Enclosure 3

REPORT FOR IMPACT ASSESSMENT &ENVIRONMENT MANAGEMENT PLAN (EMP) FORPROPOSED DONGARKHED-A SANDGHAT PROJECT, TEHSIL SHEGAVBULDHANADISTRICT

1.0 INTRODUCTION

This Report has been prepared for the Proposed Dongarkhed-A sand ghat located in BuldhanaDistrict, Maharashtra**,** in accordance with the Notification of MoEF & CC, S.O. 1533 dated 14th September 2006 The Ministry of Environment, Forest and Climate Change amended Principal Notification vide 141 (E) dated 15th January 2016 and Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020included Minor Minerals from 0 Ha to 50 Ha in the Principal Notification S.O.1533 (E) dated 14.09.2006. Central Government made further amendments to the notification vide S.O.2269 (E) dated 01.07.2016. In obedience all relevant notifications to the principal Notification dated 14th September 2006, application for the excavation of sand ghat from proposed sand ghat is being submitted to SEIAA, Maharashtra.

Sand ghat/ Village	**Tehsil**	Adjacent to Survey No	**Area (Ha)**
Dongarkhed-A	Shegav	GSDA-Approved 4,5,6,7)	0.50

2.0 SALIENT FEATURES OF THE PROPOSED SAND GHAT MINING

The mining will be carried out manually with opencast method of mining by engaging labours with help of crow bars, hand shovel, pick axes and baskets. Loading is proposed to be carried out manually and transportation of mineral from the mine to the depot is proposed through tractor with trolley arrangement. As the mineral is dry, loose in nature, no drilling and blasting are required and hence not proposed. Sand excavated manually will be loaded directly into vehicles.

Mining of sand is proposed to be carried out by the manual method. It involve following steps

i. River Bed Mining activities do not involve top soil.
ii. Excavation of sand is done by using spade and bucket.
iii. Drilling and blasting is not required.
iv. Mining will be carried out during October to 30th September or from the date of auction to 30th September..
v. Transport of sand from the river bed to destination will be carried out by tractor-trolley
vi. No other machinery will be used during mining operations
vii. No pumping of water from river bed is envisaged as the sand ghats proposed are completely dry and their approach roads are also dry and accessible during proposed season of October to May.

viii. Working Depth (below ground level) the deposits occur at the middle/bottom of the river. During the entire lease period, the deposit will be worked from the top surface to 1 m bgl. The ultimate depth of the open cast pits will be 1 m below ground level.

ix. The entire quantity of sand excavated will be transported and will be used for infrastructure development purpose. Thus, there will not be generations of any solid waste.

x. Mining will be carried out as per the approved Mining Plan.

xi. It is proposed to employ the local population wherever possible in the proposed project activities. Direct employment from these proposed sand ghat excavation will be approximately 20 Persons and the there will be indirect employment generation also in service sector.

Details of Mining

Name of Sand Ghat	**River**	**As per Joint Survey**	**Area Ha.**	**Mineable Quantity of Sand (Brass)**	**Lease Period**	**Approximate working Days**
		Proposed Sand Mining Depth in (m)				
Dongarkhed-A	Purna	0.60	0.50	1065	Six months from the date of allotment or up to 30th Septemberwhichever is earlier.	120 days

3.0 IMPACT ON SURROUNDING ENVIRONMENT& MITIGATION MEASURES

3.1 **GENERAL:**All development projects are likely to have an impact on the natural set up of the environment. This impact may be beneficial or adverse, depending on the improvement or the deterioration it brings about change in the status of air, water, land, ecology, natural systems, socio-cultural life styles and economics of the population. Depending on the nature of activities and baseline environment status, the impacts are assessed for their importance. On the basis of the impact analysis, the mitigating action and future monitoring requirement are focused in the Environmental Management plan for countering or minimizing the impacts.

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

Mitigative Measures:

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

3.3 WATER ENVIRONMENT

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

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

3.4 AIR ENVIRONMENT:

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

Name of Sand Ghat	Mineable Quantity of Sand (Brass)	Approximate working Days	Production/day (Brass)	No. of Trips day
Dongarkhed-A	1065	120 days	9	9

The transportroutes are capable for handling this additional traffic.

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

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

3.5 NOISE ENVIRONMENT

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

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

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

3.6 BIOLOGICAL ENVIRONMENT

Anticipated impact and mitigation measures for biological environment

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

Impact Predicted	Suggestive measure
	be controlled to maintain the clean water conditions.

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

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

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

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

3.7 PLANTATION

The entire mining area falls within river course and gets flooded during monsoons; therefore, no plantation is possible within this area.Plantation will mainly be done along the kuchha road and along the length of the river bank or approach road to depot or places as recommended by Gram Panchayat. Approximately 380 trees of will be planted with various types of species. Native

plants like Mango, Neem, Eucalyptus, Peepal, Gulmohar, and other local species will selected in suitable combination, so that can grow fast and also have good leaf cover.

4.0 OTHER SAFETY PRECAUTIONS

1. Fencing of approach road for avoiding un-authorized entry to the active sand ghat
2. Provision of Boards displaying all information as regards to mining of sand including quantity, period of mining activity and details of project proponent.
3. Display of warning signal boards at prominent locations.
4. Maintenance of approach road to sand ghat.
5. Deployment of adequate security arrangement.
6. Provision of safety equipments to workers.
7. Strict prohibition of use of any fuel for cooking or burning of waste or any other material.
8. Strict prohibition on smoking.
9. Adequate provision for collection and disposal of domestic solid waste.
10. Awareness for safety and health to the workers deployed at sandghat.

5.0 IMPACT MATRIX

SR. NO.	PARTICULARS	TYPE (+) ve (-) ve No change	NATURE Direct Indirect	MAGNITUDE Law Moderate High	TIMING **Short** Term Long Intermediate	REVERSIBILITY Reversible Irreversible	SIGNIFICANCE Local Reginal Global	REMARK
1	Channel Geometry	(-)ve	Direct	Low	Short Term	Reversible	Local	The channel geometry will be changed temporarily
2	Bed Elevation	(-)ve	Direct	Low	Short Term	Reversible	Local	Only at proposed mining area which will be replenished during monsoon
3	SubstratumComposition & Stability	No Change	-	-	-	-	-	Mining is limited to 1m. depth From surface
4	In Stream Roughness of The Bed	No Change	-	-	-	-	-	Bed rock will not be disturbed
5	Flow Velocity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
6	Discharge Capacity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
7	Sediment Transport Capacity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged

SR. NO.	PARTICULARS	TYPE (+) ve (-) ve No change	NATURE Direct Indirect	MAGNITUDE Law Moderate High	TIMING **Short** Term Long Intermediate	REVERSIBILITY Reversible Irreversible	SIGNIFICANCE Local Reginal Global	REMARK
8	Turbidity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
9	Temperature	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged

6.0 STATUTORY REQUIREMENTS

It is accepted that effective resource management cannot be done in isolation. The Department therefore vigorously pursues approaches towards coordination and integration where possible, so as to lead to coordinated regulatory systems.

A regulatory system consists of both statutory and non-statutory components. In the Sectoral-specific strategy for prospecting and mining, the Department participates within an integrated environmental management system which is administered in terms of the Acts and Rules. Other Acts dealing with matters relating to the conservation and protection of the environment and which a holder of a mining authorization must also take cognizance of, include inter alia, the following:

- The Mines Act, 1952
- The Mines and Mineral (Development and Regulation) Act, 1957
- Mines Rules, 1955
- Mineral Concession Rules, 1960
- Mineral Conservation and Development Rules, 1988
- Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.
- The Environment (Protection) Act, 1986
- The Forest (Conservation) Act, 1980
- The Wildlife (Protection) Act, 1972

7.0 ENVIRONMENT MANAGEMENT PLAN ALONGWITH BREAKUP OF COST FOR IMPLEMENTATION.

Sr. No.	Component	Description	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)
1	Environmental Monitoring programme	Monitoring for Air, water, noise & groundwater	0.08	0.11
2	Air Pollution Control	Water sprinkling during mining activities	0.07	0.16
3	Water Pollution Control	Construction of bund along lease boundary& Mobile Toilet	0.06	Nil
4	Noise pollution	Plantation including tree guard	0.06	0.12
5	Occupational Health & safety	Periodic Health Checkups of workers	-	0.15
	Total		**0.27**	**0.54**

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Enclosure 3

REPORT FOR IMPACT ASSESSMENT &ENVIRONMENT MANAGEMENT PLAN (EMP) FORPROPOSED DONGARKHED-B SANDGHAT PROJECT, TEHSIL SHEGAVBULDHANADISTRICT

1.0 INTRODUCTION

This Report has been prepared for the Proposed DONGARKHED-B sand ghatlocated in BuldhanaDistrict, Maharashtra**,** in accordance with the Notification of MoEF& CC, S.O. 1533 dated 14th September 2006 The Ministry of Environment, Forest and Climate Change amended Principal Notification vide 141 (E) dated 15th January 2016 and Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020included Minor Minerals from 0 Ha to 50 Ha in the Principal Notification S.O.1533 (E) dated 14.09.2006. Central Government made further amendments to the notification vide S.O.2269 (E) dated 01.07.2016. In obedience all relevant notifications to the principal Notification dated 14th September 2006, application for the excavation of sand ghatfrom proposed sand ghat is being submitted to SEIAA, Maharashtra.

Sand ghat/ Village	**Tehsil**	Adjacent to Survey No	**Area (Ha)**
DONGARKHED-B	Shegav	76 to 81,	0.34

2.0 SALIENT FEATURES OF THE PROPOSED SAND GHAT MINING

The mining will be carried out manually with opencast method of mining by engaging labours with help of crow bars, hand shovel, pick axes and baskets. Loading is proposed to be carried out manually and transportation of mineral from the mine to the depot is proposed through tractor with trolley arrangement. As the mineral is dry, loose in nature, no drilling and blasting are required and hence not proposed. Sand excavated manually will be loaded directly into vehicles.

