



महाराष्ट्र शासन
गौणखनिज शाखा

जिल्हाधिकारी कार्यालय, सोलापूर.

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क्र.मशा/कार्या-1/गौख/प्र.क्र. / आरआर- 134 / 21

दि. 14 / 01 / 2021

To,

163

**The Member Secretary
Maharashtra Pollution Control Board (MPCB);
3rd & 4th Floor, Kalpataru Point,
Sion Circle, Sion (E),
Mumbai - 400 022.**

Subject:-Application for Public Hearing to be conducted for auction of Sand ghat spots located in Mohol & Mangalwedha Talukas on river Bhima in Solapur District (Details are provided in enclosed executive summary)

Dear Sir,

District Collector, Solapur intends to auction sand ghats for the year 2020-21. District Mining Officer (DMO) Solapur is project proponent as per sand mining guidelines dated 03.09.2019. Total 7 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. As Per Government of Maharashtra Letter No: Sankirn-2019/P.K.01/Ta.K.3 dated Dec 3, 2019, Public Hearing must be conducted for mines less than five Hectares.

Accordingly, application in Form-1M, PFR, EMP, DSR along with the approved Mining Plan for Sand Spots will be submitted along with Public Hearing Proceedings for Environmental Clearance.

Attached herewith filled application for public hearing, draft EIA Report as per the generic structure stipulated in MoEF Notification No. S.O.1533 (E) dated 14.09.2006 as amended vide Notification No. 3067 (E) dated December 01, 2009, Executive Summary Report and approved mining plan copy of 7 proposed sand ghat.

Demand Draft of Rs.35,000/- (Rs. Thirty Five Thousand) drawn in favor of SRO MPCB Solapur, along with two sets of above mentioned documents is submitted for your information and necessary further action.

Kindly, further order to SRO, MPCB for advertisement in newspaper to conduct public hearing.

Yours faithfully,

Ms. Divya Verma

District Mining Officer, Solapur.

Encl.:

1. Approved mining plan copy for 7 ghat section
2. Draft executive summary
3. Draft EMP
4. Demand Draft in favour of SRO MPCB SOLAPUR

No. MIN-Adm/02/2020/ 7-8
Office of The Regional Deputy Director,
Directorate of Geology & Mining,
Government of Maharashtra,
Udyog Bhavan Kolhapur.
Date :-

14 JAN 2021

To,
✓ District Mining Officer,
Project Proponest / Successful Bidder,
District Collectorate, Solapur (M.S.)

Sub :- Approval of Mining plan of Sand Ghat District – Solapur in the state of Maharashtra.

Sr. No.	River	Name of Sand Ghat	Taluka	District	Quantity (Brass)	Gat No.	Area
1	2	3	4	5	6	7	8
1	Bhima	Ardhnari & Bathan Spot 1	Mohol & Mangalvedha	Solapur	15848	38,102 to 106	4.4850
2	Bhima	Ardhnari & Bathan Spot 2	Mohol & Mangalvedha	Solapur	15768	38,124,125,129 to 132,135,136, 138,139,141, 142,143 & 145	4.4625
3	Bhima	Ghodeswar & Tamdardi Spot 1	Mohol & Mangalvedha	Solapur	15554	115,112,344 to 348	4.4020
4	Bhima	Ghodeswar & Tamdardi Spot 2	Mohol & Mangalvedha	Solapur	15319	108,107,105, 104,1,6,7,15,16, 17	4.3355
5	Bhima	Ghodeswar & Tamdardi Spot 3	Mohol & Mangalvedha	Solapur	15691	98,97,96,94, 49,50,51	4.4408
6	Bhima	Miri & Tandor Spot 1	Mohol & Mangalvedha	Solapur	15710	55,56,57,68, 203,205,207, 208,209,213, 214	4.4460
7	Bhima	Miri & Siddhapur Spot 1	Mohol & Mangalvedha	Solapur	15335	49,48,45,44, 41,40,33,485,486,1	4.3400

Ref :- Your TQP Letter No. dtd. – 13/01/2021

Sir,

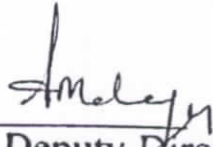
In exercise of the powers conferred by Government of Maharashtra vide Industries, Energy and Labour Dept. Mumbai notification No. MNG- 1004/PK/610/Ind-9, dt. 16/06/2004 under rule 22 (BB) of Mineral Concession Rules 1960 and the authorization given by Director, Directorate of Geology and Mining, Government of Maharashtra, Nagpur vide Notification No. STC/265/4/2014/2668, dt. 14/11/2019, I here by approve above said Mining Plan. This approval is subject to following condition.

