

# **PRE-FEASIBILITY REPORT**

**FOR KOTHANGUDI SAND QUARRY**

## **AREA DETAILS**

***Extent: 2.25.0Hectares***

***S.F.No: 1 (P)***

***Kothangudi Village,***

***Kumbakonam Taluk,***

***Thanjavur District.***

## **PROJECT PROPONENT**

***THE EXECUTIVE ENGINEER,***

***Mining and Monitoring Division,***

***Public Works Department,***

***Water Resources Department,***

***Thanjavur, TamilNadu.***



**EIA CONSULTANT**

**AADHI BOOMI MINING AND ENVIRO TECH (P) LTD.**

**NABET Accredited EIA Consultant – “A” Category.**

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## TABLE OF CONTENTS

S.NO	DESCRIPTION	PAGE.NO
1.	EXECUTIVE SUMMARY	3
2.	INTRODUCTION OF THE PROJECT/BACKGROUND INFORMATION	3
3.	PROJECT DESCRIPTION	7
4.	SITE ANALYSIS	14
5.	PLANNING BRIEF	24
6.	PROPOSED INFRASTRUCTURE	26
7.	REHABILITATION & RESETTLEMENT PLAN (R&R Plan)	28
8.	PROJECT SCHEDULE & COST ESTIMATES	29
9.	ANALYSIS OF PROPOSAL AND FINAL RECOMMENDATIONS	29

# **PRE FEASIBILITY REPORT**

## **FOR KOTHANGUDI SAND QUARRY**

in S.F.No 1(P) in Coleroon River, Kothangudi Village, Kumbakonam Taluk,  
Thanjavur District, Tamil Nadu.

### **1.EXECUTIVE SUMMARY**

This project is for quarrying Sand, Minor minerals over an area of 2.25.0Hectares in SF. No. 1 (P), a part of Coleroon River in Kothangudi Village, Kumbakonam Taluk, Thanjavur District, Tamil Nadu. The quantity to be Quarried shall be 48962 m<sup>3</sup> as permitted by the Dept. of Geology and Mining, Thanjavur for a lease period of Two Years vide precise area letter No. Rc No. **352/Mines/2018 dated 17.06.2019**, granted under Rule 12 of Tamil Nadu Minor Mineral Concession Rules, 1959 and amended up to date. Mining Plan is prepared under the provisions of Rule 41 of TNMMCR, 1959 and approved by Assistant Director of Dept of Geology and Mining, Thanjavur vide letter 352/Mines/2018 dated 12.09.2019. The Environment Clearance is required under Rule 42 of TNMMCR, 1959 under category B2 for a fresh quarry lease for Sand from Coleroon River.

### **2. INTRODUCTION OF THE PROJECT**

As per the Environmental Impact Assessment (EIA) Notification dated 14<sup>th</sup> September, 2006 and its subsequent amendments and supreme court order of February 27, 2012 the proposed quarry project fall under category B2 which required Environmental Clearance from the State Environmental Impact Assessment Authority (SEIAA), Chennai region.

The lease land\river basin was maintained by Executive Engineer, PWD/WRO Dept, MMD and they are removing such Sand, containing fine and coarse materials for clearing the obstacles of river flow. This project is more beneficial to the public for water supply around the flow direction of the river.

The Executive Engineer, PWD/WRO, MMD has applied to the District Collector, Thanjavur to obtain permission for removal of sand and seeking Environmental clearance from SEIAA, Chennai for grant of fresh Quarry Lease.

**2.1 Identification of project and project proponent. In case of Mining project, a copy of Mining lease/letter of intent should be given.**

The Executive Engineer, PWD/WRO, Mining and monitoring Division is a Govt. project.

**Owner name and address (address for correspondence):**

The Executive Engineer,

PWD/ WRO, MMD,

Thanjavur District.

A copy of Precise area communication letter issued by the District Collector (R.C.No. 352/Mines/2018 dated 17.06.2019 is enclosed in Approved Mining plan's Annexure.

**2.2 Brief description of nature of project:**

The area is represented by Geological Survey of India Topo sheet No. 58M/08 and falls between Latitude of 11°01'02.94"N to 11°01'9.27"N and Longitude of 79°19'06.62"E to 79°19'13.09"E.

P.no	Latitude (N)	Longitude (E)
1	N11°01'02.94"	E79°19'08.51"
2	N11°01'07.37"	E79°19'06.62"
3	N11°01'09.27"	E79°19'11.17"
4	N11°01'04.77"	E79°19'13.09"

District & State	Taluk	Village	S.F.No	Area (Ha)
Thanjavur, TamilNadu	Kumbakonam	Kothangudi	1 (P)	2.25.0Ha

The name of mineral intends to quarry is sand containing fine and coarse materials. No toxic elements or hazardous materials are reported from this river bed. The applicant has received necessary clearance from all concerned authorities for removal of such Sand from the Coleroon River. The proposed area for quarry lease is river poramboke land, not a forest land.

**Type of Mining:** semi-mechanized Open cast, loading by hydraulic excavator and manual. Transport by bullock cart, tractors and tippers. Excavated sand from river site shall be transported to the stocking yard within 500m distance.

**Period of Mining:** Three Years from the date of execution of quarry lease.

### **2.3 Need for the project and its importance to the country and or region:**

- i) The Coleroon River should be desilted often during off season of rainy period so as to remove obstacles of flowing of water in the river, failing which the rain water will be flooded into down line stream and cause damage of paddy fields and other agricultural lands.
- ii) Water demand and supply can be met during summer season and avoid water scarcity in this area.
- iii) The sand is a non-sticky material which is useful for construction and other civil purposes. Therefore this project is beneficial to the society as well as to the applicant to get some income out of this work.
- iv) No damage of land, no reclamation or back filling is required. Pollution out of this project is absolutely negligible.

### **2.4. Demand-Supply Gap**

Demand of sand required for civil and other construction purposes is very high in this district.

### **2.5. Export Possibility**

It is a low cost product and therefore the Lessee would like to sale out the sand in domestic market through bullock cart on royalty basis as per the order of state Govt.

### **2.6 Domestic Export / Markets**

Lessee will like to sale out in domestic market as per requirement. No export is proposed.

### **2.7 Employment generation (direct and indirect) due to the project.**

For the purpose of Mines safety under the provisions of MMR, 1961 under the Mines Act, 1952 the workers are employed more than 10, it is preferred to have a qualified Mining Mate to keep all the production workers directly under his control and supervision.

