

**Executive summary Latur Sand Ghats**

- About 28 labours per sand ghat will be required.
- The site services will be provided by allottee/Successful Bidder, Office, First Aid and Rest Shelters will be temporarily constructed 20m away from the bank of river.
- Applied area for sand extraction is covered by dark basalt and which has been derived/ transported from black basalt of surrounding flat and well tilled area. The sand of the applied area is found to be underlain by dark basalt of the river bed.
- Anticipated Environmental impacts and Management Plan

**A summary of air pollution control measures is given below:**

S. No	Impact Source	Impact	Control measure
1	Transport Road	On Air Quality On Land / Rd stability/ Rd degradation	<ul style="list-style-type: none"> <li>• Compaction, gradation and drainage on both sides &amp; development of green belts</li> <li>• Proper maintenance.</li> <li>• Regular water spraying.</li> <li>• Avoiding over filling of tractor and consequent spillage on the roads</li> <li>• Air quality will be monitoring at impacted village.</li> </ul>
2	Truck/ Tractor Movement	Air Quality	<ul style="list-style-type: none"> <li>• No overloading of trucks.</li> <li>• Sand carrying trucks will be effectively covered by tarpaulin to avoid escape of fines to the atmosphere.</li> <li>• Enforcing speed limit.</li> <li>• Regular monitoring of the exhaust fumes.</li> <li>• No Engine of tractor/truck will be kept on during the filling.</li> <li>• If possible entry be restricted to river bed</li> </ul>
3	Ramp and Sand Reach	Mining Operations	<ul style="list-style-type: none"> <li>• Regular ramp Inspection and Ramp maintenance</li> <li>• Provision of dusk masks.</li> <li>• Mining will be done during day time between fixed</li> </ul>

			hours only.
4	Bank Management	Bank Erosion/ Flood Plain management	<ul style="list-style-type: none"> <li>• Green belt along bank</li> <li>• Plantation of wide leaf tall trees on banks and grass along slanting portion of bank.</li> </ul>

● **Occupational Health and Services**

1	Occupational Health & Safety Measures to Control Dust Inhalation	Safety of Workers and Mining Operations	<ul style="list-style-type: none"> <li>• Providing a working environment that is conducive to safety &amp; health</li> <li>• The management of occupational safety &amp; health is the prime responsibility of mine owner.</li> <li>• Provision of necessary personal protective equipments</li> <li>• Ensuring employees at all levels receive appropriate training and are competent to carry out their duties and responsibilities</li> <li>• Provision of First Aid and Drinking Water, Temporary rest Room</li> </ul>
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● **Noise control measures will be provided in the proposed crushing and screening plant.**

- In addition, personnel working near high noise level generating sources will be provided with ear muffs
- No equipment generating Noise excluding tractor/truck will be permitted.
- No tractor engine will be kept idle.
- Conduct periodic audiometric tests for employees working close to high noise generating areas such as compressors, the loading and unloading sections, etc
- Provision of PPE's will be made and their proper usage will be ensured for hearing protection of the workers as well as visitors.

● **Traffic Management**

- The mineral transporting vehicles will be registered with the forest department/revenue department and only registered vehicles will be used for mineral transport.
- The PUC certificate for exhaust emissions for all the transport vehicles will be made mandatory.
- All the vehicles will be properly maintained to control emissions and noise generation.
- Drivers of all the vehicles will strictly follow traffic rules.
- Speeds of the mineral transport vehicles will be regulated.
- Overloading of the tractors will not be allowed
- The mineral transporting tractors will be properly covered with tarpaulin to avoid fugitive emissions.
- Batch transport system will be adopted in consultation with the other sand ghat operators in the area to avoid excess traffic at a time on the road.
- Mineral transportation will be done only during day time only.
- Strict action will be taken against any driver, who do not comply the traffic rules.

● **Plantation program**

It is proposed to plant local species during the monsoon period along bank of river and village roads.

List of Species Proposed for green Belt Development

Local species like Neem, peepal, subabul, Karanj, Gulmohar etc will be planted.

- Successful Bidder/ Sand Ghat allottee will implement the Environmental Management Plan for the amount as per Table 1.0 on his own.

Successful Bidder/ Sand Ghat allottee will submit compliance to terms of conditions stipulated in the prior environmental clearance to the District Mining Officer and respective Tahsildar with

the expenses made on implementation of environmental management plan.

**District Mining Officer/respective Tahsildar will monitor the implementation of approved environmental management plan along with District Level Committee headed by District Collector as stipulated in Sand Mining Rules 2019.**



# ENVIRONMENTAL MANAGEMENT PLAN

FOR

SAND GHATS

AT

LATUR DISTRICT

STATE – MAHARASHTRA

Sr. No.	Name of Sand Ghat	Tahsil	Name of River	Nearest Gut No.	Area in Ha	Area in cum.	Available Sand in Brass	Location	
						LxBxD (m <sup>3</sup> )		Latitude	Longitude
1	Salgara	Latur	Manjara	384,385	3060 sqm.	170m x 18 m x 0.50 m	541	18°19' 57.2786"N	76°41' 33.7071"E

PROPONENT

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## Section 1.0 : Introduction to Sand Ghat

### 1.0 Introduction :

District Collector, Latur intends to auction sand ghats and appointed District Mining Officer Latur as project proponent as per sand mining guidelines dated 03.09.2019 Total 5 sand ghats were identified by Taluka level Technical Committee chaired by Tahsildar and Dy. Engineer Irrigation, Junior Geologist, Directorate of Geology and Mining, Junior Geologist G.S.D.A., representative of Maharashtra Pollution Control Board. Out of 55 sand ghats surveyed by Taluka level technical committee as per procedure defined in Sand Auction Rules 2019 dated 3.09.2019. Explored 5 sand spots out of surveyed 55 found feasible for sand scooping. Revenue of Rs 42.56 Lakhs is expected from the auction of these sand ghats.

Salgara sand ghat proposed (over river Manjara) in Latur taluka is one of the two sand ghats proposed to cater infrastructural requirement of sand in the tahsil of Latur and adjoining areas of other talukas. All five sand ghats are on Manjara river. Details of Latur taluka Sand Ghat is as below

Table 1.0 Details of Sand Ghat :

Sr. No.	Name of Sand Ghat	Tahsil	Name of River	Nearest Gut No.	Area in Ha	Area in cum.	Available Sand in Brass	Location	
						LxBxD (m <sup>3</sup> )		Latitude	Longitude
1	Salgara	Latur	Manjara	384,385	3060 sqm.	170m x 18 m x 0.50 m	541	18°19' 57.2786"N	76°41' 33.7071"E

Table 2.0 All corner Coordinates of Sand Ghat :

Sr. No.	Latitude	Longitude
BP-1	18°19' 57.2786"N	76°41' 33.7071"E
BP-2	18°19' 56.7791"N	76°41' 33.3874"E
BP-3	18°19' 58.4819"N	76°41' 30.4702"E
BP-4	18°19' 59.2319"N	76°41' 28.2332"E
BP-5	18°19' 59.7843"N	76°41' 28.4363"E
BP-6	18°19' 59.0343"N	76°41' 30.6992"E

Table 3.0 Environmental Sensitivity of Sand Ghat :

Sl. No.	Areas	Distance in kilometer / Details
1	Distance of project site from nearest rail or road bridge over the concerned River,Rivulet, Nallah etc.	Bridge on Manjra river -1.79 km NW
2	Distance from infrastructural facilities Railway line National Highway State Highway Major District Road  Any Other Road  Electric transmission line pole or tower Canal or check dam or reservoirs or lake or ponds In-take for drinking water pump house Intake for Irrigation canal pumps	Latur- 14 Km NW 12.25 km NW NH204-10.9 Km NW SH145 – 2.745 Km SW Bokangaon Bindgihal Road– 0.527 Km E  Vil Rd-0.420km NE 15 km Check dam - 2.084 Km NW 2.084 Km NW 2.084 Km NW
3	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	--
4	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	No wetland is notified in district, Manjra river, Biosphere -Pachmadi 305 km N Mountain- Balaghat Range
5	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	--
6	Inland, coastal, marine or underground waters	Manjra river , Coastal Area -400 Km West, Marine Water -490 Km West
7	State, National boundaries	Karnataka-32 Km SE
8	Routes or facilities used by the public for access to recreation or other tourist,pilgrim areas	--
9	Defence installations	--
10	Densely populated or built-up area, distance from nearest human habitation	Salgara (Bu.) – 0.312 Km E
11	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Latur- 14 Km NW

12	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism,minerals)	Manjra river ,
13	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	Not within 5 km study area
14	Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions)	Though Latur is under Seismic zone III, it is mentioned as high risk zone as per pervious earthquake record by Govt. of India
15	Is proposed mining site located over or near fissure / fracture for ground water recharge	Not within 5 km study area
16	Whether the proposal involves approval or clearance under the following Regulations or Acts, namely:- (a) The Forest (Conservation) Act, 1980; (b) The Wildlife (Protection) Act, 1972; (c) The Coastal Regulation Zone Notification, 2011. If yes, details of the same and their status to be given.	Not within 5 km study area
17	Forest land involved (hectares)	No
18	Whether there is any litigation pending against the project and/or land in which the project is propose to be set up? (a) Name of the Court (b) Case No. (c) Orders or directions of the Court, if any, and its relevance with the proposed project.	No

Table 4.0 Status of Statutory Clearances for Sand Ghat

2.1	Name of Sand Mine (Ghat)	Salgara Sand Ghat Tq. Latur Dist. Latur
2.2	Name & Address of Allottee	District Mining Officer Latur / Succesful Bidder Latur District, Latur
2.3	Status of the lease	New, Individual/ Project Proponent/Succesful Bidder for auction of sand ghat by District Collector Latur.
2.4	Mineral for which lessee intends to mine	Ordinary Sand for Construction purpose
2.5	Name & Address of the Prospecting Agency	Taluka level Technical Committee chaired by Tahsildar and Dy. Engineer Irrigation, Junior Geologist, Directorate of Geology and Mining, Junior Geologist G.S.D.A., representative of Maharashtra Pollution Control Board.
2.6	Mining Plan Approval	STC-10/2020(MP Sand/123 dated 22.06.2020
2.7	Grampanchayat NOC	Received from Gramsabha as per public consultation procedure

		defined in sand mining guidelines of Maharashtra State dated 03.09.2019.
2.8	Plan Period for Activity	Up to one year from the date of allotment of sand ghat or up to scooping of Allotted/Permitted quantity mined out, whichever is earlier excluding stipulated monsoon period between 10 June -30 June

Google Image for Sand Ghat (600 m Area) :



Figure -1 : Google Image

Proposed Approach Road for Sand Ghat on Google Image



Figure -2 : Approach Road on Google Image

Approach road available over pandan rd of 0.90Km connecting Tondoli rd.



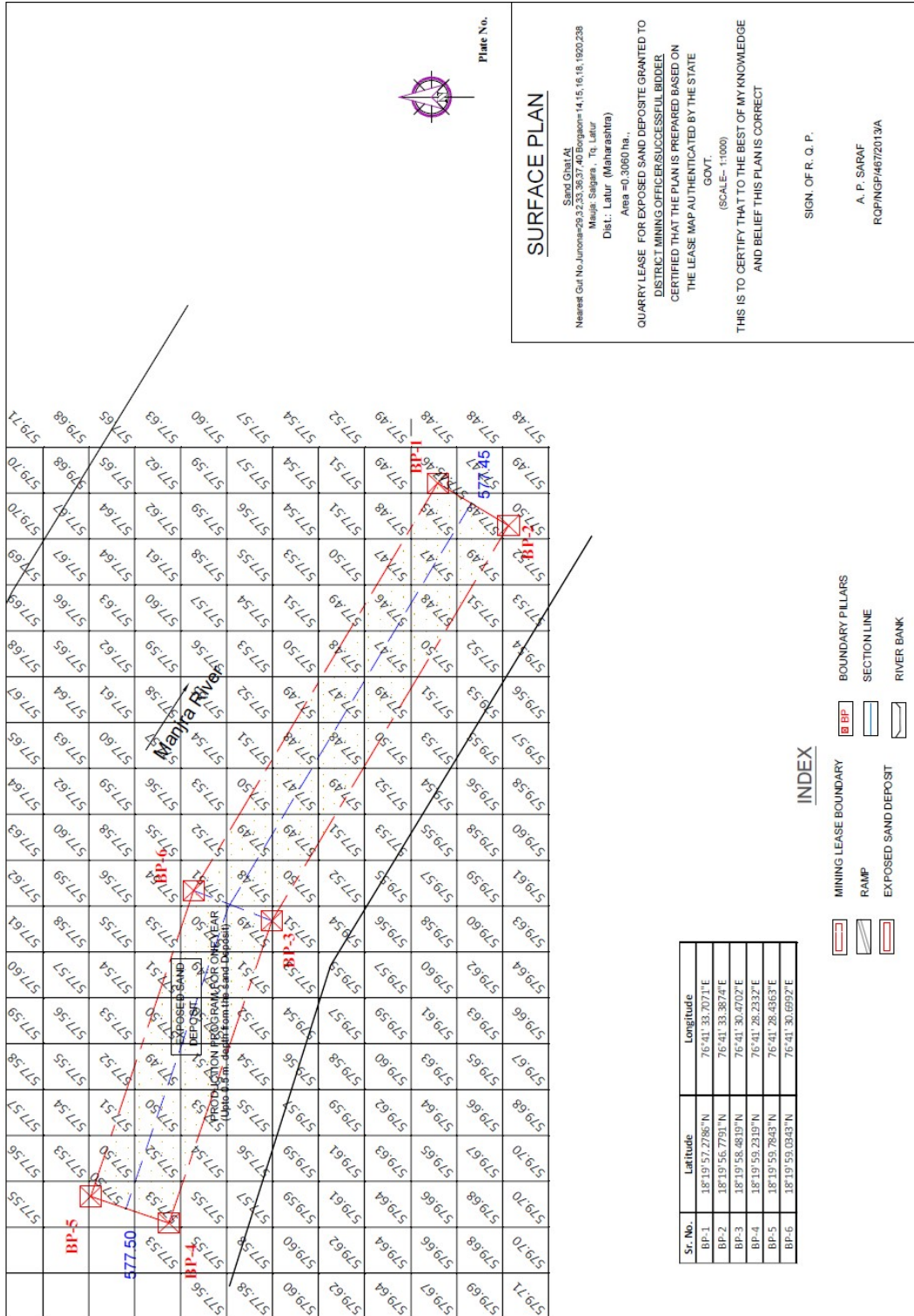
## Section 2.0 : Project Description and Method of Mining

### 2.0 Project Description :

**Need for the project:** The sand ghat area has been selected in view of its existing demand for Building Grade sand for the area in and around **Latur** Tahsil. District Mining Officer Latur has proposed for the production of 3638 Brass of sand by proposing to follow a systematic mining process with respect to the market scenario. The individual sand reserve at the ghats as per GSDA survey is as under.

Sr. No.	Name of Sand Ghat	Tahsil	Name of River	Nearest Gut No.	Area in Ha	Area in cum.	Available Sand in Brass	Location	
						LxBxD (m <sup>3</sup> )		Latitude	Longitude
1	Salgara	Latur	Manjara	384,385	3060 sqm.	170m x 18 m x 0.50 m	541	18°19' 57.2786"N	76°41' 33.7071"E

# Surface Plan for Salgara Sand Ghat:



## 2.1 Method of Mining :

The mining will be manual opencast mining method of scooping using simple tool like spade/pawdas.

- a. Over burden/Soil Removal:  
No overburden/Soil is anticipated.
- b. Scooping of Sand /Loading  
The ordinary sand will be loaded manually by labours.
- c. Hauling  
Ordinary sand is transported through tractors /trucks with permissible quantity.
- d. No machinery will be utilized.

## 2.2 Period of Mining :

Period	Area x Depth (cu.m.)
Up to one year from the date of allotment of sand ghat or up to scooping of Allotted/Permitted quantity mined out, whichever is earlier excluding stipulated monsoon period between 10 June -30 September of the calendar year and the rainy days	170m x 18 m x 0.50 m

## Appearance of Sand Ghat





### 2.3 Manpower Requirement

About 28 labors are required to carry out the scooping activity.

Sr. No.	Category	Nos.
1	Mining Supervisor	3
2	Tractor Drivers and Helpers	10
3	Mining Labors	5
4	Ramp Maintenance	5
6	Support Staff/Labors	5
	<b>Total</b>	<b>28</b>

### 2.4 Amenities :

The site services will be provided by allottee/Successful Bidder, Office, First Aid and Rest Shelters will be temporarily constructed 20m away from the bank of river.

Facility of mobile toilet with water tank of 250 ltr. will be provided at 150m away from river bank. Arrangement for periodic disposal of collection tank of mobile toilet will be ensured or otherwise toilet will be acquired on rent for workers. Sewage will be disposed off by handing over to Municipal/authorized Sewage treatment agency.

### Requirement of Water for Dust Suppression & Domestic Purposes

Total water requirement for various activities during sand scooping is estimated as 1.560m<sup>3</sup>/day per sand ghat. The water will be required for dust suppression, plantation, domestic use. The activity-wise break up of the total water requirement is given below:

<b>Purpose</b>	<b>Qty Required m<sup>3</sup>/day</b>
Dust suppression/ Plantation	1.0
Domestic Use	0.560
<b>Total</b>	<b>1.560</b>

Water will be sourced from Grampanchayat Borewells on payment per litre cost basis. Drinking water will be provided from RO water suppliers.

## 2.5 Existing & Proposed Land Use Pattern :

Area	Existing Land Use sq. m.	Proposed Land Use sq. m.
Area under pits	00	3060
Area under dumps	00	00
Undisturbed Area	3060	00
Area under Roads	00	00
Area under Plantation	00	00
Area under Storage	00	00
Area under Office, etc.	00	00

## 2.6 Existing Flora & Fauna :

Local varieties of bushes like dhavda, neem, tarota observed in the area. Mainly agricultural activity observed for Jowar, patches of toor. Natural fauna like fishes observed in the course of water stream during the monsoon period. Mice, rabbits, lizards etc found in the nearby farms find during survey whereas no endangered wild life observed. No turtle nesting observed or recorded during the survey and on records.

## 2.7 Local Geology :

Applied area for sand extraction is covered by dark basalt and which has been derived/ transported from black basalt of surrounding flat and well tilled area. The sand of the applied area is found to be underlain by dark basalt of the river bed.

## 2.8 Mine Closure Plan :

Sand scooping is permitted for one year from the date of auction excluding monsoon period between 10<sup>th</sup> June-30<sup>th</sup> September policy dated 03.09.2019 of Govt. of Maharashtra only. Before surrender of Sand Ghat to District Authority, mine closure is proposed which will help to replenish the sand during the monsoon period when there will be live flow of water in the river channel.

Guidelines As per Indian Bureau Of Mines for Final Mine Closure of Sand Ghat:

Mineral is replenish able during each monsoon. No manual reclamation is proposed.

Method of SandTraps Emplace Gabions (1m height) at 200 m intervals to function as sand traps during final closure of Mine is proposed as per Sand Mining Guidelines of IBM vide letter 296/7/2000/MRC dated 16May 2011.

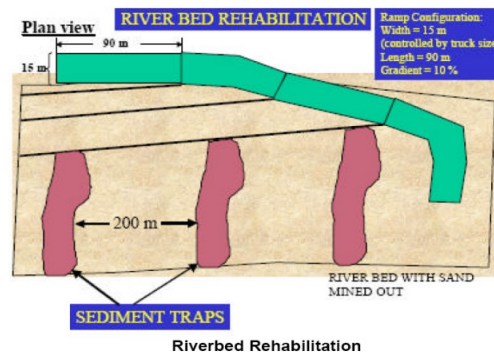


Figure -3

#### Final Closure Action Plan for Sand Ghat

- (1) Leave the area from which the sand has been extracted leveled and free of any foreign debris or materials.
- (2) Re-vegetate indigenous plants which were removed from areas for the mining of sand as far as is reasonably practical.
- (3) Plant trees along the riverbanks with no or minimal vegetation, irrespective of signs of erosion or not (ensure that species selected are indigenous species).
- (4) The surface of stockpile and sand processing areas outside the riverbed to be scarified to a depth of 500 mm, graded evenly and the topsoil previously stored, returned to its original depth over the area.
- (5) Prepare the area in such a way as to stimulate / ensure the re-growth of vegetation.
- (6) Prepare Sand Traps Emplace gabions (1 m height) at 200 m intervals to functions as sand traps. Boulders dug out during mining should be used for this purpose. Gabions would have to be placed at one kilometer (at the maximum) intervals on the mined out areas. The shorter gabion intervals would induce faster rehabilitation. Gabions are preferred over concrete because they would allow water to flow through, are a more natural solution. Also additional gabions can be easily laid to increase the trap height. Figure-3 is a drawing that illustrates river bed rehabilitation.
- (7) Any access routes, especially if they are not beneficial to the local community would need to be ploughed and replanted with native species.
- (8) Close and restore river bank where access ramps have been restored. Ensure river channel is not obstructed and that repaired bank is adequately fortified.



## Section 3.0 : Anticipated Impacts and Management

### 3.1 Anticipated Impacts and Management

The impacts envisaged due to mining activity are evaluated based on various factors. The emission inventory of the pollutants is as follows, the main air pollutant would be dust or particulate matter generated by handling and transportation of ore. The persons employed at the above areas are likely to get lung related diseases like silicosis, after prolonged exposure to the sand particles without protective measures. But the impact of mining operations on air quality is negligible as mining involved is only scooping of sand deposits from the river bed manually and not at large scale.

#### 3.1.1 Dust Generation and Control

There is mere possibility of dust generation due to the proposed scooping of Building Grade sand from river bed manually.. There is a possibility of dust generation due to the frequent movement of public transport vehicles and tippers carrying the Building grade sand on haulage & transport road. The envisaged production of Building Grade Sand during the plan period is only 541 Brass/annum from the proposed sand ghat.

- Incremental GLC is predicted using USEPA equation considering pollution sources like transportation and mining and modeled using AERMOD-ISCST-3 model

#### Area Source Emission Factor Considered

Sr. No.	Activity	Emission Factor Kg/T
1	Loading & Transportation	@0.0005 Kg/T

Refer Chapter -11 19.2 of EPA emission manual.

Being all the sand ghats are nearby and on one stretch of river, average scooping is considered for prediction of incremental ground level concentration. Average production is calculated as **17 Tonnes/Sand** Ghat/day for 260 operational days.

