

**PRE FEASIBILITY REPORT OF GRAVEL QUARRY FOR OVER AN EXTENT  
OF 1.32.0Ha IN POONCHUTHI & THUVARANKULAM, MELUR TALUK,  
MADURAI DISTRICT, TAMILNADU STATE OF  
THIRU.K.MUTHUMUNIYASAMY**

(Under the Guidelines of Ministry of Environment and Forests in terms of the provisions of EIA  
notification 2006 and specifically in circular No J-11013/41/2006-IA.II (I) dated 30<sup>th</sup> December, 2010)

**1.0 EXECUTIVE SUMMARY OF THE PROJECT**

- Total extent of the area is **2.90.0** (Poonchuthi & Thuvarankulam it is a Consent Patta Land in Poonchuthi & Thuvarankulam Village, Melur Taluk and Madurai District.
- It is a new Gravel Quarry Project. The lease applied area is Exhibits almost plain terrain topography.
- The Eco friendly quarry operation is proposed to carry out with open cast semi mechanized quarrying by deploying Excavator without drilling and blasting.
- The quarry operation is proposed up to a depth of **2.0m** below ground level.
- The Total Geological reserve is about 66,000m<sup>3</sup> of Gravel.
- The Total Mineable reserve is about 12,204m<sup>3</sup> of Gravel.
- The proposed quantity of reserve is about **12,204m<sup>3</sup>** of Gravel for a period of (One) 1 Year only.
- Mining license applied for period of (One) 1 Year only.
- Life of the quarry is (One) 1 Year only.
- The project area does not fall in 'HACA' region.
- There is no Interstate boundary within the radius of 10Km.
- There is no Western Ghats within the radius of 10Km.
- The Coastal Regulation Zone (CRZ) Notification 2011: There is no Coastal Regulation Zone around 10Km radius.
- There are no Bird Sanctuaries, wild life sanctuaries as per Wild Life Production Act 1972, within the radius of 10Km.
- There is no habitation situated within the radius of 300m.
- There is no quarry within the radius of 500m.

Totally **3.5KLD** of Water requirement, 1.0KLD for labor Drinking and Domestic purpose will be available from nearby bore hole or open well in agriland.1.5KLD for dust suppression in haul roads and 1.0KLD for Green belt development during the quarrying operation, the water is available in existing borehole on near the quarry area

and also available from authorized water vendors.

**Total Project Cost = Rs.10,90,000/-**

**EMP Cost =Rs 89,000/-**

## **2.0 INTRODUCTION OF THE PROJECT OR BACKGROUND INFORMATION**

The applicant proposes to quarry Gravel by opencast semi mechanized quarrying over an Extent **1.32.0Ha**, this project is located in Poonchuthi & Thuvarankulam Village, Melur Taluk and Madurai District, Tamilnadu.

The Category of project-**'B2'**.

### **(i) Identification of project and project proponent: In case of mining project, a copy of mining lease/letter of intent should be given**

- I. Precise area communication letter was issued by the District Collector, Madurai vide **R.c.No.1815/2017 Mines dated 24.10.2018.**
- II. The Mining plan was approved by the Deputy Director, Department of Geology and Mining, Madurai **R.c.No.1815/2017 Mines dated 02.11.2018.**
- III. **Owner name and address (address for correspondence)**

Name of owner : Thiru.K. Muthu Muniya Samy

Address : S/o.Kumaraiya,  
No.2/69, Sakkudi Post,  
Madurai East Taluk,  
Madurai District – 625 020

Cell No : 9943666156

Email Address :

### **Location of Project site :**

Name of the quarry Poonchuthi & Thuvarankulam Gravel quarry

S.F.No : 194/1B2, 12/1B2 & 12/1C1

Extent : 1.32.0Ha

Village : Poonchuthi & Thuvarankulam

Taluk : Melur

District : Madurai

State : Tamil Nadu

It is a Consent Patta land registered in the name of the Thiru.Suresh at S.F.Nos – 194/1B2, 12/1B2 & 12/1C1 vide Patta No – 683 & 1443 is registered The applicant should be get consent from the pattadhar.