A mines clerk shall also be appointed to keep the registers and record of the mine and make necessary entries for the persons employed in the mines.

<b>Supervisory &amp; Skilled Persons</b>			
<b>S.No</b>	<b>Designation</b>	<b>Nos</b>	
1	PWD Assistant Engineer	1	
2	Technical Assistant	1	
3	Poclain Operator	2	
4	Poclain Assistant	2	
<b>Total</b>		<b>6</b>	
<b>Unskilled</b>			
<b>S.No</b>	<b>Designation</b>	<b>Nos</b>	
5	Permit Slip issuer	3	
6	Traffic Regulator	Entrance	2
		Exist	2
		Quarrying Site	3
7	Bullock Cart persons	12	
8	Bucket Watcher	3	
9.	Office Helper	1	
10	Track Maintainer	6	
	Watchman(Two Shift)	4	
<b>Total</b>		<b>36</b>	
<b>Grand Total</b>		<b>42</b>	

### 3. PROJECT DESCRIPTION

#### 3.1 Type of project interlinked and interdependent projects, if any.

This project is located in Kothangudi village, Kumbakonam Taluk, Thanjavur District. It is mandatory to obtain environmental clearance for all mining project of minor minerals irrespective of mining area as per the order of the Honorable Supreme Court of India in I.A.No. 12-/13/2011 in S.L.P.No. 19628-19629 of 2009 etc., dated 27.02.2012, the Ministry of Environmental and Forest Office Memorandum dated 18.05.2012 clearance has to be obtained from the State Level Environmental Impact Assessment Authority, Tamil Nadu.

As per above order all projects less than 5 hectares falls in 'B2' Category of Schedule 1 (a). The extent of this lease area is 2.25.0hectares, and falls in 'B2' Category of Schedule 1 (a).

#### 3.2 Location (, specific location, and project boundary & project site layout) with coordinates.

The area is represented by Geological Survey of India Topo sheet No. 58M/08 and falls between Latitude of 11°01'02.94"N to 11°01'9.27"N and Longitude of 79°19'06.62"E to 79°19'13.09"E.

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The area is accessible from Thanjavur via Kumbakonam to reach Kothangudi Village. A Village road is available nearby the site. The PWD make temporary road which connects the village road for transportation of Materials. The PWD make temporary road which connects the village road for transportation of Materials,

### LOCATION OF THE LEASE APPLIED AREA

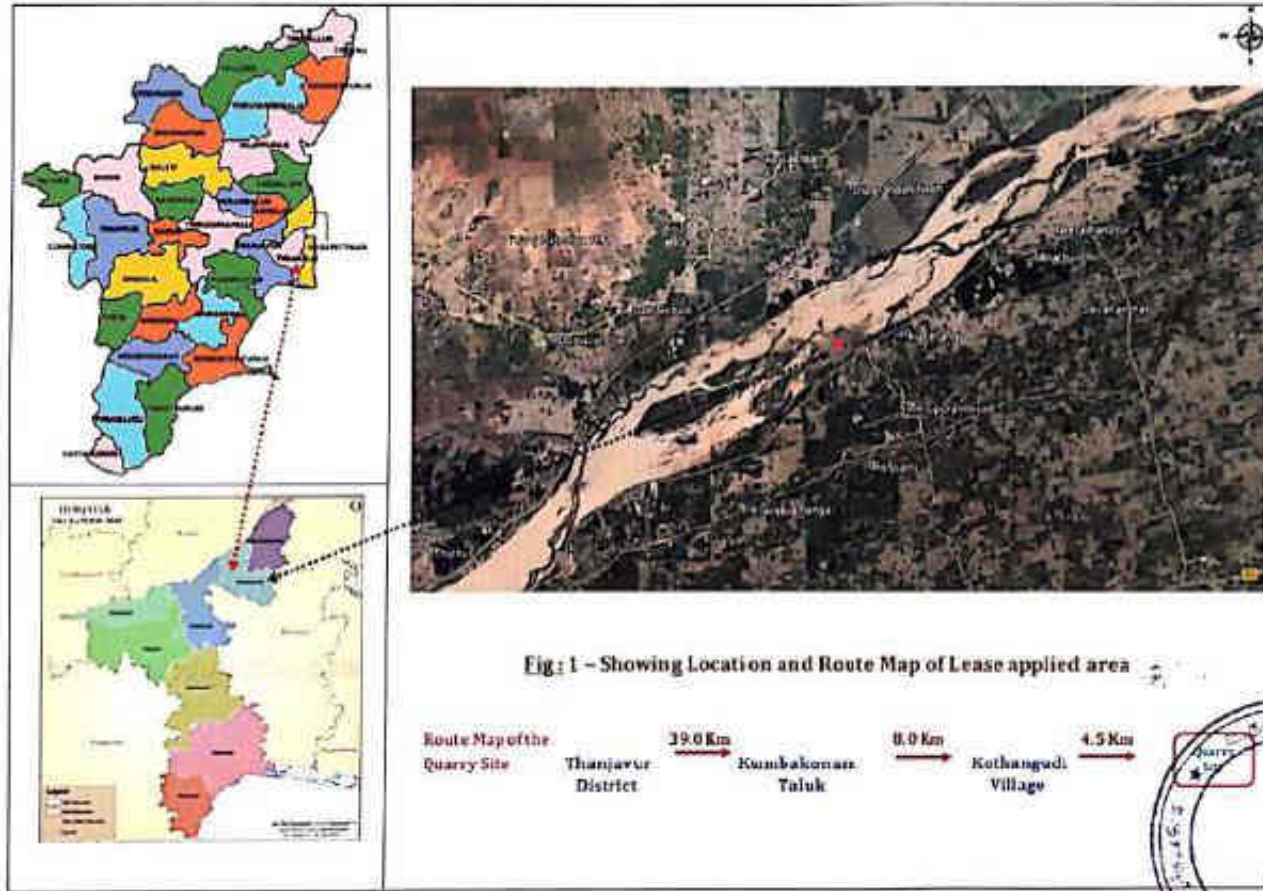


Fig: 1 - Showing Location and Route Map of Lease applied area

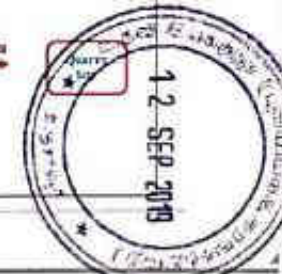


Fig No.1. Image showing Location of Quarry.



