# SUMMARY

OF

# DRAFT EIA/EMP REPORT

FOR

# ROUGHSTONE AND JELLY QUARRY

**EXTENT – 3.590 HA**

| YEAR | Roughstone (m3) | Weathered Rock(m3) | Top Soil (m3) | Depth (m) |
|---|---|---|---|---|
| 1 to 5 | 4,00,510 | 26,520 | 55,212 | 23 |
| 6 to 10 | 2,36,180 | - | - | 48 |
| TOTAL | 6,36,690 | 26,520 | 55,212 | |

**VILLAGE –CHINNAKALAYAMPUTHUR, TALUK- PALANI**

**DISTRICT- DINDIGUL, STATE – TAMIL NADU**

**PROJECT PROPONENT**

## TVL. T & P AGGREGATES PRIVATE LIMITED

Chinnakalayamputhur Village, Palani Taluk, Dindigul District-624601.

**CONSULTANT**


## CREATIVE ENGINEERS & CONSULTANTS

Creating Possibilities

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**AUGUST 2022**

# SUMMARY

## 1.1 INTRODUCTION:

**Tvl.T & P Aggregates Private Limited** proposes to operate a **Rough Stone and Jelly Quarry** in Survey No.225/2A over an extent of 3.59.0Ha in Chinnakalayamputhur village, Palani Taluk, Dindigul District, Tamil Nadu.

The proposed production for 10 years period is 6,36,690$m^3$ of Rough stone, 26,520$m^3$ of Weathered Rock and 55,212$m^3$ of Topsoil for the depth of 48m. During the first five years, it is proposed to mine 4,00,510$m^3$ of Rough stone, 26,520$m^3$ of Weathered Rock and 55,212m3 of Topsoil up to a depth of 23m.

Although the individual lease area of this project is less than 5 Ha, the other quarries within the 500m radius along with this subject project works out to > 5Ha and as such this proposal is considered under Category – B1 Nessistating preparation of EIA/EMP Report and public hearing .

## 1.2 STATUTORY APPROVALS:

**Table 1:Statutory Approvals**

| | | |
|---|---|---|
| 1. | Precise Area Communication Letter | Rc.No:897/2019 (Mines), dated 19.02.2021 |
| 2. | Mining Plan Approval | Rc.No:897/2019 (Mines), dated 10.05.2021 |
| 3. | Terms of Reference | SEIAA-TN/F.No.8833/ToR-1108/2021 dated 21.03.2022 |

As mentioned in the precise area letter, 50m safety distance is maintained from the EB line passing on the eastern side of the lease area and no disturbance will be caused to the structures nearby during mining operation. As per TOR Condition, EIA/EMP report is prepared. Salient details of the report is given below.