### Area Source Emission-Production and Development

Description	Statistics
Quantity ,TPA	4286 TPA
Operational Days per Year	260 Days
Lead (m)	900 m

### Predicted Emission

Activity	Emission rate gm/sec
Transportation	0.024808356
<b>Total</b>	<b>0.024808356</b>

#Emission factor computed on wind speed of 1 m/sec, moisture 10% & Silt content 15 %

**Accordingly Maximum incremental GLC is predicted as 0.5418µgm/cum.**

Predicted Ground Level Concentrations due to Scooping of Sand is summarized as :

Sr. No.	Name of Village	Tahsil	Name of River	Predicted incremental GLC in terms of PM <sub>10</sub>
1	Salgara	Latur	Manjara	0.5418 µgm/cum

Predicted levels of PM<sub>10</sub> were found to be within permissible limits as per NAAQ standards.

In order to mitigate fugitive dust emissions and other air emissions from the project activities, the following measures are proposed to be adopted.

- The mining haulage area will be wetted by water spraying and two 1 KL mobile sprinklers

- To avoid fugitive dust emissions at the time of Screening activity, Sand screening activity will be carried so as to prevent spreading of dust.
- Effective dust suppression arrangements will be made at the ground level sand bunkers at the mines.
- Sand is transported by road through trucks. The sand will be in wet condition however if dry sand is being transported it will be wetted after loading in to the truck and shall be covered by tarpaulin sheets.

To minimize the vehicular pollution from the sand transporting vehicles, the following conditions are insisted to permit the vehicles of the transporters:

- The vehicles should be with good engine condition and should maintain pollution control certificate issued by appropriate authorities.
- Regular maintenance of transport vehicles and monitoring of vehicular emission levels at periodical intervals.
- Ambient Air quality Monitoring will be carried out at four stations on fortnightly basis to assess the air quality in and around the project for taking necessary control measures.
- Green belt development along the access roads at mine premises and near the sand mining site

### **3.1.2 Impact due to Noise Pollution and its Management**

Noise environment in this project will be affected only by the equipment at the site and vehicular transportation. Since mining is done manually, increase in noise levels is marginal and only due to transport activities.

In order to mitigate noise generation from the project activities, the following mitigation measures are proposed:

Since the noise generating is only through movement of vehicles, strict compliance to periodical maintenance of the vehicle conditions will be insisted.

Noise monitoring at the work places shall be carried out on fortnightly basis to ensure the compliance.

### **3.1.3 Impact due to Water Pollution and its Management**

As the project activity is carried out in the meandering part of the river bed, none of the project activities will affect the water environment. Sand is in exposed stage to scoop out and away from the river stream. In this project, it is not proposed to divert or truncate any stream. 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. As per the Government recommendations the sand in riverbed will be extracted up to 0.5-0.7 m depth only.

Thus, the project activities will not have any adverse effect on the physical components of the environment and therefore may not have any effect on the recharge of ground waters or affect the water quality.

In order to ensure that the project activities shall not affect the Water environment, the following measures will be taken up:

- Mining is avoided during the monsoon season and at the time of floods. This will help in replenishment of sand in the river bed.
- Mining below subterranean water level will be avoided as safe guard against environmental contamination and over exploitation of resources.
- River stream will not be diverted to form in active channels.
- Ground water levels will be monitored regularly in and around sand mining project.
- Mining schedule is synchronized with the river flow direction and the gradient of the land.
- Mining at the concave side of the river channel will be avoided to prevent bank erosion.
- Meandering segment of river will be selected for mining in such a way to avoid natural eroding banks and to promote mining on naturally building meander components.

- Mining depth shall be maintained as per the guidelines and rules of Sand Mining Policy dated 03.09.2019 and recommendations of M.S.. State Ground Water Department for extraction of sand during the lease period.
- Water Quality Monitoring for the ground waters, river water and other surface waters shall be carried out seasonally to ensure that the water quality is not affected by the project activities.

**Mitigation Measures to improve River Health (Manjara River)**

- Municipal authorities must arrest their solid, liquid discharge at their own treatment facilities and should avoid these hazardous matters to drain in to river.
- Awareness campaign in the local people must be floated implement river management.

**3.1.4 Impact on Land and its Management**

Movements of vehicles sometimes cause problems to agricultural land, human habitations, noise and movement of public and also cause traffic hazards. The impacts include damage of river bank due to access ramps to river bed, soil erosion, micro disturbance to ground water, possible inducement of changed river course, contamination of sand aquifer water due to ponding. However there may not be any direct impact on soil quality of the area as the scooping activity is restricted to exposed sand ghat keeping at safe distance of 20m from bank of the river.

**Proposed Mitigation Measures**

- Minimum number of access roads to river bed for which cutting of river banks will be avoided and ramps are to be maintained. Access points to the river bed will be decided basing on least steepness of river bank and least human activity.
- Haulage roads parallel to the river bank and roads connecting access to river bed will be made away from bank, preferably 25 m away.

- Mining at the concave side of the river channel should be avoided to prevent bank erosion. Similarly, meandering segment of a river to be selected for mining in such a way so as to avoid natural eroding of banks
- Care will be taken to ensure that ponding is not formed in the river bed.
- Access roads from public roads and up to river bank will be aligned in such a way that it would cause least environmental damage.
- Green belt will be developed along the access roads near the sand mining site. While selecting the plant species, preference will be given for planting native species of the area.
- Villagers will be encouraged in the plantation activities by means of social forestry.

### **3.1.5 Impact on Socio Economic Environment**

The project activities shall not have any adverse impacts on any of the common property resources of the village communities, as the sand mine lease area is not being used for any purpose by any section of the society in this region. Also the proposed sand ghat is away from public utilities like bridges, water supply schemes etc. There is no R & R involvement in this project. There is no land acquisition in this project.

The Project is expected to yield a positive impact on the socio-economic environment. It helps sustain the development of this area including further development of infrastructure facilities.

### **3.1.6 Impact on Ground Water Level of Surrounding Area**

Scooping of sand beyond the proposed scooping depth may deplete the ground water level of the area. Hence the maximum scoopable depth of sand is restricted keeping sand bed of 2m. The scoopable limit of Sand for proposed **Salgara sand** ghat is 0.5m keeping 2.0m bed depth of sand. Total Sand depth available is 2.5m.

Survey Committee includes member from GSDA, Latur and approved the depth by monitoring impact of proposed scooping of sand on ground water levels of the area.

### **3.1.7 Sand Replenishment Studies**

Physical monitoring requirements of sand extraction activities should include surveyed channel cross-sections, longitudinal profiles, bed material measurements, geomorphic maps, and discharge and sediment transport measurements.

In addition to local monitoring for replenishment at specific mining sites, monitoring of the entire reach will provide information on the cumulative response of the system to sand extraction.

Because the elevation of the bed of the channel is variable from year to year, a reach-based approach to monitoring will provide a larger context for site-specific changes.

If long-term monitoring data show that there is a reach-scale trend of bed lowering the extraction could be limited.

#### **Sand Replenishment**

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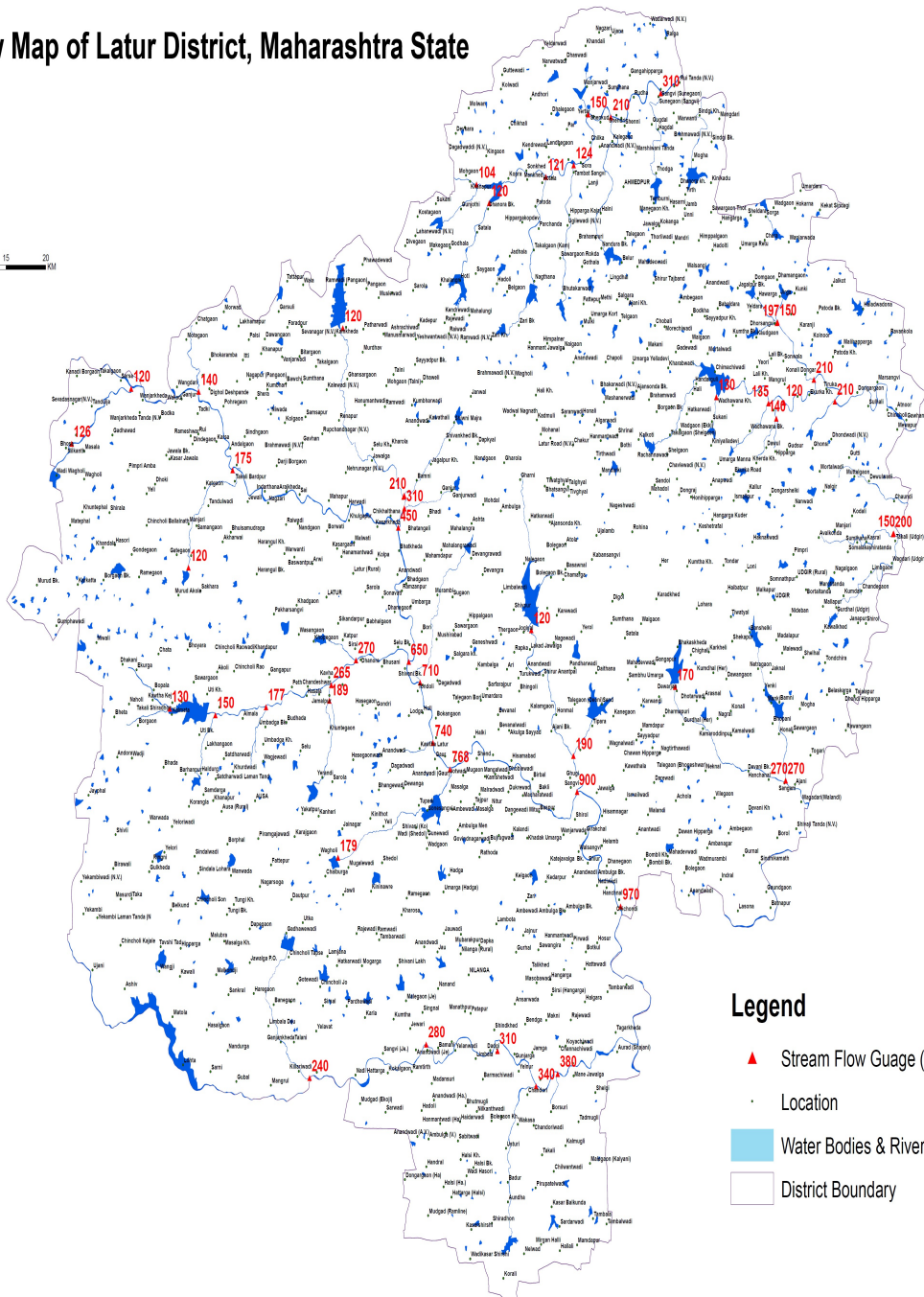
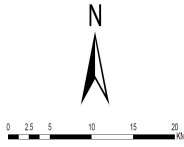
Because the elevation of the bed of the channel is variable from year to year, a reach-based approach to monitoring will provide a larger context for site-specific changes.

If long-term monitoring data show that there is a reach-scale trend of bed lowering the extraction could be limited.

A concurrent type cup flow meter with fish weight of 10 kg with auto data logger is used to record the stream flow velocity.

A Punjab type silt sampler was used to collect the surface water sample for measuring the silt. Silt sample is calibrated to collect surface water sample of 1 ltr. with required arrangements to collect the surface water. Data is interpreted as below

# Stream Flow Map of Latur District, Maharashtra State



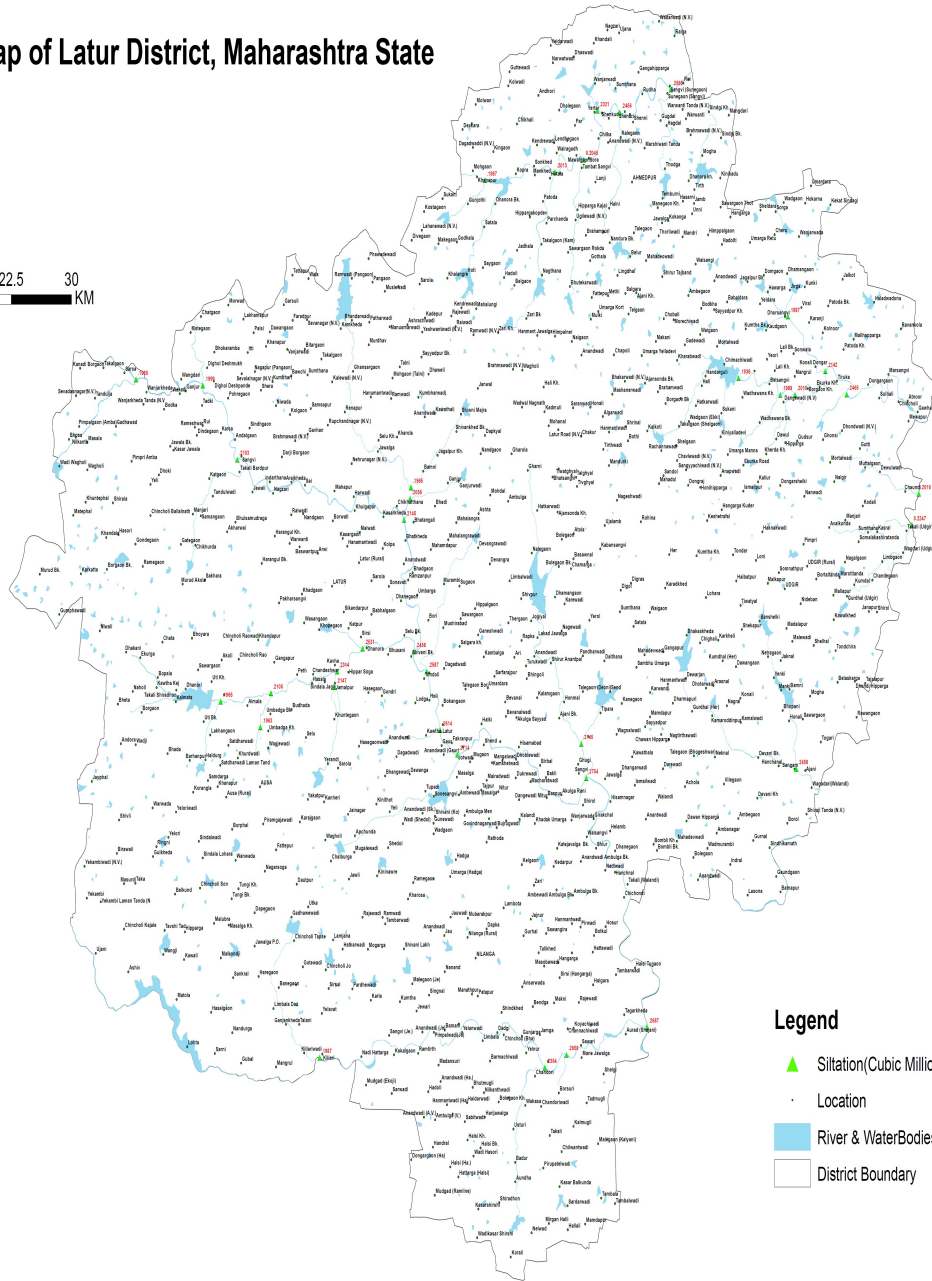
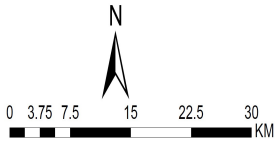
- Legend**
- ▲ Stream Flow Gauge (Cu. Meter)
  - Location
  - Water Bodies & Rivers
  - District Boundary

# cum/minute



Siltation is mapped for the rivers using slope –discharge-silt formula as below

### River Siltation Map of Latur District, Maharashtra State



# In Million Cum

## Comparing theoretical methods with this year, last Year deposition

Sand Replenishment is tabulated as

Name of Sand Ghat	Method		
	Theoretical in m <sup>3</sup>	Last Year Deposition in m <sup>3</sup>	This Year Deposition in m <sup>3</sup>
Salgara	570	1799	1531

### Management plan for replenishment of sand ghat

At the end of mining activity, large boulders removed during the scooping of sand will be arranged in the extracted area as per procedure depicted in approved mining plan and para 2.7 of this document. This will enable to replenish the sand ghat during the monsoon period.

#### 3.1.8 Land use pattern in the buffer zone

The land use of the 5 kms radius study area is studied by analyzing the available secondary data like SOI Toposheet, field visits etc. Most of the lands around the river body are agricultural lands. The major activity in the buffer zone is mainly agriculture. Agriculture is the main profession of people in the study area with nearly 2/3<sup>rd</sup> of the population engaged in one or the other form of agriculture.

#### Anticipated Impacts

As far as impact on the land use pattern is concerned, the buffer zone will not be affected as the mining operations are totally confined to the core zone.

Dump yards are not proposed as no waste is generated. The Building Grade sand mined will be temporarily stacked in a non mineralized area of the river bed. The proposed activity of sand mining is not envisaged to cause any impacts on the topography or the water drainage pattern as the excavation carried out is only manual scooping of Building Grade sand from the river bed.

The impact on soil quality is not likely to be more intensive than the present status and hence

degradation although inevitable, is not likely to affect soil quality. The loss of the fertile soil from the agricultural lands lying along side the river bank are observed during the floods due to differential lateral deposition of sand on the land surface.

As the proposed mining of Building Gradesand from the river bed is only during the pre monsoon season of the year, river erosion is not foreseen and hence control measures are not proposed. However as a preventive measure afforestation in terms of herbs and shrubs are proposed all around the lease area.

Ground water pollution is not envisaged as the proposed activity is not generating any kind of waste such that there can be seepage of pollutants to cause any impacts.

The mining activity proposed is a manual scooping of Building Gradesand and hence no impact is envisaged on the local biodiversity.

Since no agricultural or common property lands are involved in the proposed activity action plan for abatement and compensation for the same is not proposed.

#### **Proposed Mitigation Measures**

Since the project site is a river bank mining activities will not have any major impact and since the deposits are replenished naturally. No reclamation is proposed. The proponent will plan to plant saplings every year to enrich the existing biodiversity. Local varieties available will be suitably planted so that bio-diversity is further enriched.

Avenue plantation are proposed to be carried out all along the roads connecting the mine site; the lessee has proposed to carry out plantations on either side of the village roads as a social responsibility towards the community in restoring the ecological balance in the surrounding area.

A green belt shall be developed by planting a suitable combination of trees which can grow fast and also reduce the noise levels from aesthetic point of view which will also have a positive impact.

To prevent the sand deposition on the agricultural lands various preventive measures like planting bushes all along the river bank which have extensive root system will be carried out. They will act as a barrier preventing the sand from depositing on the lands thus preserving its fertility.

### **3.1.9 Biological Environment**

#### **Baseline Status**

The general observation shows moderate green cover and agricultural lands in the buffer zone. Ecological survey was carried out by field visits in the study area of 5kms radius to observe the species and to assess the status of dominance, density, frequency, abundance, etc. Besides, personal enquiries & discussion with local people and forest department officials were also conducted to get a fair idea of the existing ecological status.

**Biodiversity:** In the buffer zone area common varieties of crops like Soyabean, jowar, toor are seen. No floral species, which are rare or of medicinal variety have been observed in the study area. The fauna found in the area are of common variety and no endangered species are found in the study area. There are no National Parks, Sanctuary or a Biosphere Reserve within 10 kms radial distance from the mining area.

**Aquatic flora and fauna:** In order to study the aquatic flora and fauna of River, water samples were collected from the selected locations of the river course and were analyzed. The river harbors a variety of fishes from rohu, sipnas, wagur, chhachya, kathla and zinga, etc. It is observed that there no fauna dependant on the river bed or area nearest for its nesting The river also cradles various species of aquatic flora.

#### **Anticipated Impacts**

There is no loss of forest resources like medicinal plants, endangered & rare species as no deforestation takes place since mining is done on the banks of a river.

There will be no impact on the terrestrial biodiversity as there is no air & noise pollution due to the proposed mining activity.

Since there is no pollution of the river water due to the proposed activity the aquatic biodiversity is not affected & hence no mitigation measures are suggested. There will be no habitat fragmentation or blocking of migratory corridors as the proposed mining.

#### **Proposed Mitigation Measures**

Mitigative measures proposed are in terms of afforestation over the mined out areas. Delineation of the same will be carried out as the mining activity proceeds. It is proposed to

have a green belt along the bank. For which appropriate species of plants that suits the geo-climatic conditions are selected. The species selected have deep roots, fast growth and optimum penetrability to withstand the wind shall be selected, which otherwise will act as wind tunnels.

Since the project site is a river bank, mining activities will not have any major impact and since the deposits are replenished naturally no reclamation is proposed.

### **Afforestation**

The afforestation is proposed all along the river bank for the proposed plan period, every year it is proposed to afforest saplings along the bank as per EMP. Avenue plantation will also be undertaken in a phased manner over the next 4 months . Villagers will be involved for all the afforestation activities. Care shall be taken for the protection and growth of these saplings for better survival.

As there is no proposal for deforestation, compensatory afforestation is not envisaged. But afforestation in terms of a social responsibility towards a better environment with economically beneficial plantation is proposed to be grown. A green belt i.e. varieties of herbs & shrubs all along the cultivable area of the river banks is proposed thus creating a better biotic environment.

For afforestation the species to be planted are considered keeping in view the following conditions:

Adaptation to the geo-climatic conditions of the area .

A mix of oblong and conical canopies (hts ranging 4m – 20m) Preferably evergreen trees.

The species that have history of good survival and growth under similar site conditions are preferably selected.

Avenue plantation are proposed to be carried out all along the roads connecting the mine site; the lessee has proposed to carry out plantations on either side of the village roads considering it has a social responsibility towards the community in restoring the ecological balance in the surrounding area. Based on the above Neem, Peepal, Gulmohar will be planted.

### **3.1.10 Socio economic Environment**

#### **Baseline Environment**

Socio-economic study is an integral part of the environmental study; existing as well as upcoming sand scooping will have both adverse & beneficial impacts on the environment.

It is revealed that the proposed area is well connected to the nearby major towns and cities, the public services and utilities like Medical facilities, Electricity, Drinking water requirement. Transportation & communication etc need to be organized for ready availability.

The basic socioeconomic needs of villages are fulfilled at large from the 25 % of royalty collected from village sand ghat. These funds are available in the District Mineral Foundation specifically for village road development, drinking water scheme to fulfill socio economic upliftment.

### **3.1.11 Occupational Health**

#### **Baseline Status**

There is no remarkable environmental pollution due to the proposed mining as it is proposed to be a manual mining/scooping of Building Gradesand on the banks of River Manjara. Hence there will be no major occupational health hazards.