Mining of sand is proposed to be carried out by the manual method. It involve following steps

i. River Bed Mining activities do not involve top soil.
ii. Excavation of sand is done by using spade and bucket.
iii. Drilling and blasting is not required.
iv. Mining will be carried out during October to 30th September or from the date of auction to 30th September..
v. Transport of sand from the river bed to destination will be carried out by tractor-trolley
vi. No other machinery will be used during mining operations
vii. No pumping of water from river bed is envisaged as the sand ghats proposed are completely dry and their approach roads are also dry and accessible during proposed season of October to May.

viii. Working Depth (below ground level) the deposits occur at the middle/bottom of the river. During the entire lease period, the deposit will be worked from the top surface to 1 m bgl. The ultimate depth of the open cast pits will be 1 m below ground level.

ix. The entire quantity of sand excavated will be transported and will be used for infrastructure development purpose. Thus, there will not be generations of any solid waste.

x. Mining will be carried out as per the approved Mining Plan.

xi. It is proposed to employ the local population wherever possible in the proposed project activities. Direct employment from these proposed sand ghat excavation will be approximately 20 Persons and the there will be indirect employment generation also in service sector.

Details of Mining

Name of Sand Ghat	River	As per Joint Survey Proposed Sand Mining Depth in (m)	Area Ha.	Mineable Quantity of Sand (Brass)	Lease Period	Approximate working Days
DONGARKHED-B	Purna	0.60	0.34	716	Six months from the date of allotment or up to 30th Septemberwhichever is earlier.	120 days

3.0 IMPACT ON SURROUNDING ENVIRONMENT& MITIGATION MEASURES

3.1 **GENERAL:**All development projects are likely to have an impact on the natural set up of the environment. This impact may be beneficial or adverse, depending on the improvement or the deterioration it brings about change in the status of air, water, land, ecology, natural systems, socio-cultural life styles and economics of the population. Depending on the nature of activities and baseline environment status, the impacts are assessed for their importance. On the basis of the impact analysis, the mitigating action and future monitoring requirement are focused in the Environmental Management plan for countering or minimizing the impacts.

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

MitigativeMeasures:

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

3.3 WATER ENVIRONMENT

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

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

3.4 AIR ENVIRONMENT:

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

Name of Sand Ghat	Mineable Quantity of Sand (Brass)	Approximate working Days	Production/day (Brass)	No. of Trips day
DONGARKHED-B	716	120 days	6	6

The transportroutes are capable for handling this additional traffic.

MitigativeMeasures: Following care will be taken for air pollution control.

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

3.5 NOISE ENVIRONMENT

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

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

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

3.6 BIOLOGICAL ENVIRONMENT

Anticipated impact and mitigation measures for biological environment

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

Impact Predicted	Suggestive measure
	be controlled to maintain the clean water conditions.

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

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

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

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

3.7 PLANTATION

The entire mining area falls within river course and gets flooded during monsoons; therefore, no plantation is possible within this area.Plantation will mainly be done along the kuchha road and along the length of the river bank or approach road to depot or places as recommended by Gram Panchayat. Approximately 330 trees of will be planted with various types of species. Native

plants like Mango, Neem, Eucalyptus, Peepal, Gulmohar, and other local species will selected in suitable combination, so that can grow fast and also have good leaf cover.

4.0 OTHER SAFETY PRECAUTIONS

1. Fencing of approach road for avoiding un-authorized entry to the active sand ghat
2. Provision of Boards displaying all information as regards to mining of sand including quantity, period of mining activity and details of project proponent.
3. Display of warning signal boards at prominent locations.
4. Maintenance of approach road to sand ghat.
5. Deployment of adequate security arrangement.
6. Provision of safety equipments to workers.
7. Strict prohibition of use of any fuel for cooking or burning of waste or any other material.
8. Strict prohibition on smoking.
9. Adequate provision for collection and disposal of domestic solid waste.
10. Awareness for safety and health to the workers deployed at sandghat.

5.0 IMPACT MATRIX

SR. NO.	PARTICULARS	TYPE (+) ve (-) ve No change	NATURE Direct Indirect	MAGNITUDE Law Moderate High	TIMING Short Term Long Intermediate	REVERSIBILITY Reversible Irreversible	SIGNIFICANCE Local Reginal Global	REMARK
1	Channel Geometry	(-)ve	Direct	Low	Short Term	Reversible	Local	The channel geometry will be changed temporarily
2	Bed Elevation	(-)ve	Direct	Low	Short Term	Reversible	Local	Only at proposed mining area which will be replenished during monsoon
3	SubstratumComposition& Stability	No Change	-	-	-	-	-	Mining is limited to 1m. depth From surface
4	In Stream Roughness of The Bed	No Change	-	-	-	-	-	Bed rock will not be disturbed
5	Flow Velocity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
6	Discharge Capacity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
7	Sediment Transport Capacity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
8	Turbidity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
9	Temperature	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged

6.0 STATUTORY REQUIREMENTS

It is accepted that effective resource management cannot be done in isolation. The Department therefore vigorously pursues approaches towards coordination and integration where possible, so as to lead to coordinated regulatory systems.

A regulatory system consists of both statutory and non-statutory components. In the Sectoral-specific strategy for prospecting and mining, the Department participates within an integrated environmental management system which is administered in terms of the Acts and Rules. Other Acts dealing with matters relating to the conservation and protection of the environment and which a holder of a mining authorization must also take cognizance of, include inter alia, the following:

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- The Environment (Protection) Act, 1986
- The Forest (Conservation) Act, 1980
- The Wildlife (Protection) Act, 1972

7.0 ENVIRONMENT MANAGEMENT PLAN ALONGWITH BREAKUP OF COST FOR IMPLEMENTATION.

Sr. No.	Component	Description	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)
1	Environmental Monitoring programme	Monitoring for Air, water, noise & groundwater	0.05	0.09
2	Air Pollution Control	Water sprinkling during mining activities	0.05	0.11
3	Water Pollution Control	Construction of bund along lease boundary& Mobile Toilet	0.05	Nil
4	Noise pollution	Plantation including tree guard	0.03	0.08
5	Occupational Health & safety	Periodic Health Checkups of workers	-	0.09
	Total		**0.18**	**0.37**

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Enclosure 3

REPORT FOR IMPACT ASSESSMENT &ENVIRONMENT MANAGEMENT PLAN (EMP) FORPROPOSED DONGARKHED-K SANDGHAT PROJECT, TEHSIL SHEGAVBULDHANADISTRICT

1.0 INTRODUCTION

This Report has been prepared for the Proposed Dongarkhed-Ksand ghatlocated in BuldhanaDistrict, Maharashtra**,** in accordance with the Notification of MoEF& CC, S.O. 1533 dated 14th September 2006 The Ministry of Environment, Forest and Climate Change amended Principal Notification vide 141 (E) dated 15th January 2016 and Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020included Minor Minerals from 0 Ha to 50 Ha in the Principal Notification S.O.1533 (E) dated 14.09.2006. Central Government made further amendments to the notification vide S.O.2269 (E) dated 01.07.2016. In obedience all relevant notifications to the principal Notification dated 14th September 2006, application for the excavation of sand ghatfrom proposed sand ghat is being submitted to SEIAA, Maharashtra.

Sand ghat/ Village	**Tehsil**	Adjacent to Survey No	**Area (Ha)**
Dongarkhed-K	Shegav	59,60	0.35

2.0 SALIENT FEATURES OF THE PROPOSED SAND GHAT MINING

The mining will be carried out manually with opencast method of mining by engaging labours with help of crow bars, hand shovel, pick axes and baskets. Loading is proposed to be carried out manually and transportation of mineral from the mine to the depot is proposed through tractor with trolley arrangement. As the mineral is dry, loose in nature, no drilling and blasting are required and hence not proposed. Sand excavated manually will be loaded directly into vehicles.

Mining of sand is proposed to be carried out by the manual method. It involve following steps

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v. Transport of sand from the river bed to destination will be carried out by tractor-trolley
vi. No other machinery will be used during mining operations
vii. No pumping of water from river bed is envisaged as the sand ghats proposed are completely dry and their approach roads are also dry and accessible during proposed season of October to May.

viii. Working Depth (below ground level) the deposits occur at the middle/bottom of the river. During the entire lease period, the deposit will be worked from the top surface to 1 m bgl. The ultimate depth of the open cast pits will be 1 m below ground level.

ix. The entire quantity of sand excavated will be transported and will be used for infrastructure development purpose. Thus, there will not be generations of any solid waste.

x. Mining will be carried out as per the approved Mining Plan.

xi. It is proposed to employ the local population wherever possible in the proposed project activities. Direct employment from these proposed sand ghat excavation will be approximately 20 Persons and the there will be indirect employment generation also in service sector.

Details of Mining

Name of Sand Ghat	River	As per Joint Survey	Area Ha.	Mineable Quantity of Sand (Brass)	Lease Period	Approximate working Days
		Proposed Sand Mining Depth in (m)				
Dongarkhed-K	Purna	0.60	0.35	731	Six months from the date of allotment or up to 30th Septemberwhichever is earlier.	120 days

3.0 IMPACT ON SURROUNDING ENVIRONMENT& MITIGATION MEASURES

3.1 **GENERAL:**All development projects are likely to have an impact on the natural set up of the environment. This impact may be beneficial or adverse, depending on the improvement or the deterioration it brings about change in the status of air, water, land, ecology, natural systems, socio-cultural life styles and economics of the population. Depending on the nature of activities and baseline environment status, the impacts are assessed for their importance. On the basis of the impact analysis, the mitigating action and future monitoring requirement are focused in the Environmental Management plan for countering or minimizing the impacts.