**Table No.3.2. Details of infrastructures and communication**

<b>S.No.</b>	<b>Description</b>	<b>Place</b>	<b>Distance (km)</b>	<b>Direction</b>
1	Railway	Swamimalai	6.5	SE
3	Post office	Thirupurambiyam	1.5	SE
4	Airport	Tiruchirapalli	70.5	SW
5	Police station	Swamimalai	6.5	SE
6	Fire service	Kumbakonam	9.3	SE
7	Primary Health centre	Thirupurambiyam	1.5	SE
8	School	Thirupurambiyam	1.5	SE

### **3.3 Details of alternate sites considered and the basis of selecting the proposed site.**

This is a mining project, which is site specific due to availability of sand. Hence the site cannot be shifted. The opencast mining is proposed in the area for excavation of minerals and overburden.

### **3.4 Size or Magnitude of operation**

Targeted production of Sand removal will be 48962 m<sup>3</sup> by open cast mining.

### **3.5 Project description with Process Details**

#### **Mining Process Details**

- 1) Loading of sand by hydraulic excavator and manual into Bullock Carts, Tipper and tractor respectively.
- 2) Transport of sand from river site to the stocking yard and further to the Consumer Construction site based on the demand.
- 3) Mined out land shall be used for refilling of same type of sand by natural replenishing.

#### **Proposed Method of Mining:**

Being loose sand, it is proposed to load the materials by manual and hydraulic excavator and transport by Bullock Carts, Tipper and tractor by semi mechanized mining.

#### **Removal of over burden**

No overburden is proposed in the approved Mining plan.

## **Extent of Mining**

### **a) Mining**

Open cast, Mining would be carried out by opencast semi-mechanized method. Excavation of sand by using hydraulic excavator into the tipper and partly manual method using hand shovel and load into Bullock Cart, As the sand is loose granular material, it does not require any drilling.

### **b) Loading equipment**

Loading of sand by manual as well as hydraulic excavator.

### **c) Transportation**

Transportation by means of Bullock Carts, Tipper and tractor combination. The bullock transport sand from river site directly to the consumer point whereas tippers may not able to transport to its rated capacity and therefore sand will be transported upto the stock yard, located within 500m from the river bank.

**.Table No.3.3 Production detail**

<b>Year</b>	<b>Over Burden/Sh oal portion (m<sup>3</sup>)</b>	<b>ROM of sand (m<sup>3</sup>)</b>	<b>Saleable sand (m<sup>3</sup>)</b>	<b>Sub grade ore / mineral</b>	<b>Mineral Rejects</b>	<b>Ore to overburden ratio</b>
1 <sup>st</sup>	Nil	16320	16320	Nil	Nil	Nil
2 <sup>nd</sup>	Nil	16320	16320	Nil	Nil	Nil
3 <sup>rd</sup>	Nil	16320	16320	Nil	Nil	Nil
<b>Total</b>	<b>23,709</b>	<b>48962</b>	<b>48962</b>	<b>Nil</b>	<b>Nil</b>	<b>Nil</b>

**3.6 Raw Material required along with estimated quantity, likely source, Marketing area of final product/s, Mode of transport of raw Material and finished products.**

This is a mining project for mining of sand, therefore no need of raw material except water for drinking and utilities. The Product is natural river sand; it will be transported to the Stock point directly. No stocking is permitted any where inside the lease area the area of lease.

**3.7. Resource optimization/recycling and reuse envisaged in the project.**

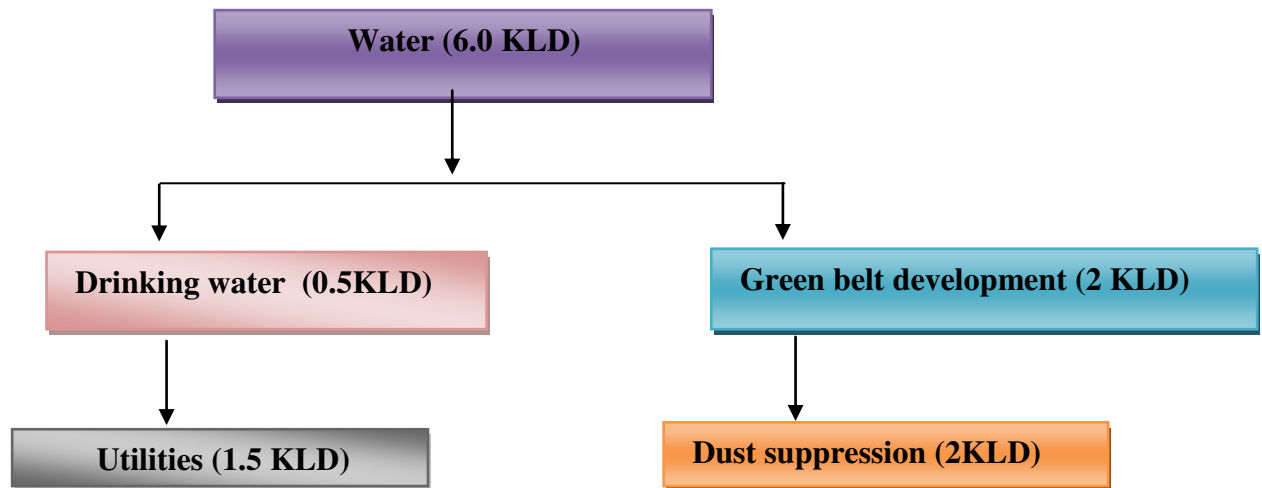
Removal of sand is made for the purpose of clearing the obstacles of the river for free flowing of water. The sand will be replenished being a natural resource and therefore recycling is not possible for this project.

**3.8. Availability of water its source, energy/power requirement and source.**

Whole some drinking water shall be provided as per the Mines Rules, 1955. Quantity for Drinking and utilities is 2.0KLD. Dust suppression and Green belt of water is 4.0KLD. Total quantity is 6.0KLD. Drinking water is obtained by Mineral water industries by water canes. Dust suppression and green belt is obtained from the open wells or from the river site. No separate arrangements shall be made to bring water from external sources or by pumping. No electricity or fuel is required for this project.