1. The Mining plan along with PMCP is approved without prejudice to any other laws that applicable to the mine / area from time to time whether made by central or State Government or any other authority.

2. That this approval of Mining Plan along with PMCP does not in any way imply the approval of the Government in terms of any other provisions of the Maharashtra Minor Mineral Extraction (Dev. & Reg.) Rules, 2013 / Maharashtra Granite extraction Rules 1995 including environment protection Act. – 1986 and the Rules made there under.
3. Relevant clearances should be obtained as per Environment Protection Act.-1986 and E.I.A. notification dated 21/01/1994 and 04/09/2006.
4. It is further clarified that the approval of the Mining Plan along with PMCP is subject to the provisions of forest (Conservation) Act. – 1980, Forest Conservation Rules, 2003 and other relevant status, order and guidelines as may be applicable to the lease area from time to time.
5. The execution of Mining Plan along with PMCP shall be subject to vacation of prohibitory order/notices, if any.
6. This department does not undertake any responsibility regarding correctness of the boundaries of the Mining lease area shown on the ground with reference to Mining lease map and other plans furnished by the lessee.
7. That if anything found to be concealed, act in the contents of Mining Plan and the proposal for rectification has not been made the approval shall be deemed to have been withdrawn with immediate effect.
8. That Mining Plan along with PMCP is approved without prejudice to any other order or directions for any Hon. Court of competent jurisdiction.
9. The financial assurance should be submitted to District Collectorate before the execution of the said mining lease as per rule 30 of Maharashtra Minor Mineral Extraction (Development and Regulation) Rules, 2013.
10. This approval of proposed mining operations and associated activities is restricted to the mining lease area only.
11. The DMO is directed to verify the Sand Mining activity, vis-à-vis the royalty paid by the Sand Ghat allottee / lessor. The difference of the royalty. If any should be recovered.
12. The approval of this mining plan is for manual method of mining using spade / phawada and labours only.
13. The mining plan is approved with regards to mining of Sand lease purpose allotted by competent authority as per MMME (D & R) Rules 2013.
14. This mining plan is approved with regard to mining of Sand subject to compliance of New Sand Mining Auction Guidelines dated 12th March 2013, 16th October 2015 and new sand policy issued by Govt. of Maharashtra dated 03rd September 2019.
15. This mining plan is approved with regard to mining of Sand subject to compliance of New Sand Mining Auction Guidelines dated 3rd January 2018.
16. This mining plan is approved with regard to mining of Sand subject to compliance of “a stable river is able to constantly transport the flow of sediments produced by water shed such that’s dimensions (width and depth) pattern and vertical profile are maintained without aggrading (building up) or degrading (surching down)”
17. This mining plan is approved with regard to mining of Sand subject to compliance of ‘amount of boulders, cobbles, pebbles and sand deposited in the river bed equals to the amount delivered to the river from catchment area and from bank erosion minus amount transported downstream each river.’
18. This mining plan is approved with regard to mining of Sand subject to compliance of “erosion and deposition is law of nature. The river stream has to complete its geomorphological cycles from youth, mature to old age.”
19. This mining plan is approved with regard to mining of Sand Subject to compliance of “ river capturing is unavoidable.”
20. Whatever production capacity of the area in consideration is allotted by auction in the mining plan, it is recommended to restrict the annual production as per Environment department guidance. Hence, you are not permitted to excavated annual production of the material (Sand) beyond prescribed limit by Environment department and Collector’s order.
21. Approval of mining plan subject to rules to be framed by State Govt. with respect to Sand and same shall be abided to the lease holder / allottee of Sand Ghat.
22. The quantity of sand is as certified by District Collector / District Mining Officer of respective district.