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

MitigativeMeasures:

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

3.3 WATER ENVIRONMENT

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

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

3.4 AIR ENVIRONMENT:

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

Name of Sand Ghat	Mineable Quantity of Sand (Brass)	Approximate working Days	Production/day (Brass)	No. of Trips day
Dongarkhed-K	731	120 days	6	6

The transportroutes are capable for handling this additional traffic.

MitigativeMeasures: Following care will be taken for air pollution control.

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

3.5 NOISE ENVIRONMENT

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

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

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

3.6 BIOLOGICAL ENVIRONMENT

Anticipated impact and mitigation measures for biological environment

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

Impact Predicted	Suggestive measure
	be controlled to maintain the clean water conditions.

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

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

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

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

3.7 PLANTATION

The entire mining area falls within river course and gets flooded during monsoons; therefore, no plantation is possible within this area.Plantation will mainly be done along the kuchha road and along the length of the river bank or approach road to depot or places as recommended by Gram Panchayat. Approximately 360 trees of will be planted with various types of species. Native

plants like Mango, Neem, Eucalyptus, Peepal, Gulmohar, and other local species will selected in suitable combination, so that can grow fast and also have good leaf cover.

4.0 OTHER SAFETY PRECAUTIONS

1. Fencing of approach road for avoiding un-authorized entry to the active sand ghat
2. Provision of Boards displaying all information as regards to mining of sand including quantity, period of mining activity and details of project proponent.
3. Display of warning signal boards at prominent locations.
4. Maintenance of approach road to sand ghat.
5. Deployment of adequate security arrangement.
6. Provision of safety equipments to workers.
7. Strict prohibition of use of any fuel for cooking or burning of waste or any other material.
8. Strict prohibition on smoking.
9. Adequate provision for collection and disposal of domestic solid waste.
10. Awareness for safety and health to the workers deployed at sandghat.

5.0 IMPACT MATRIX

SR. NO.	PARTICULARS	TYPE (+) ve (-) ve No change	NATURE Direct Indirect	MAGNITUDE Law Moderate High	TIMING **Short** Term Long Intermediate	REVERSIBILITY Reversible Irreversible	SIGNIFICANCE Local Reginal Global	REMARK
1	Channel Geometry	(-)ve	Direct	Low	Short Term	Reversible	Local	The channel geometry will be changed temporarily
2	Bed Elevation	(-)ve	Direct	Low	Short Term	Reversible	Local	Only at proposed mining area which will be replenished during monsoon
3	SubstratumComposition& Stability	No Change	-	-	-	-	-	Mining is limited to 1m. depth From surface
4	In Stream Roughness of The Bed	No Change	-	-	-	-	-	Bed rock will not be disturbed
5	Flow Velocity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
6	Discharge Capacity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
7	Sediment Transport Capacity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
8	Turbidity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
9	Temperature	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged

6.0 STATUTORY REQUIREMENTS

It is accepted that effective resource management cannot be done in isolation. The Department therefore vigorously pursues approaches towards coordination and integration where possible, so as to lead to coordinated regulatory systems.

A regulatory system consists of both statutory and non-statutory components. In the Sectoral-specific strategy for prospecting and mining, the Department participates within an integrated environmental management system which is administered in terms of the Acts and Rules. Other Acts dealing with matters relating to the conservation and protection of the environment and which a holder of a mining authorization must also take cognizance of, include inter alia, the following:

- The Mines Act, 1952
- The Mines and Mineral (Development and Regulation) Act, 1957
- Mines Rules, 1955
- Mineral Concession Rules, 1960
- Mineral Conservation and Development Rules, 1988
- Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.
- The Environment (Protection) Act, 1986
- The Forest (Conservation) Act, 1980
- The Wildlife (Protection) Act, 1972

7.0 ENVIRONMENT MANAGEMENT PLAN ALONGWITH BREAKUP OF COST FOR IMPLEMENTATION.

Sr. No.	Component	Description	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)
1	Environmental Monitoring programme	Monitoring for Air, water, noise & groundwater	0.05	0.10
2	Air Pollution Control	Water sprinkling during mining activities	0.04	0.09
3	Water Pollution Control	Construction of bund along lease boundary& Mobile Toilet	0.07	Nil
4	Noise pollution	Plantation including tree guard	0.03	0.11
5	Occupational Health & safety	Periodic Health Checkups of workers	-	0.08
	Total		**0.19**	**0.38**

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Enclosure 3

REPORT FOR IMPACT ASSESSMENT &ENVIRONMENT MANAGEMENT PLAN (EMP) FORPROPOSEDAADSUL.SANDGHAT PROJECT, TEHSIL SHEGAV, BULDHANA DISTRICT

1.0 INTRODUCTION

This Report has been prepared for the Proposed Aadsulsand ghat located in BuldhanaDistrict, Maharashtra**,** in accordance with the Notification of MoEF & CC, S.O. 1533 dated 14th September 2006 The Ministry of Environment, Forest and Climate Change amended Principal Notification vide 141 (E) dated 15th January 2016 and Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020included Minor Minerals from 0 Ha to 50 Ha in the Principal Notification S.O.1533 (E) dated 14.09.2006. Central Government made further amendments to the notification vide S.O.2269 (E) dated 01.07.2016. In obedience all relevant notifications to the principal Notification dated 14th September 2006, application for the excavation of sand ghat from proposed sand ghat is being submitted to SEIAA, Maharashtra.

Sand ghat/ Village	**Tehsil**	**Adjacent to Survey No**	**Area (Ha)**
Aadsul	Shegav	230 to 233,	0.15

2.0 SALIENT FEATURES OF THE PROPOSED SAND GHAT MINING

The mining will be carried out manually with opencast method of mining by engaging labours with help of crow bars, hand shovel, pick axes and baskets. Loading is proposed to be carried out manually and transportation of mineral from the mine to the depot is proposed through tractor with trolley arrangement. As the mineral is dry, loose in nature, no drilling and blasting are required and hence not proposed. Sand excavated manually will be loaded directly into vehicles.

Mining of sand is proposed to be carried out by the manual method. It involve following steps

i. River Bed Mining activities do not involve top soil.
ii. Excavation of sand is done by using spade and bucket.
iii. Drilling and blasting is not required.
iv. Mining will be carried out during October to 30th September or from the date of auction to 30th September..
v. Transport of sand from the river bed to destination will be carried out by tractor-trolley
vi. No other machinery will be used during mining operations
vii. No pumping of water from river bed is envisaged as the sand ghats proposed are completely dry and their approach roads are also dry and accessible during proposed season of October to May.
viii. Working Depth (below ground level) the deposits occur at the middle/bottom of the river. During the entire lease period, the deposit

will be worked from the top surface to 1 m bgl. The ultimate depth of the open cast pits will be 1 m below ground level.

ix. The entire quantity of sand excavated will be transported and will be used for infrastructure development purpose. Thus, there will not be generations of any solid waste.

x. Mining will be carried out as per the approved Mining Plan.

xi. It is proposed to employ the local population wherever possible in the proposed project activities. Direct employment from these proposed sand ghat excavation will be approximately 20 Persons and the there will be indirect employment generation also in service sector.

Details of Mining

Name of Sand Ghat	River	As per Joint Survey Proposed Sand Mining Depth in (m)	Area Ha.	Mineable Quantity of Sand (Brass)	**Lease Period**	**Approximate working Days**
Aadsul	Maan	0.50	0.15	265	Six months from the date of allotment or up to 30th September whichever is earlier.	120 days

3.0 IMPACT ON SURROUNDING ENVIRONMENT& MITIGATION MEASURES

3.1 **GENERAL:**All development projects are likely to have an impact on the natural set up of the environment. This impact may be beneficial or adverse, depending on the improvement or the deterioration it brings about change in the status of air, water, land, ecology, natural systems, socio-cultural life styles and economics of the population. Depending on the nature of activities and baseline environment status, the impacts are assessed for their importance. On the basis of the impact analysis, the mitigating action and future monitoring requirement are focused in the Environmental Management plan for countering or minimizing the impacts.

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

Mitigative Measures:

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

3.3 WATER ENVIRONMENT

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

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

3.4 AIR ENVIRONMENT:

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

Name of Sand Ghat	Mineable Quantity of Sand (Brass)	Approximate working Days	Production/day (Brass)	No. of Trips day
AADSUL	265	120 days	2	2

The transportroutes are capable for handling this additional traffic.

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

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

3.5 NOISE ENVIRONMENT

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

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

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

3.6 BIOLOGICAL ENVIRONMENT

Anticipated impact and mitigation measures for biological environment

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

Impact Predicted	Suggestive measure
	be controlled to maintain the clean water conditions.

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

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

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

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

3.7 PLANTATION

The entire mining area falls within river course and gets flooded during monsoons; therefore, no plantation is possible within this area.Plantation will mainly be done along the kuchha road and along the length of the river bank or approach road to depot or places as recommended by Gram Panchayat. Approximately 300 trees of will be planted with various types of species. Native

plants like Mango, Neem, Eucalyptus, Peepal, Gulmohar, and other local species will selected in suitable combination, so that can grow fast and also have good leaf cover.

4.0 OTHER SAFETY PRECAUTIONS

1. Fencing of approach road for avoiding un-authorized entry to the active sand ghat
2. Provision of Boards displaying all information as regards to mining of sand including quantity, period of mining activity and details of project proponent.
3. Display of warning signal boards at prominent locations.
4. Maintenance of approach road to sand ghat.
5. Deployment of adequate security arrangement.
6. Provision of safety equipments to workers.
7. Strict prohibition of use of any fuel for cooking or burning of waste or any other material.
8. Strict prohibition on smoking.
9. Adequate provision for collection and disposal of domestic solid waste.
10. Awareness for safety and health to the workers deployed at sandghat.

