

Nov 2023

# Application Form (Draft EIA Report)

For

M/s.Naraj Blue Metals Private Limited  
Prop:Thiru.P.Naresh (Director)

Proposed Rough stone and Gravel Quarry  
– 4.32.10 Ha

at

S.F.No. 264/2(P), 264/3A(P), 267/1B, 267/2(P) & 267/3  
Akkinampattu Village, Cheyyur Taluk, Chengalpattu  
District, Tamilnadu State

Sector No. 1(a) (Sector No. 1 as per NABET)

Category of the Project: B1 Cluster Mining

***Baseline Period: March, April & May 2023***

***Environmental Consultant  
& Laboratory details:***

**Ecotech Labs Pvt Ltd,**



No 48, 2nd Main road,  
South extension Ram nagar,  
Pallikaranai, Chennai -600100.

***Proponent details:***

M/s.Naraj Blue Metals Pvt Ltd,  
Thiru.P.Naresh (Director),  
Plot No.109 & 110,  
Kamatchi Amman Nagar  
East, Mangadu,  
Chennai,  
TamilNadu- 600122.

Application Form For Environmental Clearance (Public Hearing)

**From**

M/s.Naraj Blue Metals Pvt Ltd  
Thiru.P.Naresh (Director)  
Plot No.109 & 110,  
Kamatchi Amman Nagar East, Mangadu,  
Chennai, TamilNadu-600122

**To****The District Environmental Engineer**

TamilNadu Pollution Control Board  
Maraimalai Adigalar street,  
Next to Municipal Office,  
Maraimalai Nagar,  
Chennai-603209.

**Sir,**

**Sub: Request to conduct Public Hearing** - Environmental Clearance for M/s.Naraj Blue Metals Pvt Ltd Rough stone and gravel Quarry over a total extent of 4.32.10 Ha at S.F. No. 264/2(P), 264/3A(P), 267/1B, 267/2(P) & 267/3 of Akkinampattu Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu State – Reg.

**Ref: 1. Letter No. SEIAA-TN/F.No.9926/TOR-1572/2023 dated 13.09.2023**

Please find enclosed herewith the application of Draft EIA report along with necessary enclosures seeking environmental clearance for M/s.Naraj Blue Metals Pvt Ltd Rough stone and gravel Quarry over a total extent of 4.32.10 Ha at S.F. No. 264/2(P), 264/3A (P), 267/1B, 267/2(P) & 267/3 of Akkinampattu Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu State. In this regard, we had obtained the Terms of Reference from State Environmental Impact Assessment Authority (SEIAA) TamilNadu vide reference mentioned above for conducting EIA studies. We wish to inform that draft EIA report complying with all the conditions mentioned in the TOR has been prepared and the copies of the same are enclosed with this letter. With reference to the above, we kindly request the TNPCB to make the necessary arrangements for **conducting the public hearing for the Rough Stone Quarry**. With the above, we request the TNPCB to accept and process our application for conducting the Public Hearing at the earliest.

**Thanking you****Yours Sincerely**

Authorized Signatory

Enclosures: Draft EIA report

M/s.Naraj Blue Metals Private Limited,  
Thiru.P.Naresh (Director),  
Plot No.109 /110,  
Kamatchi Amman Nagar East,  
Mangadu, Chennai – 600122.

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## UNDERTAKING

I, Thiru.P.Naresh Director of M/s.Naraj Blue Metals Pvt ltd Rough stone and Gravel quarry undertaking that the Draft Environmental Impact Assessment (EIA) Report for Rough Stone and Gravel Quarry over an extent of 4.32.10 Ha at S.F.No. 264/2(P), 264/3A(P), 267/1B, 267/2(P) & 267/3 of Akkinampattu Village, Cheyyur Taluk, Chengalpattu District, Tamilnadu State under project category B1 and Schedule S.No.1(a)

TOR issued by the State Expert Appraisal Committee, TN vide Letter No. SEIAA-TN/F. No. 9926/ SEAC/ToR-1572/2023 Dated: 13.09.2023.

I, hereby assure that all the information and data provided in the EIA report is accurate, true and correct and owns responsibility for the same.

Place:

Yours faithfully

Date:

Thiru.P.Naresh (Director)

Plot No.48A, 2nd Main Road,  
Ram Nagar, South Extension,  
Pallikarantal, Chennai - 600 100.  
GST NO. 33AADCE6103A2ZH  
PAN NO: AADCE6103A



**Eco Tech Labs Pvt Ltd**

Cell No: 98400 87542  
Email : info@ecotechlabs.in  
Website : www.ecotechlabs.in  
CIN : U74900TN2014PTC094895

## UNDERTAKING

I, Dr. A. Dhamodharan, Managing Director confirms that this Draft EIA Report of Rough Stone and Gravel Quarry over an extent of 4.32.10 Ha at S.F.No. 264/2(P), 264/3A(P), 267/1B, 267/2(P) & 267/3 of Akkinampattu Village, Cheyyur Taluk, Chengalpattu District, Tamilnadu State has been prepared at M/s. Ecotech Labs Pvt. Ltd., Chennai.

I also confirm that I shall be fully accountable for any misleading information mentioned in this Report.

Signature:

Name: Dr. A. Dhamodharan

Designation: Managing Director

Name of the EIA Consultant Organization: M/s. Ecotech Labs Pvt Ltd., Chennai.

NABET Certificate No: NABET/EIA/2124/SA 0147

Date:

Place: Chennai

**Declaration by Experts contributing to the EIA of Existing Rough Stone and Gravel Quarry - 4.32.10 Ha by Thiru.P.Naresh director of M/s.Naraj Blue Metals Pvt Ltd at S.F.No. 264/2(P), 264/3A(P),267/1B,267/2(P) & 267/3 of Akkinampattu Village, Cheyyur Taluk, Chengalpattu District, Tamilnadu State** I, hereby, certify that I was a part of the EIA team in the following capacity that developed the above EIA.

**EIA Coordinator:** Dr. A. Dhamodharan



**Dr. A. DHAMODHARAN**  
 (NABET APPROVED EIA COORDINATOR)  
 NABET/EIA/2124/SA 0147  
 Environmental Consultant  
 Eco Tech Labs Pvt. Ltd  
 Plot No.48A, 2nd Main Road, Ram Nagar South Extn.  
 Pallikaranai, Chennai - 600 100.


**Signature:**





**Period of involvement:** 01.03.2022 to Till now





**Contact information:** M/s. Ecotech Labs Pvt Ltd.,

No. 48, 2<sup>nd</sup> Main road, Ram Nagar South Extension,

Pallikaranai

S. No.	Functional areas	Name of the experts	Involvement (period and task)	Signature and date
1	AP	Mrs. K. Vijayalakshmi	1. Selection of Baseline Monitoring stations based on the wind direction 2. Interpretation of Baseline data by comparing it with standards prescribed by CPCB against the type of area 3. Identification of sources of air pollution and suggesting mitigation measures to minimize impact <i>Period: March 2022 – Till now</i>	

2	WP	Dr. A. Dhamodharan	<p>1. Selection of baseline Monitoring Locations for Ground water analysis and also identifying nearest surface water to be studied.</p> <p>2. Interpretation of baseline data collected</p> <p>3. Identification of impacts based on the baseline study conducted and also to the ground water and nearby surface water due to the proposed project</p> <p>4. Preparation of suitable and appropriate mitigation plan.</p> <p><b><i>Period: March 2022 – Till now</i></b></p>	
3	SHW	Dr. A. Dhamodharan	<p>1. Identification of nature of solid waste generated</p> <p>2. Categorization of the generated waste and estimating the quantity of waste to be generated based on the per capita basis. Identification of impacts of SHW on Environment</p> <p>3. Suggesting suitable mitigation measures by recommending appropriate disposal method for each category of waste generated</p> <p>4. Top soil and refuse management</p> <p><b><i>Period: March 2022 – Till now</i></b></p>	
4	SE	Mr. S. Pandian	<p>1. Primary data collection through the census questionnaire</p> <p>2. Obtaining Secondary data from authenticated sources and incorporating the same in EIA report.</p> <p>3. Impact assessment &amp; proposing suitable mitigation plan</p> <p>4. CSR budget allocation by discussing with the local body and allotting the same for need based activity.</p> <p><b><i>Period: March 2022 – Till now</i></b></p> <p><b><i>*Involves Public Hearing</i></b></p>	
5	EB	Dr.A. Dhamodharan	<p>1. Primary data collection through field survey and sheet observation for ecology and biodiversity</p>	

			<p>2.Secondary Collection through various authenticated sources</p> <p>3.Prediction of anticipated impacts and suggesting appropriate mitigation measures.</p> <p><b>Period: March 2022 – Till now</b></p>	
6	HG	Dr. T. P. Natesan	<p>1. Study of existing surface drainage arrangements in the core and buffer zone, impact due to mining on these drainage courses and suggestion of mitigative measures</p> <p>2. Determination of groundwater use pattern, development of rainwater harvesting program. Storm water management through garland drainage system.</p> <p><b>Period: March 2022 – Till now</b></p>	
7	GEO	Dr. T. P. Natesan	<p>1. Field survey for assessing regional and local geology, aquifer distribution, Determination of groundwater use pattern, development of rainwater harvesting program.</p> <p><b>Period: March 2022 – Till now</b></p>	
8	SC	Dr. A. Dhamodharan	<p>1. Interpretation of baseline report</p> <p>2. Identification of possible impacts on soil, prediction of soil conservation and suggesting suitable mitigation measures.</p> <p><b>Period: March 2022 – Till now</b></p>	
9	AQ	Mrs. K. Vijayalakshmi	<p>1. Collection of Meteorological data for the baseline study period</p> <p>2. Plotting wind rose plot and thereby selecting the monitoring locations based on the wind pattern</p> <p>3. Estimation of sources of air emissions and air quality modeling is done</p> <p>4. Interpretation of the results obtained</p> <p>5. Identification of the impacts and suggesting suitable mitigation measures.</p> <p><b>Period: March 2022 – Till now</b></p>	

10	NV	Mrs. K. Vijayalakshmi	<ol style="list-style-type: none"> <li>1. Selection of monitoring locations</li> <li>2. Interpretation of baseline data</li> <li>3. Prediction of impacts due to noise pollution and suggestion of appropriate mitigation measures</li> </ol> <p><b><i>Period: May 2022 – Till now</i></b></p>	-Kiel
11	LU	Dr. T. P. Natesan	<ol style="list-style-type: none"> <li>1. Collection of Remote sensing satellite data to study the land use pattern.</li> <li>2. Primary field survey and limited field verification for land categorization in the study area</li> <li>3. Preparation of Land use map using Satellite data for 10km radius around the project site.</li> </ol> <p><b><i>Period: March 2022 – Till now</i></b></p>	Conroy
12	RH	Mrs. K. Vijayalakshmi	<ol style="list-style-type: none"> <li>1. Identification of the risk</li> <li>2. Interpreting consequence contours</li> <li>3. Suggesting risk mitigation measures</li> </ol> <p><b><i>Period: March 2022 – Till now</i></b></p>	-Kiel



**Declaration by the Head of the accredited consultant organization/ authorized person**

I, Dr. A. Dhamodharan, hereby, confirm that the above-mentioned experts prepared the EIA report of mining project at Survey Numbers. 264/2(P), 264/3A(P), 267/1B, 267/2(P) & 267/3 Akkinampattu Village, Cheyyur Taluk, Chengalpattu District. I also confirm that the consultant organization shall be fully accountable for any misleading information mentioned in this statement.

**Signature:**



**Name:** Dr. A. Dhamodharan

**Designation:** Managing Director

**Name of the EIA consultant organization:** M/s. Eco Tech Labs Private Limited

**NABET Certificate No. & Issue Date:** NABET/EIA/2124/SA 0147

<b>Project</b>	<b><i>Rough stone and Gravel Quarry-4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i></b>	<b><i>Draft EIA Report</i></b>
<b>Project Proponent</b>	<b><i>M/s.Naraj Blue Metals Pvt Ltd</i></b>	
<b>Project Location</b>	<b><i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i></b>	

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<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

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<b>Project Proponent</b>	<b>M/s.Naraj Blue Metals Pvt Ltd</b>	
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<b>Project Proponent</b>	<b><i>M/s.Naraj Blue Metals Pvt Ltd</i></b>	
<b>Project Location</b>	<b><i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i></b>	

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<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

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<b>Project Proponent</b>	<b><i>M/s.Naraj Blue Metals Pvt Ltd</i></b>	
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<b>Project Proponent</b>	<b><i>M/s.Naraj Blue Metals Pvt Ltd</i></b>	
<b>Project Location</b>	<b><i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i></b>	

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## **ABBREVIATION**

LU –Land use

AP – Air Pollution monitoring, prevention and control

AQ- Meteorology, Air quality modeling and prediction

WP – Water pollution monitoring, prevention and control

EB- Ecology and Biodiversity

NV- Noise & Vibration

SE- Socio-economics

HG- Hydrology, ground water and water conservation

GEO –Geology

RH – Risk assessment and hazards management

SHW –Solid and Hazardous waste management

SC- Soil conservation

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## EXECUTIVE SUMMARY

### 1. Project Background:

The Proposed project total extent area is 4.32.10 Ha, It is a Patta land in 264/2(P), 264/3A(P), 267/1B, 267/2(P) & 267/3 Akkinampattu Village, Cheyyur Taluk, Chengalpattu District. The category of project is B1, It is a Rough stone and Gravel quarry in Akkinampattu village. The area is situated on plain topography covered by Gravel formation which does not sustain any type of vegetation.

The quarry operation is proposed to carry out with open cast mechanized mining with 5.0 meter bench for Top soil & Gravel followed by 5.0 meter vertical bench with a bench width not less than the bench height. The quarry operation involves shallow jack hammer drilling, slurry blasting, Loading and transportation of Rough stone and Gravel to the needy nearby crusher units / road formation works.

The quarry operation is proposed up to depth of 49 from the below ground level. Geological Resources is estimated at 2424780 Cum of Rough stone and 80826 Cum of Gravel. Mineable Reserves is estimated as 866500 Cum of Rough stone and after leaving necessary safety distance from the lease boundary as indicated in the precise area letter and relevant mining laws in force. Production Schedule is production of 866500 Cum of Rough Stone for the period of Ten years. Mining Plan was approved by The Assistant Director, Geology & Mining, Chengalpattu vide letter Roc.No.101/Mines/2022 dated 31.03.2023. Precise area communication letter received from Assistant Director, Department of Geology and Mining; Chengalpattu letter Na.Ka.No.101/Kaniman/2022, dated 10.01.2023.

The project area does not fall in Hill Area Conservation Authority region. There is no interstate boundary, CRZ zone, Western Ghats, notified Bird sanctuaries, wild life sanctuaries as per Wild life protection Act 1972, within the radius of 15Km.

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## 2. Nature & Size of the Project

The Rough Stone Quarry over an extent of 4.32.10 Hectares land is located at Akkinampattu Village, Cheyyur Taluk, Chengalpattu District.

Mineral intends to quarry	: Rough stone and Gravel Quarry
District	: Chengalpattu
Taluk	: Cheyyur
Village	: Akkinampattu
S. F. Nos.	: 264/2(P), 264/3A (P), 267/1B, 267/2(P) & 267/3
Extent	: 4.32.10 Hectares

**Table 1: Brief Description of the Project**

<b>S. No</b>	<b>Particulars</b>	<b>Details</b>
1	Latitude	Latitude : 12 <sup>0</sup> 25' 46.02" N to 12 <sup>0</sup> 25' 57.66" N
2	Longitude	Longitude : 80 <sup>0</sup> 02' 57.81" E to 80 <sup>0</sup> 03' 04.76" E
3	Site Elevation above MSL	100 m MSL
4	Topography	Plain Terrain
5	Land use of the site	Patta Land
6	Extent of lease area	4.32.10 Ha
7	Nearest highway	NH332 A , ECR Road, 5.75 km, E
8	Nearest railway station	Madurantakam Railway Station – 18.76 km, WNW
9	Nearest airport	Chennai International Airport – 62.18 km, N Puducherry Airport-58.35 Km, SSW
10	Nearest town / city	<ul style="list-style-type: none"> <li>• Town - Cheyyur - 10.65 Km, SSW</li> <li>• City - Chengalpattu – 28.16 Km, NNW</li> <li>• District - Chengalpattu – 28.16 Km, NNW</li> </ul>
11	Rivers / Canal	❖ Kiliyar river-12.82 km, NNW
12	Lake	<ul style="list-style-type: none"> <li>❖ Pakkur Lake- 5.33 km, S</li> <li>❖ Odiyur Lake-7.88 km, S</li> </ul>

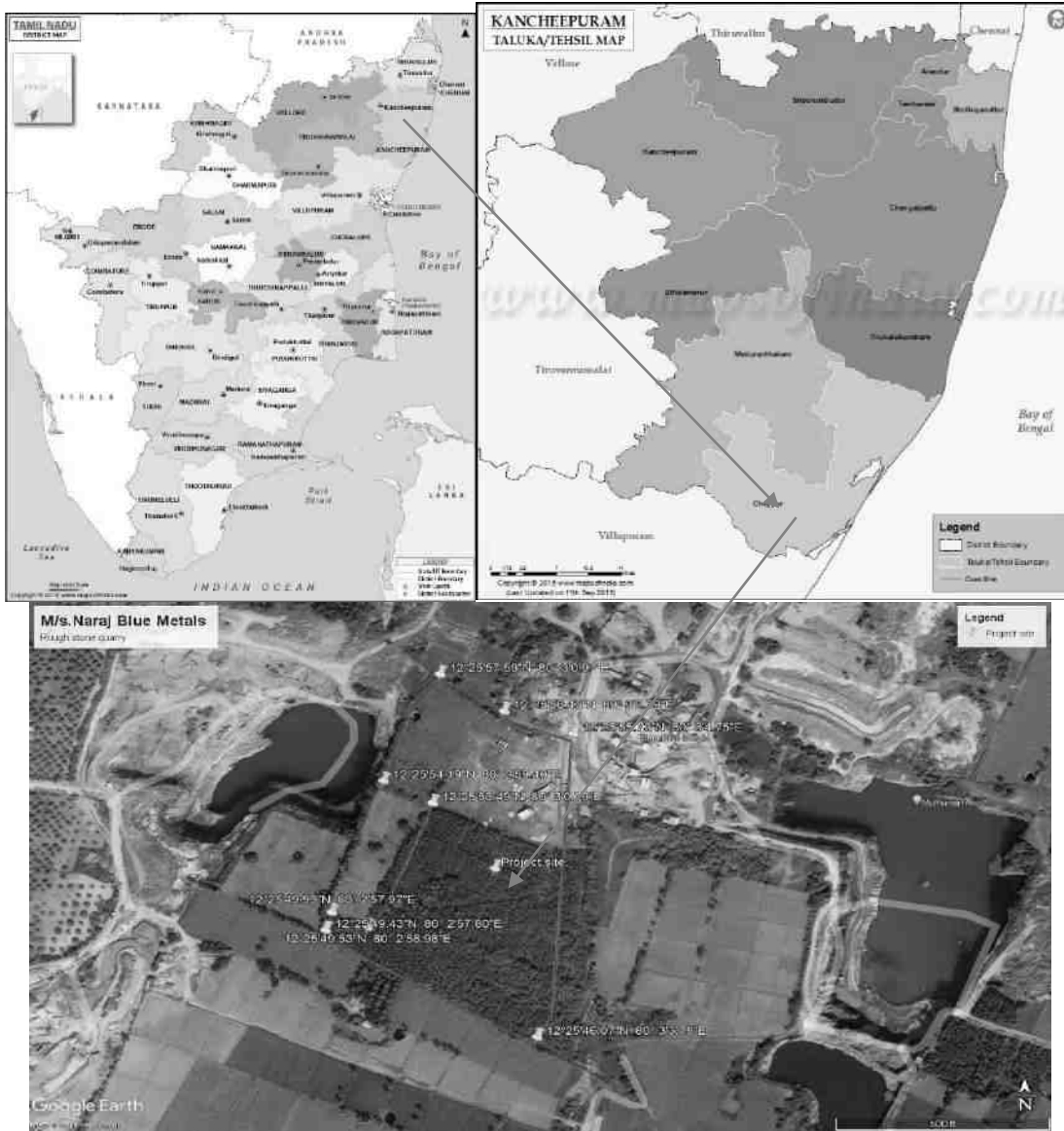
<i>Project</i>	<i>Rough stone and Gravel Quarry-4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