The applicant has got surface rights to the quarry lease applied area. Please refer Annexure-III

**(ii) Brief description of nature of the project**

- The Gravel quarrying is proposed to carry out by opencast Semi mechanized method. The Gravel is composed of unconsolidated rock fragments. The Gravel is an important commercial product, with a number of applications. The applicant intends to use the excavated Gravel is used for construction industries for Government & Public sector projects besides catering domestic housing and infrastructure projects in and around the district.
- To execute the above said project permission is requested to remove the Gravel in Poonchuthi & Thuvareankulam Village, Melur Taluk and Madurai District.
- Machineries like Excavator are proposed for quarrying for a period of (One) 1 Year only upto depth of **2.0m** below ground level. No drilling and blasting is proposed. No benches are proposed sloping method involved the quarrying is a restricted to a depth of 2.0m below ground level in the entire quarry lease applied area.
- There is no wastage is not anticipated during the quarry operation, the entire Gravel is excavated and utilized. It is proposed to exploit Gravel of about **12,204m<sup>3</sup>** for a period of (One) 1 Year only.

**(iii) Need for the project and its importance to the country and or region**

The Gravel quarrying project falls in the area of Madurai District, Tamilnadu where scanty agricultural activities are been carried out and the new industries are springing up in the district. Gravel is an important commercial product, with a number of applications. The applicant intends to the excavated Gravel is used for construction industries for Government &

Public sector projects besides catering domestic housing and infrastructure projects in and around district.

This project will give employment opportunities to 16 members directly. Mineral Industries of the state of Tamilnadu provides employment opportunities for the people of the state as well as in the specific project area. Mining and Quarrying is two among the major core sector industries which plays a vital process of country's economic development.

**(iv) Demand and supply gap**

There is a huge demand of Gravel in Madurai District. The excavated Gravel is used for construction industries for Government & Public sector projects besides catering domestic housing and infrastructure projects in and around the district.

**(v) Imports vs. indigenous production**

There is no import of Gravel at present in India. India especially the peninsular India (southern India) has good resource of Gravel.

**(vi) Export Possibility**

There is no possibility for export of this Gravel.

**(vii) Domestic/Export Markets**

The excavated Gravel is used for construction industries for Government & Public sector projects besides catering domestic housing and infrastructure projects in and around the district.

**(viii) Employment Generation (Direct and Indirect) due to the project**

About 16 employees including labors directly and engaged in this proposed quarry project and the tentative man power required for the proposed Gravel quarry shall be as follows.

1. Mines Manager (with valid statutory qualification) : 1
2. Mines Mate (with valid statutory qualification) : 1

### **Laborers, Skilled, Semi-Skilled & Un-skilled**

- |   |     |
|---|-----|
| a. Skilled (Operators - Excavator)                    | : 2 |
| b. Semi-skilled (Driver)                              | : 4 |
| c. Unskilled (Musdoor/ Labours, Cleaners & Watch man) | : 8 |

**Total : 16 Nos**

Allowing 10% absenteeism, the no. of men of roll will be around 15

It is been ensured that the labour will not be deployed less than 18 Years, **no child labour will be engaged** or entertained for any kind of quarrying operations. All the Labours engaged for quarrying operations will be insured during the quarry lease period.

### **3.0 PROJECT DESCRIPTION**

#### **(i) Type of project including interlinked and interdependent projects, if any**

This is a quarrying project for exploitation of Gravel for the proposed production of 12,204m<sup>3</sup>. No other allied actions like processing and beneficiation is proposed in this project.

#### **(ii) Location (map showing general location, specific location, and project boundary & project site layout) with coordinates**

- ◆ The project Gravel is about **1.32.0Ha**
- ◆ The project area falls in Consent Patta Land
- ◆ The area is falls in GSI Toposheet no. 58- K/15
- ◆ The Latitudes between of : 09°53'11"N to 09°53'20"N
- ◆ Longitudes between of 78°16'53"E to 78°16'57"E on WGS 1984 datum.