5.0 IMPACT MATRIX

SR. NO.	PARTICULARS	TYPE (+) ve (-) ve No change	NATURE Direct Indirect	MAGNITUDE Law Moderate High	TIMING Short Term Long Intermediate	REVERSIBILITY Reversible Irreversible	SIGNIFICANCE Local Reginal Global	REMARK
1	Channel Geometry	(-)ve	Direct	Low	Short Term	Reversible	Local	The channel geometry will be changed temporarily
2	Bed Elevation	(-)ve	Direct	Low	Short Term	Reversible	Local	Only at proposed mining area which will be replenished during monsoon
3	SubstratumComposition & Stability	No Change	-	-	-	-	-	Mining is limited to 1m. depth From surface
4	In Stream Roughness of The Bed	No Change	-	-	-	-	-	Bed rock will not be disturbed
5	Flow Velocity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
6	Discharge Capacity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
7	Sediment Transport Capacity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
8	Turbidity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
9	Temperature	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged

6.0 STATUTORY REQUIREMENTS

It is accepted that effective resource management cannot be done in isolation. The Department therefore vigorously pursues approaches towards coordination and integration where possible, so as to lead to coordinated regulatory systems.

A regulatory system consists of both statutory and non-statutory components. In the Sectoral-specific strategy for prospecting and mining, the Department participates within an integrated environmental management system which is administered in terms of the Acts and Rules. Other Acts dealing with matters relating to the conservation and protection of the environment and which a holder of a mining authorization must also take cognizance of, include inter alia, the following:

- The Mines Act, 1952
- The Mines and Mineral (Development and Regulation) Act, 1957
- Mines Rules, 1955
- Mineral Concession Rules, 1960
- Mineral Conservation and Development Rules, 1988
- Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.
- The Environment (Protection) Act, 1986
- The Forest (Conservation) Act, 1980
- The Wildlife (Protection) Act, 1972

7.0 ENVIRONMENT MANAGEMENT PLAN ALONGWITH BREAKUP OF COST FOR IMPLEMENTATION.

Sr. No.	Component	Description	Capital cost Rs. in lakhs	Operational and Maintenance cost (Rs. in lakhs/year)
1	Environmental Monitoring programme	Monitoring for Air, water, noise & groundwater	0.025	0.035
2	Air Pollution Control	Water sprinkling during mining activities	0.02	0.055
3	Water Pollution Control	Construction of bund along lease boundary& Mobile Toilet	0.013	Nil
4	Noise pollution	Plantation including tree guard	0.01	0.015
5	Occupational Health & safety	Periodic Health Checkups of workers	-	0.035
	Total		**0.068**	**0.14**

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Enclosure 3

REPORT FOR IMPACT ASSESSMENT &ENVIRONMENT MANAGEMENT PLAN (EMP) FORPROPOSEDKALWAD SANDGHAT PROJECT, TEHSIL SHEGAV,BULDHANADISTRICT

1.0 INTRODUCTION

This Report has been prepared for the Proposed Kalwadsand ghat located in BuldhanaDistrict, Maharashtra**,** in accordance with the Notification of MoEF & CC, S.O. 1533 dated 14th September 2006 The Ministry of Environment, Forest and Climate Change amended Principal Notification vide 141 (E) dated 15th January 2016 and Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020included Minor Minerals from 0 Ha to 50 Ha in the Principal Notification S.O.1533 (E) dated 14.09.2006. Central Government made further amendments to the notification vide S.O.2269 (E) dated 01.07.2016. In obedience all relevant notifications to the principal Notification dated 14th September 2006, application for the excavation of sand ghat from proposed sand ghat is being submitted to SEIAA, Maharashtra.

Sand ghat/ Village	**Tehsil**	Adjacent to Survey No	**Area (Ha)**
Kalwad	SHEGAV	145,147	0.84

2.0 SALIENT FEATURES OF THE PROPOSED SAND GHAT MINING

The mining will be carried out manually with opencast method of mining by engaging labours with help of crow bars, hand shovel, pick axes and baskets. Loading is proposed to be carried out manually and transportation of mineral from the mine to the depot is proposed through tractor with trolley arrangement. As the mineral is dry, loose in nature, no drilling and blasting are required and hence not proposed. Sand excavated manually will be loaded directly into vehicles.

Mining of sand is proposed to be carried out by the manual method. It involve following steps

i. River Bed Mining activities do not involve top soil.
ii. Excavation of sand is done by using spade and bucket.
iii. Drilling and blasting is not required.
iv. Mining will be carried out during October to 30th September or from the date of auction to 30th September..
v. Transport of sand from the river bed to destination will be carried out by tractor-trolley
vi. No other machinery will be used during mining operations
vii. No pumping of water from river bed is envisaged as the sand ghats proposed are completely dry and their approach roads are also dry and accessible during proposed season of October to May.

viii. Working Depth (below ground level) the deposits occur at the middle/bottom of the river. During the entire lease period, the deposit will be worked from the top surface to 1 m bgl. The ultimate depth of the open cast pits will be 1 m below ground level.

ix. The entire quantity of sand excavated will be transported and will be used for infrastructure development purpose. Thus, there will not be generations of any solid waste.

x. Mining will be carried out as per the approved Mining Plan.

xi. It is proposed to employ the local population wherever possible in the proposed project activities. Direct employment from these proposed sand ghat excavation will be approximately 20 Persons and the there will be indirect employment generation also in service sector.

Details of Mining

Name of Sand Ghat	River	As per Joint Survey Proposed Sand Mining Depth in (m)	Area Ha.	Mineable Quantity of Sand (Brass)	Lease Period	Approximate working Days
Kalwad	Purna	0.50	0.84	1484	Six months from the date of allotment or up to 30th Septemberwhichever is earlier.	120 days

3.0 IMPACT ON SURROUNDING ENVIRONMENT& MITIGATION MEASURES

3.1 **GENERAL:**All development projects are likely to have an impact on the natural set up of the environment. This impact may be beneficial or adverse, depending on the improvement or the deterioration it brings about change in the status of air, water, land, ecology, natural systems, socio-cultural life styles and economics of the population. Depending on the nature of activities and baseline environment status, the impacts are assessed for their importance. On the basis of the impact analysis, the mitigating action and future monitoring requirement are focused in the Environmental Management plan for countering or minimizing the impacts.

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

Mitigative Measures:

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

3.3 WATER ENVIRONMENT

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

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

3.4 AIR ENVIRONMENT:

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

Name of Sand Ghat	Mineable Quantity of Sand (Brass)	Approximate working Days	Production/day (Brass)	No. of Trips day
Kalwad	1484	120 days	12	12

The transportroutes are capable for handling this additional traffic.

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

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

3.5 NOISE ENVIRONMENT

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

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

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

3.6 BIOLOGICAL ENVIRONMENT

Anticipated impact and mitigation measures for biological environment

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

Impact Predicted	Suggestive measure
	be controlled to maintain the clean water conditions.

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

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

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

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

3.7 PLANTATION

The entire mining area falls within river course and gets flooded during monsoons; therefore, no plantation is possible within this area.Plantation will mainly be done along the kuchha road and along the length of the river bank or approach road to depot or places as recommended by Gram Panchayat. Approximately 320 trees of will be planted with various types of species. Native

plants like Mango, Neem, Eucalyptus, Peepal, Gulmohar, and other local species will selected in suitable combination, so that can grow fast and also have good leaf cover.

4.0 OTHER SAFETY PRECAUTIONS

1. Fencing of approach road for avoiding un-authorized entry to the active sand ghat
2. Provision of Boards displaying all information as regards to mining of sand including quantity, period of mining activity and details of project proponent.
3. Display of warning signal boards at prominent locations.
4. Maintenance of approach road to sand ghat.
5. Deployment of adequate security arrangement.
6. Provision of safety equipments to workers.
7. Strict prohibition of use of any fuel for cooking or burning of waste or any other material.
8. Strict prohibition on smoking.
9. Adequate provision for collection and disposal of domestic solid waste.
10. Awareness for safety and health to the workers deployed at sandghat.

5.0 IMPACT MATRIX

SR. NO.	PARTICULARS	**TYPE** (+) ve (-) ve No change	**NATURE** Direct Indirect	**MAGNITUDE** Law Moderate High	**TIMING** **Short** Term Long Intermediate	**REVERSIBILITY** Reversible Irreversible	**SIGNIFICANCE** Local Reginal Global	REMARK
1	Channel Geometry	(-)ve	Direct	Low	Short Term	Reversible	Local	The channel geometry will be changed temporarily
2	Bed Elevation	(-)ve	Direct	Low	Short Term	Reversible	Local	Only at proposed mining area which will be replenished during monsoon
3	SubstratumComposition& Stability	No Change	-	-	-	-	-	Mining is limited to 1m. depth From surface
4	In Stream Roughness of The Bed	No Change	-	-	-	-	-	Bed rock will not be disturbed
5	Flow Velocity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
6	Discharge Capacity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
7	Sediment Transport Capacity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
8	Turbidity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
9	Temperature	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged

6.0 STATUTORY REQUIREMENTS

It is accepted that effective resource management cannot be done in isolation. The Department therefore vigorously pursues approaches towards coordination and integration where possible, so as to lead to coordinated regulatory systems.