23. This approval is given for the received proposal as applicable from this date onward and valid as per recommendation given by District sand monitoring committee or the quantity of Sand permitted in the approved mining plan exhausted which is earlier, or Validity of the Mining plan upto one year.
24. At any stage, if it is observed that the information furnished in the documents are incorrect or misrepresent the facts, the approval of the document shall be revoked with immediate effect.
25. The approval of mining plan is subject to compliance and to fulfill the requirement as mentioned in MoEF & CC notification S.O. 141(E) dated 15th January 2016, MoEF & CC Sustainable Sand Mining Guideline 2016 and relative orders issued by NGT from time to time.
26. The approval of the above said mining plan is subject to the compliance and to fulfill the requirement as mentioned in Maharashtra Minor Mineral Extraction (Development and Regulation) Rules, 2013.

Encl : Approved Mining Plan
(02 copy)


Deputy Director
(Regional Head)
Directorate of Geology & Mining,
Government of Maharashtra, Kolhapur

Copy To -

1. The Director, Directorate of Geology and Mining, Government of Maharashtra, Khanij Bhavan, Cement Road, Shivajinagar, Nagpur
2. The Collector, Collector Office, Solapur along with the copy of approved Mining Plan
3. Mr. Dipali Shivaji Ingale, RQP, 1064, E Ward, 3rd Floor, Amey Chambers, Bagal Chowk, Kolhapur-416001

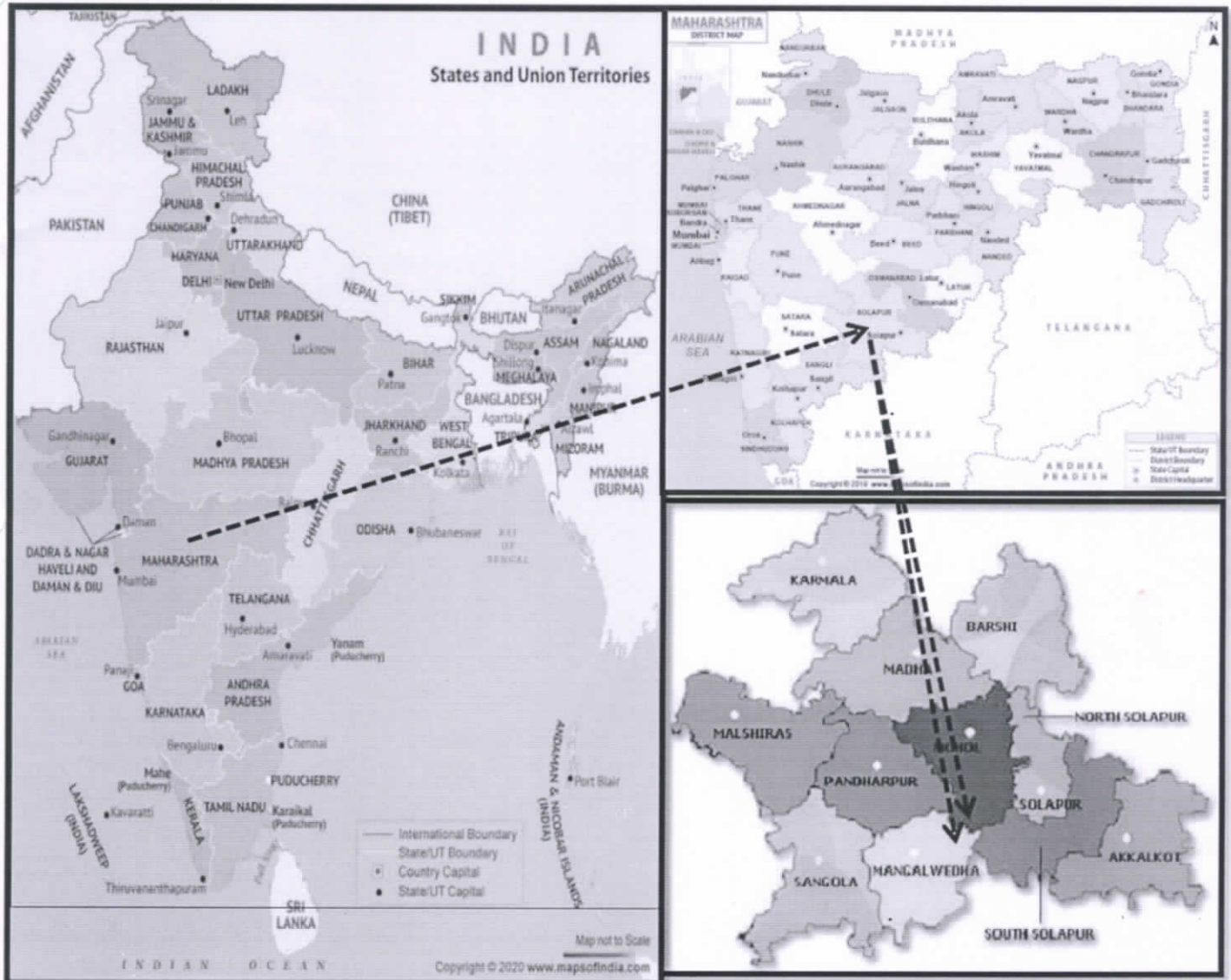
- sd -
Deputy Director
(Regional Head)
Directorate of Geology & Mining,
Government of Maharashtra, Kolhapur