#### **Medical & Health Facilities**

First-aid facility is to be provided at the mines. The proponent will further provide related safety equipments & facilities at the proposed mine site. Medical checkups, pathological tests and medicines will be provided to all employees. Each person being employed in the mine will undergo initial medical examination with periodical examinations till they are employed at the mines.

### **3.1.12 Final Mine Closure Plan**

At the end of mining activity, large boulders removed during the scooping of sand will be arranged in the extracted area as per procedure depicted in approved mining plan and para 2.7 of this document. This will enable to replenish the sand ghat during the monsoon period.

## **Section 4.0 : Implementation, Monitoring & Budgeting to implement**

### **4.1 Environmental Management Plan**

Reference to section 3.0 regarding baseline data and probable impacts and mitigation measures, the Environmental Management Plan is implemented by the Sand Ghat Allottee/ Successful Bidder.

A budgetary provision of Rs 5.98 lakhs is earmarked to implement the Environment Management Plan.

#### **4.1.1 Air Quality Management**

##### **4.1.1.1 Controlling Dust Levels**

Dust is the major pollutant generated from the mining operations. Dust would be generated during mining, handling and transportation of the material. The maximum predicted value of increase in PM<sub>10</sub> due to proposed mining operation would be about **0.5418 $\mu\text{g}/\text{m}^3$** . This concentration will be observed within the Sand Ghat area. The concentration was found to reduce to a value of 0.01  $\mu\text{g}/\text{m}^3$  at a distance of about 1.0 km from the mining lease boundary. The impact of mining operation would be negligible beyond 1.0 km. The environmental control measures, proposed to control the fugitive dust released during the Sand scooping/ mining are given below:

#### **MINES**

- Dust masks will be provided to the workers exposed .
- Afforestation along the river bank and along the village road
- Periodic health check up for the workers shall be done
- Maintenance of plantation of wide leaf trees along river bank and tall grass along slope of river bank .
- Water tankers with spraying arrangement will be used for regular water sprinkling on village roads to ensure effective dust suppression due to transportation

#### **RAMP**

- Ramp will be maintained regularly
- Speed limits will be prescribed for transport vehicle
- Periodic maintenance of the tractor used for transport shall be done to reduce smoke emissions
- Over filling of tractors is avoided and thus spillage on the ramp/ roads is restricted

- Sand carrying trucks will be effectively covered by tarpaulin to avoid escape of fines to the ambient air.
- No vehicle with its engine will be allow to keep idle to reduce pollutant levels and conserve riverine health.

**A summary of air pollution control measures is given below:**

S. No	Impact Source	Impact	Control measure
1	Transport Road	On Air Quality On Land / Rd stability/ Rd degradation	<ul style="list-style-type: none"> <li>• Compaction, gradation and drainage on both sides &amp; development of green belts</li> <li>• Proper maintenance.</li> <li>• Regular water spraying.</li> <li>• Avoiding over filling of tractor and consequent spillage on the roads</li> <li>• Air quality will be monitoring at impacted village.</li> </ul>
2	Truck/ Tractor Movement	Air Quality	<ul style="list-style-type: none"> <li>• No overloading of trucks.</li> <li>• Sand carrying trucks will be effectively covered by tarpaulin to avoid escape of fines to the atmosphere.</li> <li>• Enforcing speed limit.</li> <li>• Regular monitoring of the exhaust fumes.</li> <li>• No Engine of tractor/truck will be kept on during the filling.</li> <li>• If possible entry be restricted to river bed</li> </ul>
3	Ramp and Sand Reach	Mining Operations	<ul style="list-style-type: none"> <li>• Regular ramp Inspection and Ramp maintenance</li> <li>• Provision of dusk masks.</li> <li>• Mining will be done during day time between fixed hours only.</li> </ul>
4	Bank Management	Bank Erosion/ Flood Plain management	<ul style="list-style-type: none"> <li>• Green belt along bank</li> <li>• Plantation of wide leaf tall trees on banks and grass along slanting portion of bank.</li> </ul>

5	Occupational Health & Safety Measures to Control Dust Inhalation	Safety of Workers and Mining Operations	<ul style="list-style-type: none"> <li>• Providing a working environment that is conducive to safety &amp; health</li> <li>• The management of occupational safety &amp; health is the prime responsibility of mine owner.</li> </ul>
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			<ul style="list-style-type: none"> <li>● Provision of necessary personal protective equipments</li> <li>● Ensuring employees at all levels receive appropriate training and are competent to carry out their duties and responsibilities</li> <li>● Provision of First Aid and Drinking Water, Temporary rest Room</li> </ul>
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#### 4.1.2 Noise Pollution and Ground Vibrations

As no blasting is involved ground vibrations will not be measured.

Source	Type	Intensity, dB(A)	Proposed control
Transportation through village roads	---	Highway model -62.8 L <sub>eq</sub>	<ul style="list-style-type: none"> <li>• Avenue plantation,</li> <li>• Speed breakers</li> </ul>

##### 4.1.2.1 Noise Pollution Control

The following noise control measures will be provided in the proposed crushing and screening plant.

- In addition, personnel working near high noise level generating sources will be provided with ear muffs
- No equipment generating Noise excluding tractor/truck will be permitted.
- No tractor engine will be kept idle.
- Conduct periodic audiometric tests for employees working close to high noise generating areas such as compressors, the loading and unloading sections, etc
- Provision of PPE's will be made and their proper usage will be ensured for hearing protection of the workers as well as visitors.

#### 4.1.3 Traffic Management

The impacts of increase in traffic load from the proposed mine will be reduced by proper planning and implementation of the strict traffic guidelines. The following measures will be adopted to minimize the impacts of the increase in traffic density.

- Feasibility of alternative mode of transport avoiding village.
- The mineral transporting vehicles will be registered with the forest department/revenue department and only registered vehicles will be used for mineral transport.
- The PUC certificate for exhaust emissions for all the transport vehicles will be made mandatory.
- All the vehicles will be properly maintained to control emissions and noise generation.
- Drivers of all the vehicles will strictly follow traffic rules.
- Speeds of the mineral transport vehicles will be regulated.
- Overloading of the trucks/tractors will not be allowed
- The mineral transporting trucks/tractors will be properly covered with tarpaulin to avoid fugitive emissions.
- Batch transport system will be adopted in consultation with the other sand ghat operators in the area to avoid excess traffic at a time on the road.
- Mineral transportation will be done only during day time only.
- Strict action will be taken against any driver, who do not comply the traffic rules.

#### **4.1.4 Water Quality Management**

##### **4.1.4.1 Water Pollution Control Measures**

The only source of pollution from the mine will be the silt wash off during monsoon. The measures proposed for control of water pollution are mentioned below:

- Plantation of local varieties of flora species, along the drains, so that there will be fast and healthy growth of vegetation specially along bank.
- Sand does not contain any toxic substance, which can dissolve and pollute water quality. To prevent the suspended particles joining the natural stream in the area, ramp and approach created for Sand Ghat will be blocked.
- Domestic effluent will be discharged in septic tank and soak pits temporarily proposed at 20m away from river bank of Manjara or other option as suggested by authority will be eased.

##### **4.1.5 Implementation of Final Mine Closure Plan**

At the end of mining activity, large boulders removed during the scooping of sand will be arranged in the extracted area as per procedure depicted in approved mining plan and para 2.7 of this document. This will enable to replenish the sand ghat during the monsoon period.

#### **4.1.6 Plantation program**

It is proposed to plant **about 398 plants of local** species during the monsoon period along bank of river and village roads.

#### **List of Species Proposed for green Belt Development**

Local species like Neem, peepal,subabhul, Karanj, Gulmohar etc will be planted.

#### **4.1.7 Occupational Health and Safety Management**

The following Occupational Health and safety Measures will be adopted in the mine leas area:

- Providing a working environment that is conducive to safety and health
- The management of occupational safety and health is the prime responsibility of mine management from the executive level to the first line supervisory level
- Employee involvement and commitment in the implementation of health and safety guidelines
- Provision of necessary personal protective equipments to all the employees
- Extensive publicity and propaganda related to safety.
- Identification and assessment of risk from health hazards at work places and taking adequate steps to reduce risks.
- Education of workers on sanitation, cleanliness, hygiene and health care.
- Periodical medical examination of all workers by medical specialist so that any adverse affect may be detected in its early stage.

#### **Noise Induced Hearing Loss**

Rotation of workers exposed to noisy premises to avoid NIHL.

#### 4.2 Monitoring of Implementation of Environmental Management Plan with Budget:

**Successful Bidder/ Sand Ghat allottee will implement the Environmental Management Plan for the amount **Rs. 6.50 Lakhs** on his own.**

Successful Bidder/ Sand Ghat allottee will submit compliance to terms of conditions stipulated in the prior environmental clearance to the District Mining Officer and respective Tahsildar with the expenses made on implementation of environmental management plan.

**District Mining Officer/respective Tahsildar will monitor the implementation of approved environmental management plan along with District Level Committee headed by District Collector as stipulated in Sand Mining Rules 2019.**

After submission of satisfactory compliances on periodic the implementation compliances of approved environmental management plan, District Collector will release the EMD deposited by the Successful Bidder/ Sand Ghat allottee, otherwise the same will be forfeited.

S. No	Impact Source	Impact	Control measure	Budget/Cost
1	Transport Road	On Air Quality On Land / Rd stability/ Rd degradation	<ul style="list-style-type: none"> <li>• Compaction, gradation and drainage on both sides</li> <li>• Proper maintenance.</li> <li>• Regular water spraying.</li> <li>• Air quality will be monitoring at impacted village.</li> <li>• Health Checkup of Employees</li> </ul>	<ul style="list-style-type: none"> <li>• Rs. 50000.00</li> <li>• Rs. 25000.00</li> <li>• Rs. 100000.00</li> <li>• Rs. 15000.00 (For One Day Monitoring)</li> <li>• Rs. 10000.00</li> </ul>
2	Truck/ Tractor Movement	Air Quality	<ul style="list-style-type: none"> <li>• Sand carrying trucks will be effectively covered by tarpaulin to avoid escape of fines to the atmosphere.</li> <li>• Regular monitoring of the exhaust fumes.</li> </ul>	<ul style="list-style-type: none"> <li>• Rs. 10000.00</li> <li>• (2 tarpaulin)</li> <li>• Rs. 1000.00</li> </ul>

			<ul style="list-style-type: none"> <li>Barriers &amp; Traffic Management Expenses</li> </ul>	<ul style="list-style-type: none"> <li>Rs. 10000.00 (Excluding Man Power Salary which is included in labour costs)</li> </ul>
3	Ramp and Sand Reach	Mining Operations	<ul style="list-style-type: none"> <li>Regular ramp Inspection and Ramp maintenance</li> <li>Provision of dusk masks.</li> </ul>	<ul style="list-style-type: none"> <li>Rs. 20000.00 (Excluding Man Power Salary which is included in labour costs)</li> <li>Rs. 10000.00</li> </ul>
4	Bank Management	Bank Erosion/ Flood Plain management	<ul style="list-style-type: none"> <li>Green belt along bank</li> <li>Plantation of wide leaf tall trees on banks and grass along slanting portion of bank. (35 Saplings)</li> </ul>	Rs.17500.00 (for Green Belt Development)
5	Transportation on Village Roads	Dust Control	<ul style="list-style-type: none"> <li>Green belt along village Rd (363 Saplings)</li> </ul>	Rs. 181800.00 (for Green Belt Development)
6	Final Mine Closer Plan implementation	Replenishment of Sand	<ul style="list-style-type: none"> <li>Gabions/ boulders will be arranged as per guidelines</li> </ul>	Rs. 15000.00
7	Mobile toilet, sewage handling & treatment		<ul style="list-style-type: none"> <li>Mobile toilet, sewage handling &amp; treatment</li> </ul>	Rs.100000.00
8	Corporate Environmental Responsibility		<ul style="list-style-type: none"> <li>As suggested by SEAC/SEIAA otherwise will be used for additional plantation as per approved DSR</li> </ul>	Rs.100000.00
<ul style="list-style-type: none"> <li>Total in Rs</li> </ul>				Rs. 650300



# ENVIRONMENTAL MANAGEMENT PLAN

FOR

SAND GHATS

AT

LATUR DISTRICT

STATE – MAHARASHTRA

Sr. No.	Name of Sand Ghat	Tahsil	Name of River	Nearest Gut No.	Area in Ha	Area in cum.	Available Sand in Brass	Location	
						LxBxD (m <sup>3</sup> )		Latitude	Longitude
1	Umaraga	Latur	Manjra	128	3680	160m x 23 m x 0.50 m	650	18°22' 54.3904"N	76°40' 42.7138"E

PROPONENT

DISTRICT MINING OFFICER, COLLECTOR OFFICE, LATUR

CONSULTANT

**ENVIRO TECHNO CONSULT PRIVATE LIMITED**

68, MAHAKALI NAGAR-2  
NEAR MANEWADA SQUARE  
NAGPUR 440 024

JUNE 2020

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## Section 1.0 : Introduction to Sand Ghat

### 1.0 Introduction :

District Collector, Latur intends to auction sand ghats and appointed District Mining Officer Latur as project proponent as per sand mining guidelines dated 03.09.2019 Total 5 sand ghats were identified by Taluka level Technical Committee chaired by Tahsildar and Dy. Engineer Irrigation, Junior Geologist, Directorate of Geology and Mining, Junior Geologist G.S.D.A., representative of Maharashtra Pollution Control Board. Out of 55 sand ghats surveyed by Taluka level technical committee as per procedure defined in Sand Auction Rules 2019 dated 3.09.2019. Explored 5 sand spots out of surveyed 55 found feasible for sand scooping. Revenue of Rs 42.56 Lakhs is expected from the auction of these sand ghats.

Umbarga sand ghat proposed (over river Manjara) in Latur taluka is one of the two sand ghats proposed to cater infrastructural requirement of sand in the tahsil of Latur and adjoining areas of other talukas. All five sand ghats are on Manjara river. Details of Latur taluka Sand Ghat is as below

Table 1.0 Details of Sand Ghat :

Sr. No.	Name of Sand Ghat	Tahsil	Name of River	Nearest Gut No.	Area in Ha	Area in cum.	Available Sand in Brass	Location	
						LxBxD (m <sup>3</sup> )		Latitude	Longitude
1	Umbarga	Latur	Manjra	128	3680	160m x 23 m x 0.50 m	650	18°22' 54.3904"N	76°40' 42.7138"E

Table 2.0 All corner Coordinates of Sand Ghat :

Sr. No.	Latitude	Longitude
BP-1	18°22' 54.3904"N	76°40' 42.7138"E
BP-2	18°22' 53.6582"N	76°40' 42.8746"E
BP-3	18°22' 52.5904"N	76°40' 37.5398"E
BP-4	18°22' 53.3226"N	76°40' 37.379"E

Table 3.0 Environmental Sensitivity of Sand Ghat :

Sl. No.	Areas	Distance in kilometer / Details
1	Distance of project site from nearest rail or road bridge over the concerned River,Rivulet, Nallah etc.	Bridge on Manjra river -0.972 km SE
2	Distance from infrastructural facilities Railway line National Highway State Highway Major District Road  Any Other Road  Electric transmission line pole or tower Canal or check dam or reservoirs or lake or ponds In-take for drinking water pump house Intake for Irrigation canal pumps	Latur- 10 Km NWW 6.7 km NW NH204-5.3 Km NWN SH145 – 0.814 Km S Umarga Dhanegao Road– 0.740 Km N  Vil Rd-0.347 km NE 15 km Check dam - 2.38 Km SE 1.007 Km NW 2.38 Km SE
3	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	--
4	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	No wetland is notified in district, Manjra river, Biosphere -Pachmadi 305 km N Mountain- Balaghat Range
5	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	--
6	Inland, coastal, marine or underground waters	Manjra river , Coastal Area -395 Km West, Marine Water -380 Km West
7	State, National boundaries	Karnataka-36.5 Km SE
8	Routes or facilities used by the public for access to recreation or other tourist,pilgrim areas	--
9	Defence installations	--
10	Densely populated or built-up area, distance from nearest human habitation	Umarga – 0.836 Km NE
11	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Latur- 10 Km NWW

12	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism,minerals)	Manjra river ,
13	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	Not within 5 km study area
14	Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions)	Though Latur is under Seismic zone III, it is mentioned as high risk zone as per pervious earthquake record by Govt. of India
15	Is proposed mining site located over or near fissure / fracture for ground water recharge	Not within 5 km study area
16	Whether the proposal involves approval or clearance under the following Regulations or Acts, namely:- (a) The Forest (Conservation) Act, 1980; (b) The Wildlife (Protection) Act, 1972; (c) The Coastal Regulation Zone Notification, 2011. If yes, details of the same and their status to be given.	Not within 5 km study area
17	Forest land involved (hectares)	No
18	Whether there is any litigation pending against the project and/or land in which the project is propose to be set up? (a) Name of the Court (b) Case No. (c) Orders or directions of the Court, if any, and its relevance with the proposed project.	No

Table 4.0 Status of Statutory Clearances for Sand Ghat

2.1	Name of Sand Mine (Ghat)	Umbarga Sand Ghat Tq. Latur Dist. Latur
2.2	Name & Address of Allottee	District Mining Officer Latur / Succesful Bidder Latur District, Latur
2.3	Status of the lease	New, Individual/ Project Proponent/Succesful Bidder for auction of sand ghat by District Collector Latur.
2.4	Mineral for which lessee intends to mine	Ordinary Sand for Construction purpose
2.5	Name & Address of the Prospecting Agency	Taluka level Technical Committee chaired by Tahsildar and Dy. Engineer Irrigation, Junior Geologist, Directorate of Geology and Mining, Junior Geologist G.S.D.A., representative of Maharashtra Pollution Control Board.
2.6	Mining Plan Approval	STC-10/2020(MP Sand/123 dated 22.06.2020

2.7	Grampanchayat NOC	Received from Gramsabha as per public consultation procedure defined in sand mining guidelines of Maharashtra State dated 03.09.2019.
2.8	Plan Period for Activity	Up to one year from the date of allotment of sand ghat or up to scooping of Allotted/Permitted quantity mined out, whichever is earlier excluding stipulated monsoon period between 10 June -30 June

Google Image for Sand Ghat (600 m Area) :



Figure -1 : Google Image

Proposed Approach Road for Sand Ghat on Google Image



Figure -2 : Approach Road on Google Image

Approach road available over pandan rd of 0.790Km connecting Umbarga-Dhanegaon rd.

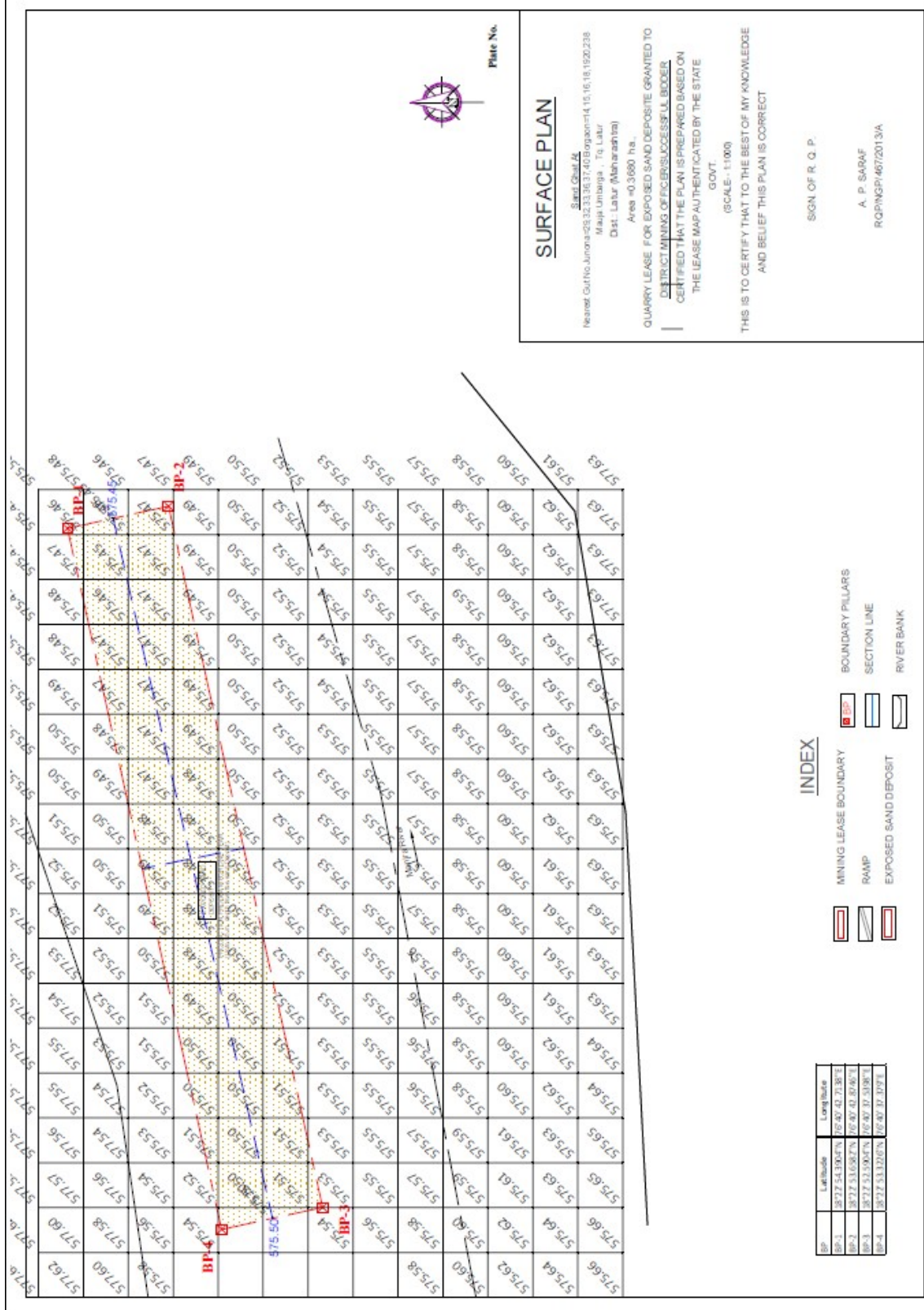
## Section 2.0 : Project Description and Method of Mining

### 2.0 Project Description :

**Need for the project:** The sand ghat area has been selected in view of its existing demand for Building Grade sand for the area in and around Latur Tahsil. District Mining Officer Latur has proposed for the production of 3638 Brass of sand by proposing to follow a systematic mining process with respect to the market scenario. The individual sand reserve at the ghats as per GSDA survey is as under.