## 2.1 SITE DESCRIPTION:

**Table 2:Site Description**

<table>
<tr><th>S.No</th><th>Particulars</th><th>Details</th></tr>
<tr><td>1.</td><td>Name of the Project</td><td>Rough Stone and Jelly Quarry of Tvl.T & P Aggregates Private Limited</td></tr>
<tr><td>2.</td><td>Location of the project</td><td>Chinnakalayamputhur village, Palani Taluk, Dindigul District, Tamil Nadu</td></tr>
<tr><td>3.</td><td>Proposed production</td><td>
<table>
<tr><th>Years</th><th>Roughstone(m3)</th><th>Weathered Rock(m3)</th><th>Top Soil (m3)</th></tr>
<tr><td>1 -5</td><td>4,00,510</td><td>26,520</td><td>55,212</td></tr>
<tr><td>6 -10</td><td>2,36,180</td><td>-</td><td>-</td></tr>
<tr><td>Total</td><td>6,36,690</td><td>26,520</td><td>55,212</td></tr>
</table>
</td></tr>
<tr><td>4.</td><td>Latitude & Longitude</td><td>Latitude: 10°28'03.98"N to 10°28'08.83"N<br>Longitude: 77°26'41.59"E to 77°26'52.83"E</td></tr>
<tr><td>5.</td><td>Mining Lease area</td><td>3.59.0 Ha</td></tr>
<tr><td>6.</td><td>Type of land</td><td>Own Patta Land</td></tr>
<tr><td>7.</td><td>Mine site topography</td><td>Almost Plain Terrain</td></tr>
<tr><td>8.</td><td>Accessibility</td><td>The lease area can be approached from Thathanaickenpatty – Chinnakalayamputhur village road on Northern side of the area</td></tr>
<tr><td>9.</td><td>Nearest Highway</td><td>(NH-209) Dindigul – Coimbatore – 1.5km (NE)</td></tr>
<tr><td>10.</td><td>Nearest Railway station</td><td>Palani – 7.0km (SE)</td></tr>
<tr><td>11.</td><td>Nearest Airport</td><td>Madurai – 98Km – SE</td></tr>
<tr><td>12.</td><td>Nearest water bodies</td><td>• Drinage channel originates 55m (SE),<br>• Odai - 350m(SE),<br>• Pachaiyar R -5.1km - (S),<br>• Varattar R - 5.4km – (SE),<br>• Porandalar R- 6.0Km(SE),<br>• Palar- 6.6Km(SE),<br>▪ Kudiraiyar R- 6.8Km(W)</td></tr>
<tr><td>13.</td><td>Environmental sensitive areas, Protected areas as per Wildlife Protection Act, 1972 (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves)</td><td>Kodikanal wildlife sanctuary - 8.2Km – SW. The Eco-sensitive zone of Kodaikanal wildlife Sanctuary as per Final Notification S.O 412 (E) dated 23.01.2010 of MOEF & CC is 7.2 Kms from the lease boundary and as such this project does not attract NBWL clearance.</td></tr>
<tr><td>14.</td><td>Local Places of Historical and Tourism Interest</td><td>Arulmigu Dhandayuthapani Swamy Temple, Palani – 8.5km, SE</td></tr>
<tr><td>15.</td><td>Reserved / Protected Forests</td><td>Nil within 10 Km radius</td></tr>
<tr><td>16.</td><td>Seismic Zone</td><td>Zone – II (Least Active)</td></tr>
</table>

## Table 3:Technical Description

<table>
<tr><th>S.No</th><th>Particulars</th><th>Details</th></tr>
<tr><td>1.</td><td>Geological reserve</td><td>Roughstone – 16,12,620 cum, Weathered Rock- 35,836 cum, Gravel - 71,672cum</td></tr>
<tr><td>2.</td><td>Mineable reserve</td><td>Roughstone – 6,36,690 cum, Weathered Rock - 26,520 cum. Gravel - 55,212cum</td></tr>
<tr><td>3.</td><td>Method of Mining</td><td>Opencast semi mechanized mining using jackhammer drilling, blasting, excavation through excavator & mineral transport through tippers.</td></tr>
<tr><td>4.</td><td>Production</td><td>
<table>
<tr><th>YEAR</th><th>Roughstone (m3)</th><th>Weathered Rock m$^3$</th><th>Topsoil (m3)</th></tr>
<tr><td>I</td><td>79825</td><td>16224</td><td>33598</td></tr>
<tr><td>II</td><td>79815</td><td>10296</td><td>21614</td></tr>
<tr><td>III</td><td>79980</td><td>--</td><td>--</td></tr>
<tr><td>IV</td><td>80180</td><td></td><td>-</td></tr>
<tr><td>V</td><td>80710</td><td></td><td>-</td></tr>
<tr><td>Sub Total (Year I to V)</td><td>4,00,510</td><td>26520</td><td>55212</td></tr>
<tr><td>Year VI to X</td><td>2,36,180</td><td>-</td><td>-</td></tr>
<tr><td>Total</td><td>6,36,690</td><td>26,520</td><td>55,212</td></tr>
</table>
</td></tr>
<tr><td>5.</td><td>Life of the mine</td><td>10 Years</td></tr>
<tr><td>6.</td><td>Waste Generation and Management</td><td>No waste generation anticipated in this quarry operation since the entire excavated material will be utilized.</td></tr>
<tr><td>7.</td><td>Ultimate Mine depth</td><td>48m</td></tr>
<tr><td>8.</td><td>Manpower</td><td>24 no’s</td></tr>
<tr><td>9.</td><td>Water Requirement & source</td><td>Total water – 10 KLD<br>Will be procured from outside agencies initially. Later, water collected in the mine pit will be used to meet the needs.</td></tr>
<tr><td>10.</td><td>Power Requirement</td><td>All the equipment will be diesel operated. No electricity is needed for mining operation. The minimum power requirement for office, etc will be met from state grid.</td></tr>
<tr><td>11.</td><td>Site services</td><td>Mine office, first aid room, rest shelters, toilets etc. will be provided as semi-permanent structures.</td></tr>
<tr><td>12.</td><td>Project cost</td><td>Rs.94 Lakhs</td></tr>
<tr><td>13.</td><td>CER cost</td><td>Rs.5.0 Lakhs</td></tr>
</table>