		<ul style="list-style-type: none"> <li>❖ Irumbedu Lake-12.23 km, SW</li> <li>❖ Murukkambakkam Lake-10.01 km, NW</li> <li>❖ Veeranankkunnam Lake-11.24 km, NW</li> <li>❖ Keezhpattu lake-10.46 km, NW</li> <li>❖ Thachoor lake-11.13km, NW</li> <li>❖ Pallavankulam lake-7.05 km, N</li> </ul>
13	Hills / valleys	Nil in 15 km radius
14	Archaeologically places	Nil in 15 km radius
15	National parks / Wildlife Sanctuaries	Nil in 15 km radius
16	Reserved / Protected Forests	Nil
17	Seismicity	Proposed Lease area come under Seismic zone-III
18	Defense Installations	Nil in 15 Km radius

### 3. Need for the Project

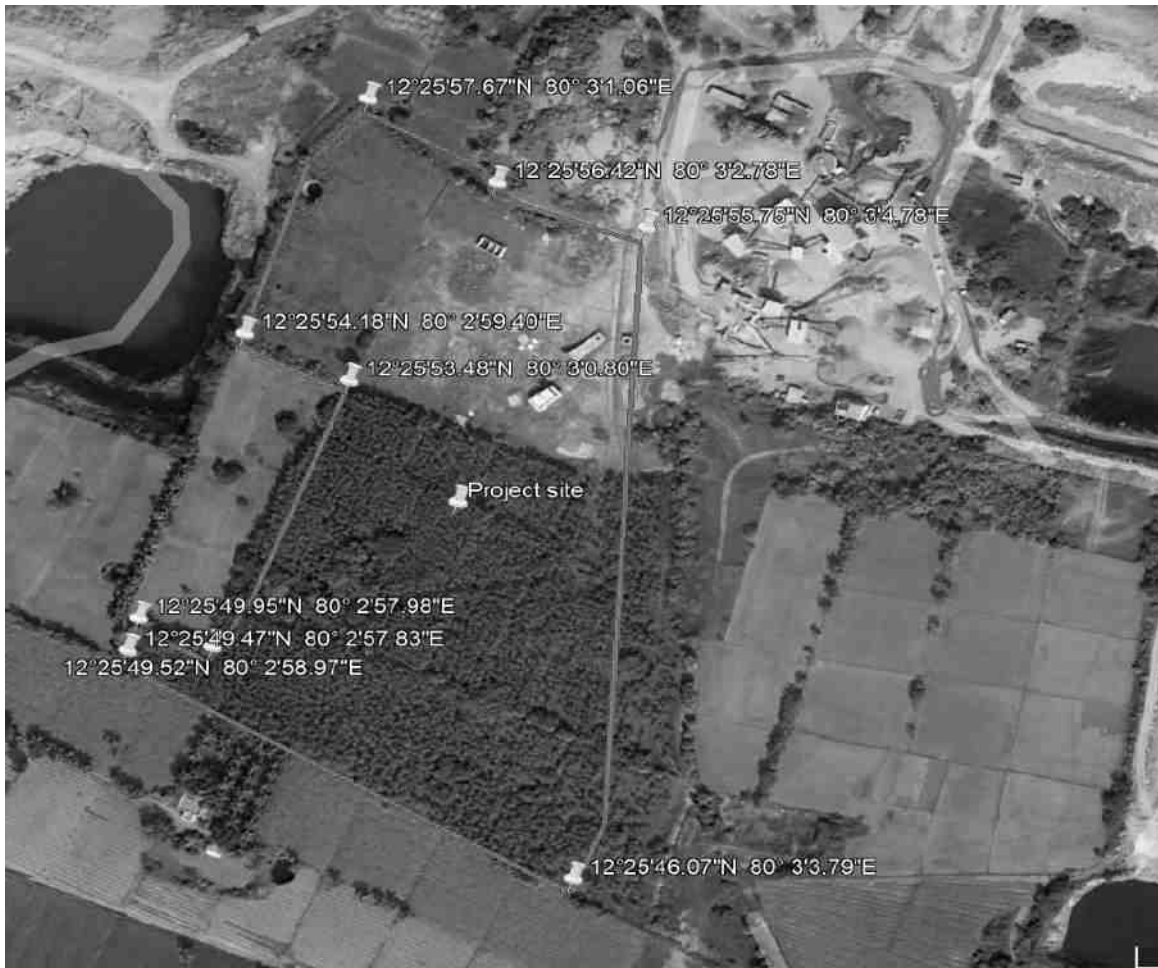
- ❖ The mining activities as proposed are the backbone of all construction and infrastructure projects as the raw material for construction is available only from such mining. The Rough stone and Gravel extracted will be transported to be Stone crusher of district Chengalpattu.
- ❖ The raw Rough stone as well as the crushed material of stone is in high demand in real estate, construction projects as well as in building construction projects.
- ❖ Rough stone is quarried for producing crusher aggregates to the nearby building contractors, road contractors and nearby villagers.
- ❖ After quarrying the entire reserves mined out, the area will be used as water reservoir to have an artificial recharge to the nearby wells.
- ❖ No damage to the land is caused, no reclamation or back filling is required.

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<b>Project Proponent</b>	<b>M/s.Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akkinpattu Village, Cheyyur Taluk, Chengalpattu District</b>	



**Figure 1: Location Map of the Project Site**

<b>Project</b>	<b><i>Rough stone and Gravel Quarry-4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i></b>	<b><i>Draft EIA Report</i></b>
<b>Project Proponent</b>	<b><i>M/s.Naraj Blue Metals Pvt Ltd</i></b>	
<b>Project Location</b>	<b><i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i></b>	



**Figure 2: Google Image of the Project Site**

#### **4. Charnockite**

Charnockite is applied to any orthopyroxene-bearing quartz-feldspar rock, composed mainly of quartz, perthite or antiperthite and orthopyroxene (usually hypersthene) formed at high temperature and pressure, commonly found in granulite facies metamorphic regions, as an end-member of the charnockite series. Charnockite is extensively quarried for rough stone which is used as blue metals for construction of building, laying roads and for preparation of hollow bricks. In some places, charnockite is used as grinder stone. Charnockite is exposed as discontinuous body in ENEWSW direction from Karanampettai in the west to Unjappalayam in the east and from Pallapalayam in the north to Kodanipalayam-Sukkampalayam in the south. More than 50

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quarries are located in Kodangipalayam and Itchipatti areas. An isolated charnockite body is exposed for a length of 4km with 1to 1.5 km wide from Sedarpalayam-Morattupalayam in the north to Velliampalayam-Sarkar Periyapalayam in the south. Active quarries are located in Timmanayakkanpalayam, Govindampalayam and A.Periyapalayam. Charnockite is very well exposed in NW Madathukulam area of Udumalai taluk. Eastwest trending rock is available for more than 5 km length with 2 km width. Active quarries are located in this area for rough stone i.e. for construction material.

### 5. Geological Resources

The Geological reserves have been calculated based on the cross section method. The available geological reserve is estimated as 2424780 m<sup>3</sup> of Rough Stone and 80826 m<sup>3</sup> of Gravel respectively. Availability of Resources is given below. The quarrying is restricted up to a depth of 49m below ground level only. Availability of Resources is given below.

**Table 2. Geological resources**

<b>GEOLOGICAL RESOURCES</b>							
Section	Length in (m)	Width in (m)	Depth in (m)	Volume m <sup>3</sup>	Geological Resources of wheathered in m <sup>3</sup>	Geological Resources of Gravel in m <sup>3</sup>	Geological Resources of Roughstone in m <sup>3</sup>
XY-AB	181	145	2	52490		52490	
	181	145	2	52490	52490		
	181	145	60	1574700			1574700
<b>TOTAL</b>					<b>52490</b>	<b>52490</b>	<b>1574700</b>
XY-CD	92	154	2	28336		28336	
	92	154	2	28336	28336		
	92	154	60	850080			850080
<b>TOTAL</b>					<b>28336</b>	<b>28336</b>	<b>850080</b>
<b>GRAND TOTAL</b>					<b>80826</b>	<b>80826</b>	<b>2424780</b>

**Table 3. Mineable Resources**



<i>Project</i>	<i>Rough stone and Gravel Quarry-4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
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<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

<b>MINEABLE RESERVES</b>								
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m <sup>3</sup>	Gravel Formation in m <sup>3</sup>	wheathered Formation in m <sup>3</sup>	Mineable Reserves of Rough stone in m <sup>3</sup>
XY-AB	98-100	174	130	2	45240	45240	-	-
	96-98	174	130	2	45240	-	45240	-
	91-96	170	122	5	103700	-	-	103700
	86-91	165	112	5	92400	-	-	92400
	81-86	160	102	5	81600	-	-	81600
	76-81	155	92	5	71300	-	-	71300
	71-76	150	82	5	61500	-	-	61500
	66-71	145	72	5	52200	-	-	52200
	61-66	140	62	5	43400	-	-	43400
	56-61	135	52	5	35100	-	-	35100
	51-56	130	42	5	27300	-	-	27300
	46-51	120	32	5	19200	-	-	19200
	41-46	110	22	5	12100	-	-	12100
36-41	100	12	5	6000	-	-	6000	
<b>TOTAL</b>						<b>45240</b>	<b>45240</b>	<b>605800</b>
XY-CD	98-100	84	139	2	23352	23352	-	-
	96-98	84	139	2	23352	-	23352	-
	91-96	80	131	5	52400	-	-	52400
	86-91	75	121	5	45375	-	-	45375
	81-86	70	111	5	38850	-	-	38850
	76-81	65	101	5	32825	-	-	32825
	71-76	60	91	5	27300	-	-	27300
	66-71	55	81	5	22275	-	-	22275
	61-66	50	71	5	17750	-	-	17750
	56-60	45	61	5	13725	-	-	13725
51-56	40	51	5	10200	-	-	10200	
<b>TOTAL</b>						<b>23352</b>	<b>23352</b>	<b>260700</b>
<b>GRAND TOTAL</b>						<b>68592</b>	<b>68592</b>	<b>866500</b>

The Available mineable reserve is computed as 866500m<sup>3</sup> of Rough stone upto a depth of 49m below ground level only.

**Table 4. Year wise Production Plan**

<i>Project</i>	<i>Rough stone and Gravel Quarry-4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

The applicant has proposed to carry out 866500 m<sup>3</sup> of Rough stone at the rate of 100% recovery upto a depth of 49 m below ground level for the period of Ten years only.

<b>YEARWISE DEVELOPMENT &amp; PRODUCTION RESERVES</b>								
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m <sup>3</sup>	Gravel Formation in m <sup>3</sup>	Recoverable Reserves of Rough stone in m <sup>3</sup>
I	XY-AB	96-100	135	130	4	70200	70200	-
		91-96	130	122	5	79300	-	79300
<b>TOTAL</b>							<b>70200</b>	<b>79300</b>
II	XY-AB	96-100	39	130	4	20280	20280	
	XY-CD	96-100	84	139	4	46704	46704	
	XY-AB	91-96	40	122	5	24400	-	24400
	XY-CD	91-96	80	131	5	52400	-	52400
		86-91	10	121	5	6050		6050
<b>TOTAL</b>							<b>66984</b>	<b>82850</b>
III	XY-CD	86-91	65	121	5	39325		39325
	XY-AB	86-92	80	112	5	44800		44800
<b>TOTAL</b>								<b>84125</b>
IV	XY-AB	86-91	85	112	5	47600		47600
		81-86	73	102	5	37230		37230
<b>TOTAL</b>								<b>84830</b>
V	XY-AB	81-86	87	102	5	44370		44370
	AB-CD	81-86	70	111	5	38850		38850
<b>TOTAL</b>								<b>83220</b>
<b>GRAND TOTAL</b>							<b>137184</b>	<b>414325</b>

**YEARWISE DEVELOPMENT & PRODUCTION RESERVES**

<b>Project</b>	<b>Rough stone and Gravel Quarry-4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</b>	<b>Draft EIA Report</b>
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<b>Project Location</b>	<b>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</b>	

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m <sup>3</sup>	Gravel Formation in m <sup>3</sup>	Recoverable Reserves of Rough stone in m <sup>3</sup>
VI	XY-CD	76-81	65	101	5	32825		32825
	XY-AB	76-81	115	92	5	52900		52900
<b>TOTAL</b>								<b>85725</b>
VII	XY-AB	76-81	40	92	5	18400		18400
	XY-CD	71-76	60	91	5	27300		27300
	XY-AB	71-76	106	82	5	43460		43460
<b>TOTAL</b>								<b>89160</b>
VIII	XY-AB	71-76	44	82	5	18040		18040
		66-71	145	72	5	52200		52200
	XY-CD	66-71	45	81	5	18225		18225
<b>TOTAL</b>								<b>88465</b>
IX	XY-CD	66-71	10	81	5	4050		4050
		61-66	50	71	5	17750		17750
		56-61	45	61	5	13725		13725
	XY-AB	61-66	140	62	5	43400		43400
		56-61	30	52	5	7800		7800
<b>TOTAL</b>								<b>86725</b>
X	XY-AB	56-61	105	52	5	27300		27300
		51-56	130	42	5	27300		27300
	XY-CD	51-56	40	51	5	10200		10200
<b>TOTAL</b>								<b>64800</b>
<b>GRAND TOTAL</b>							<b>0</b>	<b>414875</b>

## 6. Mining

### Opencast mining

Open cast Semi-Mechanized Mining with one 5.0 meter bench for Top soil & Gravel followed by 5.0 meter vertical bench with a bench width not less than the bench height.

The Quarry operation involves shallow jack hammer drilling, blasting, loading and transportation.

### Process Description

- The reserves and resource are arrived based upon the Geological investigation
- Removal of Gravel by Excavators and directly Loaded into Tippers.
- Removal of Rough Stone by Excavators by Drilling and Blasting.

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- Shallow Drilling With Jackhammer of 30-32 mm Dia.
- Minimum Blasting With Class 3 Explosives.
- Loading of Rough Stone By Excavators Into Tippers.

## 7. Water Requirement

Total water requirement for the mining project is 2.5 KLD. Domestic water will be sourced from nearby Vettakarakupam Village and other water will be source from nearby road tankers supply.

**Table 5. Water Balance**

<b>Purpose</b>	<b>Quantity</b>	<b>Source</b>
Drinking Water	1.5KLD	Packaged Drinking water vendors available in Vettakarakupam village which is about 1.14 Km ESE of the area
Green belt	0.5KLD	Other domestic activities through road tankers supply
Dust suppression	0.5KLD	From road tankers supply
<b>Total</b>	<b>2.5 KLD</b>	

## 8. Manpower

Total manpower required for the project is approximately 34 persons. Workers will be from nearby villages.

**Table 6. Man Power**

1	Skilled	Operators	6
2	Semi skilled	Driver	14
3	Unskilled	Musdoor/Labours	10
4	Mines Manager		1
5	Mines Foreman		1

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6	Mines mate	1
7	Blaster	1
<b>Total</b>		<b>34 Nos</b>

No child less than 18 years will be entertained during quarrying operations.

## 9. Solid Waste Management

**Table 7 Solid Waste Management**

S. No	Type	Quantity	Disposal Method
1	Organic	6.12 kg/day	Municipal bin including food waste
2	Inorganic	9.18 kg/day	TNPCB authorized recyclers

As per CPCB guidelines: MSW per capita/day =0.45 kg/day

**Table 8. 500m Radius Cluster Mine**

### 1) Existing quarries:

S. No.	Name of the Owner	Village & Taluk	S.F.Nos.	Extent in Hect.	Lease Period
1	Tvl.Uma Blue Metals, Vettaikarakuppam, Kodur Post, Cheyyur taluk, Kancheepuram 603305	Cheyyur, Akkinampattu	270/1, 270/2, 272/4, 272/5A	3.20.00	08.11.2018 to 07.11.2023 ( 5 years)

<b>Project</b>	<b>Rough stone and Gravel Quarry-4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</b>	<b>Draft EIA Report</b>
<b>Project Proponent</b>	<b>M/s.Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</b>	

2	S.Balaji, S/o.K.Sundaramoorthy, Manamai Village and Post, Kalpakkam, Thirukazhukundram Taluk, Chengalpattu District 603102	Cheyyur, Akkinampattu	264/1A(P)	1.62.00	30.09.2020 to 29.09.2025 ( 5 years)
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## 2) Details of abandoned /Old Quarries

S. No.	Name of the Owner	Village & Taluk	S.F.Nos.	Extent in Hect.	Lease Period
1.	R.Ranganathan M/s.Uma Blue Metals, Vettaikarakuppam, Kodur Post, Cheyyur Taluk.	Cheyyur, Akkinampattu	268/1B1B	1.24.50	06.02.2014 to 05.02.2019 Lease expired

## 3) Details of Proposed quarries

S. No.	Name of the Owner	Village & Taluk	S.F.Nos.	Extent in Hect.	Lease Period
1.	M/s.Naraj Blue Metals Pvt Ltd, Thiru.P.Naresh (Director), Plot No.109&110, Kamatchi Amman Nagar East, Mangadu, Chennai-600122	Cheyyur, Akkinampattu	264/2(P), 264/3A(P), 267/1B, 267/2(P), 267/3	4.32.10	Under processing (Present Application)

<i>Project</i>	<i>Rough stone and Gravel Quarry-4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

## 10. Land Requirement

The total extent area of the project is 4.32.10 Ha, Patta Land in Akkinampattu Village of Cheyyur Taluk, Chengalpattu District.

**Table 9 Land Use Breakup**

SL. NO.	LAND USE	PRESENT AREA (HECT)	AREA IN USE DURING THE QUARRYING PERIOD (HECT)
1.	Area under Quarrying	Nil	3.53.85
2.	Infrastructure	Nil	0.01.00
3.	Roads	Nil	0.02.00
4.	Green Belt	Nil	0.75.25
5.	Unutilized	4.32.10	0.00.00
	<b>Total</b>	<b>4.32.10 Ha</b>	<b>4.32.10 Ha</b>

## 11. Human Settlement

There are no habitations within 300m radius. There are villages located in this area within 15 km radius of the quarry.

**Table 10 Habitation**

S.No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Nelvaipalayam	1.2 Km-N	454
2.	Vettakkarakuppam	1.3 Km-E	19233
3.	Akkinampattu	1.2 Km-SW	2553
4.	Kadugupattu	2.5 Km-W	1765

## 12. Power Requirement

The proposed Rough stone quarrying does not require any power supply for the quarrying operation.

<i>Project</i>	<i>Rough stone and Gravel Quarry-4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

**16 Litre** diesel per hour for excavator for mining and loading for Rough stone needed and **10 Litre** diesel per hour for excavator for mining and loading for Top soil.

### **13. Scope of the Baseline Study**

This chapter contains information on existing environmental scenario on the following parameters.

1. Micro – Meteorology
2. Water Environment
3. Air Environment
4. Noise Environment
5. Soil / Land Environment
6. Biological Environment
7. Socio-economic Environment

#### **13.1 Micro – Meteorology**

Meteorology plays a vital role in affecting the dispersion of pollutants, once discharged into the atmosphere. Since meteorological factors show wide fluctuations with time, meaningful interpretation can be drawn only from long-term reliable data.