A regulatory system consists of both statutory and non-statutory components. In the Sectoral-specific strategy for prospecting and mining, the Department participates within an integrated environmental management system which is administered in terms of the Acts and Rules. Other Acts dealing with matters relating to the conservation and protection of the environment and which a holder of a mining authorization must also take cognizance of, include inter alia, the following:

- The Mines Act, 1952
- The Mines and Mineral (Development and Regulation) Act, 1957
- Mines Rules, 1955
- Mineral Concession Rules, 1960
- Mineral Conservation and Development Rules, 1988
- Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.
- The Environment (Protection) Act, 1986
- The Forest (Conservation) Act, 1980
- The Wildlife (Protection) Act, 1972

7.0 ENVIRONMENT MANAGEMENT PLAN ALONGWITH BREAKUP OF COST FOR IMPLEMENTATION.

Sr. No.	Component	Description	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)
1	Environmental Monitoring programme	Monitoring for Air, water, noise & groundwater	0.80	0.20
2	Air Pollution Control	Water sprinkling during mining activities	0.90	0.25
3	Water Pollution Control	Construction of bund along lease boundary& Mobile Toilet	0. 90	Nil
4	Noise pollution	Plantation including tree guard	0.12	0.10
5	Occupational Health & safety	Periodic Health Checkups of workers	-	0.20
	Total		**0.38**	**0.75**

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Enclosure 3

REPORT FOR IMPACT ASSESSMENT &ENVIRONMENT MANAGEMENT PLAN (EMP) FORPROPOSEDKHATKHEDSANDGHAT PROJECT, TEHSIL SHEGAV,BULDHANADISTRICT

1.0 INTRODUCTION

This Report has been prepared for the Proposed Khatkhedsand ghatlocated in BuldhanaDistrict, Maharashtra**,** in accordance with the Notification of MoEF& CC, S.O. 1533 dated 14th September 2006 The Ministry of Environment, Forest and Climate Change amended Principal Notification vide 141 (E) dated 15th January 2016 and Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020included Minor Minerals from 0 Ha to 50 Ha in the Principal Notification S.O.1533 (E) dated 14.09.2006. Central Government made further amendments to the notification vide S.O.2269 (E) dated 01.07.2016. In obedience all relevant notifications to the principal Notification dated 14th September 2006, application for the excavation of sand ghatfrom proposed sand ghat is being submitted to SEIAA, Maharashtra.

Sand ghat/ Village	**Tehsil**	Adjacent to Survey No	**Area (Ha)**
Khatkhed	**SHEGAV**	3,4,5,6,7,13	0.39

2.0 SALIENT FEATURES OF THE PROPOSED SAND GHAT MINING

The mining will be carried out manually with opencast method of mining by engaging labours with help of crow bars, hand shovel, pick axes and baskets. Loading is proposed to be carried out manually and transportation of mineral from the mine to the depot is proposed through tractor with trolley arrangement. As the mineral is dry, loose in nature, no drilling and blasting are required and hence not proposed. Sand excavated manually will be loaded directly into vehicles.

Mining of sand is proposed to be carried out by the manual method. It involve following steps

i. River Bed Mining activities do not involve top soil.
ii. Excavation of sand is done by using spade and bucket.
iii. Drilling and blasting is not required.
iv. Mining will be carried out during October to 30th September or from the date of auction to 30th September..
v. Transport of sand from the river bed to destination will be carried out by tractor-trolley
vi. No other machinery will be used during mining operations
vii. No pumping of water from river bed is envisaged as the sand ghats proposed are completely dry and their approach roads are also dry and accessible during proposed season of October to May.

viii. Working Depth (below ground level) the deposits occur at the middle/bottom of the river. During the entire lease period, the deposit will be worked from the top surface to 1 m bgl. The ultimate depth of the open cast pits will be 1 m below ground level.

ix. The entire quantity of sand excavated will be transported and will be used for infrastructure development purpose. Thus, there will not be generations of any solid waste.

x. Mining will be carried out as per the approved Mining Plan.

xi. It is proposed to employ the local population wherever possible in the proposed project activities. Direct employment from these proposed sand ghat excavation will be approximately 20 Persons and the there will be indirect employment generation also in service sector.

Details of Mining

Name of Sand Ghat	**River**	**As per Joint Survey** / **Proposed Sand Mining Depth in (m)**	**Area Ha.**	**Mineable Quantity of Sand (Brass)**	**Lease Period**	**Approximate working Days**
Khatkhed	Purna	0.50	0.39	689	Six months from the date of allotment or up to 30th Septemberwhichever is earlier.	120 days

3.0 IMPACT ON SURROUNDING ENVIRONMENT& MITIGATION MEASURES

3.1 **GENERAL:**All development projects are likely to have an impact on the natural set up of the environment. This impact may be beneficial or adverse, depending on the improvement or the deterioration it brings about change in the status of air, water, land, ecology, natural systems, socio-cultural life styles and economics of the population. Depending on the nature of activities and baseline environment status, the impacts are assessed for their importance. On the basis of the impact analysis, the mitigating action and future monitoring requirement are focused in the Environmental Management plan for countering or minimizing the impacts.

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

MitigativeMeasures:

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

3.3 WATER ENVIRONMENT

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

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

3.4 AIR ENVIRONMENT:

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

Name of Sand Ghat	Mineable Quantity of Sand (Brass)	Approximate working Days	Production/day (Brass)	No. of Trips day
Khatkhed	689	120 days	6	6

The transportroutes are capable for handling this additional traffic.

MitigativeMeasures: Following care will be taken for air pollution control.

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

3.5 NOISE ENVIRONMENT

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

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

3.6 BIOLOGICAL ENVIRONMENT

Anticipated impact and mitigation measures for biological environment

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

Impact Predicted	Suggestive measure
	conditions.

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

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

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

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

3.7 PLANTATION

The entire mining area falls within river course and gets flooded during monsoons; therefore, no plantation is possible within this area.Plantation will mainly be done along the kuchha road and along the length of the river bank or approach road to depot or places as recommended by Gram Panchayat. Approximately 300 trees of will be planted with various types of species. Native plants like Mango, Neem, Eucalyptus, Peepal, Gulmohar, and other local species

will selected in suitable combination, so that can grow fast and also have good leaf cover.

4.0 OTHER SAFETY PRECAUTIONS

1. Fencing of approach road for avoiding un-authorized entry to the active sand ghat
2. Provision of Boards displaying all information as regards to mining of sand including quantity, period of mining activity and details of project proponent.
3. Display of warning signal boards at prominent locations.
4. Maintenance of approach road to sand ghat.
5. Deployment of adequate security arrangement.
6. Provision of safety equipments to workers.
7. Strict prohibition of use of any fuel for cooking or burning of waste or any other material.
8. Strict prohibition on smoking.
9. Adequate provision for collection and disposal of domestic solid waste.
10. Awareness for safety and health to the workers deployed at sandghat.

5.0 IMPACT MATRIX

SR. NO.	PARTICULARS	TYPE (+) ve (-) ve No change	NATURE Direct Indirect	MAGNITUDE Law Moderate High	TIMING Short Term Long Intermediate	REVERSIBILITY Reversible Irreversible	SIGNIFICANCE Local Reginal Global	REMARK
1	Channel Geometry	(-)ve	Direct	Low	Short Term	Reversible	Local	The channel geometry will be changed temporarily
2	Bed Elevation	(-)ve	Direct	Low	Short Term	Reversible	Local	Only at proposed mining area which will be replenished during monsoon
3	SubstratumComposition& Stability	No Change	-	-	-	-	-	Mining is limited to 1m. depth From surface
4	In Stream Roughness of The Bed	No Change	-	-	-	-	-	Bed rock will not be disturbed
5	Flow Velocity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
6	Discharge Capacity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
7	Sediment Transport Capacity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
8	Turbidity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
9	Temperature	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged

6.0 STATUTORY REQUIREMENTS

It is accepted that effective resource management cannot be done in isolation. The Department therefore vigorously pursues approaches towards coordination and integration where possible, so as to lead to coordinated regulatory systems.

A regulatory system consists of both statutory and non-statutory components. In the Sectoral-specific strategy for prospecting and mining, the Department participates within an integrated environmental management system which is administered in terms of the Acts and Rules. Other Acts dealing with matters relating to the conservation and protection of the environment and which a holder of a mining authorization must also take cognizance of, include inter alia, the following:

- The Mines Act, 1952
- The Mines and Mineral (Development and Regulation) Act, 1957
- Mines Rules, 1955
- Mineral Concession Rules, 1960
- Mineral Conservation and Development Rules, 1988
- Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.
- The Environment (Protection) Act, 1986
- The Forest (Conservation) Act, 1980
- The Wildlife (Protection) Act, 1972

7.0 ENVIRONMENT MANAGEMENT PLAN ALONGWITH BREAKUP OF COST FOR IMPLEMENTATION.

Sr. No.	Component	Description	Capital cost Rs. in Lacs	Operational and Maintenance cost (Rs. in Lacs/year)
1	Environmental Monitoring programme	Monitoring for Air, water, noise & groundwater	0.05	0.09
2	Air Pollution Control	Water sprinkling during mining activities	0.04	0.10
3	Water Pollution Control	Construction of bund along lease boundary& Mobile Toilet	0.03	Nil
4	Noise pollution	Plantation including tree guard	0.06	0.08
5	Occupational Health & safety	Periodic Health Checkups of workers	-	0.08
	Total		**0.18**	**0.35**

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Enclosure 3

REPORT FOR IMPACT ASSESSMENT &ENVIRONMENT MANAGEMENT PLAN (EMP) FORPROPOSEDPADSULSANDGHAT PROJECT, TEHSIL SHEGAV, BULDHANA DISTRICT

1.0 INTRODUCTION

This Report has been prepared for the Proposed Padsulsandghatlocated in BuldhanaDistrict, Maharashtra**,** in accordance with the Notification of MoEF& CC, S.O. 1533 dated 14th September 2006 The Ministry of Environment, Forest and Climate Change amended Principal Notification vide 141 (E) dated 15th January 2016 and Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020included Minor Minerals from 0 Ha to 50 Ha in the Principal Notification S.O.1533 (E) dated 14.09.2006. Central Government made further amendments to the notification vide S.O.2269 (E) dated 01.07.2016. In obedience all relevant notifications to the principal Notification dated 14th September 2006, application for the excavation of sand ghatfrom proposed sand ghat is being submitted to SEIAA, Maharashtra.