Sr. No.	Name of Sand Ghat	Tahsil	Name of River	Nearest Gut No.	Area in Ha	Area in cum.	Available Sand in Brass	Location	
						LxBxD (m <sup>3</sup> )		Latitude	Longitude
1	Umarga	Latur	Manjra	128	3680	160m x 23 m x 0.50 m	650	18°22' 54.3904"N	76°40' 42.7138"E

# Surface Plan for Umarga Sand Ghat:





## 2.1 Method of Mining :

The mining will be manual opencast mining method of scooping using simple tool like spade/pawdas.

- a. Over burden/Soil Removal:  
No overburden/Soil is anticipated.
- b. Scooping of Sand /Loading  
The ordinary sand will be loaded manually by labours.
- c. Hauling  
Ordinary sand is transported through tractors /trucks with permissible quantity.
- d. No machinery will be utilized.

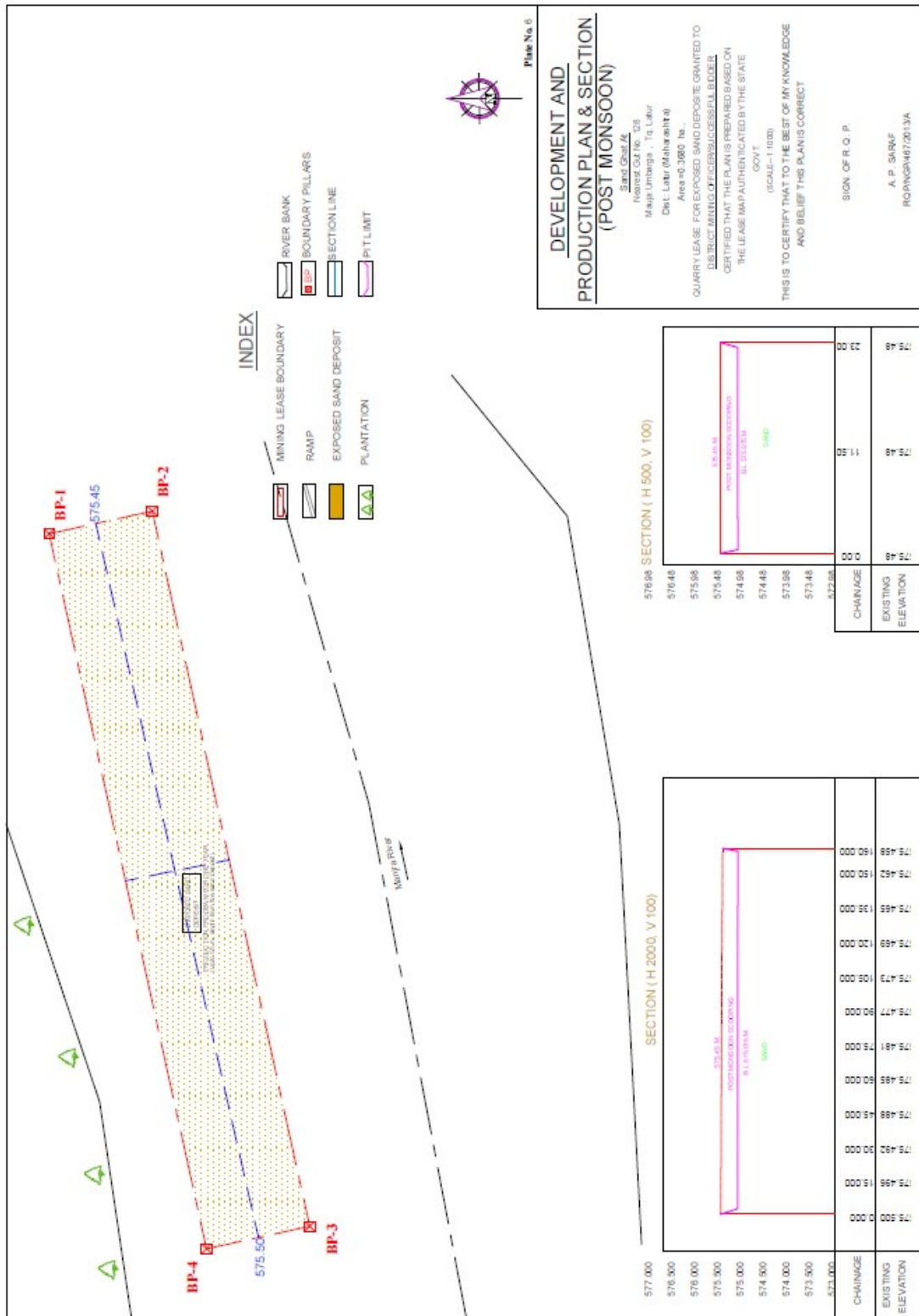
## 2.2 Period of Mining :

Period	Area x Depth (cu.m.)
Up to one year from the date of allotment of sand ghat or up to scooping of Allotted/Permitted quantity mined out, whichever is earlier excluding stipulated monsoon period between 10 June -30 September of the calendar year and the rainy days	160m x 23 m x 0.50 m

## Appearance of Sand Ghat



Production Plan for Umarga Sand Ghat :



**DEVELOPMENT AND PRODUCTION PLAN & SECTION (POST MONSOON)**

Sand Ghat, 26  
 Hoised Ghat No. 28  
 Maaja Umbarga, Tal. Latur  
 Dist. Latur (Maharashtra)  
 Area: 40.3660 Ha.

QUARRY LEASE FOR EXPOSED SAND DEPOSIT GRANTED TO  
 DIRECT MINEING OFFICERS SUCCESSFUL BIDDERS  
 CERTIFIED THAT THE PLAN IS PREPARED BASED ON  
 THE LEASE MAP AUTHENTICATED BY THE STATE  
 GOVT.  
 (SCALE:- 1:1000)  
 THIS IS TO CERTIFY THAT TO THE BEST OF MY KNOWLEDGE  
 AND BELIEF THIS PLAN IS CORRECT

SIGN: OF R. Q. P.  
 A. P. SARAF  
 RQP/NG/487/2013/A

### 2.3 Manpower Requirement

About 28 labors are required to carry out the scooping activity.

Sr. No.	Category	Nos.
1	Mining Supervisor	3
2	Tractor Drivers and Helpers	10
3	Mining Labors	5
4	Ramp Maintenance	5
6	Support Staff/Labors	5
	<b>Total</b>	<b>28</b>

### 2.4 Amenities :

The site services will be provided by allottee/Successful Bidder, Office, First Aid and Rest Shelters will be temporarily constructed 20m away from the bank of river.

Facility of mobile toilet with water tank of 250 ltr. will be provided at 150m away from river bank. Arrangement for periodic disposal of collection tank of mobile toilet will be ensured or otherwise toilet will be acquired on rent for workers. Sewage will be disposed off by handing over to Municipal/authorized Sewage treatment agency.

### Requirement of Water for Dust Suppression & Domestic Purposes

Total water requirement for various activities during sand scooping is estimated as 1.560m<sup>3</sup>/day per sand ghat. The water will be required for dust suppression, plantation, domestic use. The activity-wise break up of the total water requirement is given below:

<b>Purpose</b>	<b>Qty Required m<sup>3</sup>/day</b>
Dust suppression/ Plantation	1.0
Domestic Use	0.560
<b>Total</b>	<b>1.560</b>

Water will be sourced from Grampanchayat Borewells on payment per litre cost basis. Drinking water will be provided from RO water suppliers.

## 2.5 Existing & Proposed Land Use Pattern :

Area	Existing Land Use sq. m.	Proposed Land Use sq. m.
Area under pits	00	3680
Area under dumps	00	00
Undisturbed Area	3680	00
Area under Roads	00	00
Area under Plantation	00	00
Area under Storage	00	00
Area under Office, etc.	00	00

## 2.6 Existing Flora & Fauna :

Local varieties of bushes like dhavda, neem, tarota observed in the area. Mainly agricultural activity observed for Jowar, patches of toor. Natural fauna like fishes observed in the course of water stream during the monsoon period. Mice, rabbits, lizards etc found in the nearby farms find during survey whereas no endangered wild life observed. No turtle nesting observed or recorded during the survey and on records.

## 2.7 Local Geology :

Applied area for sand extraction is covered by dark basalt and which has been derived/ transported from black basalt of surrounding flat and well tilled area. The sand of the applied area is found to be underlain by dark basalt of the river bed.

## 2.8 Mine Closure Plan :

Sand scooping is permitted for one year from the date of auction excluding monsoon period between 10<sup>th</sup> June-30<sup>th</sup> September policy dated 03.09.2019 of Govt. of Maharashtra only. Before surrender of Sand Ghat to District Authority, mine closure is proposed which will help to replenish the sand during the monsoon period when there will be live flow of water in the river channel.

Guidelines As per Indian Bureau Of Mines for Final Mine Closure of Sand Ghat:

Mineral is replenish able during each monsoon. No manual reclamation is proposed.

Method of SandTraps Emplace Gabions (1m height) at 200 m intervals to function as sand traps during final closure of Mine is proposed as per Sand Mining Guidelines of IBM vide letter 296/7/2000/MRC dated 16May 2011.

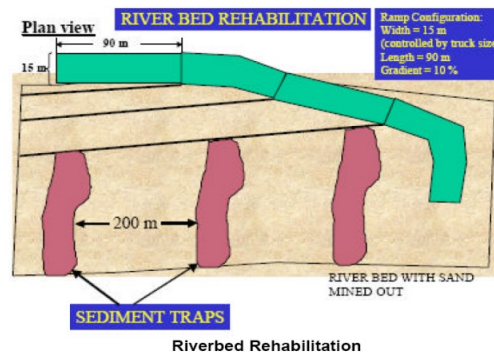


Figure -3

#### Final Closure Action Plan for Sand Ghat

- (1) Leave the area from which the sand has been extracted leveled and free of any foreign debris or materials.
- (2) Re-vegetate indigenous plants which were removed from areas for the mining of sand as far as is reasonably practical.
- (3) Plant trees along the riverbanks with no or minimal vegetation, irrespective of signs of erosion or not (ensure that species selected are indigenous species).
- (4) The surface of stockpile and sand processing areas outside the riverbed to be scarified to a depth of 500 mm, graded evenly and the topsoil previously stored, returned to its original depth over the area.
- (5) Prepare the area in such a way as to stimulate / ensure the re-growth of vegetation.
- (6) Prepare Sand Traps Emplace gabions (1 m height) at 200 m intervals to functions as sand traps. Boulders dug out during mining should be used for this purpose. Gabions would have to be placed at one kilometer (at the maximum) intervals on the mined out areas. The shorter gabion intervals would induce faster rehabilitation. Gabions are preferred over concrete because they would allow water to flow through, are a more natural solution. Also additional gabions can be easily laid to increase the trap height. Figure-3 is a drawing that illustrates river bed rehabilitation.
- (7) Any access routes, especially if they are not beneficial to the local community would need to be ploughed and replanted with native species.
- (8) Close and restore river bank where access ramps have been restored. Ensure river channel is not obstructed and that repaired bank is adequately fortified.

## Section 3.0 : Anticipated Impacts and Management

### 3.1 Anticipated Impacts and Management

The impacts envisaged due to mining activity are evaluated based on various factors. The emission inventory of the pollutants is as follows, the main air pollutant would be dust or particulate matter generated by handling and transportation of ore. The persons employed at the above areas are likely to get lung related diseases like silicosis, after prolonged exposure to the sand particles without protective measures. But the impact of mining operations on air quality is negligible as mining involved is only scooping of sand deposits from the river bed manually and not at large scale.

#### 3.1.1 Dust Generation and Control

There is mere possibility of dust generation due to the proposed scooping of Building Grade sand from river bed manually.. There is a possibility of dust generation due to the frequent movement of public transport vehicles and tippers carrying the Building grade sand on haulage & transport road. The envisaged production of Building Grade Sand during the plan period is only 541 Brass/annum from the proposed sand ghat.

- Incremental GLC is predicted using USEPA equation considering pollution sources like transportation and mining and modeled using AERMOD-ISCST-3 model

#### Area Source Emission Factor Considered

Sr. No.	Activity	Emission Factor Kg/T
1	Loading & Transportation	@0.0005 Kg/T

Refer Chapter -11 19.2 of EPA emission manual.

Being all the sand ghats are nearby and on one stretch of river, average scooping is considered for prediction of incremental ground level concentration. Average production is calculated as 19 Tonnes/Sand Ghat/day for 260 operational days.

### Area Source Emission-Production and Development

Description	Statistics
Quantity ,TPA	5150 TPA
Operational Days per Year	260 Days
Lead (m)	790 m

### Predicted Emission

Activity	Emission rate gm/sec
Transportation	0.029806713
<b>Total</b>	<b>0.029806713</b>

#Emission factor computed on wind speed of 1 m/sec, moisture 10% & Silt content 15 %

**Accordingly Maximum incremental GLC is predicted as 0.5816µgm/cum.**

Predicted Ground Level Concentrations due to Scooping of Sand is summarized as :

Sr. No.	Name of Village	Tahsil	Name of River	Predicted incremental GLC in terms of PM <sub>10</sub>
1	Umbarga	Latur	Manjara	0.5816 µgm/cum

Predicted levels of PM<sub>10</sub> were found to be within permissible limits as per NAAQ standards.

In order to mitigate fugitive dust emissions and other air emissions from the project activities, the following measures are proposed to be adopted.

- The mining haulage area will be wetted by water spraying and two 1 KL mobile sprinklers



- To avoid fugitive dust emissions at the time of Screening activity, Sand screening activity will be carried so as to prevent spreading of dust.
- Effective dust suppression arrangements will be made at the ground level sand bunkers at the mines.
- Sand is transported by road through trucks. The sand will be in wet condition however if dry sand is being transported it will be wetted after loading in to the truck and shall be covered by tarpaulin sheets.

To minimize the vehicular pollution from the sand transporting vehicles, the following conditions are insisted to permit the vehicles of the transporters:

- The vehicles should be with good engine condition and should maintain pollution control certificate issued by appropriate authorities.
- Regular maintenance of transport vehicles and monitoring of vehicular emission levels at periodical intervals.
- Ambient Air quality Monitoring will be carried out at four stations on fortnightly basis to assess the air quality in and around the project for taking necessary control measures.
- Green belt development along the access roads at mine premises and near the sand mining site

### **3.1.2 Impact due to Noise Pollution and its Management**

Noise environment in this project will be affected only by the equipment at the site and vehicular transportation. Since mining is done manually, increase in noise levels is marginal and only due to transport activities.

In order to mitigate noise generation from the project activities, the following mitigation measures are proposed:

Since the noise generating is only through movement of vehicles, strict compliance to periodical maintenance of the vehicle conditions will be insisted.

Noise monitoring at the work places shall be carried out on fortnightly basis to ensure the compliance.

### **3.1.3 Impact due to Water Pollution and its Management**

As the project activity is carried out in the meandering part of the river bed, none of the project activities will affect the water environment. Sand is in exposed stage to scoop out and away from the river stream. In this project, it is not proposed to divert or truncate any stream. 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. As per the Government recommendations the sand in riverbed will be extracted up to 0.5-0.7 m depth only.

Thus, the project activities will not have any adverse effect on the physical components of the environment and therefore may not have any effect on the recharge of ground waters or affect the water quality.

In order to ensure that the project activities shall not affect the Water environment, the following measures will be taken up:

- Mining is avoided during the monsoon season and at the time of floods. This will help in replenishment of sand in the river bed.
- Mining below subterranean water level will be avoided as safe guard against environmental contamination and over exploitation of resources.
- River stream will not be diverted to form in active channels.
- Ground water levels will be monitored regularly in and around sand mining project.
- Mining schedule is synchronized with the river flow direction and the gradient of the land.
- Mining at the concave side of the river channel will be avoided to prevent bank erosion.
- Meandering segment of river will be selected for mining in such a way to avoid natural eroding banks and to promote mining on naturally building meander components.

- Mining depth shall be maintained as per the guidelines and rules of Sand Mining Policy dated 03.09.2019 and recommendations of M.S.. State Ground Water Department for extraction of sand during the lease period.
- Water Quality Monitoring for the ground waters, river water and other surface waters shall be carried out seasonally to ensure that the water quality is not affected by the project activities.

**Mitigation Measures to improve River Health (Manjara River)**

- Municipal authorities must arrest their solid, liquid discharge at their own treatment facilities and should avoid these hazardous matters to drain in to river.
- Awareness campaign in the local people must be floated implement river management.

**3.1.4 Impact on Land and its Management**

Movements of vehicles sometimes cause problems to agricultural land, human habitations, noise and movement of public and also cause traffic hazards. The impacts include damage of river bank due to access ramps to river bed, soil erosion, micro disturbance to ground water, possible inducement of changed river course, contamination of sand aquifer water due to ponding. However there may not be any direct impact on soil quality of the area as the scooping activity is restricted to exposed sand ghat keeping at safe distance of 20m from bank of the river.

**Proposed Mitigation Measures**

- Minimum number of access roads to river bed for which cutting of river banks will be avoided and ramps are to be maintained. Access points to the river bed will be decided basing on least steepness of river bank and least human activity.
- Haulage roads parallel to the river bank and roads connecting access to river bed will be made away from bank, preferably 25 m away.

- Mining at the concave side of the river channel should be avoided to prevent bank erosion. Similarly, meandering segment of a river to be selected for mining in such a way so as to avoid natural eroding of banks
- Care will be taken to ensure that ponding is not formed in the river bed.
- Access roads from public roads and up to river bank will be aligned in such a way that it would cause least environmental damage.
- Green belt will be developed along the access roads near the sand mining site. While selecting the plant species, preference will be given for planting native species of the area.
- Villagers will be encouraged in the plantation activities by means of social forestry.

### **3.1.5 Impact on Socio Economic Environment**

The project activities shall not have any adverse impacts on any of the common property resources of the village communities, as the sand mine lease area is not being used for any purpose by any section of the society in this region. Also the proposed sand ghat is away from public utilities like bridges, water supply schemes etc. There is no R & R involvement in this project. There is no land acquisition in this project.

The Project is expected to yield a positive impact on the socio-economic environment. It helps sustain the development of this area including further development of infrastructure facilities.

### **3.1.6 Impact on Ground Water Level of Surrounding Area**

Scooping of sand beyond the proposed scooping depth may deplete the ground water level of the area. Hence the maximum scoopable depth of sand is restricted keeping sand bed of 2m. The scoopable limit of Sand for proposed Umbarga sand ghat is 0.5m keeping 2.0m bed depth of sand. Total Sand depth available is 2.5m.

Survey Committee includes member from GSDA, Latur and approved the depth by monitoring impact of proposed scooping of sand on ground water levels of the area.

### **3.1.7 Sand Replenishment Studies**

Physical monitoring requirements of sand extraction activities should include surveyed channel cross-sections, longitudinal profiles, bed material measurements, geomorphic maps, and discharge and sediment transport measurements.

In addition to local monitoring for replenishment at specific mining sites, monitoring of the entire reach will provide information on the cumulative response of the system to sand extraction.

Because the elevation of the bed of the channel is variable from year to year, a reach-based approach to monitoring will provide a larger context for site-specific changes.

If long-term monitoring data show that there is a reach-scale trend of bed lowering the extraction could be limited.

#### **Sand Replenishment**

Physical monitoring requirements of sand extraction activities should include surveyed channel cross-sections, longitudinal profiles, bed material measurements, geomorphic maps, and discharge and sediment transport measurements.

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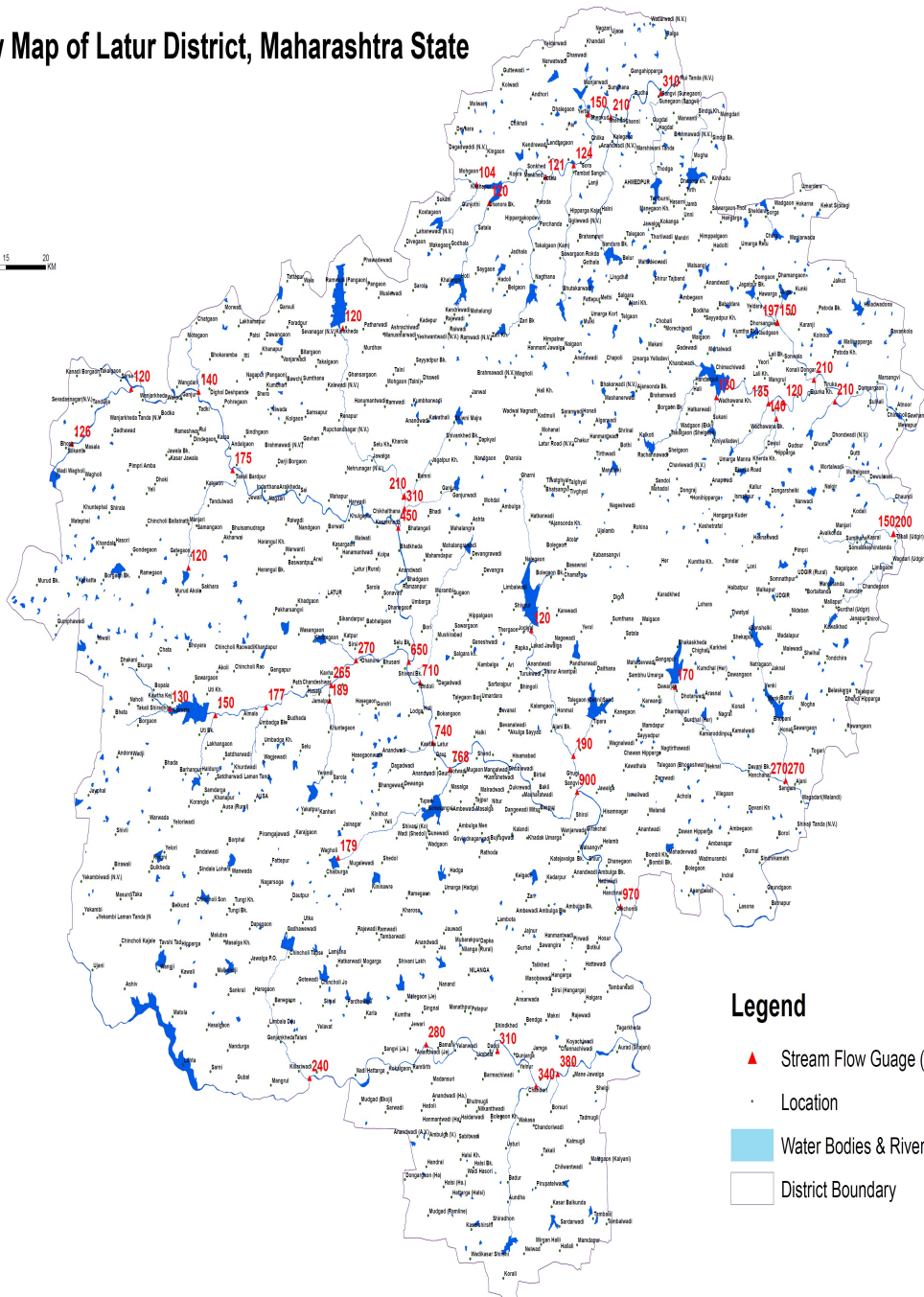
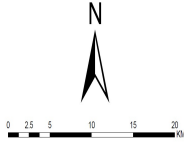
Because the elevation of the bed of the channel is variable from year to year, a reach-based approach to monitoring will provide a larger context for site-specific changes.