#### **(iii) Details of alternate sites considered and the basis of selecting the proposed site, particularly the environmental considerations two into should be highlighted**

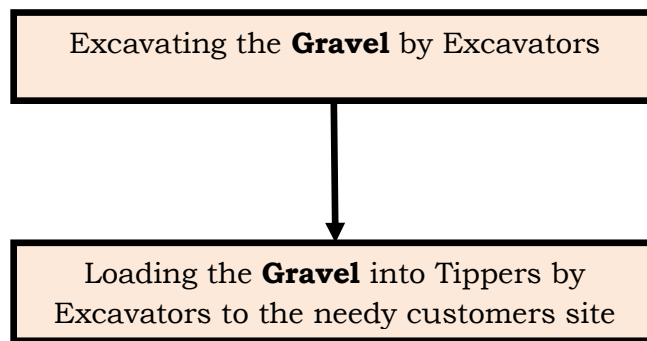
The opencast quarrying is proposed in the area for excavation of Gravel upto 2.0m below ground level. The quarrying operation is proposed in Gravel land and there is no any alternative site for this project is not considered, the project is site specific.

**(iv) Size or magnitude of operation**

The total area of the project is about **1.32.0Ha**. It is proposed to exploit Gravel about **12,204m<sup>3</sup>** by open cast semi mechanized quarry by deploying excavates directly for a period of (One) 1 Year Only.

**(v) Project description with process details (a schematic diagram/flow chart showing the project layout, components of the project etc. should be given)**

No process is involved in this project. The Gravel is excavated from the ground directly by Excavators and loaded into 10/Tons capacity Tippers to the customer's site.



**Mineable reserves**

Total Recoverable Reserve up to 2.0m Depth = 12,204m<sup>3</sup>  
The applicant proposed to excavate = 12,204m<sup>3</sup> for a period of (One) 1 Year only.

**General Geology**

The lease applied area is exhibits almost Plain Terrain topography covered with Gravel which does not sustain any type of vegetation due to the topography of the land. The altitude of the area is 116.0m (Maximum) from MSL, the slope of the area is gentle towards Southeastern side. Please refer the Topography, Geological plan and sections (Plate No -VII).

**Details of Exploration**

No exploration is carried out. The Gravel is found right from the surface and proposed to excavate up to a depth of **2.0m** below ground level only.

**Proposed Study to be carried out**

As the quarrying operation is proposed to be carried out for a period of (One) 1 Year to a depth of **2.0m** further exploration or proposed study is redundant.

### Method of Estimation of Reserves

- The Geological plans demarcating the commercially viable Gravel have been prepared in 1:1000 scales (Plate No. VII).
- Three sections have been drawn, One section drawn Length wise as (X-Y) another Two section drawn width wise as (A-B) & (C-D) to choose the maximum area cover under the lease in the Horizontal 1:1000 and Vertical 1:100 (please refer Plate No- VII).
- The cross sectional area for the proved depth persistence of **2.0m** has been worked out for the section. The cross sectional area multiplied by its length of influence on the longer axis gives the volume (insitu) in the cross sectional area. The sum total of the insitu reserves available within the individual cross sectional area gives the geological reserves of the lease applied area
- As the Mineable of Gravel in the terms of cubic meter. The Geological Reserve, Mineable Reserves are given only in terms of Cubic meter.
- The Details of estimation of Geological Reserves and Mineable Reserves with reference to Topography, Geological Plan and Section shown in (Plate No. VII)

### OPEN CAST WORKING:

Opencast method of shallow mining is proposed, heavy Gravel moving machineries like Excavator are proposed for quarrying this Gravel upto **2.0m** depth. No drilling and blasting is proposed for this type of Gravel quarrying, **it is an eco-friendly quarry operation.** The Gravel will be loaded directly to the Trucks/Lorries for transportation to the needy customers. The depth of quarry is proposed to be restricted upto **2.0m** below ground level.

### OVERBURDEN:

There is no overburden the Gravel is exploit right from the surface to a depth of **2.0m** below ground level for a period of (One) 1 Year only.

**(vi) Raw material required along with estimated quantity, likely source, marketing area of final products, Mode of transport of raw Material and Finished Products**

This is a quarrying project for excavating Gravel hence there is no requirement for raw material. The excavated Gravel is used for construction industries for Government & Public sector projects besides catering domestic housing and infrastructure projects in and around the district.