Sand ghat/ Village	Tehsil	Adjacent to Survey No	Area (Ha)
Padsul	Shegav	1	0.33

2.0 SALIENT FEATURES OF THE PROPOSED SAND GHAT MINING

The mining will be carried out manually with opencast method of mining by engaging labours with help of crow bars, hand shovel, pick axes and baskets. Loading is proposed to be carried out manually and transportation of mineral from the mine to the depot is proposed through tractor with trolley arrangement. As the mineral is dry, loose in nature, no drilling and blasting are required and hence not proposed. Sand excavated manually will be loaded directly into vehicles.

Mining of sand is proposed to be carried out by the manual method. It involve following steps

i. River Bed Mining activities do not involve top soil.
ii. Excavation of sand is done by using spade and bucket.
iii. Drilling and blasting is not required.
iv. Mining will be carried out during October to 30th September or from the date of auction to 30th September..
v. Transport of sand from the river bed to destination will be carried out by tractor-trolley
vi. No other machinery will be used during mining operations
vii. No pumping of water from river bed is envisaged as the sand ghats proposed are completely dry and their approach roads are also dry and accessible during proposed season of October to May.
viii. Working Depth (below ground level) the deposits occur at the middle/bottom of the river. During the entire lease period, the deposit

will be worked from the top surface to 1 m bgl. The ultimate depth of the open cast pits will be 1 m below ground level.

ix. The entire quantity of sand excavated will be transported and will be used for infrastructure development purpose. Thus, there will not be generations of any solid waste.

x. Mining will be carried out as per the approved Mining Plan.

xi. It is proposed to employ the local population wherever possible in the proposed project activities. Direct employment from these proposed sand ghat excavation will be approximately 20 Persons and the there will be indirect employment generation also in service sector.

Details of Mining

Name of Sand Ghat	River	As per Joint Survey Proposed Sand Mining Depth in (m)	Area Ha.	Mineable Quantity of Sand (Brass)	**Lease Period**	**Approximate working Days**
Padsul	Maan	0.50	0.33	580	Six months from the date of allotment or up to 30th September whichever is earlier.	120 days

3.0 IMPACT ON SURROUNDING ENVIRONMENT& MITIGATION MEASURES

3.1 **GENERAL:**All development projects are likely to have an impact on the natural set up of the environment. This impact may be beneficial or adverse, depending on the improvement or the deterioration it brings about change in the status of air, water, land, ecology, natural systems, socio-cultural life styles and economics of the population. Depending on the nature of activities and baseline environment status, the impacts are assessed for their importance. On the basis of the impact analysis, the mitigating action and future monitoring requirement are focused in the Environmental Management plan for countering or minimizing the impacts.

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

MitigativeMeasures:

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

3.3 WATER ENVIRONMENT

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

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

3.4 AIR ENVIRONMENT:

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

Name of Sand Ghat	Mineable Quantity of Sand (Brass)	Approximate working Days	Production/day (Brass)	No. of Trips day
PADSUL	580	120 days	5	5

The transportroutes are capable for handling this additional traffic.

MitigativeMeasures: Following care will be taken for air pollution control.

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

3.5 NOISE ENVIRONMENT

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

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

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

3.6 BIOLOGICAL ENVIRONMENT

Anticipated impact and mitigation measures for biological environment

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

Impact Predicted	Suggestive measure
	be controlled to maintain the clean water conditions.

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

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

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

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

3.7 PLANTATION

The entire mining area falls within river course and gets flooded during monsoons; therefore, no plantation is possible within this area.Plantation will mainly be done along the kuchha road and along the length of the river bank or approach road to depot or places as recommended by Gram Panchayat. Approximately 300 trees of will be planted with various types of species. Native

plants like Mango, Neem, Eucalyptus, Peepal, Gulmohar, and other local species will selected in suitable combination, so that can grow fast and also have good leaf cover.

4.0 OTHER SAFETY PRECAUTIONS

1. Fencing of approach road for avoiding un-authorized entry to the active sand ghat
2. Provision of Boards displaying all information as regards to mining of sand including quantity, period of mining activity and details of project proponent.
3. Display of warning signal boards at prominent locations.
4. Maintenance of approach road to sand ghat.
5. Deployment of adequate security arrangement.
6. Provision of safety equipments to workers.
7. Strict prohibition of use of any fuel for cooking or burning of waste or any other material.
8. Strict prohibition on smoking.
9. Adequate provision for collection and disposal of domestic solid waste.
10. Awareness for safety and health to the workers deployed at sandghat.

5.0 IMPACT MATRIX

SR. NO.	PARTICULARS	TYPE (+) ve (-) ve No change	NATURE Direct Indirect	MAGNITUDE Law Moderate High	TIMING Short Term Long Intermediate	REVERSIBILITY Reversible Irreversible	SIGNIFICANCE Local Reginal Global	REMARK
1	Channel Geometry	(-)ve	Direct	Low	Short Term	Reversible	Local	The channel geometry will be changed temporarily
2	Bed Elevation	(-)ve	Direct	Low	Short Term	Reversible	Local	Only at proposed mining area which will be replenished during monsoon
3	SubstratumComposition& Stability	No Change	-	-	-	-	-	Mining is limited to 1m. depth From surface
4	In Stream Roughness of The Bed	No Change	-	-	-	-	-	Bed rock will not be disturbed
5	Flow Velocity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
6	Discharge Capacity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
7	Sediment Transport Capacity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
8	Turbidity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
9	Temperature	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged

6.0 STATUTORY REQUIREMENTS

It is accepted that effective resource management cannot be done in isolation. The Department therefore vigorously pursues approaches towards coordination and integration where possible, so as to lead to coordinated regulatory systems.

A regulatory system consists of both statutory and non-statutory components. In the Sectoral-specific strategy for prospecting and mining, the Department participates within an integrated environmental management system which is administered in terms of the Acts and Rules. Other Acts dealing with matters relating to the conservation and protection of the environment and which a holder of a mining authorization must also take cognizance of, include inter alia, the following:

- The Mines Act, 1952
- The Mines and Mineral (Development and Regulation) Act, 1957
- Mines Rules, 1955
- Mineral Concession Rules, 1960
- Mineral Conservation and Development Rules, 1988
- Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.
- The Environment (Protection) Act, 1986
- The Forest (Conservation) Act, 1980
- The Wildlife (Protection) Act, 1972

7.0 ENVIRONMENT MANAGEMENT PLAN ALONGWITH BREAKUP OF COST FOR IMPLEMENTATION.

Sr. No.	Component	Description	Capital cost Rs. in lakhs	Operational and Maintenance cost (Rs. in lakhs/year)
1	Environmental Monitoring programme	Monitoring for Air, water, noise & groundwater	0.04	0.07
2	Air Pollution Control	Water sprinkling during mining activities	0.04	0.07
3	Water Pollution Control	Construction of bund along lease boundary& Mobile Toilet	0.03	Nil
4	Noise pollution	Plantation including tree guard	0.04	0.08
5	Occupational Health & safety	Periodic Health Checkups of workers	-	0.08
	Total		**0.15**	**0.30**

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Enclosure 3

REPORT FOR IMPACT ASSESSMENT &ENVIRONMENT MANAGEMENT PLAN (EMP) FORPROPOSEDPALODI SANDGHAT PROJECT, TEHSIL SHEGAV, BULDHANA DISTRICT

1.0 INTRODUCTION

This Report has been prepared for the Proposed Palodisandghatlocated in BuldhanaDistrict, Maharashtra**,** in accordance with the Notification of MoEF& CC, S.O. 1533 dated 14th September 2006 The Ministry of Environment, Forest and Climate Change amended Principal Notification vide 141 (E) dated 15th January 2016 and Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020included Minor Minerals from 0 Ha to 50 Ha in the Principal Notification S.O.1533 (E) dated 14.09.2006. Central Government made further amendments to the notification vide S.O.2269 (E) dated 01.07.2016. In obedience all relevant notifications to the principal Notification dated 14th September 2006, application for the excavation of sand ghatfrom proposed sand ghat is being submitted to SEIAA, Maharashtra.

Sand ghat/ Village	Tehsil	Adjacent to Survey No	Area (Ha)
Palodi	Shegav	**212 to 215**	0.35

2.0 SALIENT FEATURES OF THE PROPOSED SAND GHAT MINING

The mining will be carried out manually with opencast method of mining by engaging labours with help of crow bars, hand shovel, pick axes and baskets. Loading is proposed to be carried out manually and transportation of mineral from the mine to the depot is proposed through tractor with trolley arrangement. As the mineral is dry, loose in nature, no drilling and blasting are required and hence not proposed. Sand excavated manually will be loaded directly into vehicles.

Mining of sand is proposed to be carried out by the manual method. It involve following steps

i. River Bed Mining activities do not involve top soil.
ii. Excavation of sand is done by using spade and bucket.
iii. Drilling and blasting is not required.
iv. Mining will be carried out during October to 30th September or from the date of auction to 30th September..
v. Transport of sand from the river bed to destination will be carried out by tractor-trolley
vi. No other machinery will be used during mining operations
vii. No pumping of water from river bed is envisaged as the sand ghats proposed are completely dry and their approach roads are also dry and accessible during proposed season of October to May.
viii. Working Depth (below ground level) the deposits occur at the middle/bottom of the river. During the entire lease period, the deposit

will be worked from the top surface to 1 m bgl. The ultimate depth of the open cast pits will be 1 m below ground level.

ix. The entire quantity of sand excavated will be transported and will be used for infrastructure development purpose. Thus, there will not be generations of any solid waste.

x. Mining will be carried out as per the approved Mining Plan.

xi. It is proposed to employ the local population wherever possible in the proposed project activities. Direct employment from these proposed sand ghat excavation will be approximately 20 Persons and the there will be indirect employment generation also in service sector.