If long-term monitoring data show that there is a reach-scale trend of bed lowering the extraction could be limited.

A concurrent type cup flow meter with fish weight of 10 kg with auto data logger is used to record the stream flow velocity.

A Punjab type silt sampler was used to collect the surface water sample for measuring the silt. Silt sample is calibrated to collect surface water sample of 1 ltr. with required arrangements to collect the surface water. Data is interpreted as below

# Stream Flow Map of Latur District, Maharashtra State

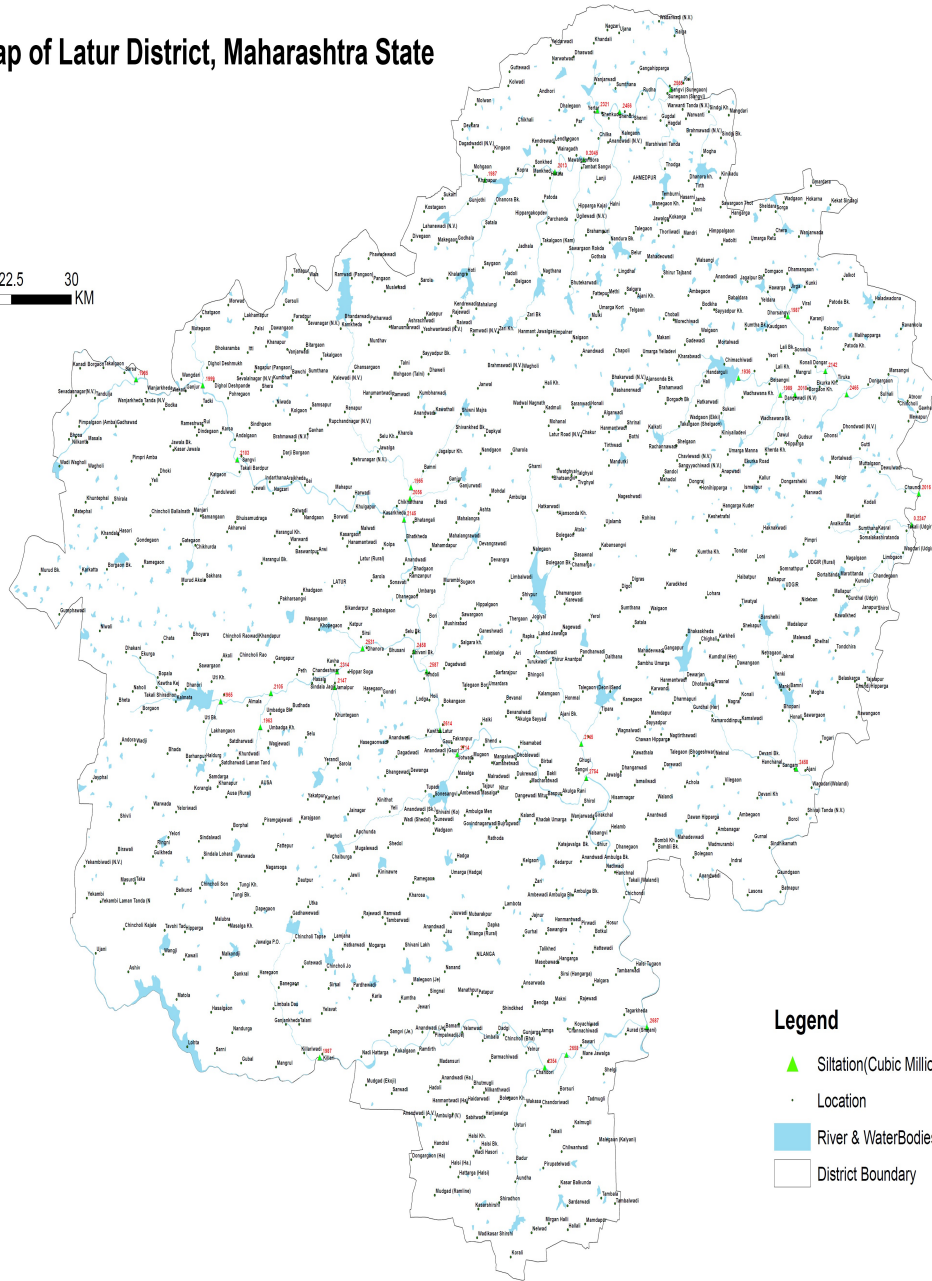
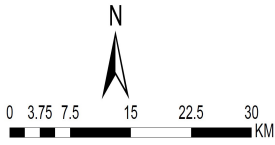


- Legend**
- ▲ Stream Flow Gauge (Cu. Meter)
  - Location
  - Water Bodies & Rivers
  - District Boundary

# cum/minute

Siltation is mapped for the rivers using slope –discharge-silt formula as below

### River Siltation Map of Latur District, Maharashtra State



# In Million Cum

## Comparing theoretical methods with this year, last Year deposition

Sand Replenishment is tabulated as

Name of Sand Ghat	Method		
	Theoretical in m <sup>3</sup>	Last Year Deposition in m <sup>3</sup>	This Year Deposition in m <sup>3</sup>
Umbarga	1270	New Sand Ghat	1840

### Management plan for replenishment of sand ghat

At the end of mining activity, large boulders removed during the scooping of sand will be arranged in the extracted area as per procedure depicted in approved mining plan and para 2.7 of this document. This will enable to replenish the sand ghat during the monsoon period.

#### 3.1.8 Land use pattern in the buffer zone

The land use of the 5 kms radius study area is studied by analyzing the available secondary data like SOI Toposheet, field visits etc. Most of the lands around the river body are agricultural lands. The major activity in the buffer zone is mainly agriculture. Agriculture is the main profession of people in the study area with nearly 2/3<sup>rd</sup> of the population engaged in one or the other form of agriculture.

#### Anticipated Impacts

As far as impact on the land use pattern is concerned, the buffer zone will not be affected as the mining operations are totally confined to the core zone.

Dump yards are not proposed as no waste is generated. The Building Grade sand mined will be temporarily stacked in a non mineralized area of the river bed. The proposed activity of sand mining is not envisaged to cause any impacts on the topography or the water drainage pattern as the excavation carried out is only manual scooping of Building Grade sand from the river bed.

The impact on soil quality is not likely to be more intensive than the present status and hence



degradation although inevitable, is not likely to affect soil quality. The loss of the fertile soil from the agricultural lands lying along side the river bank are observed during the floods due to differential lateral deposition of sand on the land surface.

As the proposed mining of Building Gradesand from the river bed is only during the pre monsoon season of the year, river erosion is not foreseen and hence control measures are not proposed. However as a preventive measure afforestation in terms of herbs and shrubs are proposed all around the lease area.

Ground water pollution is not envisaged as the proposed activity is not generating any kind of waste such that there can be seepage of pollutants to cause any impacts.

The mining activity proposed is a manual scooping of Building Gradesand and hence no impact is envisaged on the local biodiversity.

Since no agricultural or common property lands are involved in the proposed activity action plan for abatement and compensation for the same is not proposed.

#### **Proposed Mitigation Measures**

Since the project site is a river bank mining activities will not have any major impact and since the deposits are replenished naturally. No reclamation is proposed. The proponent will plan to plant saplings every year to enrich the existing biodiversity. Local varieties available will be suitably planted so that bio-diversity is further enriched.

Avenue plantation are proposed to be carried out all along the roads connecting the mine site; the lessee has proposed to carry out plantations on either side of the village roads as a social responsibility towards the community in restoring the ecological balance in the surrounding area.

A green belt shall be developed by planting a suitable combination of trees which can grow fast and also reduce the noise levels from aesthetic point of view which will also have a positive impact.

To prevent the sand deposition on the agricultural lands various preventive measures like planting bushes all along the river bank which have extensive root system will be carried out. They will act as a barrier preventing the sand from depositing on the lands thus preserving its fertility.

### **3.1.9 Biological Environment**

#### **Baseline Status**

The general observation shows moderate green cover and agricultural lands in the buffer zone. Ecological survey was carried out by field visits in the study area of 5kms radius to observe the species and to assess the status of dominance, density, frequency, abundance, etc. Besides, personal enquiries & discussion with local people and forest department officials were also conducted to get a fair idea of the existing ecological status.

**Biodiversity:** In the buffer zone area common varieties of crops like Soyabean, jowar, toor are seen. No floral species, which are rare or of medicinal variety have been observed in the study area. The fauna found in the area are of common variety and no endangered species are found in the study area. There are no National Parks, Sanctuary or a Biosphere Reserve within 10 kms radial distance from the mining area.

**Aquatic flora and fauna:** In order to study the aquatic flora and fauna of River, water samples were collected from the selected locations of the river course and were analyzed. The river harbors a variety of fishes from rohu, sipnas, wagur, chhachya, kathla and zinga, etc. It is observed that there no fauna dependant on the river bed or area nearest for its nesting The river also cradles various species of aquatic flora.

#### **Anticipated Impacts**

There is no loss of forest resources like medicinal plants, endangered & rare species as no deforestation takes place since mining is done on the banks of a river.

There will be no impact on the terrestrial biodiversity as there is no air & noise pollution due to the proposed mining activity.

Since there is no pollution of the river water due to the proposed activity the aquatic biodiversity is not affected & hence no mitigation measures are suggested. There will be no habitat fragmentation or blocking of migratory corridors as the proposed mining.

#### **Proposed Mitigation Measures**

Mitigative measures proposed are in terms of afforestation over the mined out areas. Delineation of the same will be carried out as the mining activity proceeds. It is proposed to

have a green belt along the bank. For which appropriate species of plants that suits the geo-climatic conditions are selected. The species selected have deep roots, fast growth and optimum penetrability to withstand the wind shall be selected, which otherwise will act as wind tunnels.

Since the project site is a river bank, mining activities will not have any major impact and since the deposits are replenished naturally no reclamation is proposed.

### **Afforestation**

The afforestation is proposed all along the river bank for the proposed plan period, every year it is proposed to afforest saplings along the bank as per EMP. Avenue plantation will also be undertaken in a phased manner over the next 4 months . Villagers will be involved for all the afforestation activities. Care shall be taken for the protection and growth of these saplings for better survival.

As there is no proposal for deforestation, compensatory afforestation is not envisaged. But afforestation in terms of a social responsibility towards a better environment with economically beneficial plantation is proposed to be grown. A green belt i.e. varieties of herbs & shrubs all along the cultivable area of the river banks is proposed thus creating a better biotic environment.

For afforestation the species to be planted are considered keeping in view the following conditions:

Adaptation to the geo-climatic conditions of the area .

A mix of oblong and conical canopies (hts ranging 4m – 20m) Preferably evergreen trees.

The species that have history of good survival and growth under similar site conditions are preferably selected.

Avenue plantation are proposed to be carried out all along the roads connecting the mine site; the lessee has proposed to carry out plantations on either side of the village roads considering it has a social responsibility towards the community in restoring the ecological balance in the surrounding area. Based on the above Neem, Peepal, Gulmohar will be planted.

### **3.1.10 Socio economic Environment**

#### **Baseline Environment**

Socio-economic study is an integral part of the environmental study; existing as well as upcoming sand scooping will have both adverse & beneficial impacts on the environment.

It is revealed that the proposed area is well connected to the nearby major towns and cities, the public services and utilities like Medical facilities, Electricity, Drinking water requirement. Transportation & communication etc need to be organized for ready availability.

The basic socioeconomic needs of villages are fulfilled at large from the 25 % of royalty collected from village sand ghat. These funds are available in the District Mineral Foundation specifically for village road development, drinking water scheme to fulfill socio economic upliftment.

### **3.1.11 Occupational Health**

#### **Baseline Status**

There is no remarkable environmental pollution due to the proposed mining as it is proposed to be a manual mining/scooping of Building Gradesand on the banks of River Manjara. Hence there will be no major occupational health hazards.

#### **Medical & Health Facilities**

First-aid facility is to be provided at the mines. The proponent will further provide related safety equipments & facilities at the proposed mine site. Medical checkups, pathological tests and medicines will be provided to all employees. Each person being employed in the mine will undergo initial medical examination with periodical examinations till they are employed at the mines.

### **3.1.12 Final Mine Closure Plan**

At the end of mining activity, large boulders removed during the scooping of sand will be arranged in the extracted area as per procedure depicted in approved mining plan and para 2.7 of this document. This will enable to replenish the sand ghat during the monsoon period.

## **Section 4.0 : Implementation, Monitoring & Budgeting to implement**

### **4.1 Environmental Management Plan**

Reference to section 3.0 regarding baseline data and probable impacts and mitigation measures, the Environmental Management Plan is implemented by the Sand Ghat Allottee/ Successful Bidder.

A budgetary provision of Rs 5.98 lakhs is earmarked to implement the Environment Management Plan.

#### **4.1.1 Air Quality Management**

##### **4.1.1.1 Controlling Dust Levels**

Dust is the major pollutant generated from the mining operations. Dust would be generated during mining, handling and transportation of the material. The maximum predicted value of increase in PM<sub>10</sub> due to proposed mining operation would be about 0.5816 µg/m<sup>3</sup>. This concentration will be observed within the Sand Ghat area. The concentration was found to reduce to a value of 0.01 µg/m<sup>3</sup> at a distance of about 1.0 km from the mining lease boundary. The impact of mining operation would be negligible beyond 1.0 km. The environmental control measures, proposed to control the fugitive dust released during the Sand scooping/ mining are given below:

#### **MINES**

- Dust masks will be provided to the workers exposed .
- Afforestation along the river bank and along the village road
- Periodic health check up for the workers shall be done
- Maintenance of plantation of wide leaf trees along river bank and tall grass along slope of river bank .
- Water tankers with spraying arrangement will be used for regular water sprinkling on village roads to ensure effective dust suppression due to transportation

#### **RAMP**

- Ramp will be maintained regularly
- Speed limits will be prescribed for transport vehicle
- Periodic maintenance of the tractor used for transport shall be done to reduce smoke emissions
- Over filling of tractors is avoided and thus spillage on the ramp/ roads is restricted

- Sand carrying trucks will be effectively covered by tarpaulin to avoid escape of fines to the ambient air.
- No vehicle with its engine will be allow to keep idle to reduce pollutant levels and conserve riverine health.

**A summary of air pollution control measures is given below:**

S. No	Impact Source	Impact	Control measure
1	Transport Road	On Air Quality On Land / Rd stability/ Rd degradation	<ul style="list-style-type: none"> <li>• Compaction, gradation and drainage on both sides &amp; development of green belts</li> <li>• Proper maintenance.</li> <li>• Regular water spraying.</li> <li>• Avoiding over filling of tractor and consequent spillage on the roads</li> <li>• Air quality will be monitoring at impacted village.</li> </ul>
2	Truck/ Tractor Movement	Air Quality	<ul style="list-style-type: none"> <li>• No overloading of trucks.</li> <li>• Sand carrying trucks will be effectively covered by tarpaulin to avoid escape of fines to the atmosphere.</li> <li>• Enforcing speed limit.</li> <li>• Regular monitoring of the exhaust fumes.</li> <li>• No Engine of tractor/truck will be kept on during the filling.</li> <li>• If possible entry be restricted to river bed</li> </ul>
3	Ramp and Sand Reach	Mining Operations	<ul style="list-style-type: none"> <li>• Regular ramp Inspection and Ramp maintenance</li> <li>• Provision of dusk masks.</li> <li>• Mining will be done during day time between fixed hours only.</li> </ul>
4	Bank Management	Bank Erosion/ Flood Plain management	<ul style="list-style-type: none"> <li>• Green belt along bank</li> <li>• Plantation of wide leaf tall trees on banks and grass along slanting portion of bank.</li> </ul>

5	Occupational Health & Safety Measures to Control Dust Inhalation	Safety of Workers and Mining Operations	<ul style="list-style-type: none"> <li>• Providing a working environment that is conducive to safety &amp; health</li> <li>• The management of occupational safety &amp; health is the prime responsibility of mine owner.</li> </ul>
---	--	---	---

			<ul style="list-style-type: none"> <li>• Provision of necessary personal protective equipments</li> <li>• Ensuring employees at all levels receive appropriate training and are competent to carry out their duties and responsibilities</li> <li>• Provision of First Aid and Drinking Water, Temporary rest Room</li> </ul>
--	--	--	---

#### 4.1.2 Noise Pollution and Ground Vibrations

As no blasting is involved ground vibrations will not be measured.

Source	Type	Intensity, dB(A)	Proposed control
Transportation through village roads	---	Highway model -62.8 L <sub>eq</sub>	<ul style="list-style-type: none"> <li>• Avenue plantation,</li> <li>• Speed breakers</li> </ul>

##### 4.1.2.1 Noise Pollution Control

The following noise control measures will be provided in the proposed crushing and screening plant.

- In addition, personnel working near high noise level generating sources will be provided with ear muffs
- No equipment generating Noise excluding tractor/truck will be permitted.
- No tractor engine will be kept idle.
- Conduct periodic audiometric tests for employees working close to high noise generating areas such as compressors, the loading and unloading sections, etc
- Provision of PPE's will be made and their proper usage will be ensured for hearing protection of the workers as well as visitors.

#### 4.1.3 Traffic Management

The impacts of increase in traffic load from the proposed mine will be reduced by proper planning and implementation of the strict traffic guidelines. The following measures will be adopted to minimize the impacts of the increase in traffic density.

- Feasibility of alternative mode of transport avoiding village.
- The mineral transporting vehicles will be registered with the forest department/revenue department and only registered vehicles will be used for mineral transport.
- The PUC certificate for exhaust emissions for all the transport vehicles will be made mandatory.
- All the vehicles will be properly maintained to control emissions and noise generation.
- Drivers of all the vehicles will strictly follow traffic rules.
- Speeds of the mineral transport vehicles will be regulated.
- Overloading of the trucks/tractors will not be allowed
- The mineral transporting trucks/tractors will be properly covered with tarpaulin to avoid fugitive emissions.
- Batch transport system will be adopted in consultation with the other sand ghat operators in the area to avoid excess traffic at a time on the road.
- Mineral transportation will be done only during day time only.
- Strict action will be taken against any driver, who do not comply the traffic rules.

#### **4.1.4 Water Quality Management**

##### **4.1.4.1 Water Pollution Control Measures**

The only source of pollution from the mine will be the silt wash off during monsoon. The measures proposed for control of water pollution are mentioned below:

- Plantation of local varieties of flora species, along the drains, so that there will be fast and healthy growth of vegetation specially along bank.
- Sand does not contain any toxic substance, which can dissolve and pollute water quality. To prevent the suspended particles joining the natural stream in the area, ramp and approach created for Sand Ghat will be blocked.
- Domestic effluent will be discharged in septic tank and soak pits temporarily proposed at 20m away from river bank of Manjara or other option as suggested by authority will be eased.

##### **4.1.5 Implementation of Final Mine Closure Plan**

At the end of mining activity, large boulders removed during the scooping of sand will be arranged in the extracted area as per procedure depicted in approved mining plan and para 2.7 of this document. This will enable to replenish the sand ghat during the monsoon period.



#### **4.1.6 Plantation program**

It is proposed to plant about 350 plants of local species during the monsoon period along bank of river and village roads.

#### **List of Species Proposed for green Belt Development**

Local species like Neem, peepal,subabhul, Karanj, Gulmohar etc will be planted.

#### **4.1.7 Occupational Health and Safety Management**

The following Occupational Health and safety Measures will be adopted in the mine leas area:

- Providing a working environment that is conducive to safety and health
- The management of occupational safety and health is the prime responsibility of mine management from the executive level to the first line supervisory level
- Employee involvement and commitment in the implementation of health and safety guidelines
- Provision of necessary personal protective equipments to all the employees
- Extensive publicity and propaganda related to safety.
- Identification and assessment of risk from health hazards at work places and taking adequate steps to reduce risks.
- Education of workers on sanitation, cleanliness, hygiene and health care.
- Periodical medical examination of all workers by medical specialist so that any adverse affect may be detected in its early stage.

#### **Noise Induced Hearing Loss**

Rotation of workers exposed to noisy premises to avoid NIHL.

#### 4.2 Monitoring of Implementation of Environmental Management Plan with Budget:

**Successful Bidder/ Sand Ghat allottee will implement the Environmental Management Plan for the amount Rs. 6.41 Lakhs on his own.**

Successful Bidder/ Sand Ghat allottee will submit compliance to terms of conditions stipulated in the prior environmental clearance to the District Mining Officer and respective Tahsildar with the expenses made on implementation of environmental management plan.

**District Mining Officer/respective Tahsildar will monitor the implementation of approved environmental management plan along with District Level Committee headed by District Collector as stipulated in Sand Mining Rules 2019.**

After submission of satisfactory compliances on periodic the implementation compliances of approved environmental management plan, District Collector will release the EMD deposited by the Successful Bidder/ Sand Ghat allottee, otherwise the same will be forfeited.