- i) Average Minimum Temperature : 31° C
- ii) Average Maximum Temperature. : 34°C
- iii) Average Annual Rainfall of the area : 792 mm

#### **13.2 Air Environment**

Ambient air monitoring was carried out on monthly basis in the surrounding areas of the Mine Lease area to assess the ambient air quality at the source. To know the ambient air quality at a larger distance i.e. in the study area of 5 km. radius, air quality survey has been conducted at 5 locations. Major air pollutants like Particulate Matter (PM10), Sulphur Dioxide (SO<sub>2</sub>), Nitrogen Dioxide (NO<sub>2</sub>) were monitored and the results are summarized below.



<i>Project</i>	<i>Rough stone and Gravel Quarry-4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

The baseline levels of PM<sub>10</sub> (39-67 µg/m<sup>3</sup>), PM<sub>2.5</sub> (15- 33µg/m<sup>3</sup>), SO<sub>2</sub> (5- 22µg/m<sup>3</sup>), NO<sub>2</sub> (10-40 µg/m<sup>3</sup>), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from March 2023 to May 2023.

### 13.3 Noise Environment

The maximum Day noise and Night noise were found to be 60 dB(A) and 52 dB(A) respectively in Panchayat Union Middle School and Sri Shirdi Sai Temple. The minimum Day Noise and Night noise were 40 dB(A) and 32 dB(A) respectively which was observed in Project site . The observed values are all well within the Standards prescribed by CPCB.

### 13.4 Water Environment

- The average pH ranges from 7 – 7.83.
- TDS value varied from 220 mg/l to 679 mg/l
- Hardness varied from 166 to 386 mg/l
- Chloride varied from 24.2 to 200 mg/l

### 13.5 Land Environment

The analysis results shows that the majority of soil in the project and surrounding area is slightly alkaline in nature and pH value ranges from 6.49 to 8.87 with organic matter 0.18 to 3.7 %. The concentration of Nitrogen, Phosphorus & Potassium has been found to be in good amount in the soil samples.

### 13.6 Biological Environment

The proposed Mining lease area is mostly dry barren ground with small shrubs and bushes. No specific endangered flora & fauna exist within the mining lease area.

## 14. Rehabilitation/ Resettlement

<i>Project</i>	<i>Rough stone and Gravel Quarry-4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

The overall land of the mine is a Patta land. There are no displacement of the population within the project area and adjacent nearby area. Social development of nearby villages will be considered in this project.

The mine area does not cover any habitation. Hence the mining activity does not involve any displacement of human settlement.

### 15. Greenbelt Development

1. The development of greenbelt in the peripheral buffer zone of the mine area.
2. Green belt has been recommended as one of the major component of Environmental Management Plan, which will improve ecology, environment and quality of the surrounding area.
3. Local trees like Neem, Vilvam, Panai, etc will be planted along the lease boundary and avenues as well as over Non-active dumps at a rate of 440 trees per annum with interval 5m.
4. The rate of survival expected to be 70% in this area

**Table.11 Plantation/ Afforestation Program**

<b>Name of species proposed</b>	<b>Survival</b>	<b>No of species</b>
Neem, Vilvam, Vaagai, Eachai, Naval, Mantharai, Magizha Maram, Vila Maram, Poo Marudhu, Panai, Marudha maram, Thandri, Sengondrai, Poovarasu, Thethankottai Maram, Pungam	70%	2200
<b>Total</b>		<b>2200</b>

### 16. Anticipated Environmental Impacts

#### 16.1 Air Environment and Mitigation Measures

1. Water sprinkling will be done on the roads & unpaved roads.
2. Proper mitigation measures like water sprinkling will be adopted to control dust emissions.
3. Plantation will be carried out on approach roads, solid waste site & nearby mine premises.

<i>Project</i>	<i>Rough stone and Gravel Quarry-4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

4. To control the emissions regular preventive maintenance of equipments will be carried out.

### 16.2 Noise Environment and Mitigation Measures

1. Periodical monitoring of ambient noise will be done as per CPCB guidelines.
2. No other equipment except the transportation vehicles and excavator for loading will be allowed.
3. Noise generated by these equipments shall be intermittent and does not cause much adverse impact

### 17. Responsibilities for Environmental Management Cell (EMC)

The responsibilities of the EMC include the following:

- i. Environmental Monitoring of the surrounding area
- ii. Developing the green belt/Plantation
- iii. Ensuring minimal use of water
- iv. Proper implementation of pollution control measures

### 18. Environmental Monitoring Program

A monitoring schedule with respect to Ambient Air Quality, Water & Wastewater Quality, Noise Quality as per Tamil Nadu State Pollution Control Board (TNPCB), shall be maintained.

### 19. Project Cost

The total project cost is **Rs 1,18,81,500/-** for deployment of machinery and creation of infrastructural facilities like approach road, mine office / Workers Shed, First Aid Room etc., including electrifications and water supply

**Table .12 Project Cost details**

<b>S. No.</b>	<b>Description</b>	<b>Cost (Rs.)</b>
1	Fixed Asset Cost	78,81,500/-
2	Operational Cost	40,00,000 /-

<i>Project</i>	<i>Rough stone and Gravel Quarry-4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

	<b>Total</b>	<b>1,18,81,500/-</b>
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## 20. Corporate Environmental Responsibility

The Corporate Environment Responsibility (CER) fund will be provided to the below activity.

**Table 13 CER Cost**

<b>S.No.</b>	<b>CER Activity</b>	<b>CER value (Rs)</b>
1.	Panchayat Union Middle School, Akkinampattu Provision of <ul style="list-style-type: none"> <li>➤ Smart Board</li> <li>➤ All in one Printer</li> <li>➤ Bench and desks</li> <li>➤ Microphone set</li> <li>➤ Planting trees in and around the periphery of the school campus</li> <li>➤ Environmental Science books in Tamil Language for Library</li> <li>➤ Smart Classroom facility</li> <li>➤ Hygienic Toilet Facility</li> </ul>	5,00,000
<b>Total</b>		<b>5,00,000</b>

## 21. Benefits of the Project

- There is positive impact on socio-economics of people living in the villages. Mining operations in the subject area has positive impact by providing direct and indirect jobs opportunities
- The project is environmentally compatible, financially viable and would be in the interest of construction industry thereby indirectly benefiting the masses.
- Quarrying in this area is not going to have any negative impact on the social or cultural life of the villagers in the near vicinity.

<i>Project</i>	<i>Rough stone and Gravel Quarry-4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

# 1 Introduction

## 1.1 PREAMBLE

Environment Impact Assessment (EIA) is a process used to identify the environmental, social & economic impacts of a project prior to decision making. It aims to predict environmental impacts at an early stage of project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the prediction options to the proponent. By using EIA, both environmental & economic benefits can be achieved. By considering environmental effects - prediction & mitigation, early benefits in project planning, protection of the environment, optimum utilization of resources, thus saving overall time & cost of the project.

## 1.2 GENERAL INFORMATION ON MINING OF MINERALS

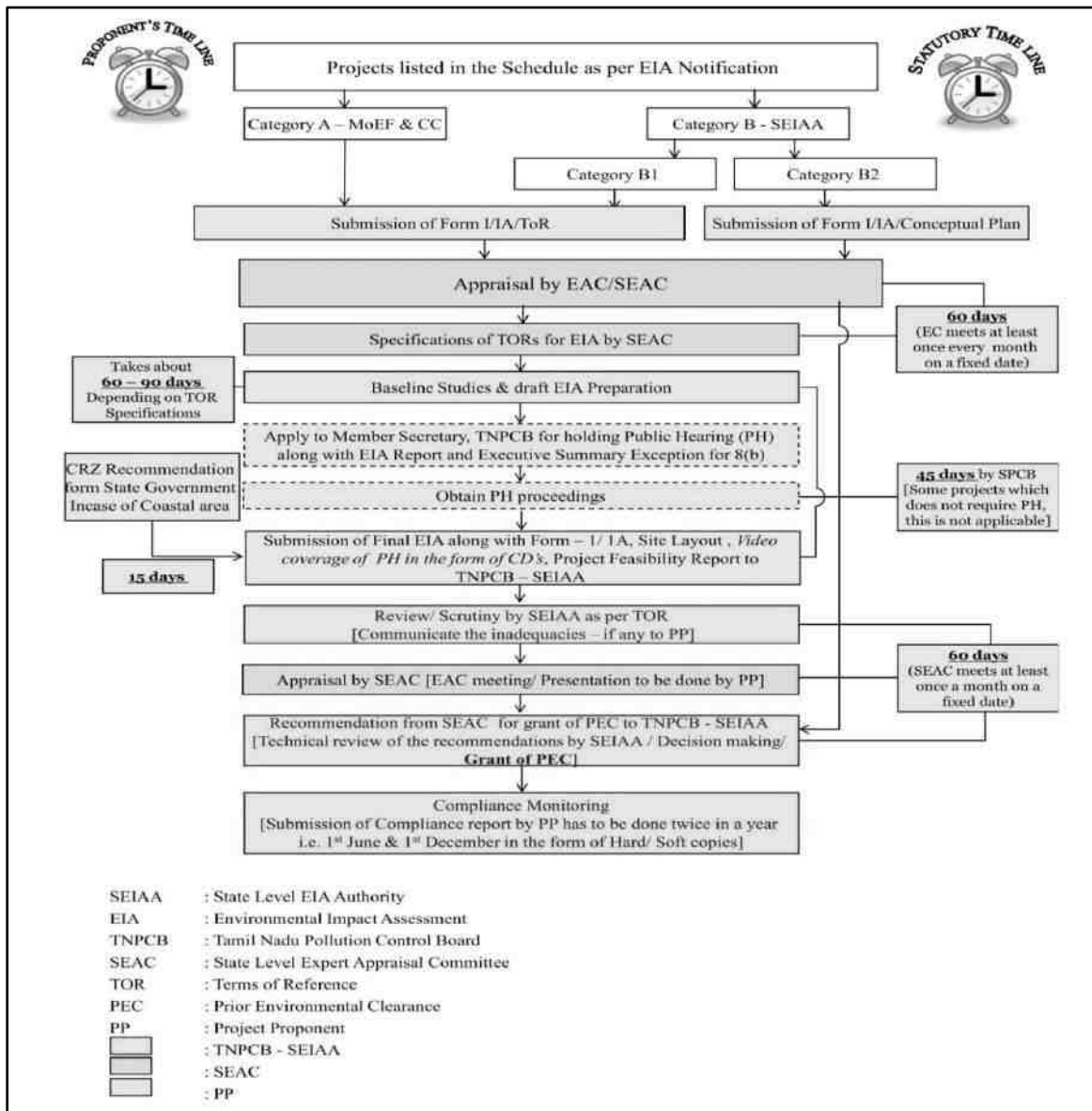
Granite, stone quarry, Sand quarry, silica sand and clay are the minerals available in Kancheepuram district. Mining activities based on these minerals are very less. However, numerous rough stone quarries are operational for production of construction material in many of the areas in the district.

## 1.3 ENVIRONMENTAL CLEARANCE

As per EIA Notification, 2006 and its subsequent amendments (O.M vide No.F.No.L-11011/175/2018-IA-II(M) Govt of India MOEF&CC on December 12th 2018) project comes under category B1 cluster & schedule 1(a) under item 1

The proposed project is categorized under Category “B1” 1(a) (Cluster) - {Mining of Minerals} as the 500m radius area is more than 5 Ha including the mine lease area. Hence, the project will be considered at SEAC, Tamil Nadu.

<b>Project</b>	<b>Rough stone and Gravel Quarry-4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</b>	<b>Draft EIA Report</b>
<b>Project Proponent</b>	<b>M/s.Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akkinpattu Village, Cheyyur Taluk, Chengalpattu District</b>	



#### 1.4 TERMS OF REFERENCE (TOR)

The Terms of Reference have been issued by SEAC TN vide Letter No. SEIAA-TN/F. No. 9926/ToR-1572/2023 Dated: 13.09.2023. Additional ToR points were recommended by SEAC TN in addition to the Standard ToR Points. The replies for the same were addressed in this report.

<i>Project</i>	<i>Rough stone and Gravel Quarry-4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

## 1.5 POST ENVIRONMENTAL CLEARANCE MONITORING

### 1.5.1 Methodology adopted

Post project monitoring will be carried out as per conditions stipulated in environmental clearance letter issued by SEIAA, consent issued by SPCB as well as according to CPCB guidelines. The lease area is considered as core zone and the area lying within 10 km radius from the lease boundary is considered as buffer zone, where some impacts may be observed on physical and biological environment. In the buffer zone slight impact may be observed and that too is occasional.

**Table 1-1: Post Environmental Clearance Monitoring**

<b>S. No.</b>	<b>Description</b>	<b>Frequency of Monitoring</b>
1.	Ambient Air Quality Monitoring	Quarterly/ Half Yearly
2.	Water level & Quality Monitoring	Quarterly/ Half Yearly
3.	Noise Level Monitoring	Quarterly/ Half Yearly
4.	Soil Quality Monitoring	Yearly
5.	Medical Check-up	Yearly

## 1.6 GENERIC STRUCTURE OF THE EIA DOCUMENT

**Chapter 1: Introduction.** This chapter contains the general information on the mining of minerals, major sources of environmental impacts in respect of mining projects and details of environmental clearance process.

**Chapter 2: Project Description.** In this chapter the proponent should also furnish detailed description of the proposed project, such as the type of the project, need for the project, project location, layout, project activities during construction and operational phases, capacity of the project, project operation i.e., land availability, utilities (power and water supply) and infrastructure facilities such as roads, railways, housing and other requirements. If the project site is near a sensitive area it is to be mentioned clearly why an alternative site could not be considered. The project implementation schedule, estimated cost of development as well as operation etc should be also included.

**Chapter 3: Analysis of Alternatives (Technology and Site).** This chapter gives details of various alternatives both in respect of location of site and technologies to be deployed, in case the initial scoping exercise considers such a need.

<i>Project</i>	<i>Rough stone and Gravel Quarry-4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

**Chapter 4: Description of Environment.** This chapter should cover baseline data in the project area and study area.

**Chapter 5: Impact Analysis and mitigation measures.** This chapter describes the anticipated impacts on the environment and mitigation measures. The method of assessment of impacts including studies carried out, modelling techniques adopted to assess the impacts where pertinent should be elaborated in this chapter. It should give the details of the impacts on the baseline parameters, both during the construction and operational phases and suggests the mitigation measures to be implemented by the proponent.

**Chapter 6: Environmental Monitoring Program.** This chapter should cover the planned environmental monitoring program. It should also include the technical aspects of monitoring the effectiveness of mitigation measures.

**Chapter 7: Additional Studies.** This chapter should cover the details of the additional studies required in addition to those specified in the ToR and which are necessary to cater to more specific issues applicable to the particular project.

**Chapter 8: Project Benefits.** This chapter should cover the benefits accruing to the locality, neighborhood, region and nation as a whole. It should bring out details of benefits by way of improvements in the physical infrastructure, social infrastructure, employment potential and other tangible benefits.

**Chapter 9: Environmental Cost Benefit Analysis.** This chapter should cover on Environmental Cost Benefit Analysis of the project.

**Chapter 10: Environmental Management Plan.** This chapter should comprehensively present the Environmental Management Plan (EMP), which includes the administrative and technical setup, summary matrix of EMP, the cost involved to implement the EMP, both during the construction and operational phase and provisions made towards the same in the cost estimates of project construction and operation. This chapter should also describe the proposed post-monitoring scheme as well as inter-organizational arrangements for effective implementation of the mitigation measures.

**Chapter 11: Summary and Conclusions.** This chapter gives the summary of the full EIA report condensed to ten A-4 size pages at the maximum. It should provide the overall justification for implementation of the project and should explain how the adverse effects have been mitigated.



<i>Project</i>	<i>Rough stone and Gravel Quarry-4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

**Chapter 12: Disclosure of Consultants.** This chapter should include the names of the consultants engaged with their brief resume and nature of consultancy rendered.

## **1.7 DETAILS OF PROJECT PROPONENT**

Project Proponent : M/s.Naraj Blue Metals Pvt Ltd (Thiru.P.Naresh Director)  
Status of the Proponent : Private Limited Company  
Proponent's Name & Address : M/s.Naraj Blue Metals Pvt Ltd (Thiru.P.Naresh Director)  
Plot No.109 & 110,  
Kamatchi Amman Nagar East, Mangadu,  
Chennai, TamilNadu-600122

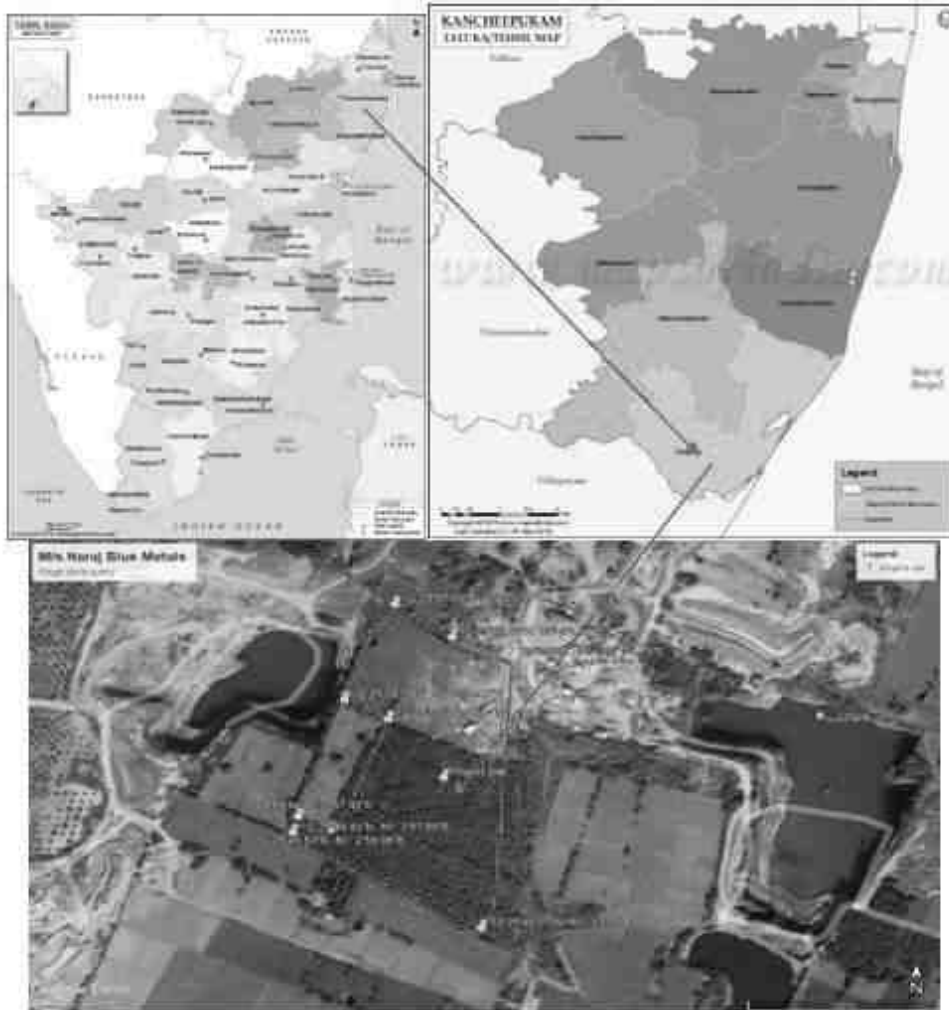
## **1.8 BRIEF DESCRIPTION OF THE PROJECT**

### **1.8.1 *Project Nature, Size & Location***

As per EIA Notification, 2006 and its subsequent amendments (O.M vide No.F.No.L-11011/175/2018-IA-II(M) Government of India MoEF & CC on December 12th 2018) project comes under category B1 cluster & schedule 1(a) under item 1.