Details of Mining

Name of Sand Ghat	River	As per Joint Survey Proposed Sand Mining Depth in (m)	Area Ha.	Mineable Quantity of Sand (Brass)	**Lease Period**	**Approximate working Days**
Palodi	Muun	0.50	0.35	610	Six months from the date of allotment or up to 30th September whichever is earlier.	120 days

3.0 IMPACT ON SURROUNDING ENVIRONMENT& MITIGATION MEASURES

3.1 **GENERAL:**All development projects are likely to have an impact on the natural set up of the environment. This impact may be beneficial or adverse, depending on the improvement or the deterioration it brings about change in the status of air, water, land, ecology, natural systems, socio-cultural life styles and economics of the population. Depending on the nature of activities and baseline environment status, the impacts are assessed for their importance. On the basis of the impact analysis, the mitigating action and future monitoring requirement are focused in the Environmental Management plan for countering or minimizing the impacts.

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

MitigativeMeasures:

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

3.3 WATER ENVIRONMENT

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

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

3.4 AIR ENVIRONMENT:

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

Name of Sand Ghat	Mineable Quantity of Sand (Brass)	Approximate working Days	Production/day (Brass)	No. of Trips day
PALODI	610	120 days	5	5

The transportroutes are capable for handling this additional traffic.

MitigativeMeasures: Following care will be taken for air pollution control.

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

3.5 NOISE ENVIRONMENT

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

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

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

3.6 BIOLOGICAL ENVIRONMENT

Anticipated impact and mitigation measures for biological environment

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

Impact Predicted	Suggestive measure
	be controlled to maintain the clean water conditions.

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

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

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

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

3.7 PLANTATION

The entire mining area falls within river course and gets flooded during monsoons; therefore, no plantation is possible within this area.Plantation will mainly be done along the kuchha road and along the length of the river bank or approach road to depot or places as recommended by Gram Panchayat. Approximately 320 trees of will be planted with various types of species. Native

plants like Mango, Neem, Eucalyptus, Peepal, Gulmohar, and other local species will selected in suitable combination, so that can grow fast and also have good leaf cover.

4.0 OTHER SAFETY PRECAUTIONS

1. Fencing of approach road for avoiding un-authorized entry to the active sand ghat
2. Provision of Boards displaying all information as regards to mining of sand including quantity, period of mining activity and details of project proponent.
3. Display of warning signal boards at prominent locations.
4. Maintenance of approach road to sand ghat.
5. Deployment of adequate security arrangement.
6. Provision of safety equipments to workers.
7. Strict prohibition of use of any fuel for cooking or burning of waste or any other material.
8. Strict prohibition on smoking.
9. Adequate provision for collection and disposal of domestic solid waste.
10. Awareness for safety and health to the workers deployed at sandghat.

5.0 IMPACT MATRIX

SR. NO.	PARTICULARS	TYPE (+) ve (-) ve No change	NATURE Direct Indirect	MAGNITUDE Law Moderate High	TIMING Short Term Long Intermediate	REVERSIBILITY Reversible Irreversible	SIGNIFICANCE Local Reginal Global	REMARK
1	Channel Geometry	(-)ve	Direct	Low	Short Term	Reversible	Local	The channel geometry will be changed temporarily
2	Bed Elevation	(-)ve	Direct	Low	Short Term	Reversible	Local	Only at proposed mining area which will be replenished during monsoon
3	SubstratumComposition& Stability	No Change	-	-	-	-	-	Mining is limited to 1m. depth From surface
4	In Stream Roughness of The Bed	No Change	-	-	-	-	-	Bed rock will not be disturbed
5	Flow Velocity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
6	Discharge Capacity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
7	Sediment Transport Capacity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
8	Turbidity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
9	Temperature	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged

6.0 STATUTORY REQUIREMENTS

It is accepted that effective resource management cannot be done in isolation. The Department therefore vigorously pursues approaches towards coordination and integration where possible, so as to lead to coordinated regulatory systems.

A regulatory system consists of both statutory and non-statutory components. In the Sectoral-specific strategy for prospecting and mining, the Department participates within an integrated environmental management system which is administered in terms of the Acts and Rules. Other Acts dealing with matters relating to the conservation and protection of the environment and which a holder of a mining authorization must also take cognizance of, include inter alia, the following:

- The Mines Act, 1952
- The Mines and Mineral (Development and Regulation) Act, 1957
- Mines Rules, 1955
- Mineral Concession Rules, 1960
- Mineral Conservation and Development Rules, 1988
- Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.
- The Environment (Protection) Act, 1986
- The Forest (Conservation) Act, 1980
- The Wildlife (Protection) Act, 1972

7.0 ENVIRONMENT MANAGEMENT PLAN ALONGWITH BREAKUP OF COST FOR IMPLEMENTATION.

Sr. No.	Component	Description	Capital cost Rs. in lakhs	Operational and Maintenance cost (Rs. in lakhs/year)
1	Environmental Monitoring programme	Monitoring for Air, water, noise & groundwater	0.04	0.08
2	Air Pollution Control	Water sprinkling during mining activities	0.04	0.07
3	Water Pollution Control	Construction of bund along lease boundary& Mobile Toilet	0.04	Nil
4	Noise pollution	Plantation including tree guard	0.04	0.08
5	Occupational Health & safety	Periodic Health Checkups of workers	-	0.08
	Total		**0.16**	**0.31**

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Enclosure 3

REPORT FOR IMPACT ASSESSMENT &ENVIRONMENT MANAGEMENT PLAN (EMP) FORPROPOSEDSAGODA-A, SANDGHAT PROJECT, TEHSIL SHEGAV, BULDHANA DISTRICT

1.0 INTRODUCTION

This Report has been prepared for the Proposed Sagoda-A sandghatlocated in BuldhanaDistrict, Maharashtra**,** in accordance with the Notification of MoEF& CC, S.O. 1533 dated 14th September 2006 The Ministry of Environment, Forest and Climate Change amended Principal Notification vide 141 (E) dated 15th January 2016 and Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020included Minor Minerals from 0 Ha to 50 Ha in the Principal Notification S.O.1533 (E) dated 14.09.2006. Central Government made further amendments to the notification vide S.O.2269 (E) dated 01.07.2016. In obedience all relevant notifications to the principal Notification dated 14th September 2006, application for the excavation of sand ghatfrom proposed sand ghat is being submitted to SEIAA, Maharashtra.

Sand ghat/ Village	Tehsil	Adjacent to Survey No	Area (Ha)
Sagoda-A	Shegav	193,194	0.86

2.0 SALIENT FEATURES OF THE PROPOSED SAND GHAT MINING

The mining will be carried out manually with opencast method of mining by engaging labours with help of crow bars, hand shovel, pick axes and baskets. Loading is proposed to be carried out manually and transportation of mineral from the mine to the depot is proposed through tractor with trolley arrangement. As the mineral is dry, loose in nature, no drilling and blasting are required and hence not proposed. Sand excavated manually will be loaded directly into vehicles.

Mining of sand is proposed to be carried out by the manual method. It involve following steps

i. River Bed Mining activities do not involve top soil.
ii. Excavation of sand is done by using spade and bucket.
iii. Drilling and blasting is not required.
iv. Mining will be carried out during October to 30th September or from the date of auction to 30th September..
v. Transport of sand from the river bed to destination will be carried out by tractor-trolley
vi. No other machinery will be used during mining operations
vii. No pumping of water from river bed is envisaged as the sand ghats proposed are completely dry and their approach roads are also dry and accessible during proposed season of October to May.
viii. Working Depth (below ground level) the deposits occur at the middle/bottom of the river. During the entire lease period, the deposit

will be worked from the top surface to 1 m bgl. The ultimate depth of the open cast pits will be 1 m below ground level.

ix. The entire quantity of sand excavated will be transported and will be used for infrastructure development purpose. Thus, there will not be generations of any solid waste.

x. Mining will be carried out as per the approved Mining Plan.

xi. It is proposed to employ the local population wherever possible in the proposed project activities. Direct employment from these proposed sand ghat excavation will be approximately 20 Persons and the there will be indirect employment generation also in service sector.

Details of Mining

Name of Sand Ghat	River	As per Joint Survey Proposed Sand Mining Depth in (m)	Area Ha.	Mineable Quantity of Sand (Brass)	**Lease Period**	**Approximate working Days**
Sagoda-A	Purna	0.50	0.86	1519	Six months from the date of allotment or up to 30th September whichever is earlier.	120 days

3.0 IMPACT ON SURROUNDING ENVIRONMENT& MITIGATION MEASURES

3.1 **GENERAL:**All development projects are likely to have an impact on the natural set up of the environment. This impact may be beneficial or adverse, depending on the improvement or the deterioration it brings about change in the status of air, water, land, ecology, natural systems, socio-cultural life styles and economics of the population. Depending on the nature of activities and baseline environment status, the impacts are assessed for their importance. On the basis of the impact analysis, the mitigating action and future monitoring requirement are focused in the Environmental Management plan for countering or minimizing the impacts.