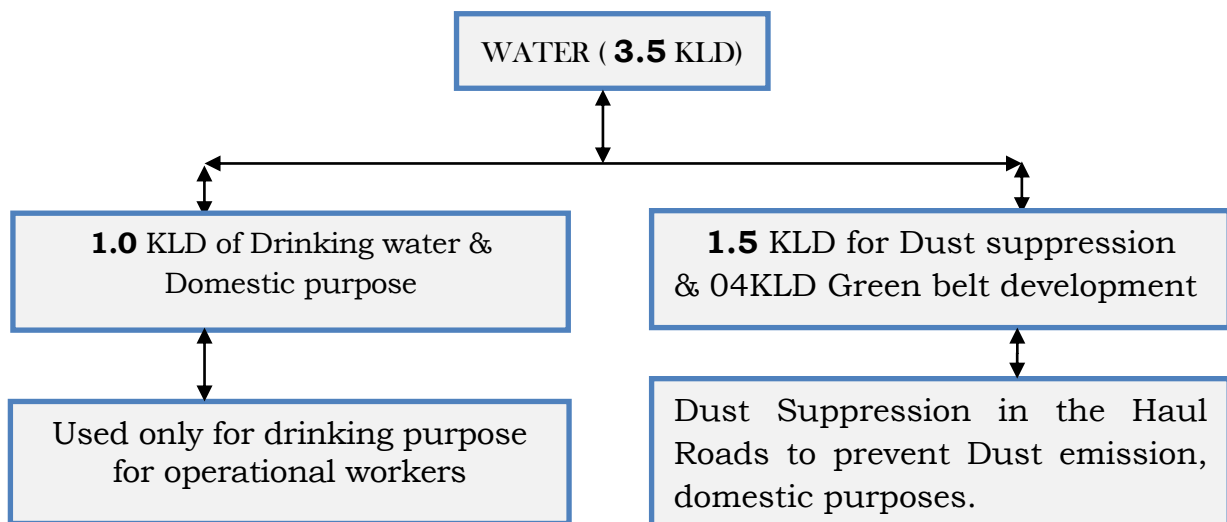
**(vii) Resource optimization/recycling and reuse envisaged in the project, if any, should be briefly outlined**

No optimization/ Recycling and Reuse envisaged in the proposed Gravel quarry projects.

**(viii) Availability of water its source, Energy/power requirement and source should be given**

This Gravel quarry project does not require huge water for the project. The total Water requirement in the quarry will be around 3.5KLD for drinking, domestic usage dust suppression sprinkling and Green belt development. The water will be brought from local suppliers.

**WATER BALANCE CHART**





**Table -1**

<b>Purpose</b>	<b>Quantity</b>	<b>Sources</b>
Drinking and Domestic Purpose	1.0 KLD	Drinking water is available from the nearby village borehole of agricultural land in Alavandan (650m SW side).
Dust suppression	1.5 KLD	From existing borehole on nearby quarry area or borehole of agricultural land
Green Belt	1.0 KLD	From existing borehole on nearby quarry area or borehole of agricultural land

**Energy**

The excavators of 0.90m<sup>3</sup> bucket capacity and Tippers of 10 Tons capacity will be used. The quantity of Diesel consumption is based on the working hours of Excavators (Filling Factor and loading Cycling); in the open cast quarry project Excavators are proposed to Gravel. Average Diesel consumption of Hitachi Excavator model EX 110-210 is 10 Liters / 1 Hour.