Proposed proposal pertains to Rough stone and Gravel mining project by open cast mechanized method on allotted mine lease area at Akkinampattu Village, Cheyyur Taluk of Chengalpattu District, Tamil Nadu. It is a plain terrain. The total allotted mine lease for the proposed project is 4.32.10 Ha with their maximum production capacity i.e.866500 m<sup>3</sup> of Rough stone for the period of Ten years only.

<b>Project</b>	<b><i>Rough stone and Gravel Quarry-4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i></b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b><i>M/s.Naraj Blue Metals Pvt Ltd</i></b>	
<b>Project Location</b>	<b><i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i></b>	



**Figure 1.1: Location Map of the Project site**

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

## **2 Project Description**

This chapter furnishes detailed description of the proposed project, such as the type of the project, need for the project, project location, layout, project activities during mining, capacity of the project, project operation i.e., land availability, utilities (power and water supply) and infrastructure facilities such as roads, railways, housing and other requirements. The project implementation schedule estimated cost for carrying out entire mining activity is included.

### **2.1 GENERAL**

Proposed proposal pertains to Rough stone and gravel mining project by open cast mechanized method on allotted mine lease area at Akkinampattu Village, Cheyyur Taluk of Chengalpattu District, Tamil Nadu. It is a Plain terrain. We have obtained fresh mining plan from 2023 to 2033 from Department of Geology and Mining, Chengalpattu District for 4.32.10 Ha land area in the S.F.Nos. 264/2(P), 264/3A(P), 267/1B, 267/2(P) & 267/3 for a proposed mining depth of 49m below ground level and ten years production of 866500 m<sup>3</sup> of Rough stone.

#### **Type of the project:**

As per EIA Notification, 2006 and its subsequent amendments (O.M vide No.F.No.L-11011/175/2018-IA-II(M) Government of India MoEF & CC on December 12th 2018) project comes under category B1 cluster & schedule 1(a) under item 1. The project required to be appraised at state level by State Environment Impact Assessment Authority, Tamil Nadu. Environment Clearance study will involve preparation of draft EIA report on the basis of baseline & impact assessment study is carried out. Also, before appraisal, under 7(III) of EIA notification 2006, the project involves the Public Consultation and the same will be conducted under SPCB (TN) in Chengalpattu District. The proceedings of the same will be incorporated in the Final EIA Report.

The mines within 500m radius from the project site is listed below.

<b>Project</b>	<b>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</b>	<b>Draft EIA Report</b>
<b>Project Proponent</b>	<b>M/s.Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</b>	

**Table 2-1: Quarry within 500m Radius**

**1) Existing quarries:**

<b>S. No.</b>	<b>Name of the Owner</b>	<b>Village &amp; Taluk</b>	<b>S.F.Nos.</b>	<b>Extent in Hect.</b>	<b>Lease Period</b>
1	Tvl.Uma Blue Metals, Vettaikarakuppam, Kodur Post, Cheyyur taluk, Kancheepuram 603305	Cheyyur, Akkinampattu	270/1, 270/2, 272/4, 272/5A	3.20.00	08.11.2018 to 07.11.2023 ( 5 years)
2	S.Balaji, S/o.K.Sundaramoorthy, Manamai Village and Post, Kalpakkam, Thirukazhukundram Taluk, Chengalpattu District 603102	Cheyyur, Akkinampattu	264/1A(P)	1.62.00	30.09.2020 to 29.09.2025 ( 5 years)

**2) Details of abandoned /Old Quarries**

<b>S. No.</b>	<b>Name of the Owner</b>	<b>Village &amp; Taluk</b>	<b>S.F.Nos.</b>	<b>Extent in Hect.</b>	<b>Lease Period</b>
1.	R.Ranganathan M/s.Uma Blue Metals, Vettaikarakuppam, Kodur Post, Cheyyur Taluk.	Cheyyur, Akkinampattu	268/1B1B	1.24.50	06.02.2014 to 05.02.2019 Lease expired

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

### 3) Details of Proposed quarries

<b>S. No.</b>	<b>Name of the Owner</b>	<b>Village &amp; Taluk</b>	<b>S.F.Nos.</b>	<b>Extent in Hect.</b>	<b>Lease Period</b>
1.	M/s.Naraj Blue Metals Pvt Ltd, Thiru.P.Naresh (Director), Plot No.109&110, Kamatchi Amman Nagar East, Mangadu, Chennai-600122	Cheyyur, Akkinampattu	264/2(P), 264/3A(P), 267/1B, 267/2(P), 267/3	4.32.10	Under processing (Present Application)

#### 2.1.1 *Need for the project:*

The said project plays a significant role in the domestic as well as infrastructural market. To achieve a huge infrastructure being envisaged by Government of India, particularly in road and housing sector, there is a need for basic building materials, the rough stone form the primary building material.

Rough stone is one of the most valuable natural building materials. Aggregates are mostly used for building roads and footpaths. Aggregates – stone used for its strong physical properties – crushed and sorted into various sizes for use in concrete, coated with bitumen to make asphalt or used 'dry' as bulk fill in construction.

Mostly used in roads, concrete and building products. Aggregates represent about 98% of quarry output, most of which is used in road construction, maintenance and repair. Much of this goes to the production of asphalt; the remainder is used 'dry' without the addition of other materials to provide a sturdy base for roads.

<b>Project</b>	<b>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</b>	<b>Draft EIA Report</b>
<b>Project Proponent</b>	<b>M/s.Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</b>	

## 2.2 BRIEF DESCRIPTION OF THE PROJECT

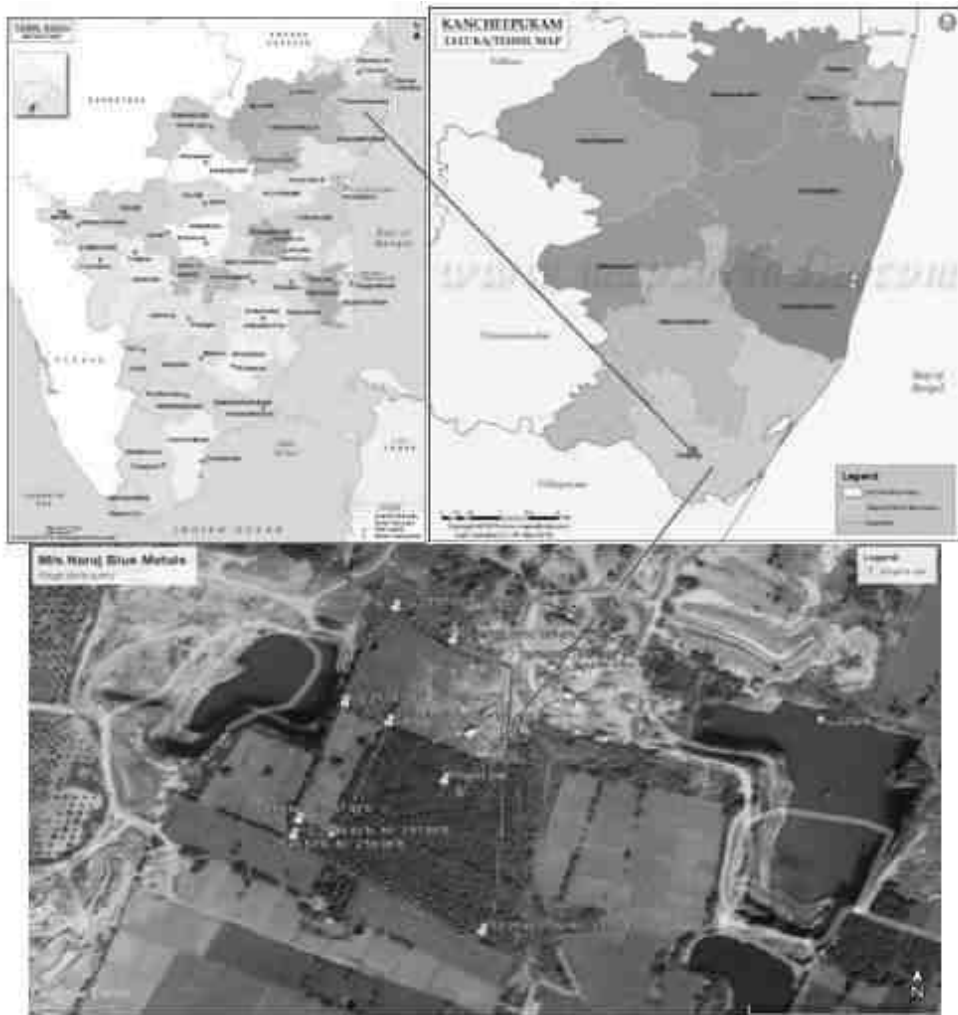
**Table 2-2 Salient Features of the Project**

<b>S. No.</b>	<b>Description</b>	<b>Details</b>
1	Project Name	M/s.Naraj Blue Metals Pvt Ltd Rough stone and Gravel Quarry
2	Proponent	M/s.Naraj Blue Metals Pvt Ltd (Naraj Director)
3	Mining Lease Area Extent	4.32.10 Ha
4	Location	264/2(P), 264/3A(P), 267/1B, 267/2(P) & 267/3
5	Latitude	12° 25' 46.02" N to 12° 25' 57.66" N
6	Longitude	80° 02' 57.81" E to 80° 03' 04.76" E
7	Topography	Plain terrain
8	Site Elevation above MSL	100 m from MSL
9	Topo sheet No.	66 D/3 of Survey of India
10	Minerals of Mine	Rough Stone and Gravel Quarry
11	Proposed production of Mine	866500 m <sup>3</sup> of Rough stone
12	Ultimate depth of Mining	49 m below ground level
13	Method of Mining	Open cast mechanized mining
14	Water demand	2.5 KLD
15	Source of water	Water will be supplied through tankers supply
16	Man power	34 Nos.
17	Mining Plan Approval	Mining Plan was approved by The Assistant Director (i/c), Department of Geology and Mining, Chengalpattu District vide letter Roc.No.101/Mines/2022 dated 31.03.2023
18	Precise area communication letter	Precise area communication letter received from Assistant Director, Department of Geology and Mining; Chengalpattu vide

<b>Project</b>	<b>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</b>	<b>Draft EIA Report</b>
<b>Project Proponent</b>	<b>M/s.Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</b>	

		letter Na.Ka.EN.101/Kanimam/2022 dated 10.01.2023
19	Production details	Geological reserves: 2424780 m <sup>3</sup> of Rough stone Proposed year wise reserves: 866500 m <sup>3</sup> of Rough stone
20	Boundary Fencing	7.5 m barrier all along the boundary for adjacent patta lands and 10 m safety distance for Govt. Lands. Fencing will be provided.
21	Disposal of overburden	The overburden Gravel is 68,59m <sup>3</sup> (i.e., Depth 2m=0m-2.0m) of used for filling and leveling of low lying areas of road projects and other infrastructure development work in and around the district. The overburden weathered rock 68,592m <sup>3</sup> (ie., Depth 2m= 2.0m-4.0m) of is dumped within lease boundary.
22	Ground water	The ground Water Level is noticed at the depth of 70m to 75m below ground level by monitoring nearby bore hole, during the climatic conditions, the fluctuations of water level is 70m in Rainy seasons and 75m in Summer seasons of this quarry area.
23	Habitations within 300m radius of the Project Site	There is no Habitation within 300m radius of the project site.
24	Drinking water	Water will be supplied through tankers from Vettakarakupam village which is 1.14 Km ESE of the area

<b>Project</b>	<b>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>M/s.Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akinampattu Village, Cheyyur Taluk, Chengalpattu District</b>	



**Figure 2.1: Location Map of the Project Site**



<b>Project</b>	<b>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</b>	<b>Draft EIA Report</b>
<b>Project Proponent</b>	<b>M/s.Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</b>	



**Figure 2.2: Google Earth Image and Coordinates of the Project Site**

**2.2.1 Site Connectivity:**

The site is connected to the roadways as follows.

NH332 A , ECR Road, 5.75 km, E

<b>Project</b>	<b>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</b>	<b>Draft EIA Report</b>
<b>Project Proponent</b>	<b>M/s.Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</b>	



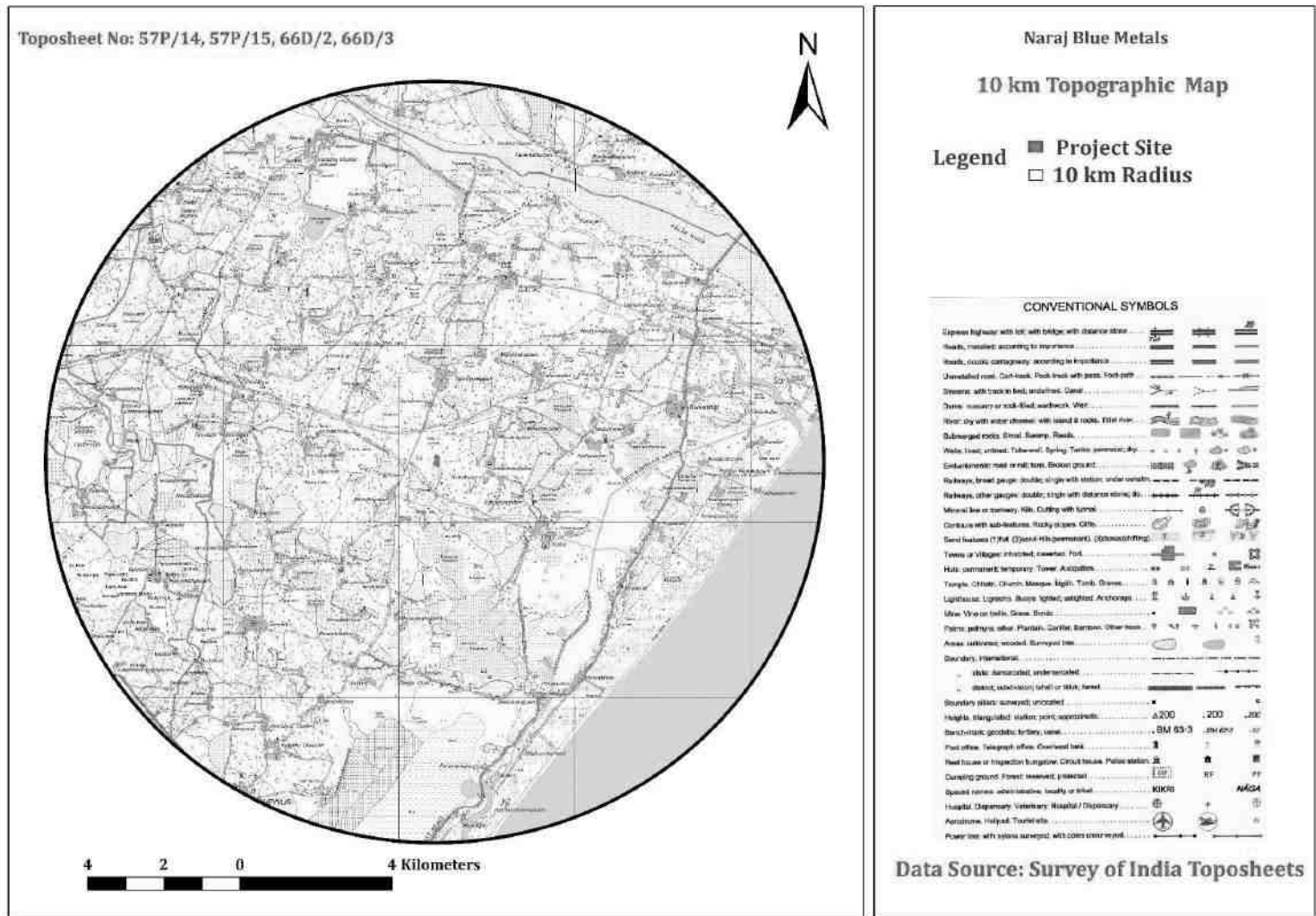
**Figure 2.3: Site Connectivity**

**2.3 LOCATION DETAILS:**

**Table 2-3: Location Details**

<b>S. No</b>	<b>Particulars</b>	<b>Details</b>
1.	Latitude	12° 25' 46.02" N to 12° 25' 57.66" N
2.	Longitude	80° 02' 57.81" E to 80° 03' 04.76" E
3.	Site Elevation above MSL	100 m MSL
4.	Topography	Plain Terrain
5.	Land use of the site	Patta land
6.	Extent of lease area	4.32.10 Ha

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	



**Figure 2.4: Topo Map of Project Site**

<b>Project</b>	<b>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>M/s.Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</b>	



**Figure 2.5: Environmental Sensitivity within 15km radius**

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

### 2.3.1 Land Use Breakup of the Mine Lease Area

The Mine Lease area is Plain terrain. The land use pattern of the mine lease area as follows.

**Table 2-4: Land use pattern**

<b>SL. NO.</b>	<b>LAND USE</b>	<b>PRESENT AREA (HECT)</b>	<b>AREA IN USE DURING THE QUARRYING PERIOD (HECT)</b>
1.	Area under Quarrying	Nil	3.53.85
2.	Infrastructure	Nil	0.01.00
3.	Roads	Nil	0.02.00
4.	Green Belt	Nil	0.75.25
5.	Unutilized	4.32.10	0.00.00
	<b>Total</b>	<b>4.32.10 Ha</b>	<b>4.32.10 Ha</b>

### 2.3.2 Human Settlement

There are no habitations within the radius of 300m. The nearby habitations are as follows

**Table 2-5: Habitation**

<b>SL. NO</b>	<b>DIRECTION</b>	<b>VILLAGE</b>	<b>POPULATION</b>	<b>DISTANCE</b>
1	North	Nelvaipalayam	454	1.2 Km
2	East	Vettakkarakuppam	19233	1.3 Km
3	SW	Akkinampattu	2553	1.2 Km
4	West	Kadugupattu	1765	2.5 Km

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

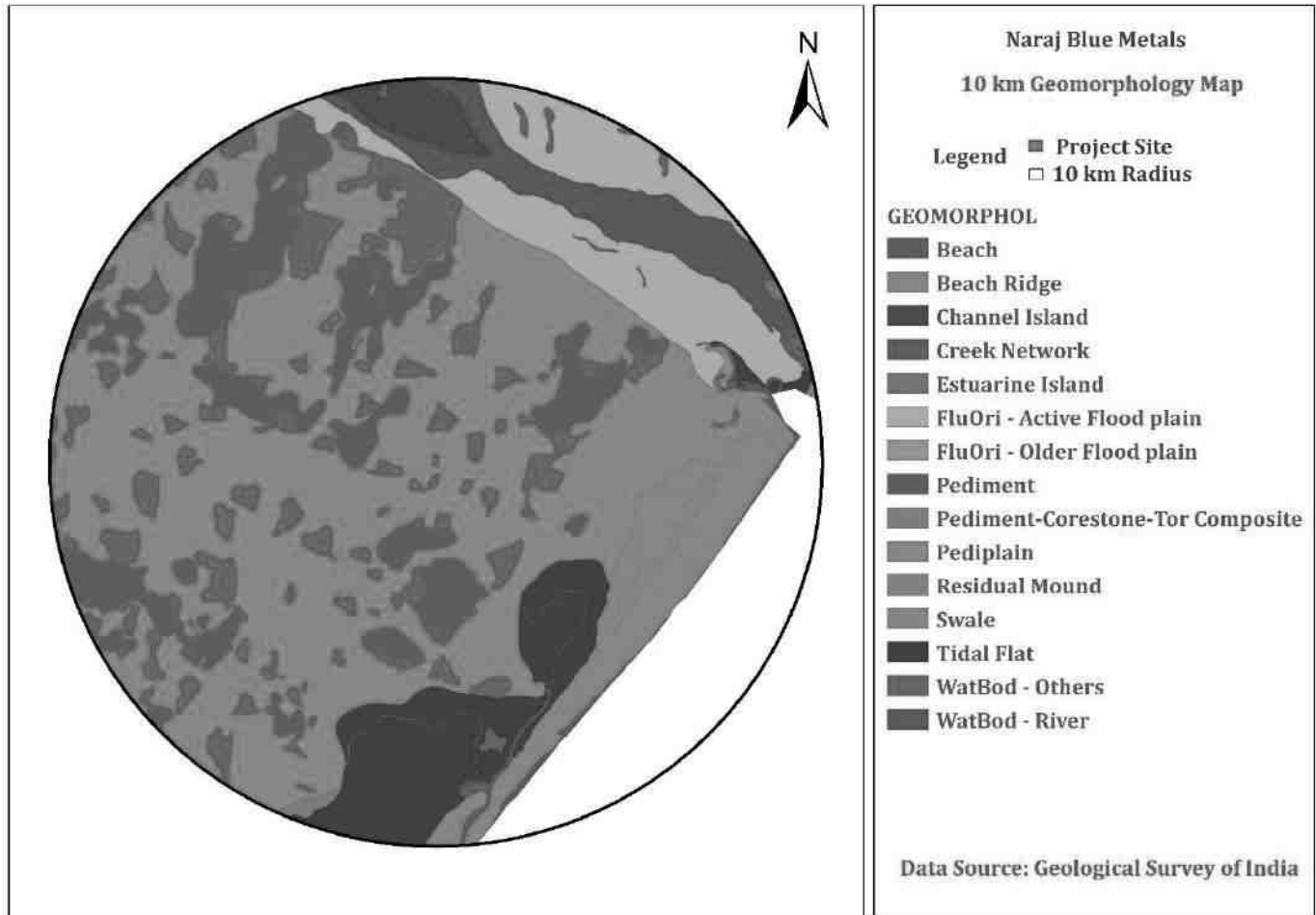
## **2.4 LEASEHOLD AREA**

The Rough Stone and Gravel Quarry mine of 4.32.10 Ha is a patta land. The lease area falls in S.F No: 264/2(P), 264/3A(P), 267/1B, 267/2(P) & 267/3 of Akkinampattu Village, Cheyyur Taluk, Chengalpattu District. There is no reserve forest or protected forest land within the lease area. There is neither human settlement within 300m radius from the lease area.