EXECUTIVE SUMMARY

1. Introduction

- ❖ Environmental Clearance is sought for 7 Sand Spots located in Mohol&Mangalwedha Talukas in SolapurDistrict.
- ❖ As Per Government of Maharashtra **Letter No: Sankirn- 2019/P.K.01/Ta.K.3** dated Dec 3, 2019, Public Hearing must be conducted for mines less than 5Hectares.
- ❖ M/s.Equinox Environments (I) Pvt. Ltd. was awarded work to obtain Environmental Clearances for Sand Spots of Solapur by Collector Office, Solapur. with**WO.No. Kra.M.Sha/Karya.2/Gou.Kha/RR-2266/2020dated23/10/2020.**
- ❖ Mining plans for the Sand Spots have been approved by DGM,Kolhapur.
- ❖ Application in Form-1M, PFR, EMP, RA, DSR along with the Approved Mining Plans for Sand Spots will be submitted along with Public Hearing Proceedings for EnvironmentalClearance.

2. LocationMap



Public Hearing for 7 Sandlocations, Solapur District, Maharashtra

3. List of SandSpots

Sand Ghat selected for 7 Sand ghat spot Auction 2021 Solapur district										
S. No	Name of Sand Ghat	Name of Taluka	Name of River	Adjacent Land Gat No.	Total area in Hect.	Sand ghat Measurement in meter			Mineable Sand in brass	Upset Price Rs.
						Length	Width	Depth		
1	Ardhnari&Bathan	Mohol&Mangalvedha	Bhima	38,102 to 106	4.485	345	130	1	15848	6529370
2	Ardhnari&Bathan	Mohol&Mangalvedha	Bhima	38,124,125,129 to 132,135,136, 138,139,141, 142,143 & 145	4.4625	375	119	1	15768	6496410
3	Ghodeswar&Tamdar	Mohol&Mangalvedha	Bhima	115,112,344 to 348	4.402	355	124	1	15524	6395880
4	Ghodeswar&Tamdar	Mohol&Mangalvedha	Bhima	108,107,105, 104,1,6,7,16, 17	4.3355	377	115	1	15319	6311420
5	Ghodeswar&Tamdar	Mohol&Mangalvedha	Bhima	98,97,96,94, 49,50,51	4.4408	364	122	1	15691	6464690
6	Miri &Tandor	Mohol&Mangalvedha	Bhima	55,56,57,68, 203,205,207, 208,209,213, 214	4.446	570	78	1	15710	6472520
7	Miri &Siddhapur	Mohol&Mangalvedha	Bhima	49,48,45,44, 41,40,33,485,486,1	4.34	310	140	1	15335	6318020
Total					30.9118				109195	44988300

4. Mining Methodology

1. Method of Mining: Opencast manual method without drilling & blasting. Only manual labor with hand tools such as spade, ghamelas will be used. Excavation of sand is done from dry riverbed only.