**3.9. Water balance chart:**

Water balance chart on per day basis is given as under:



**Fig. 3.4 Water Balance Chart**

### **3.9 Quantity of waste to be generated (liquid and solid) and scheme for their Management/disposal.**

There is no waste material to be removed from this river basin.

### **3.10 Schematic representations of the feasibility drawing which give information of EIA purpose.**

As per the order of the Honorable Supreme Court of India in I.A.No. 12-/13/2011 in S.L.P.No. 19628-19629 of 2009 etc., dated:27.02.2012, the Ministry of Environmental and Forest Office Memorandum dated:18.05.2012 clearance has to be obtained for Minor Minerals from the State Level Environmental Impact Assessment Authority, Tamil Nadu. Form I and Pre-Feasibility report is required to get Environmental Clearance for the project from SEAC. EIA Report identifies all of the issues and technical requirements of a proposed operation, with particular attention to potential Environmental, Health and Safety, Social and Economic Impacts.

The purpose of EIA is to ensure the protection and conservation of the environment and natural resources including human health aspects against uncontrolled development. The long-term objective is to ensure a sustainable economic development that meets present needs without compromising future generation ability to meet their own needs. EIA is an important tool in the integrated environmental management approach.

The aim of Environmental Impact Assessment (EIA) is to enable the approving authority, the public, local and central government and the developer to properly consider the potential environmental consequences of a proposal, and to make recommendations to reduce the environmental consequences if necessary. It is important to provide sufficient information for the approving authority to make a decision on whether to approve a proposal and if so, under what conditions. The EIA provides the basis for sound ongoing environmental management.

## 4. SITE ANALYSIS

### 4.1 Location and Connectivity:

The area is accessible from Thanjavur via Kumbakonam to reach Kothangudi Village. A Village road is available nearby the site. The PWD make temporary road which connects the village road for transportation of Materials. The PWD make temporary road which connects the village road for transportation of Materials,

### 4.2. Land form, land use and land ownership.

**Table No.4.1 Land ownership details**

District & State	Tehsil	village	Area in Hect.	Type of land
Thanjavur District, Tamilnadu	Kumbakonam	Kothangudi	2.25.0	Coleroon River

### 4.3. Topography (along with Map):

The lease applied area is coleroon river exhibits slightly undulated topography covered with sand and shoals, sand which is formed by the continuous mechanical action of river erosion of weathered particles transported and deposited. The area applied for mining lease is a River Bed, with elevation vary from 23.5m (Maximum) above MSL. The slope of the area is gentle towards eastern side

**4.4 Existing land use pattern ( agriculture, non-agriculture, forest, water bodies ( including area under CRZ ), shortest distances from the periphery of the project to periphery of the forest, national park, wild life sanctuary, eco sensitive areas, water bodies( distance from the HFL of the river), CRZ. In case of notified industrial area, a copy of the gazette notification should be given.**

The lands applied for removal of sand is a part of Coleroon River which carries rain and flood water to the sea during rainy season. It should be deepened or the silted area should be removed periodically for free flow of water without any obstacles.

**Table No.4.2 LAND USE PATTERN**

S. No.	Description	Area of Land Use (In Hec.)	
		As at Present	At the end of Two years
1.	Mining	0.0	2.25.0

2.	Waste Dump	0.0	0.00.0
3.	Infrastructure	0.0	0.00.0
4.	Safety zone & Plantation	Nil	0.00.0
5.	Mine Roads	0.00	0.00
6.	Undisturbed area	4.90.00	0.00
<b>Total</b>		<b>4.90.00</b>	<b>2.25.0</b>