S. No	Impact Source	Impact	Control measure	Budget/Cost
1	Transport Road	On Air Quality On Land / Rd stability/ Rd degradation	<ul style="list-style-type: none"> <li>• Compaction, gradation and drainage on both sides</li> <li>• Proper maintenance.</li> <li>• Regular water spraying.</li> <li>• Air quality will be monitoring at impacted village.</li> <li>• Health Checkup of Employees</li> </ul>	<ul style="list-style-type: none"> <li>• Rs. 50000.00</li> <li>• Rs. 25000.00</li> <li>• Rs. 100000.00</li> <li>• Rs. 15000.00 (For One Day Monitoring)</li> <li>• Rs. 10000.00</li> </ul>
2	Truck/ Tractor Movement	Air Quality	<ul style="list-style-type: none"> <li>• Sand carrying trucks will be effectively covered by tarpaulin to avoid escape of fines to the atmosphere.</li> <li>• Regular monitoring of the exhaust fumes.</li> </ul>	<ul style="list-style-type: none"> <li>• Rs. 10000.00</li> <li>• (2 tarpaulin)</li> <li>• Rs. 1000.00</li> </ul>

			<ul style="list-style-type: none"> <li>Barriers &amp; Traffic Management Expenses</li> </ul>	<ul style="list-style-type: none"> <li>Rs. 10000.00 (Excluding Man Power Salary which is included in labour costs)</li> </ul>
3	Ramp and Sand Reach	Mining Operations	<ul style="list-style-type: none"> <li>Regular ramp Inspection and Ramp maintenance</li> <li>Provision of dusk masks.</li> </ul>	<ul style="list-style-type: none"> <li>Rs. 20000.00 (Excluding Man Power Salary which is included in labour costs)</li> <li>Rs. 10000.00</li> </ul>
4	Bank Management	Bank Erosion/ Flood Plain management	<ul style="list-style-type: none"> <li>Green belt along bank</li> <li>Plantation of wide leaf tall trees on banks and grass along slanting portion of bank. (35 Saplings)</li> </ul>	Rs.17500.00 (for Green Belt Development)
5	Transportation on Village Roads	Dust Control	<ul style="list-style-type: none"> <li>Green belt along village Rd (315 Saplings)</li> </ul>	Rs. 157500.00 (for Green Belt Development)
6	Final Mine Closer Plan implementation	Replenishment of Sand	<ul style="list-style-type: none"> <li>Gabions/ boulders will be arranged as per guidelines</li> </ul>	Rs. 15000.00
7	Mobile toilet, sewage handling & treatment		<ul style="list-style-type: none"> <li>Mobile toilet, sewage handling &amp; treatment</li> </ul>	Rs.100000.00
8	Corporate Environmental Responsibility		<ul style="list-style-type: none"> <li>As suggested by SEAC/SEIAA otherwise will be used for additional plantation as per approved DSR</li> </ul>	Rs.100000.00
<ul style="list-style-type: none"> <li>Total in Rs</li> </ul>				Rs. 641000.00



# ENVIRONMENTAL MANAGEMENT PLAN

FOR

SAND GHATS

AT

LATUR DISTRICT

STATE – MAHARASHTRA

Sr. No.	Name of Sand Ghat	Tahsil	Name of River	Nearest Gut No.	Area in Ha	Area in cum.	Available Sand in Brass	Location	
						LxBxD (m <sup>3</sup> )		Latitude	Longitude
1	Andalgao	Renapur	Manjra	77,94	3600 sqm.	180m x 20 m x 0.50 m	636	18°30' 44.594"N	76°27' 57.7593"E

PROPONENT

DISTRICT MINING OFFICER, COLLECTOR OFFICE, LATUR

CONSULTANT

ENVIRO TECHNO CONSULT PRIVATE LIMITED

68, MAHAKALI NAGAR-2  
NEAR MANEWADA SQUARE  
NAGPUR 440 024

JUNE 2020

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## Section 1.0 : Introduction to Sand Ghat

### 1.0 Introduction :

District Collector, Latur intends to auction sand ghats and appointed District Mining Officer Latur as project proponent as per sand mining guidelines dated 03.09.2019 Total 5 sand ghats were identified by Taluka level Technical Committee chaired by Tahsildar and Dy. Engineer Irrigation, Junior Geologist, Directorate of Geology and Mining, Junior Geologist G.S.D.A., representative of Maharashtra Pollution Control Board. Out of 55 sand ghats surveyed by Taluka level technical committee as per procedure defined in Sand Auction Rules 2019 dated 3.09.2019. Explored 5 sand spots out of surveyed 55 found feasible for sand scooping. Revenue of Rs 42.56 Lakhs is expected from the auction of these sand ghats.

Andalgaon sand ghat proposed (over river Manjara) in Renapur taluka is the only sand ghat proposed to cater infrastructural requirement of sand in the tahsil of Renapur and adjoining areas of other talukas. All five sand ghats are on Manjara river. Details of Renapur taluka Sand Ghat is as below

Table 1.0 Details of Sand Ghat :

Sr. No.	Name of Sand Ghat	Tahsil	Name of River	Nearest Gut No.	Area in Ha	Area in cum.	Available Sand in Brass	Location	
						LxBxD (m <sup>3</sup> )		Latitude	Longitude
1	Andalgao	Renapur	Manjra	77,94	3600 sqm.	180m x 20 m x 0.50 m	636	18°30' 44.594"N	76°27' 57.7593"E

Table 2.0 All corner Coordinates of Sand Ghat :

Sr. No.	Latitude	Longitude
BP-1	18°22' 54.3904"N	76°40' 42.7138"E
BP-2	18°22' 53.6582"N	76°40' 42.8746"E
BP-3	18°22' 52.5904"N	76°40' 37.5398"E
BP-4	18°22' 53.3226"N	76°40' 37.379"E



Table 3.0 Environmental Sensitivity of Sand Ghat :

Sl. No.	Areas	Distance in kilometer / Details
1	Distance of project site from nearest rail or road bridge over the concerned River,Rivulet, Nallah etc.	Bridge on Manjra river -6.78 km SE near nagzari
2	Distance from infrastructural facilities Railway line National Highway State Highway Major District Road  Any Other Road  Electric transmission line pole or tower Canal or check dam or reservoirs or lake or ponds In-take for drinking water pump house Intake for Irrigation canal pumps	Renapur – 13.5 Km NE 11.2 km SE NH204-17.5 Km SE SH160 – 5.17 Km SW Sindhgaon Poharegaon Road– 0.820 Km NE  Vil Rd-0.503 km E 15 km Check dam – 1.436 Km NWN 1.436 Km NWN 1.436 Km NWN
3	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	--
4	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	No wetland is notified in district, Manjra river, Biosphere -Pachmadi 450 km NE Mountain-Balaghat range
5	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	--
6	Inland, coastal, marine or underground waters	Manjra river , Coastal Area -380 Km West, Marine Water -370 Km West
7	State, National boundaries	Karnataka-63 Km SE
8	Routes or facilities used by the public for access to recreation or other tourist,pilgrim areas	--
9	Defence installations	--
10	Densely populated or built-up area, distance from nearest human habitation	Andalgaon – 0.700 Km NE
11	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Latur- 16 Km SE

12	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism,minerals)	Manjra river ,
13	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)	Not within 5 km study area
14	Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions)	Though Latur is under Seismic zone III, it is monitored as high risk zone s per previous earthquake records by Govt. of India
15	Is proposed mining site located over or near fissure / fracture for ground water recharge	Not within 5 km study area
16	Whether the proposal involves approval or clearance under the following Regulations or Acts, namely:- (a) The Forest (Conservation) Act, 1980; (b) The Wildlife (Protection) Act, 1972; (c) The Coastal Regulation Zone Notification, 2011. If yes, details of the same and their status to be given.	Not within 5 km study area
17	Forest land involved (hectares)	No
18	Whether there is any litigation pending against the project and/or land in which the project is propose to be set up? (a) Name of the Court (b) Case No. (c) Orders or directions of the Court, if any, and its relevance with the proposed project.	No

Table 4.0 Status of Statutory Clearances for Sand Ghat

2.1	Name of Sand Mine (Ghat)	Andalgaon Sand Ghat Tq. Renapur Dist. Latur
2.2	Name & Address of Allottee	District Mining Officer Latur / Succesful Renapur District, Latur
2.3	Status of the lease	New, Individual/ Project Proponent/Succesful Bidder for auction of sand ghat by District Collector Latur.
2.4	Mineral for which lessee intends to mine	Ordinary Sand for Construction purpose
2.5	Name & Address of the Prospecting Agency	Taluka level Technical Committee chaired by Tahsildar and Dy. Engineer Irrigation, Junior Geologist, Directorate of Geology and Mining, Junior Geologist G.S.D.A., representative of Maharashtra Pollution Control Board.
2.6	Mining Plan Approval	STC-10/2020(MP Sand/123 dated 22.06.2020
2.7	Grampanchayat NOC	Received from Gramsabha as per public consultation procedure

		defined in sand mining guidelines of Maharashtra State dated 03.09.2019.
2.8	Plan Period for Activity	Up to one year from the date of allotment of sand ghat or up to scooping of Allotted/Permitted quantity mined out, whichever is earlier excluding stipulated monsoon period between 10 June -30 June

Google Image for Sand Ghat (600 m Area) :



Figure -1 : Google Image

Proposed Approach Road for Sand Ghat on Google Image



Figure -2 : Approach Road on Google Image

Approach road available over pandan rd of 1.2 Km connecting Karsa rd.

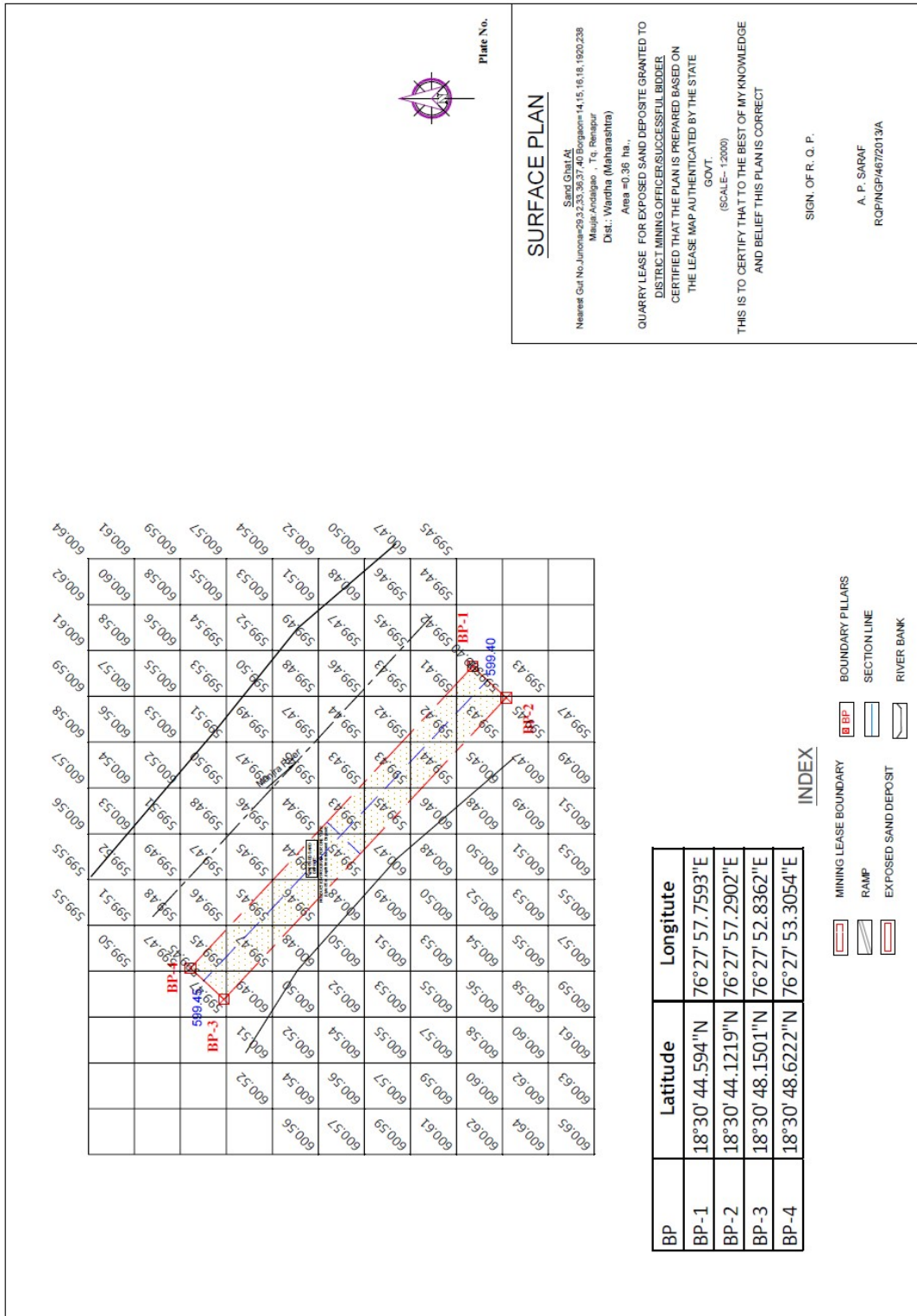
## Section 2.0 : Project Description and Method of Mining

### 2.0 Project Description :

**Need for the project:** The sand ghat area has been selected in view of its existing demand for Building Grade sand for the area in and around Renapur Tahsil. District Mining Officer Latur has proposed for the production of 3638 Brass of sand by proposing to follow a systematic mining process with respect to the market scenario. The individual sand reserve at the ghats as per GSDA survey is as under.

Sr. No.	Name of Sand Ghat	Tahsil	Name of River	Nearest Gut No.	Area in Ha	Area in cum.	Available Sand in Brass	Location	
						LxBxD (m <sup>3</sup> )		Latitude	Longitude
1	Andalgao	Renapur	Manjra	77,94	3600 sqm.	180m x 20 m x 0.50 m	636	18°30' 44.594"N	76°27' 57.7593"E

# Surface Plan for Andalgaon Sand Ghat:



## 2.1 Method of Mining :

The mining will be manual opencast mining method of scooping using simple tool like spade/pawdas.

- a. Over burden/Soil Removal:  
No overburden/Soil is anticipated.
- b. Scooping of Sand /Loading  
The ordinary sand will be loaded manually by labours.
- c. Hauling  
Ordinary sand is transported through tractors /trucks with permissible quantity.
- d. No machinery will be utilized.

## 2.2 Period of Mining :

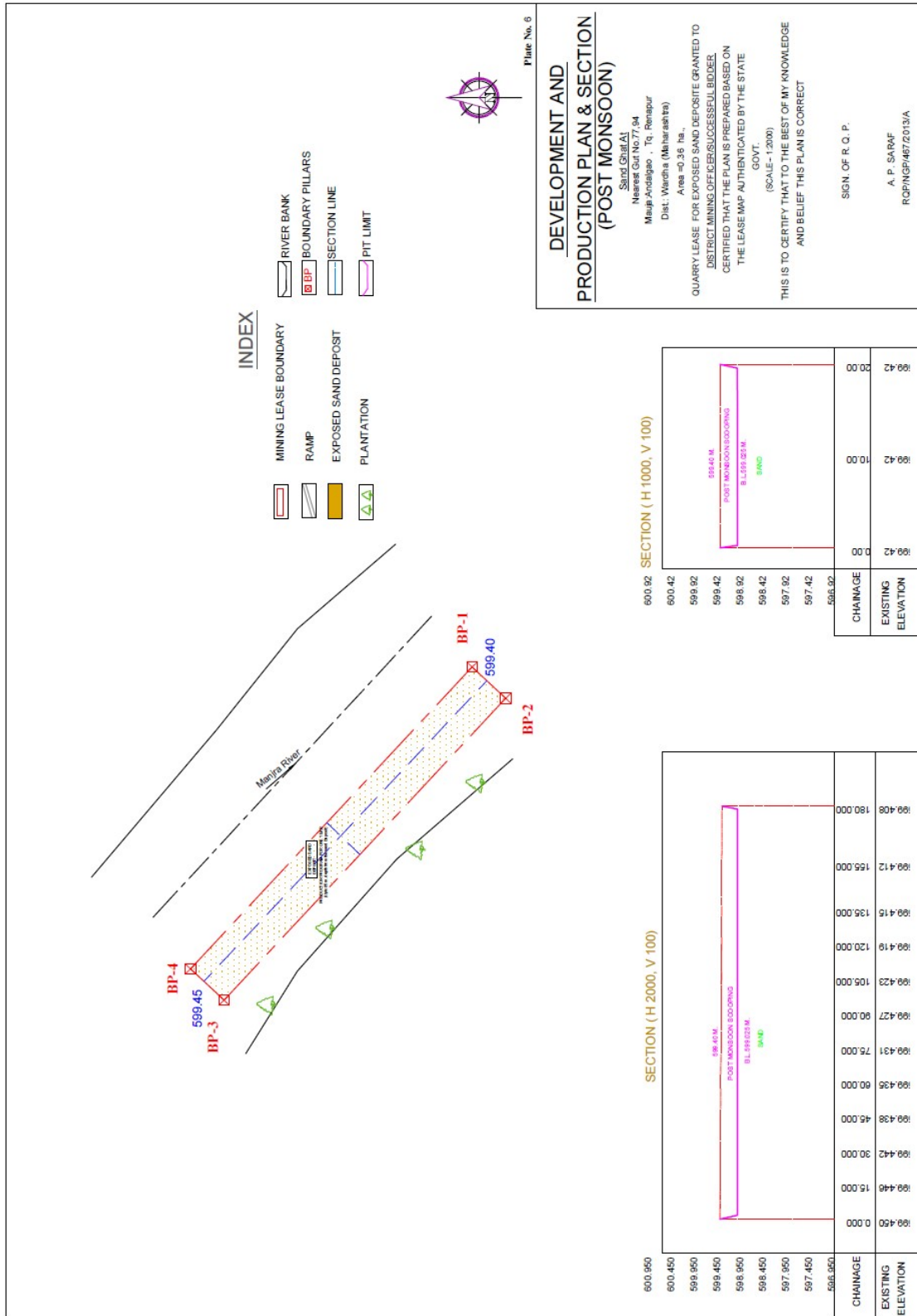
Period	Area x Depth (cu.m.)
Up to one year from the date of allotment of sand ghat or up to scooping of Allotted/Permitted quantity mined out, whichever is earlier excluding stipulated monsoon period between 10 June -30 September of the calendar year and the rainy days	180m x 20 m x 0.50 m

Appearance of Sand Ghat





Production Plan for Andalgaon Sand Ghat :



**DEVELOPMENT AND PRODUCTION PLAN & SECTION (POST MONSOON)**

Sand Ghat A1  
 Nearest Ghat No: 77/94  
 Mauja-Andalgaon, Tq. Rensapur  
 Dist: Warudha (Maharashtra)  
 Area = 0.36 ha.

QUARRY LEASE FOR EXPOSED SAND DEPOSITE GRANTED TO DISTRICT MINING OFFICER/SUCCESSFUL BIDDER CERTIFIED THAT THE PLAN IS PREPARED BASED ON THE LEASE MAP AUTHENTICATED BY THE STATE GOVT.  
 (SCALE - 1:200)

THIS IS TO CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS PLAN IS CORRECT

SIGN. OF R. Q. P.  
 A. P. SARAF  
 ROPING/467/2013/A

### 2.3 Manpower Requirement

About 28 labors are required to carry out the scooping activity.

Sr. No.	Category	Nos.
1	Mining Supervisor	3
2	Tractor Drivers and Helpers	10
3	Mining Labors	5
4	Ramp Maintenance	5
6	Support Staff/Labors	5
	Total	28

### 2.4 Amenities :

The site services will be provided by allottee/Successful Bidder, Office, First Aid and Rest Shelters will be temporarily constructed 20m away from the bank of river.

Facility of mobile toilet with water tank of 250 ltr. will be provided at 150m away from river bank. Arrangement for periodic disposal of collection tank of mobile toilet will be ensured or otherwise toilet will be acquired on rent for workers. Sewage will be disposed off by handing over to Municipal/authorized Sewage treatment agency.

### Requirement of Water for Dust Suppression & Domestic Purposes

Total water requirement for various activities during sand scooping is estimated as 1.560m<sup>3</sup>/day per sand ghat. The water will be required for dust suppression, plantation, domestic use. The activity-wise break up of the total water requirement is given below:

Purpose	Qty Required m <sup>3</sup> /day
Dust suppression/ Plantation	1.0
Domestic Use	0.560
<b>Total</b>	<b>1.560</b>

Water will be sourced from Grampanchayat Borewells on payment per litre cost basis. Drinking water will be provided from RO water suppliers.

## 2.5 Existing & Proposed Land Use Pattern :

Area	Existing Land Use sq. m.	Proposed Land Use sq. m.
Area under pits	00	3600
Area under dumps	00	00
Undisturbed Area	3600	00
Area under Roads	00	00
Area under Plantation	00	00
Area under Storage	00	00
Area under Office, etc.	00	00

## 2.6 Existing Flora & Fauna :

Local varieties of bushes like dhavda, neem, tarota observed in the area. Mainly agricultural activity observed for Jowar, patches of toor. Natural fauna like fishes observed in the course of water stream during the monsoon period. Mice, rabbits, lizards etc found in the nearby farms find during survey whereas no endangered wild life observed. No turtle nesting observed or recorded during the survey and on records.

## 2.7 Local Geology :

Applied area for sand extraction is covered by dark basalt and which has been derived/ transported from black basalt of surrounding flat and well tilled area. The sand of the applied area is found to be underlain by dark basalt of the river bed.

## 2.8 Mine Closure Plan :

Sand scooping is permitted for one year from the date of auction excluding monsoon period between 10<sup>th</sup> June-30<sup>th</sup> September policy dated 03.09.2019 of Govt. of Maharashtra only. Before surrender of Sand Ghat to District Authority, mine closure is proposed which will help to replenish the sand during the monsoon period when there will be live flow of water in the river channel.

Guidelines As per Indian Bureau Of Mines for Final Mine Closure of Sand Ghat:

Mineral is replenish able during each monsoon. No manual reclamation is proposed.

Method of SandTraps Emplace Gabions (1m height) at 200 m intervals to function as sand traps during final closure of Mine is proposed as per Sand Mining Guidelines of IBM vide letter 296/7/2000/MRC dated 16May 2011.

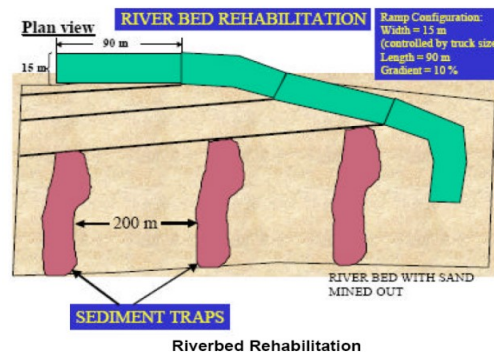


Figure -3

#### Final Closure Action Plan for Sand Ghat

- (1) Leave the area from which the sand has been extracted leveled and free of any foreign debris or materials.
- (2) Re-vegetate indigenous plants which were removed from areas for the mining of sand as far as is reasonably practical.
- (3) Plant trees along the riverbanks with no or minimal vegetation, irrespective of signs of erosion or not (ensure that species selected are indigenous species).
- (4) The surface of stockpile and sand processing areas outside the riverbed to be scarified to a depth of 500 mm, graded evenly and the topsoil previously stored, returned to its original depth over the area.
- (5) Prepare the area in such a way as to stimulate / ensure the re-growth of vegetation.
- (6) Prepare Sand Traps Emplace gabions (1 m height) at 200 m intervals to functions as sand traps. Boulders dug out during mining should be used for this purpose. Gabions would have to be placed at one kilometer (at the maximum) intervals on the mined out areas. The shorter gabion intervals would induce faster rehabilitation. Gabions are preferred over concrete because they would allow water to flow through, are a more natural solution. Also additional gabions can be easily laid to increase the trap height. Figure-3 is a drawing that illustrates river bed rehabilitation.
- (7) Any access routes, especially if they are not beneficial to the local community would need to be ploughed and replanted with native species.
- (8) Close and restore river bank where access ramps have been restored. Ensure river channel is not obstructed and that repaired bank is adequately fortified.