## **2.5 GEOLOGY**

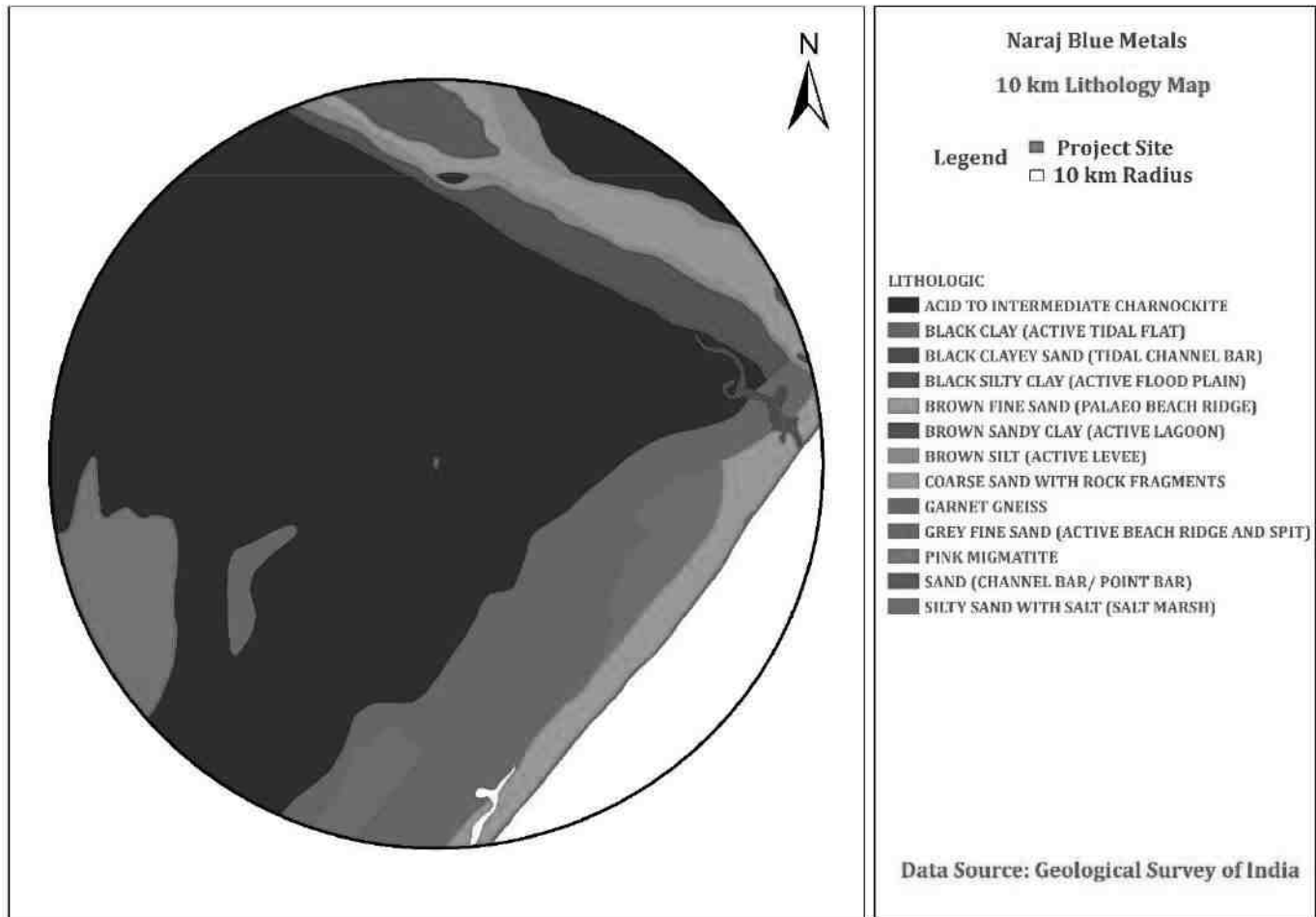
The area exposes crystalline rocks of Archaean age and sedimentary rocks of Gondwana Supergroup and the Cuddalore Formation belonging to Mio-Pliocene age. A gravel and shingle bed locally known as Kanjeevaram Gravels belong to the Pliocene to lower Pleistocene age. The laterite and alluvium are related to Quaternary age. The Archaean rocks are represented by Khondalite Group, Charnockite Group and Migmatite complex. Garnet sillimanite gneiss is well exposed in the northeastern part of the district in Pachchamalai hill at Chrompet, Parangimalai and southeast of Pallavaram. In Pachchamalai hill it is essentially a quartz sillimanite rich rock with minor amount of felspar. In Tambaram hill, charnockite and metapelite are intimately interbanded, particularly along the hinge zones. Isolated outcrops are also seen on either side of National Highway No.45 near Kadaperi. The major part of the district is occupied by charnockite with enclaves of khondalite, leptynite and BMQ seen around St. Thomas Mount, east of Guduvancheri, Madurantakam, Paler and around Tirukkalukunram. St. Thomas mount is an extensively studied type area for the charnockite. It is a typical rock with bluish grey quartz, hard and compact, jointed showing recognisable foliation at places. The outcrop stands out prominently as isolated cluster of hills. The area in and around Pallavaram, Tambaram and Pulikaradu contain several bands of pyroxene granulite. The charnockite is traversed by narrow dolerite dykes which stand out prominently as dark low ridges and seen for a few metres. The lower Gondwana sediments (Talchirs) overlie the Archaean rocks unconformably and are seen to the northeast and south of Paler river preserved in the trough faults and comprise boulder beds, dirty white to light green, greyish yellow fine sandstone, siltstone with clasts of rock fragments and khaki green to greenish grey shales.

<b>Project</b>	<b>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>M/s.Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akkampattu Village, Cheyyur Taluk, Chengalpattu District</b>	



**Figure 2.6: Geomorphology**

<b>Project</b>	<b>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>M/s.Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</b>	



**Figure 2.7 Lithology**

## 2.6 QUALITY OF RESERVES:

The mining lease area is of 4.32.10 Ha, with production capacity of 866500 m<sup>3</sup> of Rough Stone. Due to significant role in the domestic as well as infrastructural market, making the mining of Stone and gravel along with associated minor minerals is economically viable.

**Table 2-6: Details of Mining**

<b>S. No</b>	<b>Particulars</b>	<b>Details</b>
1	Method of Mining	Open Cast mechanized



<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

2	Geological Reserves	2424780 m <sup>3</sup> of Rough stone
3	Recoverable Reserves	866500 m <sup>3</sup> of Rough stone
4	Proposed Production	829200 m <sup>3</sup> of Rough stone
5	Elevation Range of the Mine Site	100 m MSL

### 2.6.1 Geological Reserves

The Geological reserves have been calculated based on the cross section method. The available geological reserve is estimated as 2424780 m<sup>3</sup> of Rough Stone and 80826 m<sup>3</sup> of Gravel respectively. Availability of Resources is given below. The quarrying is restricted up to a depth of 49m below ground level only. Availability of Resources is given below.

**Table 2-7: Geological Reserves**

<b>GEOLOGICAL RESOURCES</b>							
<b>Section</b>	<b>Length in (m)</b>	<b>Width in (m)</b>	<b>Depth in (m)</b>	<b>Volume m<sup>3</sup></b>	<b>Geological Resources of weathered in m<sup>3</sup></b>	<b>Geological Resources of Gravel in m<sup>3</sup></b>	<b>Geological Resources of Rough stone in m<sup>3</sup></b>
XY-AB	181	145	2	52490		52490	
	181	145	2	52490	52490		
	181	145	60	1574700			1574700
<b>TOTAL</b>					<b>52490</b>	<b>52490</b>	<b>1574700</b>
XY-CD	92	154	2	28336		28336	
	92	154	2	28336	28336		
	92	154	60	850080			850080
<b>TOTAL</b>					<b>28336</b>	<b>28336</b>	<b>850080</b>
<b>GRAND TOTAL</b>					<b>80826</b>	<b>80826</b>	<b>2424780</b>

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

## 2.6.2 Mineable Reserves

**Table 2-8: Mineable Reserves**

<b>MINEABLE RESERVES</b>								
<b>Section</b>	<b>Bench</b>	<b>Length in (m)</b>	<b>Width in (m)</b>	<b>Depth in (m)</b>	<b>Volume in m<sup>3</sup></b>	<b>Gravel Formation in m<sup>3</sup></b>	<b>wheathered Formation in m<sup>3</sup></b>	<b>Mineable Reserves of Rough stone in m<sup>3</sup></b>
XY-AB	98-100	174	130	2	45240	45240	-	-
	96-98	174	130	2	45240	-	45240	-
	91-96	170	122	5	103700	-	-	103700
	86-91	165	112	5	92400	-	-	92400
	81-86	160	102	5	81600	-	-	81600
	76-81	155	92	5	71300	-	-	71300
	71-76	150	82	5	61500	-	-	61500
	66-71	145	72	5	52200	-	-	52200
	61-66	140	62	5	43400	-	-	43400
	56-61	135	52	5	35100	-	-	35100
	51-56	130	42	5	27300	-	-	27300
	46-51	120	32	5	19200	-	-	19200
	41-46	110	22	5	12100	-	-	12100
36-41	100	12	5	6000	-	-	6000	
<b>TOTAL</b>						<b>45240</b>	<b>45240</b>	<b>605800</b>
XY-CD	98-100	84	139	2	23352	23352	-	-
	96-98	84	139	2	23352	-	23352	-
	91-96	80	131	5	52400	-	-	52400
	86-91	75	121	5	45375	-	-	45375
	81-86	70	111	5	38850	-	-	38850
	76-81	65	101	5	32825	-	-	32825
	71-76	60	91	5	27300	-	-	27300
	66-71	55	81	5	22275	-	-	22275
	61-66	50	71	5	17750	-	-	17750
	56-60	45	61	5	13725	-	-	13725
51-56	40	51	5	10200	-	-	10200	
<b>TOTAL</b>						<b>23352</b>	<b>23352</b>	<b>260700</b>
<b>GRAND TOTAL</b>						<b>68592</b>	<b>68592</b>	<b>866500</b>

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

The Available mineable reserve is computed as 866500m<sup>3</sup> of Rough stone upto a depth of 49m below ground level only.

### 2.6.3 Year wise Production Plan

The applicant has proposed to carry out 866500m<sup>3</sup> of Rough stone at the rate of 100% recovery upto a depth of 49m below ground level for the period of ten years only.

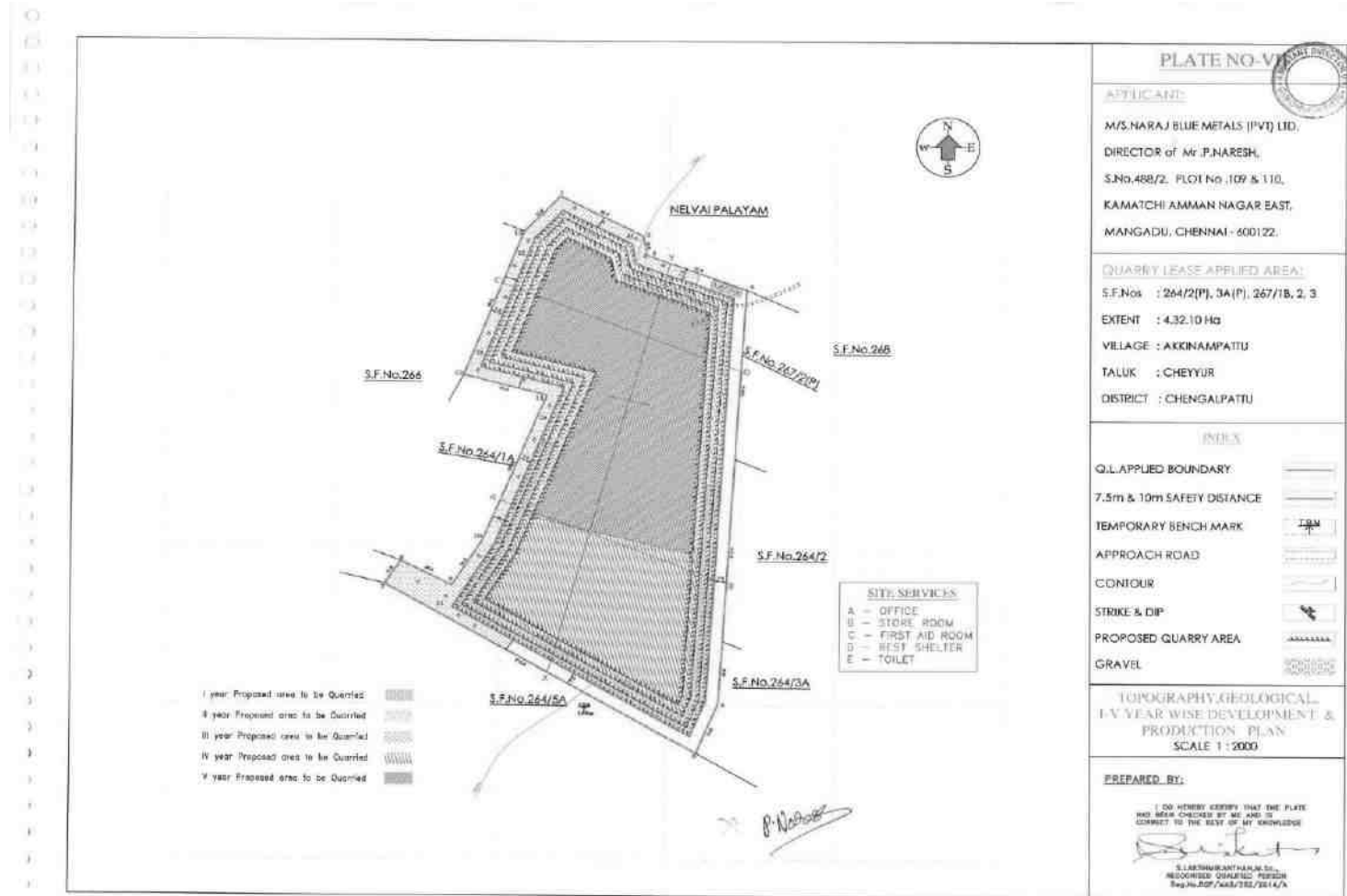
<b>YEARWISE DEVELOPMENT &amp; PRODUCTION RESERVES</b>								
<b>Year</b>	<b>Section</b>	<b>Bench</b>	<b>Length in (m)</b>	<b>Width in (m)</b>	<b>Depth in (m)</b>	<b>Volume in m<sup>3</sup></b>	<b>Gravel Formation in m<sup>3</sup></b>	<b>Recoverable Reserves of Rough stone in m<sup>3</sup></b>
I	XY-AB	96-100	135	130	4	70200	70200	-
		91-96	130	122	5	79300	-	79300
<b>TOTAL</b>							<b>70200</b>	<b>79300</b>
II	XY-AB	96-100	39	130	4	20280	20280	
	XY-CD	96-100	84	139	4	46704	46704	
	XY-AB	91-96	40	122	5	24400	-	24400
	XY-CD	91-96	80	131	5	52400	-	52400
		86-91	10	121	5	6050		6050
<b>TOTAL</b>							<b>66984</b>	<b>82850</b>
III	XY-CD	86-91	65	121	5	39325		39325
	XY-AB	86-92	80	112	5	44800		44800
<b>TOTAL</b>								<b>84125</b>
IV	XY-AB	86-91	85	112	5	47600		47600
		81-86	73	102	5	37230		37230
<b>TOTAL</b>								<b>84830</b>
V	XY-AB	81-86	87	102	5	44370		44370
	AB-CD	81-86	70	111	5	38850		38850
<b>TOTAL</b>								<b>83220</b>
<b>GRAND TOTAL</b>							<b>137184</b>	<b>414325</b>

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

<b>YEARWISE DEVELOPMENT &amp; PRODUCTION RESERVES</b>								
<b>Year</b>	<b>Section</b>	<b>Bench</b>	<b>Length in (m)</b>	<b>Width in (m)</b>	<b>Depth in (m)</b>	<b>Volume in m<sup>3</sup></b>	<b>Gravel Formation in m<sup>3</sup></b>	<b>Recoverable Reserves of Rough stone in m<sup>3</sup></b>
VI	XY-CD	76-81	65	101	5	32825		32825
	XY-AB	76-81	115	92	5	52900		52900
<b>TOTAL</b>								<b>85725</b>
VII	XY-AB	76-81	40	92	5	18400		18400
	XY-CD	71-76	60	91	5	27300		27300
	XY-AB	71-76	106	82	5	43460		43460
<b>TOTAL</b>								<b>89160</b>
VIII	XY-AB	71-76	44	82	5	18040		18040
		66-71	145	72	5	52200		52200
	XY-CD	66-71	45	81	5	18225		18225
<b>TOTAL</b>								<b>88465</b>
IX	XY-CD	66-71	10	81	5	4050		4050
		61-66	50	71	5	17750		17750
		56-61	45	61	5	13725		13725
	XY-AB	61-66	140	62	5	43400		43400
		56-61	30	52	5	7800		7800
<b>TOTAL</b>								<b>86725</b>
X	XY-AB	56-61	105	52	5	27300		27300
		51-56	130	42	5	27300		27300
	XY-CD	51-56	40	51	5	10200		10200
<b>TOTAL</b>								<b>64800</b>
<b>GRAND TOTAL</b>							<b>0</b>	<b>414875</b>