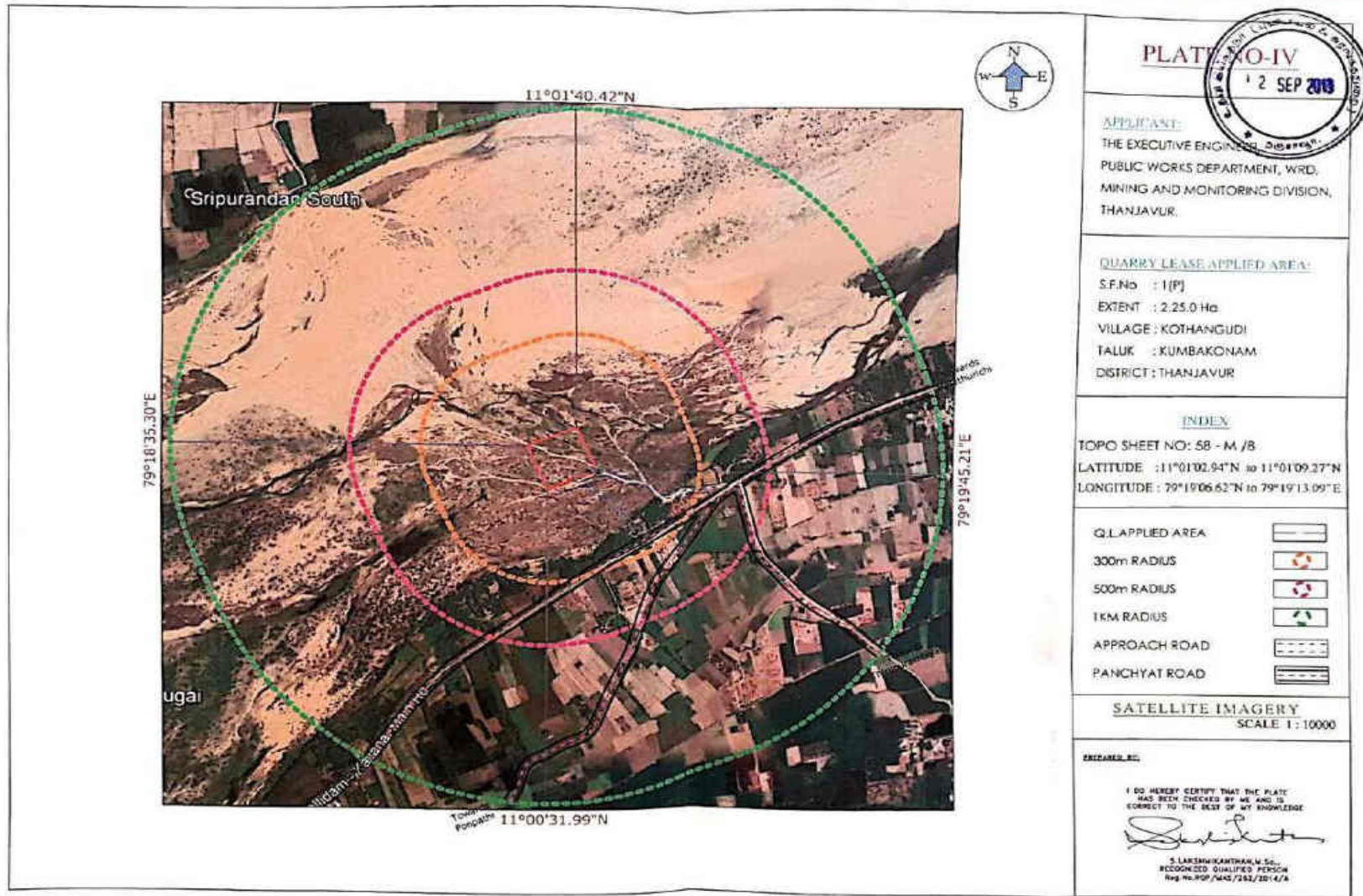
#### 4.5. BASELINE ENVIRONMENT

##### 4.5.1. Land environment

In the proposed Mining activity there will not be much impact on the land environment due to the following reasons.

- There is no removal of vegetation such as plants, bushes in the reach area
- No effluent generation as any further processing of mineral is proposed. Hence no ground water contamination due to the proposed mining activity.

However, the quarrying activity will result in disturbance of the land use pattern of the quarry lease area. The land degradation is unavoidable during mining activities like excavation, overburden dumping, etc. Land requirement for the project has been assessed considering functional needs.



**Fig.4.1: Satellite image showing lease boundary of Sand quarry in Coleroon River**



#### 4.5.2. Sources of Air Pollution

**Table No.4.3 Sources of Air Pollution**

S.No	Activities in Mines	Air Pollutants
1.	Drilling	Nil
2.	Blasting	Nil
3.	Loading & Unloading	SPM
4.	Haul Road	SPM
5.	Transportation	PM, SO <sub>2</sub> , NO <sub>x</sub>
6.	Waste / Top soil handling	Nil

#### 4.5.3 Air Pollution Control Measures

Some of the air pollution control measures are mentioned below. The APC system requirement should be assessed based on the mining activity and location aspects.

**Table No.4.4 Air Pollution Control Measures**

Potential sources of air pollution	Magnitude of air pollution	Control Measures
Drilling	High Dust Generation Risk of occupational hazard	No drilling
Blasting	Air emission	No blasting
Loading of material on dumper	Air emission	Closed Air conditioned cabin for loading operator and provide mask and ear muffs in addition to helmet for persons working nearby.
Transportation	High dust potential	<ul style="list-style-type: none"><li>• Water spraying over haul road using sprinklers.</li><li>• Development of Green belt with the native species of trees having leaves and dense growth to control spreading of dust to villages and minimize noise level from vehicles operation.</li></ul>
Storage	High dust emission	No storage applicable for this project

#### 4.5.4. Mine Drainage

The natural flow of water will not be affected any way and drainage will improve by proper gradient.

#### 4.5.5. Noise Levels

Noise level has to be studied prior to mining and after opening the quarry for production. Ambient noise level on threshold is 37.4dB at core zone.

#### 4.5.6. Vibration Levels

The vibration from HEMM is negligible.

**4.5.7. Measures for Ground Vibrations Due to Blasting:** Not applicable

#### 4.5.8. Solid waste Management:

**Solid Waste Generated:** No solid waste removal

#### Disposal of waste

**Overburden waste Management:** No overburden shall be removed or dumped elsewhere.

**Top soil Management:** No top soil removal

**Other wastes:** The removed bushes on the site clearings are conveyed and dumped along the bank of the river.

**4.5.9 Power requirement & supply/source.** No power requirement.

#### 4.5.10 Water quality

- The quality of surface is tested in the laboratory results give below, There is no liquid waste discharge from quarrying activity, which is likely to pollute water.
- Drinking water will be utilized from the Mineral water Industries.

**Table No.4.5 Water quality test report**

S.no	Parameters	Unit	Results (Surface water)	As per IS 10500: 2012	
				Requirement (Acceptable limit)	Permissible limit in the absence of alternate source
1	pH value at 25°C	-	7.72	6.5 – 8.5	6.5 – 8.5
2	Turbidity	NTU	0.7	1	5
3	Electrical conductivity at 25°C	Micro mhos/cm	642	-	-
4	Total Suspended Solids	mg/l	18.0	-	-

5	Total Dissolved Solids	mg/l	368	500	2000
6	Total Hardness as CaCO <sub>3</sub>	mg/l	186	200	600
7	Chlorides as Cl	mg/l	56.0	250	1000
8	Sulphates as SO <sub>4</sub>	mg/l	23.0	200	400
9	Total Iron as Fe	mg/l	0.27	0.3	0.3
10	Silica (Reactive) as SiO <sub>2</sub>	mg/l	16.0	-	-

#### MICROBIOLOGICAL EXAMINATION

S.NO	Parameters (MPN / 100 ml)	Results Bore water	Requirement as per IS 10500: 2012 Second revision (Acceptable Limit)
1	Total Coliforms	90	Shall not be detectable in any 100 ml
2	E.Coli	17	Shall not be detectable in any 100 ml

#### 4.5.11 Air Quality

Drilling and blasting operations are source of fugitive dust emission but its effect is more or less localized. The major part of the dust generated during such operations usually gets settle down and thus the effect of such operation will be localized phenomenon, This project doesn't involve drilling and blasting being a loose sand it will be directly excavated from the site. The source of the dust in this project is during transportation and excavation it is controlled and suppressed at source by sprinkling of water on haul roads, loading points at regular intervals.