The following process is followed for the estimation of sand in sand ghat:

- ❖ The demarcation and benchmarking of the sand ghat is done as per 10m x 10m interval.
 - ❖ Auger driller is used to find out the depth of sand in each grid.
 - ❖ Auger driller is used to create the holes in sand ghat using a 10mx10m grid pattern.
 - ❖ The depth of holes is measured by using measuring tape.
 - ❖ After taking all the readings the average depth of sand ghat of the river is calculated in meters.
2. Machinery / Equipment required: Spades, Ghamela, Tractor with trolley.
 3. Transportation: By tractor trolley from sand spot to stockyard & to consumers.
 4. Reclamation: Mined out area will be replenished automatically after the monsoon. Plantation will be carried out along the riverbank and along the transport road.

5. Environmental Management Plan

1. Air Pollution Control Measures

- ❖ Periodic water sprinkling on the kutchra road used for sand transport.
- ❖ Transport of sand by tractor trolleys, trucks covered with tarpaulin.
- ❖ Spillage of sand during transport shall be prevented by proper sealing of gaps.
- ❖ Plantation will be done along riverbanks and on free spaces near the sand spots.

2. Noise Control Measures

- ❖ Mining and sand transport will be carried out during the daytime only.
- ❖ Only noise due to sand transport is expected, periodic maintenance of sand transport vehicles will be ensured to minimize noise.
- ❖ The speed of sand transport vehicles will be regulated.

3. Water Pollution Control Measures

- ❖ Sand mining will be carried out in dry riverbed only.
- ❖ The depth of the mine pit will be maintained above the river water level.
- ❖ River streams will not be diverted to form in active channels.
- ❖ Washing of vehicles in the river will be prohibited.

Public Hearing for 7 Sandlocations, Solapur District, Maharashtra

- ❖ No effluent will be generated from mining activities.
- ❖ Provision of mobile toilets for workers.
- ❖ Mining will be avoided during monsoon and floods which will allow the sand deposit to replenish.

4. Land Environment

- ❖ Sand mining will create temporary pits in the dry riverbed, which will be replenished during monsoon.
- ❖ Waste material like polythene bags, jute bags, etc. will not be allowed to remain/spill in the riverbed.
- ❖ Mining will not exceed the allowed extraction capacity.
- ❖ Plantation will be developed along the riverbank and nearby free spaces.

5. Green Belt Development Plan

Location of greenbelt	On the banks of both sides of the lease boundary & Haul Road outside riverbed
No. of plants to be planted	500 Plants per hectare
Spacing of plants	2 m grid interval
Species selected	Native species

Tree species recommended for Plantation

Botanical name	Local name	Importance
Azadirachta Indica	Neem	Neem oil & neem products
Tectona Grandis	Teak	Antibacterial, Antifungal, Antiulcer
Ficus Religiosa	Peepal	Medicinal use, Fruits & figs
Bambusa Vulgaris	Bamboo	Anthelmintic Anti-inflammatory, Astringent Properties
Madhuca Longifolia	Mahua	Acts as a Stimulant & cough relief

6. Occupational Health Safety Management

- ❖ Mine operators will be provided with personal protective equipment.
- ❖ Safety helmets and footwear, in addition to ear, eye, and hand protection devices.
- ❖ Dust masks will be provided for workers.
- ❖ A potable drinking water shelter for mine workers will be provided.
- ❖ First aid kit will be provided at the mine site.

7. Conclusion

- ❖ Applied 7 Sand Spots located in Mohol & Mangalwedha Talukas in Solapur District, Maharashtra having lease area of less than 5 Ha, fall under B2 category as per MoEF & CC guidelines.
- ❖ Quarries are not likely to cause a significant impact on the environment due to the small scale of mining and will prove beneficial to the nearby community.
- ❖ The proposed project would provide indirect employment opportunities to local residents.
- ❖ The proposed project will also make a positive contribution to the social infrastructure and overall development of the region.
- ❖ All environmental issues like air, water, noise, soil, solid waste management, etc. will be dealt with as per the MoEF & CC guidelines.