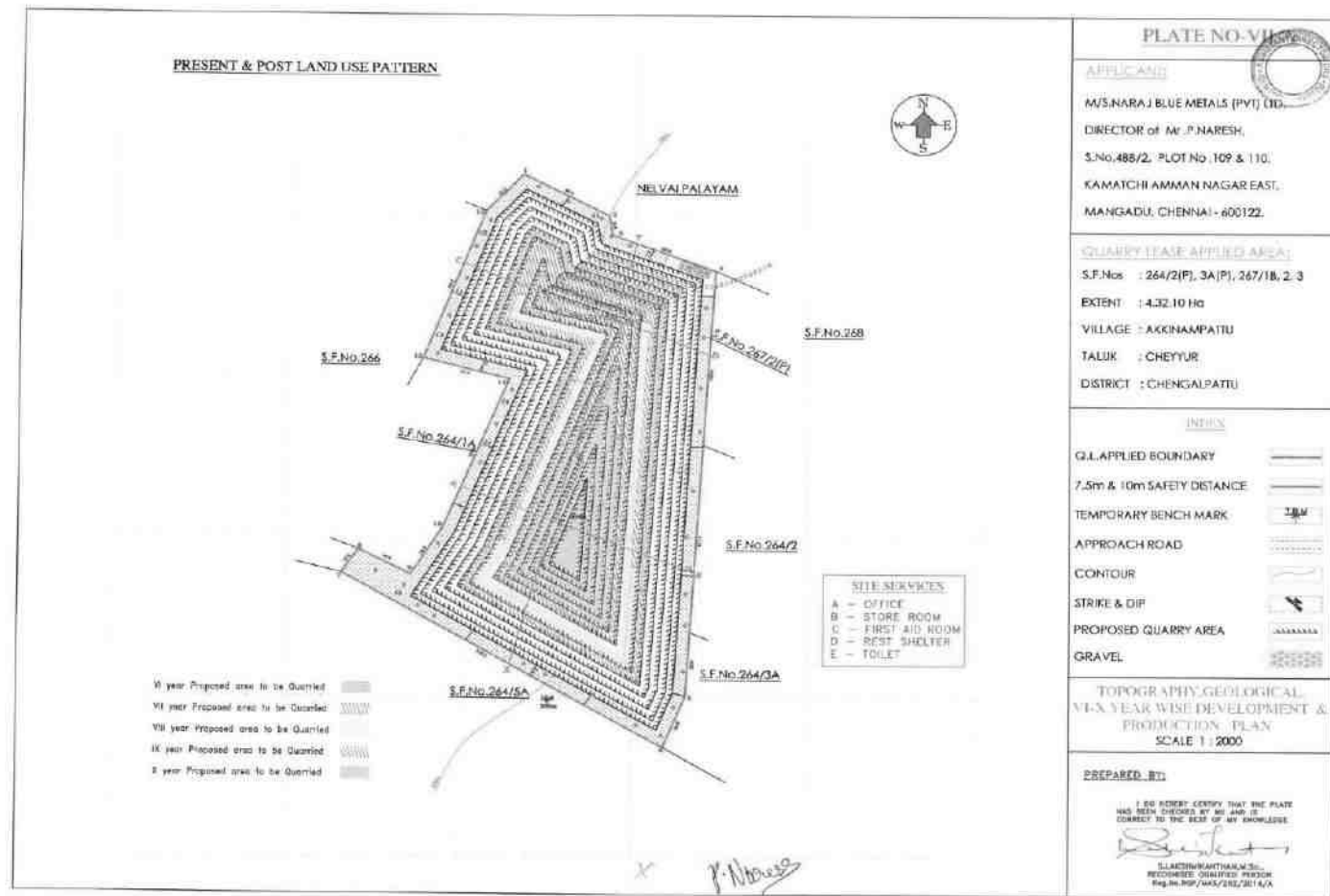
**Table 2-9: Year wise Production Plan**

<b>Project</b>	<b>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>M/s. Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</b>	



**Figure 2.8 Year wise Production Plan**

<b>Project</b>	<b>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>M/s. Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akkinpattu Village, Cheyyur Taluk, Chengalpattu District</b>	



**Figure 2.9 Year wise Production Plan**

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkampattu Village, Cheyyur taluk, Chengalpattu District</i>	

## 2.7 TYPE OF MINING

The proposed project is an open cast mechanized mining with one with 5.0 meter vertical bench with a bench width of 5.0 meter. However, as far as the quarrying of Rough Stone is concerned, observance of the provisions of regulations 106(2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence, it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106(2) (b) of MMR-1961, under Mines Act- 1952.

### 2.7.1 Method of Working:

The Rough stone is proposed to quarry at 5m bench height & 5m width with conventional Open cast mechanized method. The quarrying operation will be carried out in conjunction with conventional method of mining using Jack hammer drilling and blasting for shattering effect and loosen the Rough stone.

### 2.7.2 Overburden

The overburden Gravel is 68,592m<sup>3</sup> (ie., Depth 2m= 0m-2.0m)of used for filling and leveling of low lying areas of road projects and other infrastructure development work in and around the district. The overburden weathered rock 68,592m<sup>3</sup> (ie., Depth 2m= 2.0m-4.0m)of is dumped within lease boundary.

### 2.7.3 Machineries to be used

Type of machineries proposed for quarrying operation for the entire project is listed below.

**Table 2-10: List of Machineries used**

For Mining operation	Excavator of 0.90 Cu.m bucket capacity Jack Hammer (30-32 mm dia) Tractor mounted compressor
Loading Equipment	Excavator of 0.9 Cu.m bucket capacity
Transportation	Tipper 2 No. of 5/10 Ts capacity

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur taluk, Chengalpattu District</i>	

#### 2.7.4 *Blasting:*

##### 2.7.4.1 **Blasting Pattern:**

The quarrying operation will be carried out in conjunction with conventional method of mining using Jack hammer drilling and blasting for shattering effect and loosen the Rough stone.

##### 2.7.4.2 **Drilling & Blasting:**

Drilling and Blasting Parameters are as follows

**Table 2-11: Drilling and Blasting Parameters**

<b>Parameters</b>	<b>Details</b>
Depth of each hole	30 m to 32m
Diameter of hole	32-36 mm
Spacing between holes	1.2 m
Pattern of hole	Zigzag-multi rows
Inclination of holes	80° from horizontal
Use of delay detonators	25 milli seconds delays
Detonating fuse	“Detonating” Cord

##### 2.7.4.3 **Types of Explosives to be used:**

Slurry Class 3 explosives, type of nitro compound are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling or primary blasting is proposed. Detonators of Class 3 and Safety fuse of Class 6 are used.

##### 2.7.4.4 **Measures to minimize ground vibration due to blasting:**

The quarry is situated more than 1 km from the nearby villages. Controlled blasting measures will be adopted for minimizing the ground vibration and fly of rocks. Shallow depths jackhammer drilling & blasting is proposed to be carried out with minimum use of explosive mainly to give shattering effect in rough stone for easy excavation and to control fly of rock.



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<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur taluk, Chengalpattu District</i>	

**Table 2-12: Blasting Details**

<b>Parameters</b>	<b>Details</b>
Depth of each hole	30 m to 32m
Diameter of hole	32-36 mm
Spacing between holes	1.2 m
Pattern of hole	Zigzag-multi rows
Inclination of holes	80° from horizontal
Use of delay detonators	25 milli seconds delays
Detonating fuse	“Detonating” Cord

#### **2.7.4.5 Storage & Safety measures taken during blasting:**

The project proponent “Thiru.P.Naresh (Director)” will engage an authorized explosive agency to carry out the small amount of blasting and it will be supervised by Permit Mines Manager. The copy of the explosive certificate is attached as *Annexure*.

## **2.8 MAN POWER REQUIREMENTS**

The manpower requirement to meet out the production Schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations is as follows.

**Table 2-13: Man Power Requirements**

1	Skilled	Operators	6
2	Semi Skilled	Driver	14
3	Unskilled	Musdoor/Labours	10
4	Mines Manager		1
5	Mines Foreman		1

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6	Mines mate	1
7	Blaster	1
<b>Total</b>		<b>34 Nos</b>

No child less than 18 years will be entertained during quarrying operations.

### 2.8.1 Water Requirement

Total water requirement for the mining project is 2.5 KLD. Domestic water will be sourced from nearby village and other water will be source from nearby road tankers supply.

**Table 2-14: Water Requirement**

<b>Purpose</b>	<b>Quantity</b>	<b>Sources</b>
Drinking Water	1.5 KLD	Packaged Drinking water vendors available in Vettakarkuppam village which is about 1.14 km ESE of the area
Green belt	0.5KLD	Other domestic activities through road tankers supply
Dust suppression	0.5KLD	From road tankers supply
<b>Total</b>	<b>2.5 KLD</b>	

### 2.9 PROJECT IMPLEMENTATION SCHEDULE

The implementation schedule of the proposed Mine Lease of M/s.Naraj Blue Metals Pvt Ltd Rough stone and gravel (4.32.10 ha) is as follows.

**Table 2-15: Mining Schedule**

<b>MINING SCHEDULE</b>					
<b>Activity</b>	<b>Oct -24</b>	<b>Oct-25</b>	<b>Oct-26</b>	<b>Oct-27</b>	<b>Oct-28</b>
Site Clearance					
Excavation – Rough stone/Overburden					
I Year Production – Cum – 79300 Rough Stone					
II Year Production – Cum – 82850 Rough Stone					

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<b>Project Proponent</b>	<b>M/s.Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akkinampattu Village, Cheyyur taluk, Chengalpattu District</b>	

III Year Production – Cum – 84125 Rough Stone					
IV Year Production - Cum – 84830 Rough Stone					
V Year Production – Cum – 83220 Rough Stone					

## 2.10 SOLID WASTE MANAGEMENT

**Table 2-15: Solid Waste Management**

S. No	Type	Quantity	Disposal Method
1	Organic	6.12 kg/day	Municipal bin including food waste
2	Inorganic	9.18 kg/day	TNPCB authorized recyclers

As per CPCB guidelines: MSW per capita/day =0.45 kg/day

## 2.11 MINE DRAINAGE

The quarry operation is proposed up to a depth of 49m below ground level. The water table is below 70 m to 75m from the ground level which is observed from the nearby bore wells and bore wells of this area. Hence the ground water will not be affected in any manner due to the quarrying operation during the entire lease period.

<b>Project</b>	<b>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</b>	<b>Draft EIA Report</b>
<b>Project Proponent</b>	<b>M/s.Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akkinampattu Village, Cheyyur taluk, Chengalpattu District</b>	

## 2.12 POWER REQUIREMENT

This Rough stone quarry project does not require huge water and electricity for the project.

**16 Litre** diesel per hour for excavator for mining and loading for Rough Stone needed and **10 Litre** diesel per hour for excavation of Top soil needed.

## 2.13 PROJECT COST

S. No.	Description	Cost (Rs.)
1	Fixed Asset Cost	78,81,500/-
2	Operational Cost	40,00,000 /-
	<b>Total</b>	<b>1,18,81,500/-</b>

### I. EMP Cost :

	Mitigation Measure	Provision for Implementation	Capital	Recurring
<b>Air Environment</b>	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	43200	43200
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	200000	25000
	Air Quality will be regularly monitored as per norms within ML area & nearby Reserve forest with necessary permission	Yearly Compliance as per CPCB norms	0	40000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	0

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<b>Project Proponent</b>	<b>M/s.Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akkinpattu Village, Cheyyur taluk, Chengalpattu District</b>	

	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance	25000	2500
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed	5000	0
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	86400
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	40000	10000
<b>Noise Environment</b>	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Ambient Noise will be regularly monitored as per norms within ML area & near	Yearly Compliance as per CPCB norms	0	20000

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	Reserve forest with necessary permission			
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	1172500
<b>Water Environment</b>	Water management	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	43200	5000
<b>Waste Management</b>	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	1000	5000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
<b>Implementation of EC, Mining Plan &amp; DGMS Condition</b>	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	7000	1000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee)	136000	34000

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	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	34000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	8640
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	864000	10000
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	216000	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	2000	5000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 <sup>st</sup> Class / 2 <sup>nd</sup> Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	380000
<b>Green Belt Development</b>	Green belt development - 500 trees per one hectare (200 Inside Lease Area & 300 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	172800	25920
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	388800	38880
			<b>2209000</b>	<b>1983040</b>
			<b>4192040</b>	

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<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur taluk, Chengalpattu District</i>	

Year 1	Year 2	Year 3	Year 4	Year 5
4192040	2082192	2186302	2295617	2410398
Year 6	Year 7	Year 8	Year 9	Year 10
3635417	2657463	2790336	2929853	3076346

## 2.14 GREENBELT

1. The development of greenbelt in the peripheral buffer zone of the mine area.
2. Green belt has been recommended as one of the major components of Environmental Management plan, which will improve ecology, environment and quality of the surrounding area.
3. Local trees like, Neem, Vilvam Vaagai, Naval etc will be planted along the lease boundary and avenues as well as over non-active dumps at a rate of 2200 trees per annum with interval 5m.
4. The rate of survival expected to be 70% in this area

**Table. 2-17 Plantation/ Afforestation Program**

<b>Name of species proposed</b>	<b>Survival</b>	<b>No of species</b>
Neem, Vilvam Vaagai, Eachai, Naval, Mantharai, Magizha Maram, Vila maram, Poo Marudhu, Panai Maram, Marudha Maram, Thandri, Sengondrai, Poovarasu, Therthag kottai , Pungam	70%	2200
<b>Total</b>		<b>2200</b>



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### 3 Description of the Environment

#### 3.1 GENERAL:

The method of mining for extracting rough stone quarry and gravel is required to be selected in such a manner to ensure sustainable development. Mining activities invariably affect the existing environmental status of the site. It has both adverse and beneficial effects. In order to maintain the environmental commensuration with the mining operation, it is essential to undertake studies on the existing environmental scenario and assess the impact on different environmental components. This would help in formulating suitable management plans and sustainable resource extraction.

To understand the existing environmental scenario, Baseline data helps in identification, prediction and evaluation of impacts in Environmental Impact assessment. Through field study, baseline data are collected considering various factors of the project. This includes-

- Physical- the area, the soil properties, the geological characteristics, the topography, etc
- Chemical- water, air, noise and soil pollution levels, etc.
- Biological- the biodiversity of the area, types of flora and fauna, species richness, species distribution, types of ecosystems, presence or absence of endangered species and/or sensitive ecosystems etc.
- Socioeconomic- demography, social structure, economic conditions, developmental capabilities, displacement of locals, etc.

#### 3.1.1 Study Area:

The study area for the mining projects is as follows:

- Mine lease area as the “core zone”
- A study area of 10 km radius from the project boundary is designated as buffer Zone and for the study of Socio-economic status, 10 km radius from the boundary limits of the mine lease area has been selected.

We have obtained Terms of Reference from SEIAA vide Letter No. SEIAA-TN/ F. No. 9926/ ToR-1572/2023 Dated: 13.09.2023. The baseline monitoring is carried out in March 2023 to May 2023 and

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<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
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the analysis is briefed in the EIA report. The proponent has engaged M/s. Ecotech labs Pvt. Ltd for carrying out the existing baseline study.

### 3.1.2 *Instruments Used*

The following instruments were used at the site for baseline data collection.

1. Respirable Dust Sampler with attachment for gaseous Pollutants, Envirotech APM 460, APM411.
2. Fine Particulate Matter (FPM) Sampler, APM 550
4. Sound Level Meter Model SL-4010
5. 2000 series watchdog automatic weathering monitoring station

### 3.1.3 *Baseline Data Collection Period:*

The baseline data is collected in accordance with the CPCB Guidelines. The Baseline study is carried out from March 2023 to May 2023.

### 3.1.4 *Frequency of Monitoring*

**Table 3-1: Frequency of Sampling and Analysis**

<b>Attributes</b>	<b>Sampling</b>	<b>Frequency</b>
Air environment – Meteorological (wind speed, wind direction, rainfall, humidity, temperature)	Project site	1 hourly continuous
Air environment – Pollutants PM 10 PM 2.5 SO <sub>2</sub> NO <sub>x</sub> Lead in PM	7 locations	24 hourly twice a week 4 hourly. Twice a week, One non-monsoon season 8 hourly, twice a week 24 hourly, twice a week
Noise	7 locations	24 hourly Once in 7 locations

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Water (Ground water) pH, Temperature, Turbidity, Magnesium Hardness, Total Alkalinity, Chloride, Sulphate, Fluoride, Nitrate, Sodium, Potassium, Salinity, Total nitrogen, Total Coliforms, Fecal Coliforms	7 locations	Once in 7 locations
Water (surface water) pH, Temperature, Turbidity, Magnesium Hardness, Total Alkalinity, Chloride, Sulphate, Fluoride, Nitrate, Sodium, Potassium, Salinity, Total nitrogen, Total Coliforms, Fecal Coliforms	Sample from nearby lakes/river	One-time Sampling
Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	7 locations	Once in 7 locations
Ecology and biodiversity Study	Study area covering 10 km radius	One-time Sampling
Socio- Economic study (Population, Literacy Level, employment, Infrastructure like school, hospitals & commercial establishments)	Villages around 10 km radius	One-time Sampling

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### 3.1.5 Secondary data Collection

Apart from the primary data, Secondary data is also used for the collection; collation; synthesis and interpretation

- Flora & Faunal Study
- Land use study
- Demography and socio-economic analysis
- Meteorological data, from Indian Meteorological Department (IMD)

### 3.1.6 Study area details

**Table 3-2 Study area details**

S. No	Description	Details	Source
1.	Project Location	S.F.No. 264/2(P), 264/3A(P), 267/1B, 267/2(P) & 267/3 - 4.32.10 Ha, Akkinampattu Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu State	Field Study
2.	Latitude & Longitude	Latitude:12° 25' 46.02" N to 12° 25' 57.66" N Longitude:80° 02' 57.81" E to 80° 03' 04.76" E	Topo Sheet
3.	Topo Sheet No.	66 D/3	Survey of India Toposheet
4.	Mine Lease Area	4.32.10 Ha	--
Demography in the study area (as per Census 2011)			
5.	Total Population	573406	Census Survey of India
6.	Total Number of Households	15206	
7.	Maximum Temperature (°C)	41	IMD
8.	Minimum Temperature (°C)	34	

<b>Project</b>	<b>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</b>	<b>Draft EIA Report</b>
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<b>Project Location</b>	<b>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</b>	

9.	Ecological Sensitive Areas - Wetlands, watercourses or other waterbodies, coastal zone, biospheres, mountains, forests	<ul style="list-style-type: none"> <li>❖ Pakkur Lake- 5.33 km, S</li> <li>❖ Odiyur Lake-7.88 km, S</li> <li>❖ Irumbedu Lake-12.23 km, SW</li> <li>❖ Murukkambakkam Lake-10.01 km, NW</li> <li>❖ Veeranankkunnam Lake-11.24 km, NW</li> <li>❖ Keezhpattu lake-10.46 km, NW</li> <li>❖ Thachoor lake-11.13km, NW</li> <li>❖ Pallavankulam lake-7.05 km, N</li> <li>❖ Kadalur Dam-10.10 km, NE</li> </ul>	Google Earth/Field Study																								
10.	Densely Populated area	Chengalpattu - 10.30 Km -NE																									
11.	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">S. No.</th> <th style="width: 60%;">Places</th> <th style="width: 35%;">Dist. From Project Site</th> </tr> </thead> <tbody> <tr> <td colspan="3" style="text-align: center;"><b>Schools &amp; Colleges</b></td> </tr> <tr> <td>1</td> <td>St.Thomas Matriculation School</td> <td>4.79km, ENE</td> </tr> <tr> <td>2</td> <td>Eureka Primary school</td> <td>6.11 km, NE</td> </tr> <tr> <td>3</td> <td>VKT Panjayath government school</td> <td>1.23 km, E</td> </tr> <tr> <td>4</td> <td>Panchayat union middle school</td> <td>1.28 km, SW</td> </tr> <tr> <td>5</td> <td>MARG Institute of design and architecture</td> <td>4.48 km, SSE</td> </tr> <tr> <td>6</td> <td>Chendu college of Engineering &amp; Technology</td> <td>14.22 km, WNW</td> </tr> </tbody> </table>	S. No.	Places	Dist. From Project Site	<b>Schools &amp; Colleges</b>			1	St.Thomas Matriculation School	4.79km, ENE	2	Eureka Primary school	6.11 km, NE	3	VKT Panjayath government school	1.23 km, E	4	Panchayat union middle school	1.28 km, SW	5	MARG Institute of design and architecture	4.48 km, SSE	6	Chendu college of Engineering & Technology	14.22 km, WNW	Google Earth/Field Study
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<b>Schools &amp; Colleges</b>																											
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		<b>Hospitals</b>			
1	Pavunjur Government hospital	5.04 km, WNW			
2	Asha hospitals	5.52 km, W			
3	St.Josephs hospital	10.57 km, NW			