**Table No.4.6 Air Quality test report**

S.No	Parameters (µg/m <sup>3</sup> )	Measured Value	NAAQS
1	Particulate Matter (PM <sub>2.5</sub> )	23	60
2	Respirable Particulate Matter (PM <sub>10</sub> )	42	100
3	Sulphur Dioxide (SO <sub>2</sub> )	6	80
4	Nitrogen Dioxide (NO <sub>2</sub> )	10	80
5	Ozone (O <sub>3</sub> )	28	180
6	Lead (Pb)	BDL (DL = 0.1)	1
7	Carbon Monoxide (CO) 1 hour	BDL (DL = 1.15)	4
8	Ammonia (NH <sub>3</sub> )	27	400
9	Arsenic (As)	BDL (DL = 1.0)	6
10	Nickel (Ni)	BDL (DL = 0.1)	20

11	Benzene (C <sub>6</sub> H <sub>6</sub> )	BDL (DL = 0.1)	5
12	Benzo (a) Pyrene	BDL (DL = 0.1)	1
BDL = Below Detectable Limit, DL = Detection Limit NAAQS = National Ambient Air Quality Standards			

#### 4.5.12 Flora and Fauna

##### a) Flora

**Table No.4.7. A. List of Flora of the lease area**

S. No.	Tamil /English Name	Botanical Name	Number of Trees
1.	Vivasaaya mullu Maram	<i>Acasia bushes</i>	Innumerable
2.	Pungai Maram (Avenue tree)	<i>Ponga Miagiabro</i>	Innumerable
3.	Poovarasa maram	<i>Thespesia Populnea</i>	Innumerable
4.	Veppamaram/ Margosa tree	<i>Azadirachta Indica</i>	Innumerable
5	Puliyamaram/ Tamrind	<i>Tamaridus indicus</i>	13
6.	Thennai maram	<i>Coconut Tree</i>	Innumerable

##### b) Climbers:

**Table No.4.7.B List of Climbers of the lease area**

S.No.	Tamil/English Name	Botanical Name	Number of Trees
1.	Oonangodi	<i>Fragor Monstrum</i>	Innumerable

##### c) HERBS:

**Table No.4.7.C. List of Herbs of the lease area**

S.No.	Tamil Name	Botanical Name	Number of Plants
1.	Erukku Chedi	<i>Calotropis Gigantea</i>	Innumerable
2.	Parangi	<i>Cucurbita digitata</i>	Innumerable

**c) Shrubs:**

<b>S.No.</b>	<b>Tamil/English Name</b>	<b>Botanical Name</b>	<b>Number of Trees</b>
1.	korai pul	<i>Cyperus rotundus</i>	Innumerable

**2. Fauna:**

The fauna species may be found around the project site is given below,

**a) Mammals:**

**Table No.4.8.A. List of Mammals of the lease area**

<b>S.No.</b>	<b>Tamil &amp; English Name</b>	<b>Zoological Name</b>
1.	Keeri( <i>Common Mongoose</i> )	<i>Herpestes edwardsii</i>
2.	Anil ( <i>Three Striped Squirrel</i> )	<i>Funambulus palmarum</i>
3.	Thavalai (Frog)	Cane toad

**b) Avian Fauna:**

**Table No.4.8.B. List of Avian Fauna of the lease area**

<b>S.No.</b>	<b>Tamil &amp; English Name</b>	<b>Zoological Name</b>
1.	<i>Kalugu (Black kite)</i>	<i>Milvis migrans</i>
2.	<i>Myna (Black drogue)</i>	<i>Dicrurus macrocercus</i>
3.	<i>Kakka (House crow)</i>	<i>Corvus splendens</i>
4.	<i>Chittukuruvi (Indian Robin)</i>	<i>Saxicoloides fulicatus</i>
5.	<i>Parunthu (Brahminy Kite)</i>	<i>Haliastur indus</i>
6.	<i>Chinna Neer Kagam(Little Cormorant)</i>	<i>Microcarboniger</i>
7.	<i>Karungkarichan (Black Drongo)</i>	<i>Dicrurus macrocercus</i>
8.	<i>VellaNarai (white stork)</i>	<i>Ciconia ciconia</i>

**c) Butterfly/Insects:**

**Table No.4.8.C List of Butterfly/Insects of the lease area**

<b>S.No.</b>	<b>Tamil &amp; English Name</b>	<b>Zoological Name</b>
1.	Theil ( <i>Scorpion</i> )	Scorpiones
2.	Vannthupoochi ( <i>Millipedes</i> )	Diplopoda

## 4.6. OTHER PERMANENT STRUCTURES

### 4.6.1 Habitations / Village:

**Table No.4.9. Habitation details**

<b>Direction</b>	<b>Name of Village</b>	<b>Distance from Mines in Km (Approx)</b>	<b>Population</b>
NE	Kudithangi	0.91	380
NW	Arangottai	1.7	425
SW	Thattumal	1.4	682
SE	Thirupurambiyam	1.2	510

**4.6.2 Power Lines (HT / LT):** There is no HT or LT lines is found nearby the site

**4.6.3 Water Bodies:** The site is a part of river basin.

The proposed site itself a river basin.

**4.6.4 Archaeological / historical Monuments:** There are no archaeological monuments around 500m radius.

### 4.6.5 Road (NH, SH others):

The area is accessible from Thanjavur via Kumbakonam to reach Kothangudi Village. A Village road is available nearby the site. The PWD make temporary road which connects the village road for transportation of Materials. The PWD make temporary road which connects the village road for transportation of Materials,

**4.6.6 Places of worship:** Nil

### 4.6.7 Reserved forest / Forest / Social forest / wild life sanctuary etc:

Sathambadi R. forest is located about 4.6 km on western side of the project site. No wild life sanctuary in 10km radius

## 4.7 Climatic Conditions

### a) Temperature

#### Climatic Conditions

Within the Thanjavur district the rainfall is uneven. The annual normal (1988 – 1996) varies partially from 1179 mm (Lower Anicut) to 763 mm (Budalur). The rainfall is high on the eastern part of the district compared to the western part. The district receives major portion of its annual rainfall during northeastern monsoon (Oct-Dec). A moderate amount of rainfall is received during the southeast monsoon period (Jan-Sept).

Since the northeast monsoon rainfall is dominating, its effect is felt on the eastern part of the district (Kumbakonam-698 mm, Aduthurai-611 mm, Lower Anicut-706 mm). The intensity decreases gradually towards west and the western most part of the district (Thiruvaiyaru-387 mm, Budalur-377 mm). The rainfall in the coastal area is heavy because of cyclonic storms and depressions formed in the Bay of Bengal.

The climate of the Thanjavur district is humid and tropical. The mean maximum temperature of the district (Adithurai) shows variation between 36.5° in June and 27.8° C in May. The mean minimum temperature shows variation from 22.1° C to 27.1°C in December. The relative humidity varies between 70 and 85 percent, highest occurs during the months of Dec-Jan and the lowest during the month of June.