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

MitigativeMeasures:

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

3.3 WATER ENVIRONMENT

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

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

3.4 AIR ENVIRONMENT:

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

Name of Sand Ghat	Mineable Quantity of Sand (Brass)	Approximate working Days	Production/day (Brass)	No. of Trips day
SAGODA-A	1519	120 days	13	13

The transportroutes are capable for handling this additional traffic.

MitigativeMeasures: Following care will be taken for air pollution control.

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

3.5 NOISE ENVIRONMENT

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

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

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

3.6 BIOLOGICAL ENVIRONMENT

Anticipated impact and mitigation measures for biological environment

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

Impact Predicted	Suggestive measure
	be controlled to maintain the clean water conditions.

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

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

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

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

3.7 PLANTATION

The entire mining area falls within river course and gets flooded during monsoons; therefore, no plantation is possible within this area.Plantation will mainly be done along the kuchha road and along the length of the river bank or approach road to depot or places as recommended by Gram Panchayat. Approximately 550 trees of will be planted with various types of species. Native

plants like Mango, Neem, Eucalyptus, Peepal, Gulmohar, and other local species will selected in suitable combination, so that can grow fast and also have good leaf cover.

4.0 OTHER SAFETY PRECAUTIONS

1. Fencing of approach road for avoiding un-authorized entry to the active sand ghat
2. Provision of Boards displaying all information as regards to mining of sand including quantity, period of mining activity and details of project proponent.
3. Display of warning signal boards at prominent locations.
4. Maintenance of approach road to sand ghat.
5. Deployment of adequate security arrangement.
6. Provision of safety equipments to workers.
7. Strict prohibition of use of any fuel for cooking or burning of waste or any other material.
8. Strict prohibition on smoking.
9. Adequate provision for collection and disposal of domestic solid waste.
10. Awareness for safety and health to the workers deployed at sandghat.

5.0 IMPACT MATRIX

SR. NO.	PARTICULARS	TYPE (+) ve (-) ve No change	NATURE Direct Indirect	MAGNITUDE Law Moderate High	TIMING Short Term Long Intermediate	REVERSIBILITY Reversible Irreversible	SIGNIFICANCE Local Reginal Global	REMARK
1	Channel Geometry	(-)ve	Direct	Low	Short Term	Reversible	Local	The channel geometry will be changed temporarily
2	Bed Elevation	(-)ve	Direct	Low	Short Term	Reversible	Local	Only at proposed mining area which will be replenished during monsoon
3	SubstratumComposition& Stability	No Change	-	-	-	-	-	Mining is limited to 1m. depth From surface
4	In Stream Roughness of The Bed	No Change	-	-	-	-	-	Bed rock will not be disturbed
5	Flow Velocity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
6	Discharge Capacity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
7	Sediment Transport Capacity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
8	Turbidity	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged
9	Temperature	No Change	-	-	-	-	-	Mining proposed during dry season hence no change envisaged

6.0 STATUTORY REQUIREMENTS

It is accepted that effective resource management cannot be done in isolation. The Department therefore vigorously pursues approaches towards coordination and integration where possible, so as to lead to coordinated regulatory systems.

A regulatory system consists of both statutory and non-statutory components. In the Sectoral-specific strategy for prospecting and mining, the Department participates within an integrated environmental management system which is administered in terms of the Acts and Rules. Other Acts dealing with matters relating to the conservation and protection of the environment and which a holder of a mining authorization must also take cognizance of, include inter alia, the following:

- The Mines Act, 1952
- The Mines and Mineral (Development and Regulation) Act, 1957
- Mines Rules, 1955
- Mineral Concession Rules, 1960
- Mineral Conservation and Development Rules, 1988
- Maharashtra Minor Mineral Extraction Development and Regulation) Rules, 2013.
- The Environment (Protection) Act, 1986
- The Forest (Conservation) Act, 1980
- The Wildlife (Protection) Act, 1972

7.0 ENVIRONMENT MANAGEMENT PLAN ALONGWITH BREAKUP OF COST FOR IMPLEMENTATION.

Sr. No.	Component	Description	Capital cost Rs. in lakhs	Operational and Maintenance cost (Rs. in lakhs/year)
1	Environmental Monitoring programme	Monitoring for Air, water, noise & groundwater	0.09	0.15
2	Air Pollution Control	Water sprinkling during mining activities	0.12	0.28
3	Water Pollution Control	Construction of bund along lease boundary& Mobile Toilet	0.09	Nil
4	Noise pollution	Plantation including tree guard	0.09	0.19
5	Occupational Health & safety	Periodic Health Checkups of workers	-	0.15
	Total		**0.39**	**0.77**

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Enclosure 3

REPORT FOR IMPACT ASSESSMENT &ENVIRONMENT MANAGEMENT PLAN (EMP) FORPROPOSEDSAGODA-B, SANDGHAT PROJECT, TEHSIL SHEGAV, BULDHANA DISTRICT

1.0 INTRODUCTION

This Report has been prepared for the Proposed SAGODA-Bsandghatlocated in BuldhanaDistrict, Maharashtra**,** in accordance with the Notification of MoEF& CC, S.O. 1533 dated 14th September 2006 The Ministry of Environment, Forest and Climate Change amended Principal Notification vide 141 (E) dated 15th January 2016 and Sustainable Sand Mining Management Guidelines 2016, Guidelines for Mining Policy 2020included Minor Minerals from 0 Ha to 50 Ha in the Principal Notification S.O.1533 (E) dated 14.09.2006. Central Government made further amendments to the notification vide S.O.2269 (E) dated 01.07.2016. In obedience all relevant notifications to the principal Notification dated 14th September 2006, application for the excavation of sand ghatfrom proposed sand ghat is being submitted to SEIAA, Maharashtra.

Sand ghat/ Village	Tehsil	Adjacent to Survey No	Area (Ha)
SAGODA-B	Shegav	232,233,235	0.92

2.0 SALIENT FEATURES OF THE PROPOSED SAND GHAT MINING

The mining will be carried out manually with opencast method of mining by engaging labours with help of crow bars, hand shovel, pick axes and baskets. Loading is proposed to be carried out manually and transportation of mineral from the mine to the depot is proposed through tractor with trolley arrangement. As the mineral is dry, loose in nature, no drilling and blasting are required and hence not proposed. Sand excavated manually will be loaded directly into vehicles.

Mining of sand is proposed to be carried out by the manual method. It involve following steps

i. River Bed Mining activities do not involve top soil.
ii. Excavation of sand is done by using spade and bucket.
iii. Drilling and blasting is not required.
iv. Mining will be carried out during October to 30th September or from the date of auction to 30th September..
v. Transport of sand from the river bed to destination will be carried out by tractor-trolley
vi. No other machinery will be used during mining operations
vii. No pumping of water from river bed is envisaged as the sand ghats proposed are completely dry and their approach roads are also dry and accessible during proposed season of October to May.
viii. Working Depth (below ground level) the deposits occur at the middle/bottom of the river. During the entire lease period, the deposit

will be worked from the top surface to 1 m bgl. The ultimate depth of the open cast pits will be 1 m below ground level.

ix. The entire quantity of sand excavated will be transported and will be used for infrastructure development purpose. Thus, there will not be generations of any solid waste.

x. Mining will be carried out as per the approved Mining Plan.

xi. It is proposed to employ the local population wherever possible in the proposed project activities. Direct employment from these proposed sand ghat excavation will be approximately 20 Persons and the there will be indirect employment generation also in service sector.

Details of Mining

Name of Sand Ghat	River	As per Joint Survey Proposed Sand Mining Depth in (m)	Area Ha.	Mineable Quantity of Sand (Brass)	**Lease Period**	**Approximate working Days**
SAGODA-B	Purna	0.50	0.92	1625	Six months from the date of allotment or up to 30th September whichever is earlier.	120 days

3.0 IMPACT ON SURROUNDING ENVIRONMENT& MITIGATION MEASURES

3.1 **GENERAL:**All development projects are likely to have an impact on the natural set up of the environment. This impact may be beneficial or adverse, depending on the improvement or the deterioration it brings about change in the status of air, water, land, ecology, natural systems, socio-cultural life styles and economics of the population. Depending on the nature of activities and baseline environment status, the impacts are assessed for their importance. On the basis of the impact analysis, the mitigating action and future monitoring requirement are focused in the Environmental Management plan for countering or minimizing the impacts.

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

MitigativeMeasures:

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

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

3.3 WATER ENVIRONMENT

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

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

3.4 AIR ENVIRONMENT:

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

Name of Sand Ghat	Mineable Quantity of Sand (Brass)	Approximate working Days	Production/day (Brass)	No. of Trips day
SAGODA-B	1625	120 days	14	14

The transportroutes are capable for handling this additional traffic.

MitigativeMeasures: Following care will be taken for air pollution control.

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

3.5 NOISE ENVIRONMENT

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

Mitigation measures: The off-site receptors are not significantly affected as noise generated by sandghat is insignificant but some disturbances due to

vehicle movement may not be avoidable. The tractor trolley will be maintained in good running condition so that noise will be reduced to minimum possible level. Speed limits will be imposed on tractor trolleys used for sand transport.

3.6 BIOLOGICAL ENVIRONMENT

Anticipated impact and mitigation measures for biological environment

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

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

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

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

1. The activity will mainly be carried out manually to minimize associate loss, as stated earlier.
2. No mining will be carried out during the monsoon season to minimize impact on aquatic life which is mainly breeding season.
3. As the mining site has no vegetation, no clearance of vegetation is required.
4. No mining will be carried out in the vicinity of important structure like bridges, dam and other structures if any.
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3	Water Pollution Control	Construction of bund along lease boundary& Mobile Toilet	0.10	Nil
4	Noise pollution	Plantation including tree guard	0.10	0.18
5	Occupational Health & safety	Periodic Health Checkups of workers	-	0.17
	Total		**0.41**	**0.83**

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