### 3.1 EXISTING ENVIRONMENTAL SCENARIO:

The studies and data collection have been carried out systematically and meticulously as per relevant IS codes, CPCB and MoEF&CC guidelines and as per approved ToR during **Summer Season (March 2022 to May 2022)** For the purpose of this study, the area has been divided into two zones, namely, core and buffer zones. Core zone is considered as the total lease area, while buffer zone encompasses an area of 10 km radius distance from the periphery of core zone. Based on 2011 census data, in the 10km radius there are 32 Rural villages from Palani, Madathukulam Taluks, Dindigul and Tiruppur District.

**Table 4: Social, Economic and Demographic Profile Of The Study Area**

| Details | Population | Percentage |
|---|---|---|
| **A. Gender-wise distribution** | | |
| Male Population | 111072 | 49.86 |
| Female Population | 111696 | 50.14 |
| **Total** | **222768** | **100** |
| **B. Caste-wise population distribution** | | |
| Scheduled Caste | 57800 | 25.95 |
| Scheduled Tribes | 903 | 0.41 |
| Other | 164065 | 73.65 |
| **Total** | **222768** | **100** |
| **C. Literacy Levels** | | |
| Total Literate Population | 155702 | 69.89 |
| Others | 67066 | 30.11 |
| Total | **222768** | **100** |
| **D. Occupational structure** | | |
| Main workers | 99987 | 44.90 |
| Marginal workers | 7820 | 3.50 |
| **Total Workers** | **107807** | **48.40** |
| **Total Non-workers** | **114961** | **51.60** |
| **Total** | **222768** | **100** |

### 3.2.1 EXISTING ENVIRONMENTAL QUALITY:

Baseline monitoring was carried out during Summer Season (March 2022 to May 2022. The details of the same are provided below:

**Table 5: Baseline Data**

| **A) AMBIENT AIR QUALITY** | **Monitoring Location –** 5 locations | | |
|---|---|---|---|
| **PARAMETER** | **RESULT (µg/m3)** | | ***LIMIT (µg/m3)** |
| **Location** | **Core Zone** | **Buffer Zone** | |
| Particulate Matter (Size <10 µm) | 40.1 – 50.2 | 40.7 – 62.5 | 100 |
| Particulate Matter (Size <2.5 µm) | 17.9 – 22.6 | 18.7 – 29.1 | 60 |
| Sulphur Dioxide (as $SO_2$) | 3.5 – 5.8 | 3.9 – 6.7 | 80 |
| Nitrogen Dioxide (as $NO_2$) | 6.1 – 8.4 | 5.9 – 9.4 | 80 |
| **Conclusion:** The existing Ambient Air Quality levels for PM10, PM2.5, SO2 and NO2, are within the NAAQ standards prescribed CPCB limits of 100 µg/m3, 60 µg/m3, 80 µg/m3 & 80 µg/m3. The CO values in all the locations were found to be below detectable limit. | | | |
| **B) WATER QUALITY** | **Monitoring Location –** 4 locations | | |
| **PARAMETER** | **Result** | | ***LIMIT (µg/m3)** |
| pH at 25 ˚C | 8.02 – 8.25 | | **6.5-8.5** |