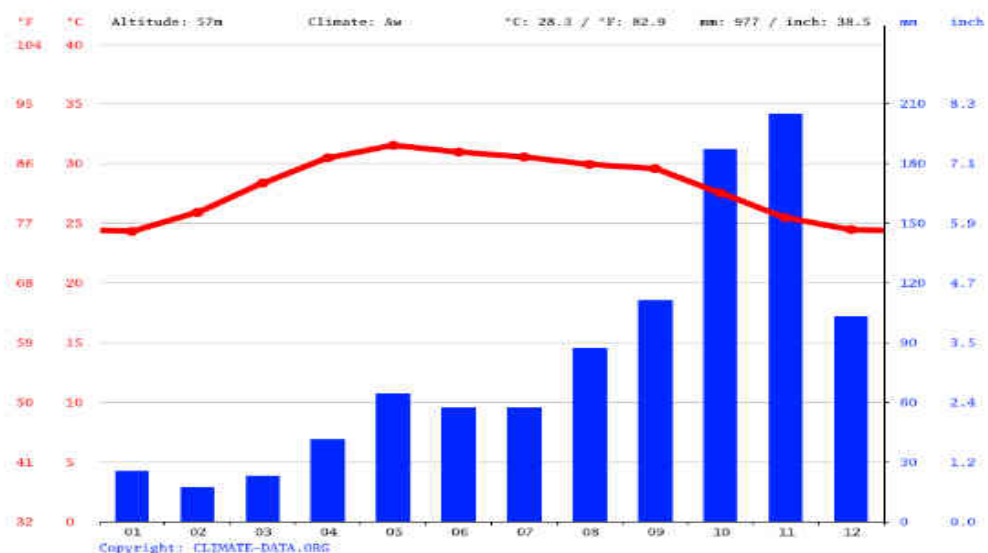
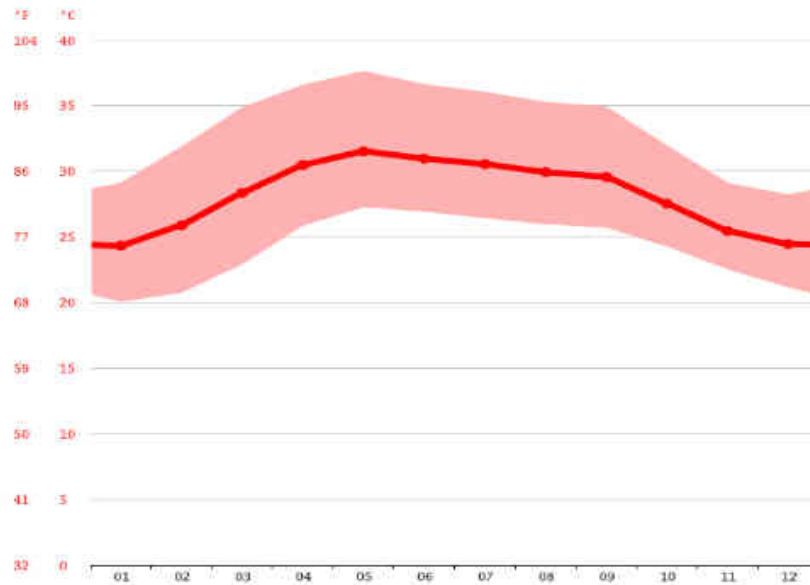


Fig No.4.2 Thanjavur Climate Graph // Weather by Month

## AVERAGE TEMPERATURE THANJAVUR



**Fig No.4.3 Average temperature**

## 5. PLANNING BRIEF

### 5.1 Planning concept (type of industries, facilities, transportation etc) town and country planning/development authority classification.

It is opencast mining project. The mine is proposed to work for a period of Three Years only. The proposed working is by open cast, semi mechanized mining with manual mining method and which will also continue in future. The mining will be carried out by removing and transporting the sand found in the project area.

Mining will be done by open cast semi mechanized method to a depth of 1.0m after scrapping a thin layer of sludge materials containing bushes. Being a shallow mining with single bench no much planning required for slope stability issues. However the proponent shall maintain 45° slope as per safety practices.

#### **Assessment of infrastructure demand (physical & social):**

##### **Physical Infrastructure**

The road facility is already available which shall be used and maintained. The labour requirement is taken from the nearest villages. Other requisite infrastructure as transport of mine labours is available by way of jeep and two-wheeler. Medical facility is available for first aid at project site. Government Dispensary is available nearest to ML area in



Kumbakonam in addition to the facilities in Thanjavur. Rest room to meet the demand of shelter and Office room for project management will be made with portable container in the project area.

The will convey the excavated sand outside the quarry site to the end users. The following measures may be taken for temporary soil erosion of bank:

Initiate stabilization measures as soon as practicable by dumping top soil over bank of the river for stability and afforestation purposes. General safety precaution shall be taken as per mining practices.

#### **Access Roads**

The area is accessible from Thanjavur via Kumbakonam to reach Kothangudi Village. A Village road is available nearby the site. The PWD make temporary road which connects the village road for transportation of Materials. The PWD make temporary road which connects the village road for transportation of Materials,

Usage of public road for transport shall be done as per approved practices and any damage it will be intimated to the Panchayat or concerned authorities for immediate remedies.

#### **Social Infrastructure**

The area is accessible from Thanjavur via Kumbakonam to reach Kothangudi Village. A Village road is available nearby the site. The PWD make temporary road which connects the village road for transportation of Materials. The PWD make temporary road which connects the village road for transportation of Materials,

#### **(iv) Amenities/facilities:**

As the workers are from nearby villages, the shelter room with toilet facilities & the first aid room will be built in a portable container since the project area itself a river bed and therefore all sanitary provisions shall be made outside of Coleroon River or in a portable container with disposal system. An office-cum-store shall be constructed. The water is required for drinking purpose is available by the water tankers from nearby area. Power is available at proximity. First aid box with all necessary materials will be kept all time in the office building for use as and when required.

## 6. PROPOSED INFRASTRUCTURE

### 6.1 Industrial area (processing area):

No processing unit is required; the sand material can be directly consumed. An office-cum-store will be constructed at mine site. A shelter room with toilet facilities & the first aid facilities will be built in a portable container.

### 6.2 Residential area (non processing area):

Not applicable, local personnel will be employed and there is no residential area proposed.