## Section 3.0 : Anticipated Impacts and Management

### 3.1 Anticipated Impacts and Management

The impacts envisaged due to mining activity are evaluated based on various factors. The emission inventory of the pollutants is as follows, the main air pollutant would be dust or particulate matter generated by handling and transportation of ore. The persons employed at the above areas are likely to get lung related diseases like silicosis, after prolonged exposure to the sand particles without protective measures. But the impact of mining operations on air quality is negligible as mining involved is only scooping of sand deposits from the river bed manually and not at large scale.

#### 3.1.1 Dust Generation and Control

There is mere possibility of dust generation due to the proposed scooping of Building Grade sand from river bed manually.. There is a possibility of dust generation due to the frequent movement of public transport vehicles and tippers carrying the Building grade sand on haulage & transport road. The envisaged production of Building Grade Sand during the plan period is only 541 Brass/annum from the proposed sand ghat.

- Incremental GLC is predicted using USEPA equation considering pollution sources like transportation and mining and modeled using AERMOD-ISCST-3 model

#### Area Source Emission Factor Considered

Sr. No.	Activity	Emission Factor Kg/T
1	Loading & Transportation	@0.0005 Kg/T

Refer Chapter -11 19.2 of EPA emission manual.

Being all the sand ghats are nearby and on one stretch of river, average scooping is considered for prediction of incremental ground level concentration. Average production is calculated as 20 Tonnes/Sand Ghat/day for 260 operational days.

**Area Source Emission-Production and Development**

Description	Statistics
Quantity ,TPA	5040 TPA
Operational Days per Year	260 Days
Lead (m)	790 m

**Predicted Emission**

Activity	Emission rate gm/sec
Transportation	0.029164722
<b>Total</b>	<b>0.029164722</b>

#Emission factor computed on wind speed of 1 m/sec, moisture 10% & Silt content 15 %

**Accordingly Maximum incremental GLC is predicted as 0.5790µgm/cum.**

Predicted Ground Level Concentrations due to Scooping of Sand is summarized as :

Sr. No.	Name of Village	Tahsil	Name of River	Predicted incremental GLC in terms of PM <sub>10</sub>
1	Andalgaon	Latur	Manjara	0.5790 µgm/cum

Predicted levels of PM<sub>10</sub> were found to be within permissible limits as per NAAQ standards.

In order to mitigate fugitive dust emissions and other air emissions from the project activities, the following measures are proposed to be adopted.

- The mining haulage area will be wetted by water spraying and two 1 KL mobile sprinklers

- To avoid fugitive dust emissions at the time of Screening activity, Sand screening activity will be carried so as to prevent spreading of dust.
- Effective dust suppression arrangements will be made at the ground level sand bunkers at the mines.
- Sand is transported by road through trucks. The sand will be in wet condition however if dry sand is being transported it will be wetted after loading in to the truck and shall be covered by tarpaulin sheets.

To minimize the vehicular pollution from the sand transporting vehicles, the following conditions are insisted to permit the vehicles of the transporters:

- The vehicles should be with good engine condition and should maintain pollution control certificate issued by appropriate authorities.
- Regular maintenance of transport vehicles and monitoring of vehicular emission levels at periodical intervals.
- Ambient Air quality Monitoring will be carried out at four stations on fortnightly basis to assess the air quality in and around the project for taking necessary control measures.
- Green belt development along the access roads at mine premises and near the sand mining site

### **3.1.2 Impact due to Noise Pollution and its Management**

Noise environment in this project will be affected only by the equipment at the site and vehicular transportation. Since mining is done manually, increase in noise levels is marginal and only due to transport activities.

In order to mitigate noise generation from the project activities, the following mitigation measures are proposed:

Since the noise generating is only through movement of vehicles, strict compliance to periodical maintenance of the vehicle conditions will be insisted.

Noise monitoring at the work places shall be carried out on fortnightly basis to ensure the compliance.

### **3.1.3 Impact due to Water Pollution and its Management**

As the project activity is carried out in the meandering part of the river bed, none of the project activities will affect the water environment. Sand is in exposed stage to scoop out and away from the river stream. In this project, it is not proposed to divert or truncate any stream. 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. As per the Government recommendations the sand in riverbed will be extracted up to 0.5-0.7 m depth only.

Thus, the project activities will not have any adverse effect on the physical components of the environment and therefore may not have any effect on the recharge of ground waters or affect the water quality.

In order to ensure that the project activities shall not affect the Water environment, the following measures will be taken up:

- Mining is avoided during the monsoon season and at the time of floods. This will help in replenishment of sand in the river bed.
- Mining below subterranean water level will be avoided as safe guard against environmental contamination and over exploitation of resources.
- River stream will not be diverted to form in active channels.
- Ground water levels will be monitored regularly in and around sand mining project.
- Mining schedule is synchronized with the river flow direction and the gradient of the land.
- Mining at the concave side of the river channel will be avoided to prevent bank erosion.
- Meandering segment of river will be selected for mining in such a way to avoid natural eroding banks and to promote mining on naturally building meander components.



- Mining depth shall be maintained as per the guidelines and rules of Sand Mining Policy dated 03.09.2019 and recommendations of M.S.. State Ground Water Department for extraction of sand during the lease period.
- Water Quality Monitoring for the ground waters, river water and other surface waters shall be carried out seasonally to ensure that the water quality is not affected by the project activities.

**Mitigation Measures to improve River Health (Manjara River)**

- Municipal authorities must arrest their solid, liquid discharge at their own treatment facilities and should avoid these hazardous matters to drain in to river.
- Awareness campaign in the local people must be floated implement river management.

**3.1.4 Impact on Land and its Management**

Movements of vehicles sometimes cause problems to agricultural land, human habitations, noise and movement of public and also cause traffic hazards. The impacts include damage of river bank due to access ramps to river bed, soil erosion, micro disturbance to ground water, possible inducement of changed river course, contamination of sand aquifer water due to ponding. However there may not be any direct impact on soil quality of the area as the scooping activity is restricted to exposed sand ghat keeping at safe distance of 20m from bank of the river.

**Proposed Mitigation Measures**

- Minimum number of access roads to river bed for which cutting of river banks will be avoided and ramps are to be maintained. Access points to the river bed will be decided basing on least steepness of river bank and least human activity.
- Haulage roads parallel to the river bank and roads connecting access to river bed will be made away from bank, preferably 25 m away.

- Mining at the concave side of the river channel should be avoided to prevent bank erosion. Similarly, meandering segment of a river to be selected for mining in such a way so as to avoid natural eroding of banks
- Care will be taken to ensure that ponding is not formed in the river bed.
- Access roads from public roads and up to river bank will be aligned in such a way that it would cause least environmental damage.
- Green belt will be developed along the access roads near the sand mining site. While selecting the plant species, preference will be given for planting native species of the area.
- Villagers will be encouraged in the plantation activities by means of social forestry.

### **3.1.5 Impact on Socio Economic Environment**

The project activities shall not have any adverse impacts on any of the common property resources of the village communities, as the sand mine lease area is not being used for any purpose by any section of the society in this region. Also the proposed sand ghat is away from public utilities like bridges, water supply schemes etc. There is no R & R involvement in this project. There is no land acquisition in this project.

The Project is expected to yield a positive impact on the socio-economic environment. It helps sustain the development of this area including further development of infrastructure facilities.

### **3.1.6 Impact on Ground Water Level of Surrounding Area**

Scooping of sand beyond the proposed scooping depth may deplete the ground water level of the area. Hence the maximum scoopable depth of sand is restricted keeping sand bed of 2m. The scoopable limit of Sand for proposed Andalgaon sand ghat is 0.5m keeping 2.0m bed depth of sand. Total Sand depth available is 2.5m.

Survey Committee includes member from GSDA, Latur and approved the depth by monitoring impact of proposed scooping of sand on ground water levels of the area.

### **3.1.7 Sand Replenishment Studies**

Physical monitoring requirements of sand extraction activities should include surveyed channel cross-sections, longitudinal profiles, bed material measurements, geomorphic maps, and discharge and sediment transport measurements.

In addition to local monitoring for replenishment at specific mining sites, monitoring of the entire reach will provide information on the cumulative response of the system to sand extraction.

Because the elevation of the bed of the channel is variable from year to year, a reach-based approach to monitoring will provide a larger context for site-specific changes.

If long-term monitoring data show that there is a reach-scale trend of bed lowering the extraction could be limited.

#### **Sand Replenishment**

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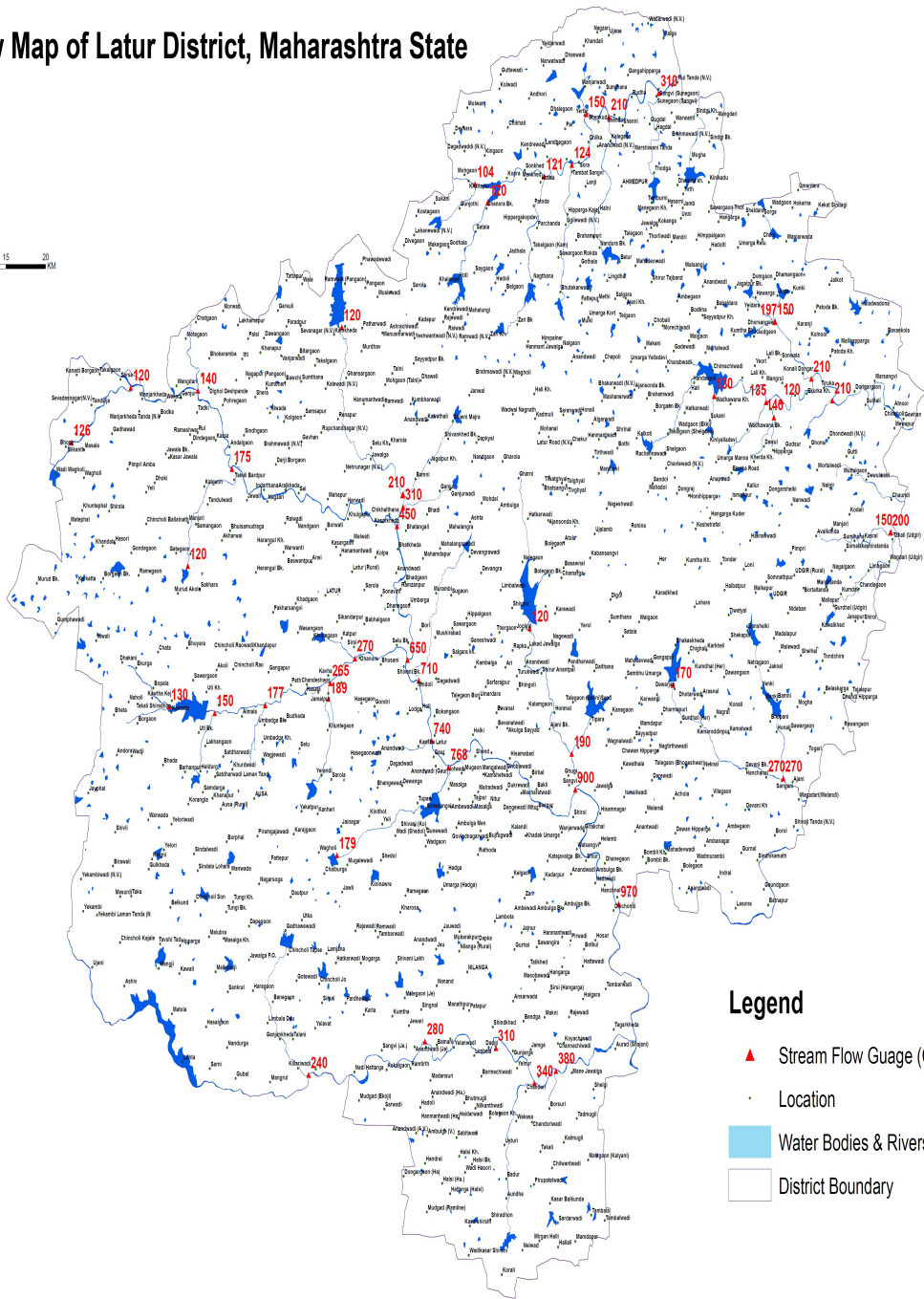
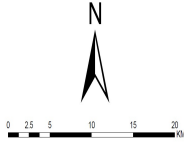
Because the elevation of the bed of the channel is variable from year to year, a reach-based approach to monitoring will provide a larger context for site-specific changes.

If long-term monitoring data show that there is a reach-scale trend of bed lowering the extraction could be limited.

A concurrent type cup flow meter with fish weight of 10 kg with auto data logger is used to record the stream flow velocity.

A Punjab type silt sampler was used to collect the surface water sample for measuring the silt. Silt sample is calibrated to collect surface water sample of 1 ltr. with required arrangements to collect the surface water. Data is interpreted as below

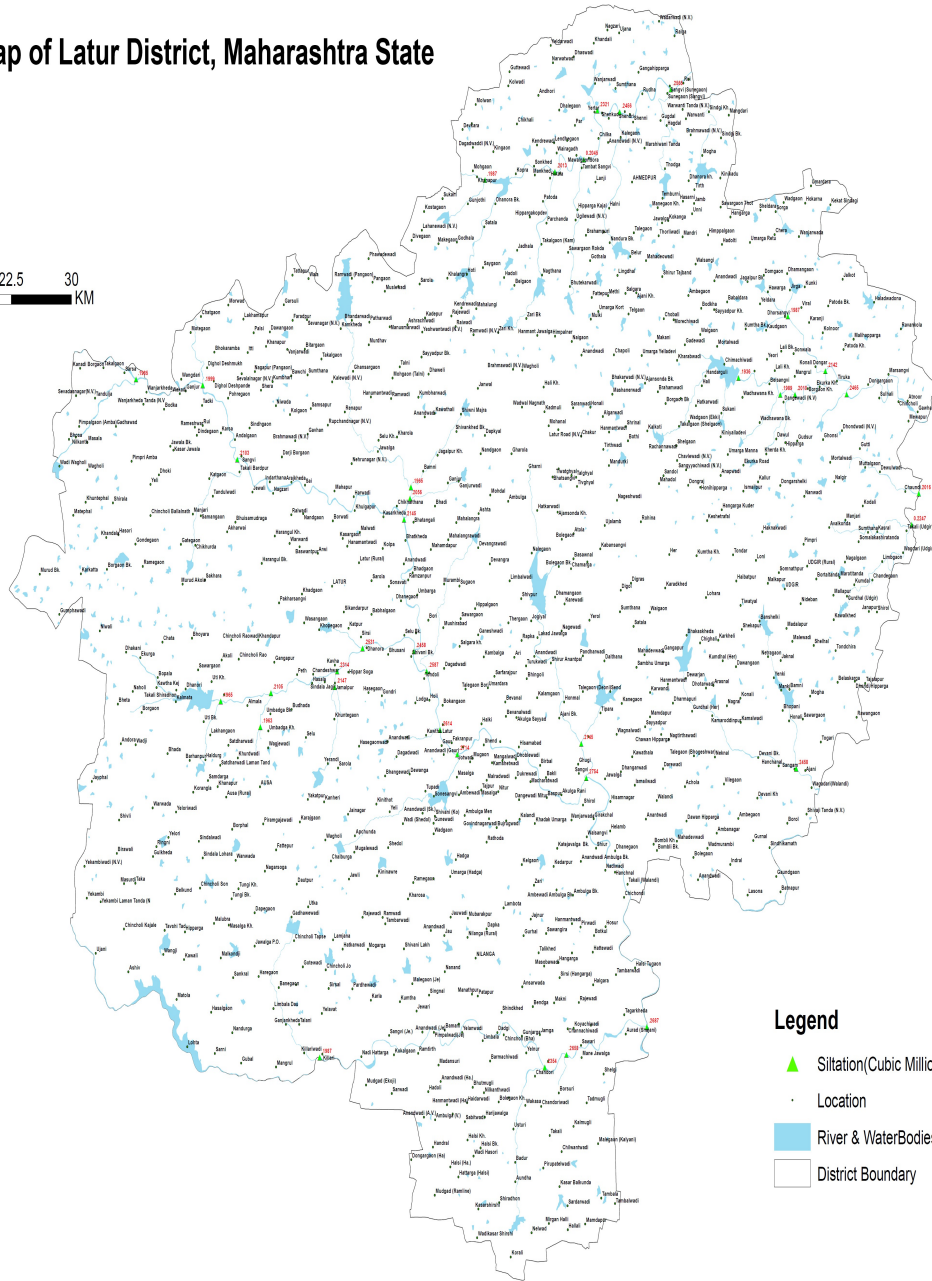
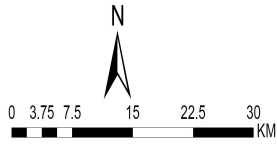
# Stream Flow Map of Latur District, Maharashtra State



# cum/minute

Siltation is mapped for the rivers using slope –discharge-silt formula as below

### River Siltation Map of Latur District, Maharashtra State



# In Million Cum

## Comparing theoretical methods with this year, last Year deposition

Sand Replenishment is tabulated as

Name of Sand Ghat	Method		
	Theoretical in m <sup>3</sup>	Last Year Deposition in m <sup>3</sup>	This Year Deposition in m <sup>3</sup>
Andalgaon	860	2625(Yr 17-18)	1800

### Management plan for replenishment of sand ghat

At the end of mining activity, large boulders removed during the scooping of sand will be arranged in the extracted area as per procedure depicted in approved mining plan and para 2.7 of this document. This will enable to replenish the sand ghat during the monsoon period.

#### 3.1.8 Land use pattern in the buffer zone

The land use of the 5 kms radius study area is studied by analyzing the available secondary data like SOI Toposheet, field visits etc. Most of the lands around the river body are agricultural lands. The major activity in the buffer zone is mainly agriculture. Agriculture is the main profession of people in the study area with nearly 2/3<sup>rd</sup> of the population engaged in one or the other form of agriculture.

#### Anticipated Impacts

As far as impact on the land use pattern is concerned, the buffer zone will not be affected as the mining operations are totally confined to the core zone.

Dump yards are not proposed as no waste is generated. The Building Grade sand mined will be temporarily stacked in a non mineralized area of the river bed. The proposed activity of sand mining is not envisaged to cause any impacts on the topography or the water drainage pattern as the excavation carried out is only manual scooping of Building Grade sand from the river bed.

The impact on soil quality is not likely to be more intensive than the present status and hence

degradation although inevitable, is not likely to affect soil quality. The loss of the fertile soil from the agricultural lands lying along side the river bank are observed during the floods due to differential lateral deposition of sand on the land surface.

As the proposed mining of Building Gradesand from the river bed is only during the pre monsoon season of the year, river erosion is not foreseen and hence control measures are not proposed. However as a preventive measure afforestation in terms of herbs and shrubs are proposed all around the lease area.

Ground water pollution is not envisaged as the proposed activity is not generating any kind of waste such that there can be seepage of pollutants to cause any impacts.

The mining activity proposed is a manual scooping of Building Gradesand and hence no impact is envisaged on the local biodiversity.

Since no agricultural or common property lands are involved in the proposed activity action plan for abatement and compensation for the same is not proposed.

#### **Proposed Mitigation Measures**

Since the project site is a river bank mining activities will not have any major impact and since the deposits are replenished naturally. No reclamation is proposed. The proponent will plan to plant saplings every year to enrich the existing biodiversity. Local varieties available will be suitably planted so that bio-diversity is further enriched.

Avenue plantation are proposed to be carried out all along the roads connecting the mine site; the lessee has proposed to carry out plantations on either side of the village roads as a social responsibility towards the community in restoring the ecological balance in the surrounding area.

A green belt shall be developed by planting a suitable combination of trees which can grow fast and also reduce the noise levels from aesthetic point of view which will also have a positive impact.

To prevent the sand deposition on the agricultural lands various preventive measures like planting bushes all along the river bank which have extensive root system will be carried out. They will act as a barrier preventing the sand from depositing on the lands thus preserving its fertility.

### **3.1.9 Biological Environment**

#### **Baseline Status**

The general observation shows moderate green cover and agricultural lands in the buffer zone. Ecological survey was carried out by field visits in the study area of 5kms radius to observe the species and to assess the status of dominance, density, frequency, abundance, etc. Besides, personal enquiries & discussion with local people and forest department officials were also conducted to get a fair idea of the existing ecological status.

**Biodiversity:** In the buffer zone area common varieties of crops like Soyabean, jowar, toor are seen. No floral species, which are rare or of medicinal variety have been observed in the study area. The fauna found in the area are of common variety and no endangered species are found in the study area. There are no National Parks, Sanctuary or a Biosphere Reserve within 10 kms radial distance from the mining area.

**Aquatic flora and fauna:** In order to study the aquatic flora and fauna of River, water samples were collected from the selected locations of the river course and were analyzed. The river harbors a variety of fishes from rohu, sipnas, wagur, chhachya, kathla and zinga, etc. It is observed that there no fauna dependant on the river bed or area nearest for its nesting The river also cradles various species of aquatic flora.

#### **Anticipated Impacts**

There is no loss of forest resources like medicinal plants, endangered & rare species as no deforestation takes place since mining is done on the banks of a river.

There will be no impact on the terrestrial biodiversity as there is no air & noise pollution due to the proposed mining activity.

Since there is no pollution of the river water due to the proposed activity the aquatic biodiversity is not affected & hence no mitigation measures are suggested. There will be no habitat fragmentation or blocking of migratory corridors as the proposed mining.

#### **Proposed Mitigation Measures**

Mitigative measures proposed are in terms of afforestation over the mined out areas. Delineation of the same will be carried out as the mining activity proceeds. It is proposed to



have a green belt along the bank. For which appropriate species of plants that suits the geo-climatic conditions are selected. The species selected have deep roots, fast growth and optimum penetrability to withstand the wind shall be selected, which otherwise will act as wind tunnels.