| | | |
|---|---|---|
| Total Dissolved Solids, mg/L | 215 – 1250 | **2000** |
| Chloride as Cl-, mg/L | 29.4 – 479 | **1000** |
| Total Hardness (as CaCO3), mg/L | 122 – 561 | **600** |
| Total Alkalinity (as CaCO3), mg/L | 144– 248 | **600** |
| Sulphates as SO42-, mg/L | 21.4 – 345 | **400** |
| Iron as Fe, mg/L | BDL– 0.09 | **0.3** |
| Nitrate as NO3, mg/L | BDL– 2.73 | **45** |
| Fluoride as F, mg/L | 0.11 – 0.42 | **1.5** |

**Conclusion:** The water quality of ground water is found to be within the prescribed Permissible limits of IS: 10500 Norms in the absence of an alternative source as per Drinking Water Specifications.

| **C) NOISE LEVELS** | **Monitoring Location –** 5 locations | | |
|---|---|---|---|
| **PARAMETER** | **RESULT dB(A)** | | ***LIMIT (µg/m3)** |
| | **Day Equivalent** | **Night Equivalent** | |
| Core Zone | 41.5 | 37.9 | **90** |
| Buffer Zone | 41.2 – 48.3 | 38.0 – 41.8 | **Day Equivalent - 55dB(A), Night Equivalent - 45dB(A)** |

*Permissible noise for industrial workers as laid down by CPCB (at 8 hrs Exposure Time). While comparing with the MoEF&CC Norms, the monitored ambient noise levels are generally within the limit values.

| **D) SOIL QUALITY** | **Monitoring Location –** 3 locations |
|---|---|
| **PARAMETER** | **Range of values** |
| pH | 6.74 to 7.12 |
| Electrical Conductivity (µmho/cm) | 32.26 – 42.67 |
| Organic matter (%) | 0.68 – 0.75 |
| Total Nitrogen (mg/kg) | 142 – 210 |
| Phosphorus (mg/kg) | 1.32 – 2.05 |
| Sodium (mg/kg) | 342- 410 |
| Potassium (mg/kg) | 610 -752 |
| Soil is of Loam type**.** | |

### 3.2.2 LAND EVIRONMENT:

Landuse pattern study carried out through remote sensing satellite data around the 10km buffer zone shows that 38.12 % of the study area is agriculture land and 19.74 % are fallow land. Land with scrub constitutes 26.10 %, lands without scrub constitute 7.23% water bodies constitute 2.02% and remaining others constitute 6.79 %.

### 3.2.3 BIOLOGICAL ENVIRONMENT:

The lease area is a non-forest, private land with grasses shrubs, few trees like Prosopis juliflora, neem etc The Dominated species are Albizia amara, Borassus flabelliformis, Morinda tinctoria, Azadirachta indica, Cocus nucifera etc. Patches of coconut farms are also observed. Other than domestic animal, no wild animals are reported in and around the lease area. There is no Schedule-1 species in and around core zone.

Kodaikanal Wildlife Sanctuary is located at a distance of 8.2Km from the lease area. As per MoEF&CC Notification S.O412(E)dated 23.01.2020, the Eco sensitive Area is 7.2Km from the lease area. As such the project does not attract NBWL clearance.

### 3.2.4 HYDROLOGICAL STUDY:

In the study area, the shallow aquifer is developed through dug wells and deeper aquifer through tube wells. The groundwater has revealed that potential fractures are encountered at deeper levels. Rain water collected in the tanks in the region acts as a good source of water during post monsoon. The water in the wells are available mainly after post monsoon and it reduces during summer. Deeper Bore wells in the area reflects that the yield is only better at deeper water levels

Based on the available information and the geophysical investigations it is concluded that the project area is considered to poor groundwater potential.The occurrence of groundwater mainly in the porous soil are weathered layers, very negligible amount of groundwater percolated through the poorly fractured layer, after that there is no existence of groundwater. Besides, the mining area consists of hard compact rock, no major water seepage within the mine is expected. From the nearby working mines, no such seepage is also observed.