### 6.3 Greenbelt:

There would not be any adverse impact in the existing environment arising from the mining activities. To protect the environment, the Applicant Company would do adequate a forestation program with 100 trees per annum along the bank of the river.

Suggested plant species for Greenbelt development around the project:

**Table No.4.12. Suggested plant species**

S.No	Botanical Name	Tamil Name	Characteristics
1.	Azadirachta indica	Vepa or Neem	Semi ever-green, 5-8m height and spreading type
2.	Thespesia populnea	Poovarasam	Quick growing evergreen tree of 18m
3.	Samanea saman	Thoongu moonji	15-20m tall spreading tree
4.	Pongamia pinnata	Pongam	15-20m evergreen tree
5.	Albizzia lebbak	Vagai	15-20m tall tree
6.	Prosopis juliflora	Neer Karuvai	A bushy thorny tree

### 6.4 Social infrastructure:

Positive community relationship proposed will be adopted by following methods:

- Care will be taken to ensure Mining Industrial Traffic not degrading public roads or jeopardize public safety
- Consulting with local people in a sincere manner

- Protecting drinking water and all water sources
- Minimize visual impacts to the landscape
- Minimize disruption of local footpaths and public areas
- Mine Supervisor and Workers will be aware and at all times meet the following requirements:
  - Usage of Personal Protective equipments
  - Necessary signage at mine access point
  - First Aid Kits
  - Gates, Fences, Signs (Or) Other barriers to ensure the mine site is secured against unauthorized and / or accidental entry
  - Ensure the mine site is not used for any other purpose other than mining

#### **6.5 Connectivity:**

The area is accessible from Thanjavur via Kumbakonam to reach Kothangudi Village. A Village road is available nearby the site. The PWD make temporary road which connects the village road for transportation of Materials. The PWD make temporary road which connects the village road for transportation of Materials,

#### **6.6. Drinking water Management (source & supply of water):**

The requirement of water will be of drinking water need for the labours, which will be around 6 KLD. Drinking water is obtained by Mineral water industries by water canes. Dust suppression and green belt is obtained from the open wells of proponent site.

#### **6.7 Sewerage system:**

There is no Sewerage System available in the Mining proposed area. No sewage will be generated from this project.

#### **6.8 Industrial waste Management:**

No wastes are anticipated

## 7. REHABILITATION AND RESETTLEMENT (R&R) PLAN

(i) **Policy to be adopted (central/state) in respect of the project affected persons including home owners, land owners, and landless labours.**

### a) PAP

There is no hutment in the lease area. No human being will be displaced from the project area so no person will be affected contrary local people will get job opportunities and better facilities. There is no rehabilitation & resettlement of people is required.

### Mine Closure

Once the process of economical extraction of a mine is complete there is need for scientific mine closure which will not only restore ecology and regenerate bio mass but also take into account the socio-economic aspects of such closure. When mining activities carries out, mining communities get established and closure of the mine means not only loss of jobs but also disruption of community life. At the mine closure, it will be orderly and systematic and so planned as to help the workers and the dependent community to rehabilitate them without undue hardship. But in this case the excavation is made to deepen the river for storage and avoid flooding of storm water into villages and paddy fields. Therefore Mine closure plan should have proper leveling of the area before closing is advisable for this project.

## 8. PROJECT SCHEDULE AND COST ESTIMATION

### (i) Likely date of start of construction and likely date of Completion

The proposed mining operation will commence from the date of execution of quarry lease.

### (ii) Estimated project cost along with analysis in terms of Economic viability of the project.

Being a short term project, the hired Machineries are used for excavation

#### PROJECT COST & EMP BUDGET

##### a) Project cost

i) Land Cost	:	Nil
ii) Machinery to be used	:	Rs. 20,00,000
iii) Construction of bank reiver	:	Rs 2,00,000
iv) Laboures Shed	:	Rs 1,00,000
v) Sanitary facility	:	Rs 1,00,000
vi) Other items	:	Rs 1,00,000
<b>Total</b>		<b>Rs 25.0 lakhs</b>

##### EMP Cost

i) Environmental Monitoring	=	Rs. 2,00,000
ii) Sanitary arrangements	=	Rs 50,000
iii) Safety kits	=	Rs 50,000
iv) Internal road & Maintenance	=	Rs 200,000
v) Afforestation cost	=	Rs. 100,000
<b>Total</b>	=	<b>Rs 6.0 lakhs</b>

## 9. ANALYSIS OF PROPOSAL AND FINAL RECOMMENDATIONS

### (i) Financial and social benefits with special Emphasis on the benefit to the local people including tribal population, if any in the area.

#### **Social Benefits:**

Mining in the project area will provide employment to nearby villagers. This employment will help in raising the standard of living on the people in the area. The mining activity in this belt will benefit the locals both directly and indirectly. The direct beneficiaries will be those who get employed in the mines as skilled and un-skilled workers. The indirect

beneficiaries will be those who open small business to sell goods required by the residents whose "Per Capita income will be enhanced by the Mining activity, and thereby their purchasing power. In the long run a lot of social goods are expected in the comparatively backward area when the inhabitants will be able to send their children to school, the change, though slow, is bound to be perceptible.

### **Financial Benefits:**

It is clear from the objectives of the project that it will have significant positive impacts since it will:

- Provide filling material to the society.
- Give a boost to economic development in the region.
- Make a significant contribution to the construction and infrastructure sector of India.
- The Management will ensure good production and in turn there will be good revenue to the Government of Tamil Nadu and Government of India through taxes. The industry is an asset to the nation.

This project is planned keeping in view the above mentioned advantages.

The quarrying operations will be carried out scientifically and systematically with an integrated mining plan and mine design may not disturb the environment and ecology of the area.

### **Signature of Project Proponent**

**Along with signature**

  
Executive Engineer, WRD.,  
Mining and Monitoring Division,  
Thanjavur.

**The Executive Engineer  
Project Proponent**  
**THE EXECUTIVE ENGINEER,**  
*Mining and Monitoring Division,  
Public Works Department,  
Water Resources Department,  
Thanjavur, TamilNadu.*

Date: 14.02.2022

Place : Salem

### **Signature of EIA- Coordinator**

For Aadhi Boomi Mining &  
Enviro Tech (P) Ltd  
  
Director

**S.Suriyakumar**  
M.Sc., M.Phil, F.C.C. (Min)  
PGDBA, DIPC  
EIA Co-ordinator (Mining)