DRAFT ENVIRONMENTAL MANAGEMENT PLAN

FOR

**SAND GHAT
SOLAPUR DISTRICT
STATE MAHARASRA**

FOR PUBLIC HEARING FOR 7 SAND GHATS

PROPONENT

DISTRICT MINING OFFICER, COLLECTOR OFFICE, SOLAPUR

CONSULTANT

**EQUINOX ENVIRONMENTS (I) PRIVATE LIMITED
JANUARY 2021**

**F11, NAMDEV NEST, OPPOSITE KAMALA COLLEGE, SYKES
EXTENSION, KOLHAPUR**

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Draft Environmental Management Plan for Sand Ghats at Solapur district

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Section 1.0: Introduction to Sand Ghat

Introduction:

District Collector, Solapur intends to auction sand ghats and appointed District Mining Officer Solapur as project proponent as per sand mining guidelines dated 03.09.2019. Total 7 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 No. 1.0:- Details of Sand Ghat

Sr. No.	Name of Sand Ghat	Name of Taluka	Name of River	Adjacent Land Gat No.	Total area in Hect.	Dimensions of Sand Ghat in Mt	Sand Proposed for Scooping (in Brass)	Length of Approach Road (in M)	Width of Approach Road (in M)	No.s of Workers	No of trips of Tractors	No of Trees along Bank	No of Trees along Village Road	Water Requirement in Cum / day	EMP Budget in Rs.	
															CAPEX	OPEX
1	Ardhnari & Bathan	Mohol & Mangalvedha	Bhima	38,102 to 106	4.485	315x130x1	15848	3090	1.8	38	61	357	3090	5.5	33.14	43.71
2	Ardhnari & Bathan	Mohol & Mangalvedha	Bhima	38,124,125,129 to 132,135,136, 138,139,141, 142,143 & 145	4.4625	375x119x1	15768	1031	1.8	40	61	370	1031	2.7	23.36	26.37
3	Ghodeswar & Tamdardi	Mohol & Mangalvedha	Bhima	115,112,344 to 348	4.402	355x124x1	15524	1411	1.6	41	60	361	1411	3.2	25.03	29.43
4	Ghodeswar & Tamdardi	Mohol & Mangalvedha	Bhima	108,107,105, 104,1,6,7,16, 17	4.3355	377x115x1	15319	2544	1.7	38	59	370	2544	4.8	30.83	39.42
5	Ghodeswar & Tamdardi	Mohol & Mangalvedha	Bhima	98,97,96,94, 49,50,51	4.4408	364x122x1	15691	359	1.2	39	60	364	259	1.8	19.76	20.24
6	Miri & Tandor	Mohol & Mangalvedha	Bhima	55,56,57,68, 203,205,207, 208,209,213, 214	4.446	570x78x1	15710	2492	1.7	38	60	485	2492	5.1	34.2	43.03
7	Miri & Siddhapur	Mohol & Mangalvedha	Bhima	49,48,45,44, 41,40,33,485,486,1	4.34	310x140x1	15335	472	1.7	40	59	338	472	1.8	19.56	20.38

Table 2.0 Status of Statutory Clearances for Sand Ghat

2.1	Name & Address of Allottee	District Mining Officer Solapur / Successful Bidder District Solapur
2.2	Status of the lease	New, Individual/ Project Proponent/Successful Bidder for auction of sand ghat by District Collector Solapur.
2.3	Mineral for which lessee intends to mine	Ordinary Sand for Construction purpose
2.4	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.
2.5	Grampanchayat NOC	Received from Gramsabha as per public consultation procedure defined in sand mining guidelines of Maharashtra State dated 03.09.2019.
2.6	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

Section 2.0: Project Description and Method of Mining

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 Solapur. District Mining Officer Solapur has proposed 7 Sand ghats for scooping 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 Table 1.0.

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.

2.1 Period of Mining:

Table 2.1 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	Area and depth with proposed quantity of sand for scooping is as per Table 1.0

Manpower Requirement

About 28 labors/sand ghat 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

Table 2.2: Man power requirement

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 toilet with water tank of 250 ltr. will be provided at 150m away from river bank.

Requirement of Water for Dust Suppression & Domestic Purposes

Total water requirement for various activities during sand scooping is estimated as in table 2.2. 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 ³ /day
Dust suppression/ Plantation	1.0
Domestic Use	@ 20 Lit/labour/day

Table 2.3 Requirement of Water

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

Existing Flora & Fauna:

Local varieties of bushes like dhavda, neem, tarota observed in the area. Mainly agricultural activity observed for Cotton, Toor, Jawar, Gruoundnut. 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.