## 4.1 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This is a proposed project and Semi – Mechanized Open Cast mining will be carried out to quarry out Rough Stone, & Gravel. The identified impacts due to this mine during mining and associated activities have been studied in relation to various environmental components like Air, water, noise, vibration, land, transport etc. The impact assessment and management plan is studied for the peak production of the mine lease period and the entire area of quarry operation and can be construed as applicable for the entire lease period.

### 4.1.1 AIR ENVIRONMENT:

The principal sources of air pollution in general due to mining and allied activities will be Excavation, Drilling, Movement of HEMM such as Excavators, tippers etc., Loading and unloading operation and transportation. In case of this mine, the following measures will be adopted to control impact on the air quality due to mining operations in the lease area:

- Regular wetting of transport road using mobile water tanker.
- Wet drilling / Covering of drill holes with wet clothes
- Proper maintenance of roads.
- Avoiding overloading of tippers & Transportation of material by tarpaulin covered trucks
- Proper maintenance of HEMM to minimize gaseous emission
- Setting up of tyre washing facility in the lease area exit.
- Vehicular emission tests with digital smoke meter.
- Provision of tin sheet/ green netting around the lease periphery on all sides.
- Development of green belt/ plantation in various areas within the mine lease area etc.

By adoption of all these measures, no adverse impact on air quality is envisaged due to this proposed opencast mining operation.

The impact on air quality due to the proposed project is estimated using AERMOD View Gaussian Plume Air Dispersion Model.

The resultant added concentrations with baseline figures even at worst scenario, show that the values of ambient air quality with respect to $PM_{10}$ are in the range of 52.9 μg/m3 to 63.5 μg/m3 and with respect to PM2.5 are in the range of 24.4 μg/m3 to 30.1 μg/m3 which are within the statutory limits in each case.

For preservation of environment in this mine strict enforcement of management schemes will be undertaken for taking corrective actions, as needed. By adopting the effective implementation of all the mitigative measures, no adverse impact on Air quality due to the mining operation in this lease area is expected.

### 4.1.2 WATER ENVIRONMENT:

The total water requirement for this project will be 10.0 KLD. The water will be sourced initially from outside agencies. Later the rainwater collected in the mine pit sump will be used for this purpose.

The domestic effluent to be generated from the project will be collected in septic tank with soak pits arrangements. This being a mining project there will not be any process effluent. The rain water falling in the quarry will be harvested in the sump at the lowest level of the quarry. This sump will act as a settling pond to prevent solids escaping along with discharge, before outlet. etc. Towards surface runoff management, garland drain will be constructed around the quarry and will be connected to a settling pond with silt traps. The supernatant clear water from the settling pond will be flow to the downstream users.

There is a drainage channel originating on the south eastern side of the lease area at a distance of 55m from the lease area. There is no proposal to discharge any effluent into this water body. No major impact is envisaged on the nearby water bodies due to project operations.

### 4.1.3 NOISE ENVIRONMENT:

During mining operation there will be noise generation due to working of excavators, movement of vehicles, etc. However, it will be felt near the active working area only and at away from its source it will get reduced. There will also be attenuation due to vegetation, tin sheet/ green netting to be erected by the proponent all around the lease and as such there will not be any adverse noise propagation outside the lease boundary Due to natural attenuation effects, by proper green belt development, design / maintenance of machines, etc., the impact on noise levels will be negligible and are expected to be well within the prescribed limits.

### 4.1.4 VIBRATION:

To reduce ground vibratory conditions, various control measures will be implemented such as controlled blasting using NONEL delay detonator, optimum design for burden and spacing, reducing explosive charge per delay to minimum, not carrying out blasting during strong winds, etc. By adoption of above measures, it will be ensured that ground vibrational levels due to blasting will be maintained within the prescribed DGMS conditions of 10 mm/s for the domestic houses/structures. SOP for blasting will be followed to ensure no impact on nearby structures.