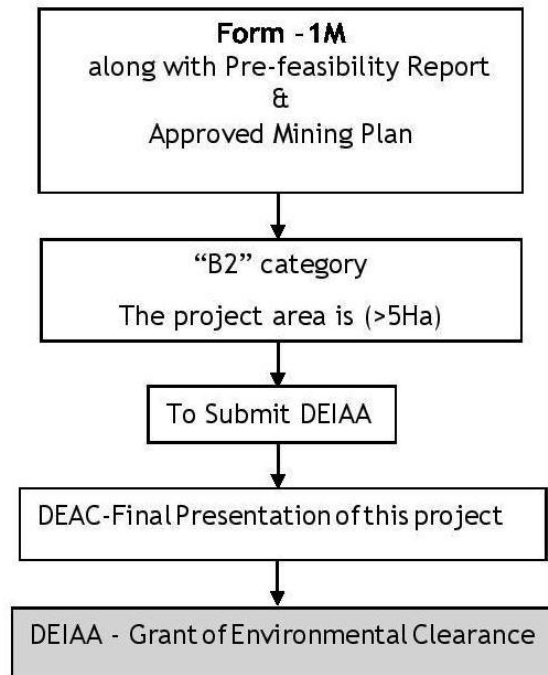
Total number of Excavator used for quarrying operation	= 1 No
Average Diesel consumption Tata Hitachi	= 10 Liters / 1 Hour
Diesel Prize around (At present scenario)	= Rs. 78/-
One excavator will excavate 60 m <sup>3</sup> / 1 Hour	= 12,204 m <sup>3</sup> / 60
Total Excavator running hours for the project	= 203 excavation hours
One Excavator will consume 10 Ltrs X 203 Hours	= 2030 Liters of HSD

**(ix) Quantity of wastes to be generated (liquid and solid) and scheme for their management/disposal**

There is no wastage is encountered during the quarrying operation the entire Gravel is utilized.

There is no toxic effluent expected to generate in the form of solid or liquid and gases and the no requirement of treatment of waste. There is no top soil available in the lease applied area.

**(x) Schematic representations of the feasibility drawing which give information of EIA purpose**



**4.0 SITE ANALYSIS**

**(i) Connectivity**

- ❖ There is an existing road from the area leads Puvandi road on Western side of the area.
- ❖ SH-33 Echaneri to Puvandi road is located which is about 1.0 Km on the Western side of the area.
- ❖ NH-230 Madurai to Thondi road is located which is about 3.0 Km on the Southern side of the area.
- ❖ The Nearest Railway line is Tiruppuvanam station line which is about 7.5Km on the Southwestern side of the area.

**(ii) Land Form, Land use and Land ownership**

It is a Consent Patta Land, There is no surface rights to lease applied area  
Please refer the Annexure No – I.

**(iii) Topography (along with map)**

The lease applied area is exhibits almost Plain Terrain topography covered with Gravel which does not sustain any type of vegetation due to the topography of the land. The altitude of the area is 116.0 (Maximum) from MSL, the slope of the area is gentle towards Southeastern side. Please refer the Topography, Geological plan and sections (Plate No –VII).

**(iv) 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 forests, 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 lease area is almost plain terrain topography. it is a dry barren land covered with Gravel formation, does not sustain any type of vegetation due to this Gravel formation and does not sustain any type of vegetation due to this Gravel formation. Ground water is about 7m to 8m depth from ground level. The quarrying is restricted up to **2.0m** below the ground level hence the quarry operation will not be affected by the ground water.

Govt. waste land	Agriculture land	Grazing land	Forest land	Government land	Total (Ha)
-	-	-	-	It is a Consent Patta Land	<b>1.32.0Ha</b>

- The Coastal Regulation Zone (CRZ) Notification 2011: There is no Coastal Regulation Zone around 10Km radius.
- Reserved Forest: There is no Reserve forest within the radius of 10Km lease applied area.
- No National park, Wild life sanctuary, Eco sensitive area within the radius 10Km
- No Western Ghats within the radius 10Km
- No quarries within the radius of 500m.

**(v) Existing Infrastructure**

There is no existing infrastructure in the proposed quarry lease applied are.

**(vi) Soil Classification**

Coarse to medium grained Gravel formation, this land does not sustain any type of vegetation or Agriculture.

**(vii) Climatic data form secondary sources**

Both the monsoons occur here. During April and May the temperature goes up to 18°C and during winter the temperature does fall below 42°C. The annual rainfall is around 800mm. The climate is Tropic to sub tropic.

**(viii) Social infrastructure available**

There is no social infrastructure like Government buildings, Worship in the 500m vicinity of the quarry lease applied area.