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 riverbed.

Mine Closure Plan:

Sand scooping is permitted for one year from the date of auction excluding monsoon period between 10th June-30th 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.

Section 3.0: Anticipated Impacts and Management

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.

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

Existing Flora & Fauna:

Local varieties of bushes like dhavda, neem, tarota observed in the area. Mainly agricultural activity observed for Cotton, Toor, Jawar, Gruoundnut. 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.

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 riverbed.

Mine Closure Plan:

Sand scooping is permitted for one year from the date of auction excluding monsoon period between 10th June-30th 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.

Section 3.0: Anticipated Impacts and Management

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.

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. 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

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.

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 riverbed.
- 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.

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 away so as to avoid natural eroding of banks
- Care will be taken to ensure that ponding is not formed in the riverbed.
- 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.

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.

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 scopable depth of sand is restricted keeping sand bed of 2m. Survey Committee includes member from GSDA, Solapur and approved the depth by monitoring impact of proposed scooping of sand on ground water levels of the area.

Sand Replenishment Studies

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

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 2/3rd 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.

The impact on soil quality is not likely to be more intensive or is not likely to affect soil quality. The loss of the fertile soil from the agricultural lands lying alongside 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 Grades and 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 Grades 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.

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 Wheat, Bajara, Jawar, Maize, Cotton, Groundnut 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.

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, Tambir, Gobari, Chitra, Malga, Sandi, Mural and Dhoc, 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 beplanted.

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 socio-economic 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.

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 Grades and on the banks of River Bhima. 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 equipment's& 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.

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 defined by Indian Bureau of Mines. This will enable to replenish the sand ghat during the monsoon period.

Section 4.0: Implementation, Monitoring & Budgeting to implement

Environmental Management Plan

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

A budgetary provision as per Table 1.0 earmarked to implement the Environment Management Plan.

Air Quality Management

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 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"> • Compaction, gradation and drainage on both sides& development of greenbelts • Proper maintenance. • Regular water spraying. • Avoiding over filling of tractor and consequent spillage on the roads • Air quality will be monitoring at impacted village.
2	Truck/ Tractor Movement	Air Quality	<ul style="list-style-type: none"> • No overloading of trucks. • Sand carrying trucks will be effectively covered by tarpaulin to avoid escape of fines to the atmosphere. • Enforcing speed limit. • Regular monitoring of the exhaust fumes. • No Engine of tractor/truck will be kept on during the filling. • If possible, entry be restricted to riverbed
3	Ramp and Sand Reach	Mining Operations	<ul style="list-style-type: none"> • Regular ramp Inspection and Ramp maintenance • Provision of dusk masks. • Mining will be done during day time between fixed hours only.

4	Bank Management	Bank Erosion/ Flood Plain management	<ul style="list-style-type: none"> • Green belt along bank • Plantation of wide leaf tall trees on banks and grass along slanting portion of bank.
5	Occupational Health & Safety Measures to Control Dust Inhalation	Safety of Workers and Mining Operations	<ul style="list-style-type: none"> • Providing a working environment that is conducive to safety & health • The management of occupational safety & health is the prime responsibility of mine owner. • Provision of necessary personal protective equipments • Ensuring employees at all levels receive appropriate training and are competent to carry out their duties and responsibilities • Provision of First Aid and Drinking Water, Temporary rest room

Table 4.1 : Environmental measures for control of dust

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 villa ge roads	---	Highway model -62.8 L_{eq}	<ul style="list-style-type: none"> • Avenue plantation, • Speed breakers

Table 4.2 : Noise pollution and ground vibrations

Noise Pollution Control

The following noise control measures will be provided.

- In addition, personnel working near high noise level generating sources will be provided with earmuffs
- 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 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.

Water Quality Management

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.

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 guidelines of Indian Bureau of Mines. This will enable to replenish the sand ghat during the monsoon period.

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, subabhul, Karanj, Gulmoharetc will be planted.

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 healthcare.
- 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.

Monitoring of Implementation of Environmental Management Plan with Budget:

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.