### 4.1.5 IMPACT ON LAND ENVIRONMENT:

In the post mining stage, entire 2.76 Ha of mined out area will be left as water body, 0.02 Ha will be the mine roads, 0.01Ha will be infrastructure, 0.30 Ha Ha will be covered with vegetation and 0.50Ha will be left undisturbed. Entire mined out area will be properly fenced to prevent inadvertent entry of men and animals. In the post mining stage, the rainwater harvested in the mined out void shall be utilized.

### 4.1.6 BIOLOGICAL ENVIRONMENT:

Other than clearing the shrubs and bushes with in the lease area, no clearance of major vegetation is involved. Necessary mitigative measures like dust suppression, proper maintenance of equipment's, greenbelt and plantation etc., will be carried out to prevent dust generation & any further impact on the vegetation or agricultural activity nearby.

### 4.1.7 SOCIO ECONOMIC ENVIRONMENT:

The entire lease area is private patta land owned by the applicant. There are no habitations or hutments in the core zone area and no rehabilitation or resettlement problems will arise here.

The mining operations in the proposed mine will provide the following socio-economic benefits:

- Direct Employment for about 24 persons.
- Besides through allied opportunities in logistics, trading, repairing works etc. good employment potential will arise in this area, which will provide raising income levels and standards of living in the area through various service-related activities connected with the project operations.
- Benefit to State and central exchequer by way of royalty, taxes.

Towards the socio-economic development of the surrounding area, the proponent has earmarked an amount of Rs.5.0 Lakhs under Corporate Environmental Responsibility. The activities identified under CER will be implemented in a phased manner in the nearby Government school. In consultation with the locals based on the need & priority it will be implemented.

By carrying out systematic and scientific mining and implementing all the environmental mitigative measures it will be ensured that there will be no adverse impact on this front.

### 4.1.8 IMPACT ON LOCAL LOGISTICAL SYSTEM DUE TO PROJECT:

The material mined out from this lease area will be directly transported to the required customers. During the project operations, there will be 7 trips/hr. The transport route will be properly maintained to absorb this traffic due to this project. The following mitigative measures are suggested for mitigation of adverse impacts on the logistical aspect of the project:

- Water sprinkling on mineral in the transport vehicles before transporting, so that no dust nuisance during transport will arise.
- Plantation on either side of the transport road in consultation with the concerned department.
- Proper maintenance of transport road.
- Proper maintenance of transport vehicles.
- Avoiding overloading of material.
- Covering of loaded vehicles with tarpaulins sheet.
- Limiting of speed

### 4.1.9 WASTE MANAGEMENT:

There is no process effluent generation from this mine. Hence no liquid waste is generated. Single use plastics/ use and throwaway plastics will be banned in the site as directed by the Tamil Nadu Government vide GO(Ms)No.84 regarding ban on use of plastic products. The employees will be encouraged to use compostable material or reusable material.

## 5.1 ENVIRONMENTAL MONITORING PROGRAME:

Regular, systematic and sustained programme schedules for implementation and monitoring of various control measures are devised with clear cut guidelines of various concerned plans for keeping a continuous surveillance on the various environmental quality parameters in the area. The Mines Manager in the mine project site will be directly responsible for various environmental activities in the mine and will undertake effective monitoring and implementation of various environmental control measures promptly and effectively and to oversee various environmental management schemes for air quality control, water quality status, noise level control, plantation programme, social development schemes, etc in the mine. Towards EMP measures, Rs.14.9 Lakhs is allocated as capital cost, Rs. 13.55 Lakhs per annum is allocated as recurring cost. The baseline monitoring carried out for this project reflects the cumulative impact of this existing quarries.

## 6.1 CONCLUSION:

By systematic and scientific mining adhering to all the statutory norms and enforcing and strictly implementing the above said mitigation measures mentioned in this report, no adverse impact is envisaged. The proposed mining project will benefit this region in the fields of potential employment opportunities, improved income for local people, improved social welfare facilities in respect of education, medical healthcare systems, etc. in its own way and also revenue to Government through royalty, taxes etc. Besides, it will meet the raw material requirement of the construction industry also.

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