### 3.1.7 Site Connectivity:

The site is connected to NH332 A , ECR Road, 5.75 km, E



**Figure 3.1: Site Connectivity**

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

### 3.2 LAND USE ANALYSIS

#### 3.2.1 *Land Use Classification*

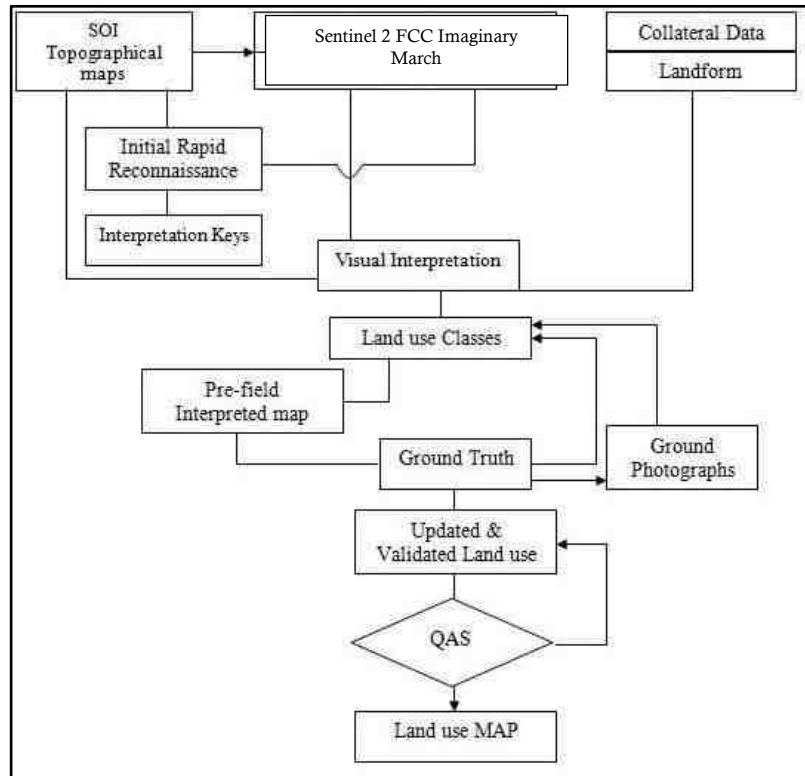
Land Use / Land Cover - Land Use refers to man's activity and the various uses, which are carried on land. Land Cover refers to natural vegetation, water bodies, rock/soil, artificial cover and others, resulting due to land transformation. The present Land Use/Land Classification map is developed with following objectives. The main objective of the study is to classify the different land use within 10 km from the project boundary.

#### 3.2.2 *Methodology*

Information of land use and land cover is important for many planning and management activities concerning the surface of the earth (Agarwal and Garg, 2000). Land use refers to man's activities on land, which are directly related to land (Anderson et al., 1976). The land use and the land cover determine the infiltration capacity. Barren surfaces are poor retainers of water as compared to grasslands and forests, which not only hold water for longer periods on the surface, but at the same time allow it to percolate down.

The terms 'land use' and 'land cover' (LULC) are often used to describe maps that provide information about the types of features found on the earth's surface (land cover) and the human activity that is associated with them (land use). Satellite remote sensing is being used for determining different types of land use classes as it provides a means of assessing a large area with limited time and resources. However, satellite images do not record land cover details directly and they are measured based on the solar energy reflected from each area on the land. The amount of multi spectral energy in multi wavelengths depends on the type of material at the earth's surface and the objective is to associate particular land cover with each of these reflected energies, which is achieved using either visual or digital interpretation. In the present study the task is to study in detail the land use and land cover in and around the project site. The study envisages different LULC around the proposed project area and the procedure adopted is as below.

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**Figure 3.2 Flow Chart showing Methodology of Land use mapping**

### 3.2.3 *Satellite Data*

Sentinal 2 multispectral satellite data of 2020 was utilized for the present study. Details of satellite data is given below. The rectification of imagery was carried out on to bring the digital data on the earth coordinate system by means of ground control point (GCP) assignments/SOI topo sheets.

### 3.2.4 *Scale of mapping*

Considering the user defined scale of mapping, 1:50000 Sentinal 2 data was used for Land use / Land cover mapping of 10 km radius for proposed site. The description of the land use categories for 10 km radius and the statistics are given for 10 km radius.

### 3.2.5 *Interpretation Technique*

Standard on screen visual interpretation procedure was followed. The various Land use / Land cover classes interpreted along with the SOI topographical maps during the initial rapid reconnaissance of the



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study area. The physiognomic expressions conceived by image elements of color, tone, texture, size, shape, pattern, shadow, location and associated features are used to interpret the FCC imagery. Image interpretation keys were developed for each of the LU/LC classes in terms of image elements.

June 2016 FCC imagery (Digital data) of the study area was interpreted for the relevant land use classes. On screen visual interpretation coupled with supervised image classification techniques are used to prepare the land use classification.

1. Digitization of the study area (10 km radius from the proposed site) from the topo maps
2. In the present study the sentinel satellite image and SOI topo sheets of 57P/14, 57P/15, 66D/2, 66D/3 have been procured and interpreted using the ERDAS imaging and ARC-GIS software adopting the necessary interpretation techniques.
3. Satellite data interpretation and vectorization of the resulting units
4. Adopting the available guidelines from manual of LULC mapping using Satellite imagery (NRSA, 1989)
5. Field checking and ground truth validation
6. Composition of final LULC map

The LULC Classification has been done at three levels where level -I being the broad classification about the land covers that is Built-up land, agriculture land, waste land, wet lands, and water bodies. These are followed by level –II where built-up land is divided into towns/cities as well villages. The Agriculture land is divided into different classes such as cropland, Fallow, Plantation, while wastelands are broadly divided into, Land with scrub and without Scrub and Mining and Industrial wasteland. The wetlands are classified into inland wetlands, coastal wetlands and islands. The water bodies are classified further into River/stream, Canal, Tanks and bay. In the present study level II classification has been undertaken. The SOI Topo map is presented in Annexure and Satellite imagery of 10 km radius from the project site is presented Annexure

### 3.2.6 *Field Verification*

Field verification involved collection, verification and record of the different surface features that create specific spectral signatures / image expressions on FCC. In the study area, doubtful areas identified in course of interpretation of imagery is systematically listed and transferred on to the corresponding SOI topographical maps for ground verification. In addition to these, traverse routes were

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planned with reference to SOI topographical maps to verify interpreted LU/LC classes in such a manner that all the different classes are covered by at least 5 sampling areas, evenly distributed in the area. Ground truth details involving LU/LC classes and other ancillary information about crop growth stage, exposed soils, landform, nature and type of land degradation are recorded and the different land use classes are taken the Land use map is presented in Annexure

### *3.2.7 Description of the Land Use / land cover classes*

#### **3.2.7.1 Water**

Areas where water was predominantly present throughout the year; may not cover areas with sporadic or ephemeral water; contains little to no sparse vegetation, no rock outcrop nor built up features like docks; examples: rivers, ponds, lakes, oceans, flooded salt plains.

#### **3.2.7.2 Trees**

Any significant clustering of tall (~15-m or higher) dense vegetation, typically with a closed or dense canopy; examples: wooded vegetation, clusters of dense tall vegetation within savannas, plantations, swamp or mangroves (dense/tall vegetation with ephemeral water or canopy too thick to detect water underneath).

#### **3.2.7.3 Grass**

Open areas covered in homogenous grasses with little to no taller vegetation; wild cereals and grasses with no obvious human plotting (i.e., not a plotted field); examples: natural meadows and fields with sparse to no tree cover, open savanna with few to no trees, parks/golf courses/lawns, pastures.

#### **3.2.7.4 Flooded vegetation**

Mix of small clusters of plants or single plants dispersed on a landscape that shows exposed soil or rock; scrub-filled clearings within dense forests that are clearly not taller than trees; examples: moderate to

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sparse cover of bushes, shrubs and tufts of grass, savannas with very sparse grasses, trees or other plants.

### **3.2.7.5 Crops**

Human planted/plotted cereals, grasses, and crops not at tree height; examples: corn, wheat, soy, fallow plots of structured land.

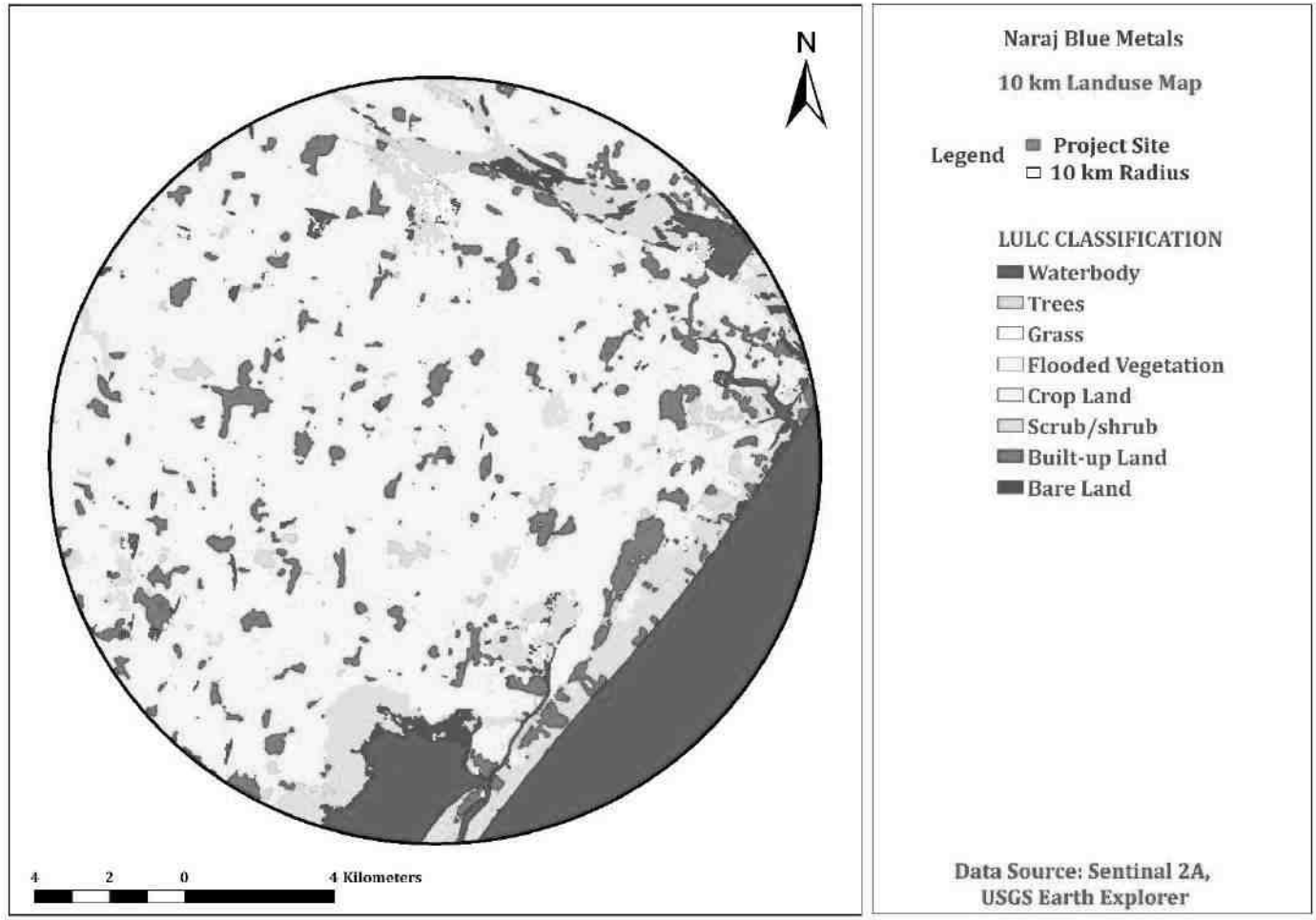
### **3.2.7.6 Scrub/Shrub**

Mix of small clusters of plants or single plants dispersed on a landscape that shows exposed soil or rock; scrub-filled clearings within dense forests that are clearly not taller than trees; examples: moderate to sparse cover of bushes, shrubs and tufts of grass, savannas with very sparse grasses, trees or other plants

### **3.2.7.7 Built Area**

Human made structures; major road and rail networks; large homogenous impervious surfaces including parking structures, office buildings and residential housing; examples: houses, dense villages / towns / cities, paved roads, asphalt.

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**Figure 3.3 Land use classes around 10 km radius from the project site**

**3.2.7.8 Different Land use classes around 10 km radius from the project site**

**Table 3-3 Land use pattern**

<b>Sl.No</b>	<b>Categories</b>	<b>Area in Sq.m</b>
1	Water Body	43.86
2	Trees	6.59
3	Grass	1.17
4	Flooded vegetation	1.39

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5	Crops	212.65
6	Scrub/Shrub	26.69
7	Built-up Area	26.22
8	Barren Land	4.18

### 3.3 WATER ENVIRONMENT

#### 3.3.1 *Contour & Drainage*

The project site is 100 m above MSL.

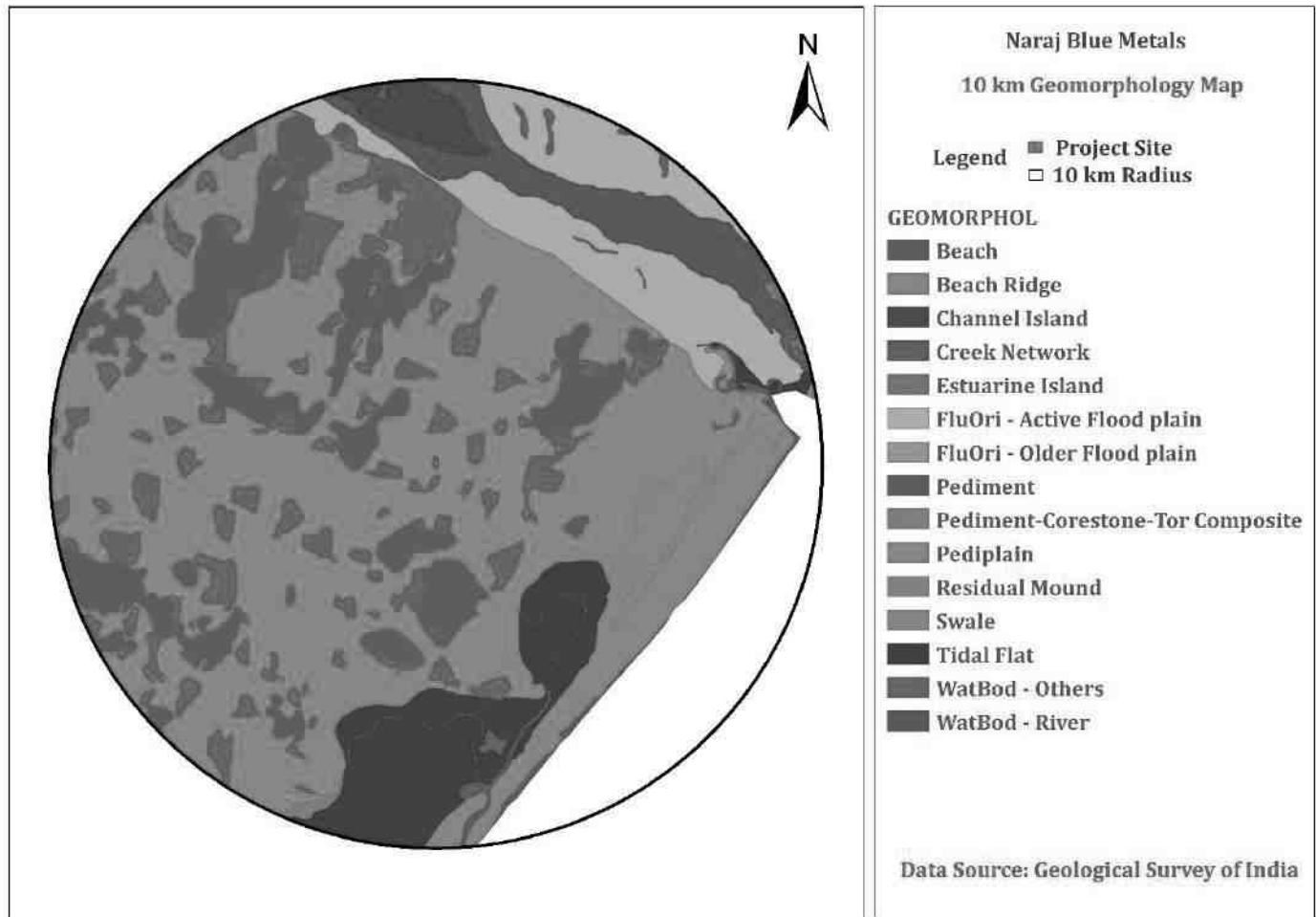
#### 3.3.2 *Geomorphology*

The prominent geomorphic units identified in the district through interpretation of satellite imagery are i) Chingleput-Tirukkalukkunram Surface (Erosional) ii) Palar Surface (fluvial and iii) Mamallapuram (Mahabalipuram) surface (Marina) etc. The elevation of the area ranges from 100 m amsl in the west to a sea level in the east. The major part of the area is characterised by an undulating topography with innumerable depressions, which are used as irrigation tanks. Three beach terraces ranging in elevation between 4 mark the coastal tract and 12 m with broad inter terrace depressions. The coastal plain displays a fairly low level or gently rolling surface and only lightly elevated above the local water surfaces on rivers. The straight trend of the coastline is a result of development of a vast alluvial plain. There are a number of sand dunes in the coastal tract. The coastal landforms include estuarine tidal, mud flats or lagoons and salt marsh etc.

#### **Soils**

Soils have been classified into 1) clayey soil, 2) red sandy or red loamy soil 3) Red sandy brown clayey soil and 4) Alluvial soil. Of the above soils brown clayey soil is the most predominant, covering more than 71 percent of the areal extent of Kancheepuram district. Alluvial soils are found on the banks of Palar, Cheyyar and other rivers. The river alluvium is transported and is seen in coastal area of this district. Sandy coastal alluvial (arenaceous soil) occurs along the seacoast as a narrow belt.