Since the project site is a river bank, mining activities will not have any major impact and since the deposits are replenished naturally no reclamation is proposed.

### **Afforestation**

The afforestation is proposed all along the river bank for the proposed plan period, every year it is proposed to afforest saplings along the bank as per EMP. Avenue plantation will also be undertaken in a phased manner over the next 4 months . Villagers will be involved for all the afforestation activities. Care shall be taken for the protection and growth of these saplings for better survival.

As there is no proposal for deforestation, compensatory afforestation is not envisaged. But afforestation in terms of a social responsibility towards a better environment with economically beneficial plantation is proposed to be grown. A green belt i.e. varieties of herbs & shrubs all along the cultivable area of the river banks is proposed thus creating a better biotic environment.

For afforestation the species to be planted are considered keeping in view the following conditions:

Adaptation to the geo-climatic conditions of the area .

A mix of oblong and conical canopies (hts ranging 4m – 20m) Preferably evergreen trees.

The species that have history of good survival and growth under similar site conditions are preferably selected.

Avenue plantation are proposed to be carried out all along the roads connecting the mine site; the lessee has proposed to carry out plantations on either side of the village roads considering it has a social responsibility towards the community in restoring the ecological balance in the surrounding area. Based on the above Neem, Peepal, Gulmohar will be planted.

### **3.1.10 Socio economic Environment**

#### **Baseline Environment**

Socio-economic study is an integral part of the environmental study; existing as well as upcoming sand scooping will have both adverse & beneficial impacts on the environment.

It is revealed that the proposed area is well connected to the nearby major towns and cities, the public services and utilities like Medical facilities, Electricity, Drinking water requirement. Transportation & communication etc need to be organized for ready availability.

The basic socioeconomic needs of villages are fulfilled at large from the 25 % of royalty collected from village sand ghat. These funds are available in the District Mineral Foundation specifically for village road development, drinking water scheme to fulfill socio economic upliftment.

### **3.1.11 Occupational Health**

#### **Baseline Status**

There is no remarkable environmental pollution due to the proposed mining as it is proposed to be a manual mining/scooping of Building Gradesand on the banks of River Manjara. Hence there will be no major occupational health hazards.

#### **Medical & Health Facilities**

First-aid facility is to be provided at the mines. The proponent will further provide related safety equipments & facilities at the proposed mine site. Medical checkups, pathological tests and medicines will be provided to all employees. Each person being employed in the mine will undergo initial medical examination with periodical examinations till they are employed at the mines.

### **3.1.12 Final Mine Closure Plan**

At the end of mining activity, large boulders removed during the scooping of sand will be arranged in the extracted area as per procedure depicted in approved mining plan and para 2.7 of this document. This will enable to replenish the sand ghat during the monsoon period.

## **Section 4.0 : Implementation, Monitoring & Budgeting to implement**

### **4.1 Environmental Management Plan**

Reference to section 3.0 regarding baseline data and probable impacts and mitigation measures, the Environmental Management Plan is implemented by the Sand Ghat Allottee/ Successful Bidder.

A budgetary provision of Rs 5.98 lakhs is earmarked to implement the Environment Management Plan.

#### **4.1.1 Air Quality Management**

##### **4.1.1.1 Controlling Dust Levels**

Dust is the major pollutant generated from the mining operations. Dust would be generated during mining, handling and transportation of the material. The maximum predicted value of increase in PM<sub>10</sub> due to proposed mining operation would be about 0.5790 µg/m<sup>3</sup>. This concentration will be observed within the Sand Ghat area. The concentration was found to reduce to a value of 0.01 µg/m<sup>3</sup> at a distance of about 1.0 km from the mining lease boundary. The impact of mining operation would be negligible beyond 1.0 km. The environmental control measures, proposed to control the fugitive dust released during the Sand scooping/ mining are given below:

#### **MINES**

- Dust masks will be provided to the workers exposed .
- Afforestation along the river bank and along the village road
- Periodic health check up for the workers shall be done
- Maintenance of plantation of wide leaf trees along river bank and tall grass along slope of river bank .
- Water tankers with spraying arrangement will be used for regular water sprinkling on village roads to ensure effective dust suppression due to transportation

#### **RAMP**

- Ramp will be maintained regularly
- Speed limits will be prescribed for transport vehicle
- Periodic maintenance of the tractor used for transport shall be done to reduce smoke emissions
- Over filling of tractors is avoided and thus spillage on the ramp/ roads is restricted

- Sand carrying trucks will be effectively covered by tarpaulin to avoid escape of fines to the ambient air.
- No vehicle with its engine will be allow to keep idle to reduce pollutant levels and conserve riverine health.

**A summary of air pollution control measures is given below:**

S. No	Impact Source	Impact	Control measure
1	Transport Road	On Air Quality On Land / Rd stability/ Rd degradation	<ul style="list-style-type: none"> <li>• Compaction, gradation and drainage on both sides &amp; development of green belts</li> <li>• Proper maintenance.</li> <li>• Regular water spraying.</li> <li>• Avoiding over filling of tractor and consequent spillage on the roads</li> <li>• Air quality will be monitoring at impacted village.</li> </ul>
2	Truck/ Tractor Movement	Air Quality	<ul style="list-style-type: none"> <li>• No overloading of trucks.</li> <li>• Sand carrying trucks will be effectively covered by tarpaulin to avoid escape of fines to the atmosphere.</li> <li>• Enforcing speed limit.</li> <li>• Regular monitoring of the exhaust fumes.</li> <li>• No Engine of tractor/truck will be kept on during the filling.</li> <li>• If possible entry be restricted to river bed</li> </ul>
3	Ramp and Sand Reach	Mining Operations	<ul style="list-style-type: none"> <li>• Regular ramp Inspection and Ramp maintenance</li> <li>• Provision of dusk masks.</li> <li>• Mining will be done during day time between fixed hours only.</li> </ul>
4	Bank Management	Bank Erosion/ Flood Plain management	<ul style="list-style-type: none"> <li>• Green belt along bank</li> <li>• Plantation of wide leaf tall trees on banks and grass along slanting portion of bank.</li> </ul>

5	Occupational Health & Safety Measures to Control Dust Inhalation	Safety of Workers and Mining Operations	<ul style="list-style-type: none"> <li>• Providing a working environment that is conducive to safety &amp; health</li> <li>• The management of occupational safety &amp; health is the prime responsibility of mine owner.</li> </ul>
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			<ul style="list-style-type: none"> <li>• Provision of necessary personal protective equipments</li> <li>• Ensuring employees at all levels receive appropriate training and are competent to carry out their duties and responsibilities</li> <li>• Provision of First Aid and Drinking Water, Temporary rest Room</li> </ul>
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#### 4.1.2 Noise Pollution and Ground Vibrations

As no blasting is involved ground vibrations will not be measured.

Source	Type	Intensity, dB(A)	Proposed control
Transportation through village roads	---	Highway model -62.8 L <sub>eq</sub>	<ul style="list-style-type: none"> <li>• Avenue plantation,</li> <li>• Speed breakers</li> </ul>

##### 4.1.2.1 Noise Pollution Control

The following noise control measures will be provided in the proposed crushing and screening plant.

- In addition, personnel working near high noise level generating sources will be provided with ear muffs
- No equipment generating Noise excluding tractor/truck will be permitted.
- No tractor engine will be kept idle.
- Conduct periodic audiometric tests for employees working close to high noise generating areas such as compressors, the loading and unloading sections, etc
- Provision of PPE's will be made and their proper usage will be ensured for hearing protection of the workers as well as visitors.

#### 4.1.3 Traffic Management

The impacts of increase in traffic load from the proposed mine will be reduced by proper planning and implementation of the strict traffic guidelines. The following measures will be adopted to minimize the impacts of the increase in traffic density.

- Feasibility of alternative mode of transport avoiding village.
- The mineral transporting vehicles will be registered with the forest department/revenue department and only registered vehicles will be used for mineral transport.
- The PUC certificate for exhaust emissions for all the transport vehicles will be made mandatory.
- All the vehicles will be properly maintained to control emissions and noise generation.
- Drivers of all the vehicles will strictly follow traffic rules.
- Speeds of the mineral transport vehicles will be regulated.
- Overloading of the trucks/tractors will not be allowed
- The mineral transporting trucks/tractors will be properly covered with tarpaulin to avoid fugitive emissions.
- Batch transport system will be adopted in consultation with the other sand ghat operators in the area to avoid excess traffic at a time on the road.
- Mineral transportation will be done only during day time only.
- Strict action will be taken against any driver, who do not comply the traffic rules.

#### **4.1.4 Water Quality Management**

##### **4.1.4.1 Water Pollution Control Measures**

The only source of pollution from the mine will be the silt wash off during monsoon. The measures proposed for control of water pollution are mentioned below:

- Plantation of local varieties of flora species, along the drains, so that there will be fast and healthy growth of vegetation specially along bank.
- Sand does not contain any toxic substance, which can dissolve and pollute water quality. To prevent the suspended particles joining the natural stream in the area, ramp and approach created for Sand Ghat will be blocked.
- Domestic effluent will be discharged in septic tank and soak pits temporarily proposed at 20m away from river bank of Manjara or other option as suggested by authority will be eased.

##### **4.1.5 Implementation of Final Mine Closure Plan**

At the end of mining activity, large boulders removed during the scooping of sand will be arranged in the extracted area as per procedure depicted in approved mining plan and para 2.7 of this document. This will enable to replenish the sand ghat during the monsoon period.

#### **4.1.6 Plantation program**

It is proposed to plant about 515 plants of local species during the monsoon period along bank of river and village roads.

#### **List of Species Proposed for green Belt Development**

Local species like Neem, peepal,subabhul, Karanj, Gulmohar etc will be planted.

#### **4.1.7 Occupational Health and Safety Management**

The following Occupational Health and safety Measures will be adopted in the mine leas area:

- Providing a working environment that is conducive to safety and health
- The management of occupational safety and health is the prime responsibility of mine management from the executive level to the first line supervisory level
- Employee involvement and commitment in the implementation of health and safety guidelines
- Provision of necessary personal protective equipments to all the employees
- Extensive publicity and propaganda related to safety.
- Identification and assessment of risk from health hazards at work places and taking adequate steps to reduce risks.
- Education of workers on sanitation, cleanliness, hygiene and health care.
- Periodical medical examination of all workers by medical specialist so that any adverse affect may be detected in its early stage.

#### **Noise Induced Hearing Loss**

Rotation of workers exposed to noisy premises to avoid NIHL.

#### 4.2 Monitoring of Implementation of Environmental Management Plan with Budget:

**Successful Bidder/ Sand Ghat allottee will implement the Environmental Management Plan for the amount Rs. 7.63 Lakhs on his own.**

Successful Bidder/ Sand Ghat allottee will submit compliance to terms of conditions stipulated in the prior environmental clearance to the District Mining Officer and respective Tahsildar with the expenses made on implementation of environmental management plan.

**District Mining Officer/respective Tahsildar will monitor the implementation of approved environmental management plan along with District Level Committee headed by District Collector as stipulated in Sand Mining Rules 2019.**

After submission of satisfactory compliances on periodic the implementation compliances of approved environmental management plan, District Collector will release the EMD deposited by the Successful Bidder/ Sand Ghat allottee, otherwise the same will be forfeited.

S. No	Impact Source	Impact	Control measure	Budget/Cost
1	Transport Road	On Air Quality On Land / Rd stability/ Rd degradation	<ul style="list-style-type: none"> <li>• Compaction, gradation and drainage on both sides</li> <li>• Proper maintenance.</li> <li>• Regular water spraying.</li> <li>• Air quality will be monitoring at impacted village.</li> <li>• Health Checkup of Employees</li> </ul>	<ul style="list-style-type: none"> <li>• Rs. 75000.00</li> <li>• Rs. 50000.00</li> <li>• Rs. 100000.00</li> <li>• Rs. 15000.00 (For One Day Monitoring)</li> <li>• Rs. 10000.00</li> </ul>
2	Truck/ Tractor Movement	Air Quality	<ul style="list-style-type: none"> <li>• Sand carrying trucks will be effectively covered by tarpaulin to avoid escape of fines to the atmosphere.</li> <li>• Regular monitoring of the exhaust fumes.</li> </ul>	<ul style="list-style-type: none"> <li>• Rs. 10000.00</li> <li>• (2 tarpaulin)</li> <li>• Rs. 1000.00</li> </ul>



			<ul style="list-style-type: none"> <li>Barriers &amp; Traffic Management Expenses</li> </ul>	<ul style="list-style-type: none"> <li>Rs. 10000.00 (Excluding Man Power Salary which is included in labour costs)</li> </ul>
3	Ramp and Sand Reach	Mining Operations	<ul style="list-style-type: none"> <li>Regular ramp Inspection and Ramp maintenance</li> <li>Provision of dusk masks.</li> </ul>	<ul style="list-style-type: none"> <li>Rs. 20000.00 (Excluding Man Power Salary which is included in labour costs)</li> <li>Rs. 10000.00</li> </ul>
4	Bank Management	Bank Erosion/ Flood Plain management	<ul style="list-style-type: none"> <li>Green belt along bank</li> <li>Plantation of wide leaf tall trees on banks and grass along slanting portion of bank. (35 Saplings)</li> </ul>	Rs.17500.00 (for Green Belt Development)
5	Transportation on Village Roads	Dust Control	<ul style="list-style-type: none"> <li>Green belt along village Rd (480 Saplings)</li> </ul>	Rs. 240000.00 (for Green Belt Development)
6	Final Mine Closer Plan implementation	Replenishment of Sand	<ul style="list-style-type: none"> <li>Gabions/ boulders will be arranged as per guidelines</li> </ul>	Rs. 15000.00
7	Mobile toilet, sewage handling & treatment		<ul style="list-style-type: none"> <li>Mobile toilet, sewage handling &amp; treatment</li> </ul>	Rs.100000.00
8	Corporate Environmental Responsibility		<ul style="list-style-type: none"> <li>As suggested by SEAC/SEIAA otherwise will be used for additional plantation as per approved DSR</li> </ul>	Rs.100000.00
	<ul style="list-style-type: none"> <li>Total in Rs</li> </ul>			Rs. 763500.00



**EXECUTIVE SUMMARY ON  
DRAFT ENVIRONMENTAL MANAGEMENT PLAN**

**FOR**

**SAND GHATS**

**AT**

**LATUR DISTRICT**

**STATE – MAHARASHTRA**

**FOR PUBLIC HEARING FOR 05 SAND GHATS**

**PROPONENT**

**DISTRICT MINING OFFICER, COLLECTOR OFFICE, LATUR**

**CONSULTANT**

**ENVIRO TECHNO CONSULT PRIVATE LIMITED**

68,MAHAKALI NAGAR-2  
NEAR MANEWADA SQUARE  
NAGPUR 440 024

**JUNE 2020**

**Introduction :**

District Collector, Latur intends to auction sand ghats and appointed District Mining Officer Latur as project proponent as per sand mining guidelines dated 03.09.2019. Total 05 sand ghats are identified by Taluka level Technical Committee chaired by Tahsildar and Dy. Engineer Irrigation, Junior Geologist, Directorate of Geology and Mining, Junior Geologist G.S.D.A., representative of Maharashtra Pollution Control Board for scooping of sand by manual method.

List of sand ghats proposed for auction prior environmental clearance are as below

Table 1.0 Details of Sand Ghat :

**Table 1.0 Details of Sand Ghat :**

Sr. No.	Taluka	Name of Sand Ghat	Name of Village	Name of River/Stream	Nearest Gut no.	Dimensions of Sand Ghat			Area of sand Ghat in Ha.	Sand Proposed for scooping in Brass	Length of Approach Road in m.	Width of Approach in m	No. of Workers	No. of Tractors	No of Trees along Bank	No of Trees along village Road	Water Requirement in cum/day	EMP cost in Rs.
						Length	Width	Depth										
1	Latur	Salgara	Salgara	Manjara	384,385	170 m	18 m	0.5 m	0.3060	541	900	6	28	2	35	363	1.560	650300.00
2	Latur	Umarga	Umarga	Manjara	128	160 m	23 m	0.5 m	0.3680	650	790	6	28	2	35	315	1.560	641000.00
3	Renapur	Andalgaon	Andalgaon	Manjara	77,94	180 m	20 m	0.5 m	0.3600	636	1200	6	28	2	35	480	1.560	763500.00
4	Deoni	Batanpur	Batanpur	Manjara	48,49,50	210 m	25 m	0.5 m	0.5250	928	870	6	28	2	45	350	1.560	663500.00
5	Deoni	Gaudgaon	Gaudgaon	Manjara	83,84	250m	20 m	0.5 m	0.5000	883	740	6	28	2	50	300	1.560	631000.00

● **Status of Statutory Clearances for Sand Ghat**

Name & Address of Allottee	District Mining Officer Latur / Successful Bidder Latur District, Latur
Status of the lease	New, Individual/ Project Proponent/Succesful Bidder for auction of sand ghat by District Collector Latur.
Mineral for which lessee intends to mine	Ordinary Sand for Construction purpose
Name & Address of the Prospecting Agency	Taluka level Technical Committee chaired by Tahsildar and Dy. Engineer Irrigation, Junior Geologist, Directorate of Geology and Mining, Junior Geologist G.S.D.A., representative of Maharashtra Pollution Control Board.
Grampanchayat NOC	Received from Gramsabha as per public consultation procedure defined in sand mining guidelines of Maharashtra State dated 03.09.2019.
Plan Period for Activity	Up to one year from the date of allotment of sand ghat or up to scooping of Allotted/Permitted quantity mined out, whichever is earlier excluding stipulated monsoon period between 10 June -30 September

● **Method of Mining :**

The mining will be manual opencast mining method of scooping using simple tool like spade/pawdas.

- a. Over burden/Soil Removal:  
No overburden/Soil is anticipated.
- b. Scooping of Sand /Loading  
The ordinary sand will be loaded manually by labours.
- c. Hauling  
Ordinary sand is transported through tractors /trucks with permissible quantity.
- d. No machinery will be utilized.
- e. Period of scooping of sand will be for one year excluding monsoon period of 10<sup>th</sup> June -30<sup>th</sup> Sept or as defined by district collector.

**Executive summary Latur Sand Ghats**

- About 28 labours per sand ghat will be required.
- The site services will be provided by allottee/Successful Bidder, Office, First Aid and Rest Shelters will be temporarily constructed 20m away from the bank of river.
- Applied area for sand extraction is covered by dark basalt and which has been derived/ transported from black basalt of surrounding flat and well tilled area. The sand of the applied area is found to be underlain by dark basalt of the river bed.
- Anticipated Environmental impacts and Management Plan

**A summary of air pollution control measures is given below:**

S. No	Impact Source	Impact	Control measure
1	Transport Road	On Air Quality On Land / Rd stability/ Rd degradation	<ul style="list-style-type: none"> <li>• Compaction, gradation and drainage on both sides &amp; development of green belts</li> <li>• Proper maintenance.</li> <li>• Regular water spraying.</li> <li>• Avoiding over filling of tractor and consequent spillage on the roads</li> <li>• Air quality will be monitoring at impacted village.</li> </ul>
2	Truck/ Tractor Movement	Air Quality	<ul style="list-style-type: none"> <li>• No overloading of trucks.</li> <li>• Sand carrying trucks will be effectively covered by tarpaulin to avoid escape of fines to the atmosphere.</li> <li>• Enforcing speed limit.</li> <li>• Regular monitoring of the exhaust fumes.</li> <li>• No Engine of tractor/truck will be kept on during the filling.</li> <li>• If possible entry be restricted to river bed</li> </ul>
3	Ramp and Sand Reach	Mining Operations	<ul style="list-style-type: none"> <li>• Regular ramp Inspection and Ramp maintenance</li> <li>• Provision of dusk masks.</li> <li>• Mining will be done during day time between fixed</li> </ul>

			hours only.
4	Bank Management	Bank Erosion/ Flood Plain management	<ul style="list-style-type: none"> <li>• Green belt along bank</li> <li>• Plantation of wide leaf tall trees on banks and grass along slanting portion of bank.</li> </ul>

**• Occupational Health and Services**

1	Occupational Health & Safety Measures to Control Dust Inhalation	Safety of Workers and Mining Operations	<ul style="list-style-type: none"> <li>• Providing a working environment that is conducive to safety &amp; health</li> <li>• The management of occupational safety &amp; health is the prime responsibility of mine owner.</li> <li>• Provision of necessary personal protective equipments</li> <li>• Ensuring employees at all levels receive appropriate training and are competent to carry out their duties and responsibilities</li> <li>• Provision of First Aid and Drinking Water, Temporary rest Room</li> </ul>
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**• Noise control measures will be provided in the proposed crushing and screening plant.**

- In addition, personnel working near high noise level generating sources will be provided with ear muffs
- No equipment generating Noise excluding tractor/truck will be permitted.
- No tractor engine will be kept idle.
- Conduct periodic audiometric tests for employees working close to high noise generating areas such as compressors, the loading and unloading sections, etc
- Provision of PPE's will be made and their proper usage will be ensured for hearing protection of the workers as well as visitors.



● **Traffic Management**

- The mineral transporting vehicles will be registered with the forest department/revenue department and only registered vehicles will be used for mineral transport.
- The PUC certificate for exhaust emissions for all the transport vehicles will be made mandatory.
- All the vehicles will be properly maintained to control emissions and noise generation.
- Drivers of all the vehicles will strictly follow traffic rules.
- Speeds of the mineral transport vehicles will be regulated.
- Overloading of the tractors will not be allowed
- The mineral transporting tractors will be properly covered with tarpaulin to avoid fugitive emissions.
- Batch transport system will be adopted in consultation with the other sand ghat operators in the area to avoid excess traffic at a time on the road.
- Mineral transportation will be done only during day time only.
- Strict action will be taken against any driver, who do not comply the traffic rules.

● **Plantation program**

It is proposed to plant local species during the monsoon period along bank of river and village roads.

List of Species Proposed for green Belt Development

Local species like Neem, peepal, subabul, Karanj, Gulmohar etc will be planted.

- Successful Bidder/ Sand Ghat allottee will implement the Environmental Management Plan for the amount as per Table 1.0 on his own.

Successful Bidder/ Sand Ghat allottee will submit compliance to terms of conditions stipulated in the prior environmental clearance to the District Mining Officer and respective Tahsildar with

the expenses made on implementation of environmental management plan.

**District Mining Officer/respective Tahsildar will monitor the implementation of approved environmental management plan along with District Level Committee headed by District Collector as stipulated in Sand Mining Rules 2019.**