**5.0 PLANNING BRIEF**

**(i) Planning Concept (type of industries, facilities, transportation etc.) Town and Country Planning/Development authority Classification.**

This quarrying project is to excavate Gravel by open cast semi mechanized method. Hydraulic excavator will be deploying for production. Transportation of Gravel shall be done by Tippers on roads.

The project land is devoid of vegetation and lies in the backward town of Madurai District. There are no specific industries or factories in and around the project area.

**Transportation**

Hired Tippers of 10/Tons capacity will be utilized for Transportation of Gravel from the quarry to needy customers' sites for construction industries for Government & Public sector projects besides catering domestic housing and infrastructure projects in and around the district. By Tarpaulin cover to prevent dust spillage. During the transportation of material through the village and Populated area the vehicles are strictly prohibited not exceed the 40km speed limit.

### Population projection

There are few Villages located from the lease applied area the details of the areas are given below.

**Table-3**

<b>Direction</b>	<b>Habitations</b>	<b>Distance</b>	<b>Population</b>
<b>NE</b>	Panjuti	2.0 Km	480
<b>NW</b>	Kunnathur	1.5 Km	350
<b>SE</b>	Sunnamboor	1.0 Km	620
<b>SW</b>	Alavandan	0.65 Km	310

### (iii) Land use planning (breakup along with green belt etc.)

The Gravel quarrying operation is proposed for a period of (One) 1 Year upto depth of **2.0m**. The project area extent is **1.32.0Ha**.The entire area is proposed to be quarried.

### (iv) Assessment of Infrastructure Demand (Physical & Social)

The existing road facilities are already available which shall be used and maintained. Medical facilities is available for the project sites, Government and private and other basic infrastructure facilities like communication center, school, supermarket, bus stand are also available in Melur which is about 17.0Km on the Northeastern side of the area. This quarry project will provide employment for about 16 persons directly.

### (v) Amenities/Facilities

The simple methods adopted and the limited scale of activities involved in quarrying does not require High Tension Electric Power supply or huge workshop facilities. The quarrying work is restricted to two general shifts during day time only. Major Machinery repair works are attended at Melur. All the facilities are available in Melur which is about 17.0Km on the Northeastern side of the area.

## **6. PROPOSED INFRASTRUCTURE**

### **(i) Industrial Area (Processing area)**

There is no processing area proposed within the lease applied area.

### **(ii) Residential area (Non processing area)**

There is no residential area within 300m it's of the lease applied area.

### **(iii) Green Belt**

After the completion of the quarrying operation, the land will be leveled and used for agriculture purpose. The applicant ensures to plant native species like pungam, neem, causirina along the lease boundary of the applied area and more trees planted nearby villages and village road after consultation with the competent panchayat authorities. It is proposed to plant around 100 trees for the period of (One) 1 Year only. The cost estimate for afforestation is around Rs. 50,000/-

### **(iv) Social infrastructure**

This proposed Gravel quarry will fetch employment for about 16 people directly and 15 persons indirectly.

### **(v) Connectivity (traffic and transportation road/ Rail/ Metro/ Water ways etc.,)**

- ❖ There is an existing road from the area leads Puvandi road on Western side of the area.
- ❖ SH-33 Echaneri to Puvandi road is located which is about 1.0 Km on the Western side of the area.
- ❖ NH-230 Madurai to Thondi road is located which is about 3.0 Km on the Southern side of the area.
- ❖ The Nearest Railway line is Tiruppuvanam station line which is about 7.5Km on the Southwestern side of the area.

### **(vi) Drinking Water management (Source & Supply of water)**

This proposed Gravel quarry project does not require huge water either for beneficiation or processing. Water required for Drinking and domestic purpose for labor is around 1.0 KLD the Drinking water is available from nearby bore hole of agriculture land in Alavandan which is about 650m on the Southwestern side of the area.

1. Drinking Water &

Domestic purpose – 1.0 KLD (Source: Drinking water is available from nearby bore hole of agriculture land)

2. Dust Suppression –1.5 KLD (Source: From existing borehole on near the quarry area or nearby bore hole of agriculture land)

3. Green belt – 1.0 KLD (Source: From existing borehole on near the quarry area or nearby bore hole of agriculture land)

**Total – 3.5 KLD**

**(vii) Sewerage System**

Toilets will be constructed as semi-permanent structure and sewage will be discharged Once in a Months. The sewage waste will be collected in soak pit and discharged as manure.

**(viii) Industrial Waste Management**

No industrial waste will be generated from the project.

**(ix) Solid Waste Management**

The Gravel quarrying does not produce any waste. The entire Gravel is excavated and utilized. This Gravel may not produce any toxic effluent in the form of solid liquid or gas.

**(x) Power Requirement & Supply / source**

The proposed Gravel quarrying does not required any power supply the quarrying operation which is proposed to operate in day time only for 7 Am to 6 Pm with 1 Hour lunch interval between 1Pm to 2Pm.

## 7.0 REHABILITATION AND RESETTLEMENT (R & R PLAN)

### (i) Policy to be adopted (Central/State) in respect of the project affected persons including home owners, langoustes and landless laborers (a brief outline to be given)

It is a Consent Patta land registered in the name of the applicant Thiru.Suresh at S.F.Nos – 194/1B2, 12/1B2 & 12/1C1 vide Patta No – 683 & 1443 is registered. The applicant should be get consent from the pattadhar.

The applicant has got surface rights to the quarry lease applied area.  
Please refer Annexure-III

### (ii) Production Capacity

The proposed quantity of reserves is about 12,204m<sup>3</sup> (i.e. 2034 Lorry Loads) of Gravel for a period of (One) 1 Year only.

Max. No. of effective working days

1 Years would be around = 260 days of 1 Years Only

Quantity of Gravel to be excavated per day = 12,204m<sup>3</sup>/2034 Loads  
= 12,204/260 days (2 Years)  
= 47m<sup>3</sup> per day.  
= Maximum **8 lorry loads** per day

## 8.0 PROJECT SCHEDULE & COST ESTIMATES

### (i) Likely date of start of construction and likely date of completion (Time schedule for the project to be given)

Gravel Quarrying project which is likely to get commenced after the execution of quarrying lease. The proposed quantity reserves **12,204m<sup>3</sup>/2034** Lorry Loads. The life of the quarry project is (One) 1 Year only.



**(ii) Estimated project cost along with analysis in terms of economic viability of the project**

**Project Cost / Investment:-**

● Land cost	= Rs. 7,92,000/-
● Machinery to be used	= Rs. 1,58,340/-
● Rest shelter	= Rs. 50,000/-
● Sanitary Facility	= Rs. 40,000/-
● Others (Leveling)	= Rs. 50,000/-
<b>Total</b>	<b>= Rs. 10,90,340/-</b>

**A. EMP cost**

● Drinking water	= Rs. 18,000/-
● Sanitary Arrangements	= Rs. 15,000/-
● Safety kits	= Rs. 20,000/-
● Water Sprinkling	= Rs. 24,000/-
● Afforestation cost	= Rs. 12,000/-
<b>Total</b>	<b>= Rs. 89,000/-</b>

**Total Project Cost = Rs. 10,90,340/-**

**EMP Cost = Rs. 89,000/-**

**Population Benefit**

The applicant ensures to take social responsibilities like providing School Note books, Uniforms to the Students below poverty level beside if the villages require any borehole for public use the applicant ensure to do so. The applicant will also take part and contribute the native cultural activities in the nearby villages. During summer seasons packaged drinking water will be kept in the village for public and for trees passers. The applicant will involve and contribute all the socio cultural allocation in and around the area.

**Government Revenue**

The state Government will get revenue as Royalty, Sale tax, Surface rent, dead rent/ VAT/ Income tax etc.

**9.0 ANALYSIS OF PROPOSAL ( 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**

The end use of the excavated Gravel is used for construction industries for Government & Public sector projects besides catering domestic housing and infrastructure projects in and around the district. Due to this project many of the infrastructure development will be carried out in and around the district on time, nearly 16 employees directly get employment opportunity through this project. By considering the merit of the project the permission may be granted.

Signature of the Applicant  
**(K.Muthu Muniya Samy)**

Signature of Recognised Qualified Person

Place : Salem

Date : .11.2018