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**Figure 3.4 Geomorphology within 10km from the project site**

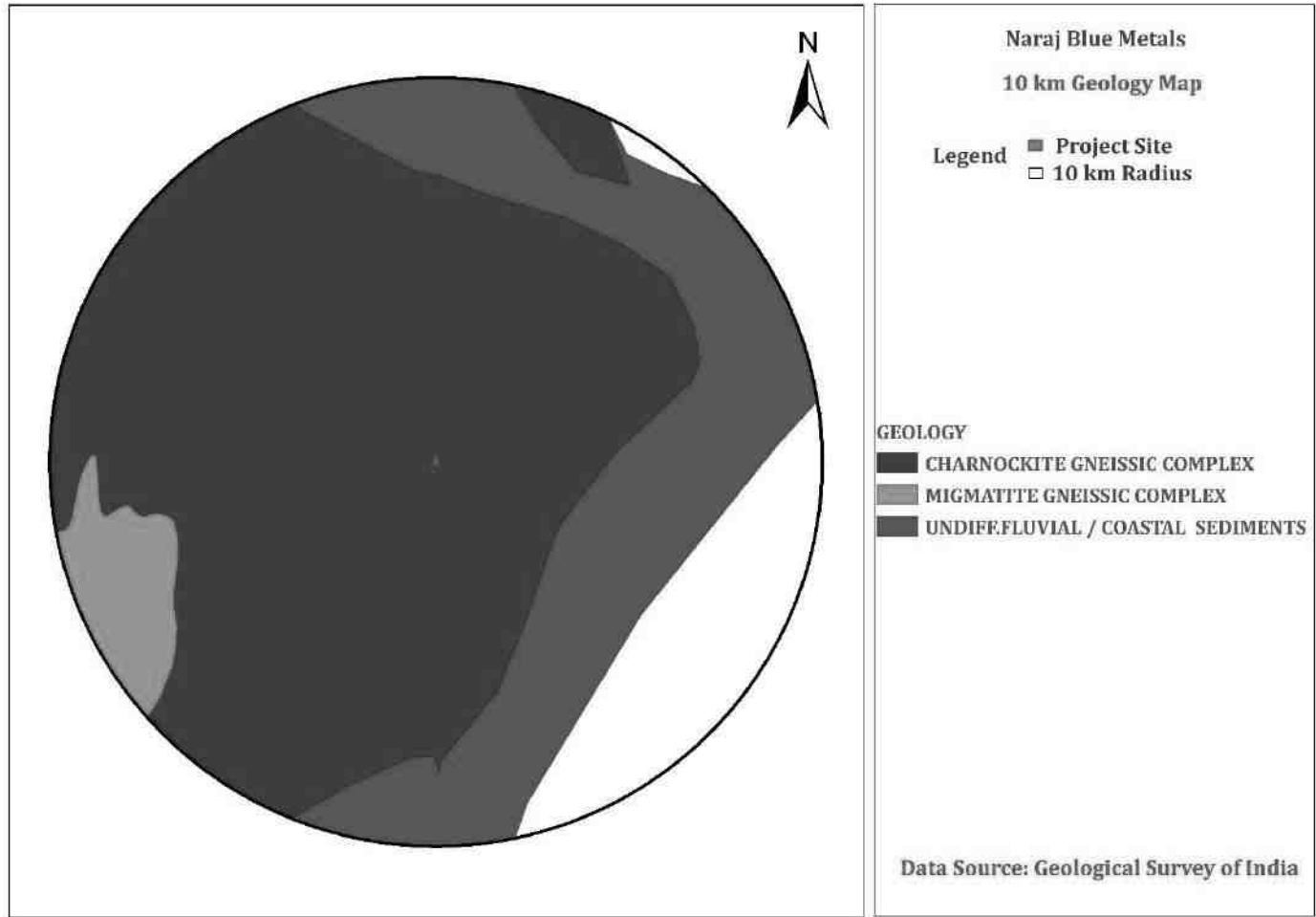
### 3.3.3 Geology:

The area exposes crystalline rocks of Archaean age and sedimentary rocks of Gondwana Supergroup and the Cuddalore Formation belonging to Mio-Pliocene age. A gravel and shingle bed locally known as Kanjeevaram Gravels belong to the Pliocene to lower Pleistocene age. The laterite and alluvium are related to Quaternary age. The Archaean rocks are represented by Khondalite Group, Charnockite Group and Migmatite complex. Garnet sillimanite gneiss is well exposed in the northeastern part of the district in Pachchamalai hill at Chrompet, Parangimalai and southeast of Pallavaram. In Pachchamalai hill it is essentially a quartz sillimanite rich rock with minor amount of felspar. In Tambaram hill,

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chamockite and metapelite are intimately interbanded, particularly along the hinge zones. Isolated outcrops are also seen on either side of National Highway No.45 near Kadaperi. The major part of the district is occupied by charnockite with enclaves of khondalite, leptynite and BMQ seen around St. Thomas Mount, east of Guduvancheri, Madurantakam, Paler and around Tirukkalukkunram. St. Thomas mount is an extensively studied type area for the chamockite. It is a typical rock with bluish grey quartz, hard and compact, jointed showing recognisable foliation at places. The outcrop stands out prominently as isolated cluster of hills. The area in and around Pallavaram, Tambaram and Pulikaradu contain several bands of pyroxene granulite. The chamockite is traversed by narrow dolerite dykes which stand out prominently as dark low ridges and seen for a few metres. The lower Gondwana sediments (Talchirs) overlie the Archaean rocks unconformably and are seen to the northeast and south of Paler river preserved in the trough faults and comprise boulder beds, dirty white to light green, greyish yellow fine sandstone, siltstone with clasts of rock fragments and khaki green to greenish grey shales.

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**Figure 3.5 Geology within 10km from the project site**

### 3.3.4 Hydrogeology

The district is underlain by both sedimentary and fissured formations. The important aquifer system in the district are constituted by 1) unconsolidated and semi consolidated formations and 2) weathered, fissured and fractured crystalline rocks.

Porous Formation Semi Consolidated formation: Gondwana sandstones and shales and Tertiary mottled clays and sandstones represent the porous, semi-consolidated sediments. Ground water occurs under water table conditions to confined conditions in the inter granular spaces of sandstones, sands and in the bedding planes and thin fractures of shales. The ground water occurs under water table conditions and the depth of the wells ranges from 5 to 10 m bgl. The depth to water level ranged from 2.89 to 4.09



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m bgl during May 2006 and 1.05 to 3.40 m.bgl during Jan'2007. The specific capacity of porus formation ranged from 1.00 to 80.00 lpm/m/dd.

### **Ground Water in Unconsolidated Alluvium**

This unconsolidated formations occur mainly along the banks of Palar and Cheyyar rivers and the sand layers of this alluvium form the potential aquifer. Between Walajabad and Kancheepuram, small diameter dug wells tap the alluvium with depths ranging between 6 and 12 m bgl. The yield ranges from 25 to 35 m<sup>3</sup> /hr.Depth of filter point and dug cum bore wells ranges from 10 – 21 m bgl and yield is around 20 m<sup>3</sup> /hr. The yield of infiltration wells with varying depths of 5 – 12 m bgl is around 35 m<sup>3</sup> /hr. In areas covered by the laterites, the ground water is developed by means of dug wells in the depth of 4 to 6 m bgl. Along the coast, wind blown sand acts as aquifer zones and ground water extraction is by means of shallow dug wells with radial arms. The wells can sustain for 3 to 6 hours pumping and yield is around 15 m<sup>3</sup> /hour.

### **Fissured Formation**

The movement of ground water in fissured crystallines is principally controlled by joints, fissured, fractures and their interconnections. Ground water in fissured crystallines is developed by means of dug wells, dug-cum-bore wells and bore wells. The wells range in depth between 6 and 17.00 m bgl. The depth to water level ranged from 3.50 – 8.34 m bgl during May 2006 and 1.32 – 7.53 m bgl during January 2007.The yield of the wells varies from 30 to 100 m<sup>3</sup> /day (January-March).The depth of dug cum bore wells ranges from 25 to 45 m bgl. The depth of bore wells ranges up to 200 m bgl. The piezometric head ranges from 2.05 to 5.98 m bgl during May 2006 and 0.70 – 3.75 m bgl during Jan'2007 and the yield ranges up to 12 lps. The specific capacity in the fissured formation ranges from 10 -250 lpm/m/dd.

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**Figure 3.6 Ground water prospects within 5 km radius of the project site**

### 3.3.5 Ground water quality monitoring

Ground water quality monitoring is done in the following locations and analysis will be done for physical, chemical & Biological parameters.

**Table 3-4 Ground water Quality Analysis**

Environmental Parameters: Ground water Quality Analysis	
Monitoring Period	March 2023 to May 2023
Design Criteria	Based on the Environmental settings in the study area
Monitoring Locations	Project Site -GW 1 Government elementary school -GW2 Elementary school of Nemandham- GW 3 Valigiamman kovil- GW 4 Virpachiswarer Temple - GW 5 Panchayat Union Middle School -GW 6 Sri Shirdi Sai Temple -GW 7

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Methodology	Water Samples were collected in 5 Litre fresh cans as per IS 3025 Part I and transported to the laboratory in Iceboxes
Frequency of Monitoring	Once in a season

### 3.3.5.1 Sampling Procedure

Quality of ground water was compared with IS: 10500: 1991 (Reaffirmed 1993 With Amendment NO -3 July 2010) for drinking purposes. Water samples were collected as Grab sample from five sampling locations in a 5-liter plastic jerry can and 250 ml sterilized clean glass/pet bottle for complete physico-chemical and bacteriological tests respectively. The samples were analyzed as per standard procedure / method given in IS: 3025 (Revised Part) and standard method for examination of water and wastewater Ed. 21st, published jointly by APHA.

**Table 3-5: Standard Procedure**

S. No	Parameters	Test Method
1	pH (at 25°C)	IS:3025(P -11)1983 RA: 2012
2	Electrical Conductivity	IS:3025(P -14) 2013
3	Colour	IS:3025 (P -4)1983 RA: 2012
4	Turbidity	IS:3025(P -10)1984 RA: 2012
5	Total Dissolved Solids	APHA 22 <sup>nd</sup> Edn.2012-2540-C
6	Total Suspended Solids	IS:3025(P-17)-1984 RA:2012
7	Total Hardness as CaCO <sub>3</sub>	APHA 22 <sup>nd</sup> Edn.2012-2340-C
8	Calcium as Ca	APHA 22 <sup>nd</sup> Edn2012.3500 Ca-B
9	Magnesium as Mg	APHA 22 <sup>nd</sup> Edn.2012-3500 Mg-B
10	Chloride as Cl	IS:3025(P -32)-1988 RA: 2014
11	Sulphate as SO <sub>4</sub>	APHA 22 <sup>nd</sup> Edn.2012-4500 SO <sub>4</sub> -E
12	Total Alkalinity as CaCO <sub>3</sub>	APHA 22 <sup>nd</sup> Edn.2012-2320-B
13	Iron as Fe	IS:3025(P -53):2003 RA: 2014
14	Silica as SiO <sub>2</sub>	IS:3025(P -35)1988 RA: 2014
15	Fluoride as F	APHA 22 <sup>nd</sup> Edn.2012-4500-F-D
16	Nitrate as NO <sub>3</sub>	IS:3025(P -34):1988 RA: 2014
17	Sodium as Na	IS:3025(P -45):1993 RA: 2014
18	Potassium as K	IS:3025(P -45):1993 RA: 2014

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19	Coliform	IS:1622:1981:RA:2014
20	E.coli	IS:1622:1981:RA:2014

**Table 3-6 Ground water sampling results**

S. No	Parameters	Units	Project Site – GW 1	Government elementary school- GW 2	Elementary school of Nemandham-GW 3	Valigiamman kovil-GW 4	Virpachiswarer Temple-GW 5	Panchayat Union Middle School-GW 6	Sri Shirdi Sai Temple-GW 7
1	pH (at 25°C)	-	7.69	7.43	7.26	7.29	7	7.54	7.83
2	Electrical Conductivity	µS/cm	816	513	618	1236	520	400	594
3	Colour	Hazen Unit	2	3	3	2	4	3	4
4	Turbidity	NTU	BQL(LOQ:1)	BQL(LOQ:1)	BQL(LOQ:1)	BQL(LOQ:1)	BQL(LOQ:1)	BQL(LOQ:1)	BQL(LOQ:1)
5	Total Dissolved Solids	mg/L	458	302	355	679	285	220	327
6	Total Suspended Solids	mg/L	BQL(LOQ:2)	BQL(LOQ:2)	BQL(LOQ:2)	BQL(LOQ:2)	BQL(LOQ:2)	BQL(LOQ:2)	BQL(LOQ:2)
7	Total Hardness as CaCO <sub>3</sub>	mg/L	265	188	236	386	210	166	214
8	Calcium as Ca	mg/L	42.9	61.1	57.4	93.9	55.1	40.4	40.4

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9	Magnesium as Mg	mg/L	38.3	8.59	22.5	36.8	17.6	15.7	27.5
10	Chloride as Cl	mg/L	42.3	42.6	62.9	200	37.2	24.2	47.3
11	Sulphate as SO <sub>4</sub>	mg/L	156	19.2	32.6	70.2	20.5	18.4	29.1
12	Total Alkalinity as CaCO <sub>3</sub>	mg/L	198	178	184	137	162	125	172
13	Iron as Fe	mg/L	BQL(LOQ:0.1)	BQL(LOQ:0.1)	BQL(LOQ:0.1)	BQL(LOQ:0.1)	BQL(LOQ:0.1)	BQL(LOQ:0.1)	BQL(LOQ:0.1)
14	Silica as SiO <sub>2</sub>	mg/L	15.8	8.2	10.3	12.3	11.8	19.8	18.6
15	Potassium as K	mg/L	1.5	2.1	3.1	11.2	1.1	1.9	1.9
16	Sodium as Na	mg/L	35.3	38.8	56.2	165	36.3	18.2	39.2

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### 3.3.6 Interpretation of results:

#### 3.3.6.1 Physical parameters of water:

The basic physical parameters of water include

##### **Colour:**

Value observed in Project Site (True/Apparent Color): 2 Hazen unit.

Acceptable and permissible limits: 5 Hazen units and 15 Hazen units respectively. The value in the project site is as same as the acceptable limits prescribed by IS 10500: 2012 (referred as “Standards” from herein).

##### **pH:**

Value observed in the Project Site: 7.69

Acceptable and permissible limits: 6.5-8.5. The pH value is the measure of acid – base equilibrium. The value of pH in the project site clearly indicates that water is slightly neutral in nature.

##### **Turbidity:**

Value observed in the Project Site: <1

Acceptable and permissible limits: 1 NTU & 5 NTU respectively. The value of turbidity generally indicates the presence of phytoplanktons and other sediments. The value in the project site indicates the water is slightly turbid.

##### **Total Dissolved Solids:**

Value observed in the Project Site: 458 mg/L.

Acceptable and permissible limits: 500 mg/L and 2000 mg/L respectively.

The TDS is the presence of the inorganic salts and small amounts of organic matter present in the water. This is mainly due to the result of surface runoff as the cations and anions in the top soil is carried away by the water. The value in the project site indicates the water is less turbid.

#### 3.3.6.2 Chemical parameters of water:

The chemical parameters of the drinking water include,

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### **Calcium:**

Value observed in the Project Site: 42.9 mg/L.

Acceptable and permissible limits: 75mg/L and 200 mg/L respectively.

Calcium is the essential macronutrient. The value of the calcium is within the prescribed permissible standards. The higher level of calcium may cause hardening in domestic equipment and will also reduce the detergent efficiency. Higher levels of calcium will lead to constipation, gas, and bloating. Apart from that, extra calcium may also increase the risk of kidney stones. If the calcium deposit in blood is high, it may lead to hypercalcemia.

### **Magnesium:**

Value observed in the Project Site: 48.3 mg/L.

Acceptable and permissible limits: 30 mg/L and 100 mg/L respectively.

The value of Magnesium in the project site is higher than acceptable limit and less than the permissible limit. The increase in the level of magnesium will cause diarrhea and vomiting in children.

### **Chloride**

Value observed in the project site: 42.3 mg/L.

Acceptable and permissible limits: 250 mg/L and 1000 mg/L respectively.

The chloride level in the project site is within the acceptable and permissible limit. If the level of chloride is more, it may cause galvanic and pitting corrosion, increases level of metals. It imparts bitter taste to the water.

### **Total Alkalinity as CaCO<sub>3</sub>:**

Value observed in the project site: 198 mg/L.

Acceptable and permissible limits: 200 mg/L and 600 mg/L respectively.

Total Alkalinity is the measure of the concentration of all alkaline substances dissolved in the water which includes carbonates, bicarbonates and hydroxides. The value of the total alkalinity is slightly greater in the project site, which will impart soda taste to the water.

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### **Hardness:**

Value observed in the Project Site: 265 mg/L.

Acceptable and permissible limits:200 mg/L and 600 mg/L respectively.

The value of Hardness in the project site is higher than acceptable limit but within the permissible limit.

The increase in the level of hardness may cause corrosion and scaling problems, increased soap consumption and it also contributes to the salty taste of water.

### **3.3.7 Surface Water Analysis**

Surface water samples were taken from **Palar river** river. The results are summarized below.

**Table 3-7 Surface Water Sample Results**

<b>S. No</b>	<b>Parameters</b>	<b>Units</b>	<b>Palar river</b>
1	pH (at 25°C)	-	26
2	Electrical Conductivity	µS/cm	7.85
3	Colour	Hazen Unit	891
4	Turbidity	NTU	BQL(LOQ:1)
5	Total Dissolved Solids	mg/L	522
6	Total Suspended Solids	mg/L	BQL(LOQ:2)
7	Total Hardness as CaCO <sub>3</sub>	mg/L	190
8	Calcium as Ca	mg/L	31.6
9	Magnesium as Mg	mg/L	26.9
10	Chloride as Cl	mg/L	147
11	Sulphate as SO <sub>4</sub>	mg/L	55.1
12	Total Alkalinity as CaCO <sub>3</sub>	mg/L	149
13	Iron as Fe	mg/L	0.53
14	Silica as SiO <sub>2</sub>	mg/L	23.9
15	Potassium as K	mg/L	8.7
16	Sodium as Na	mg/L	125
17	BOD	mg/L	6.9
18	COD	mg/L	24.5
19	DO	mg/L	5.53



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**Inference:** The surface water quality is compared with the CPCB Water Quality Criteria against A, B, C, D & E class of water. From the test result, it is found that the both the water does not fit Class A (Drinking Water Source without conventional treatment but after disinfection). But they can be used for outdoor bathing as it meets the requirements shown for class B water.

### **3.3.7.1 Climatology & Meteorology:**

Climate and meteorology of a place can play an important role in the implementation of any developmental project. Meteorology is also the key to understand local air quality as there is an essential relationship between meteorology and atmospheric dispersion involving wind in the broadest sense of the term.

The year may broadly be divided into four seasons:

Winter season	:	December to February
Pre-monsoon season	:	March to May
Monsoon season	:	June to September
Post-monsoon season	:	October to November

#### **i) Climate**

Eastern part of the district experiences hot climate and Western part has a contrasting pleasant cold climate. The district is hot and dry in summer i.e., from March to June. From July to November is rainy season and between December to February winter prevails with very cold and misty.

#### **ii) Temperature**

The maximum temperature is around 34°C and minimum temperature is 31°C.

#### **iii) Rainfall**

Tirunelveli receives rainfall from both the northeast and the southwest monsoons. Monsoon season is from the months of July to November. During this time, temperature is mild and pleasant. Heavy rainfall is expected in short intervals during this period. December to February are winter months.

This district gets maximum rainfall in November (274.7mm).

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<b>Project Location</b>	<b>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</b>	

**KANCHEEPURAM DISTRICT -NORMAL AND ACTUAL RAINFALL**

**Unit in mm.**

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F
<b>2016</b>	3	0.0	1.7	3.1	77.6	6.9	60.0	24.0	25.7	72.5	42.9	57.9
<b>2017</b>	23.2	6.2	38.1	14.2	92.4	10.0	24.1	122.5	137.0	125.7	67.6	139.0
<b>2018</b>	0.1	28.4	26.3	62.7	149.0	8.0	52.5	58.5	108.4	182.7	75.2	7.5
<b>2019</b>	8.1	3.5	6.8	0.5	6.0	29.3	12.8	89.7	178.7	203.5	111.9	62.8
<b>2020</b>	7.7	0.0	0.0	32.6	80.4	24.0	78.8	47.9	79.4	127.6	284.0	97.9

Source: District survey report

**Meteorological Data**

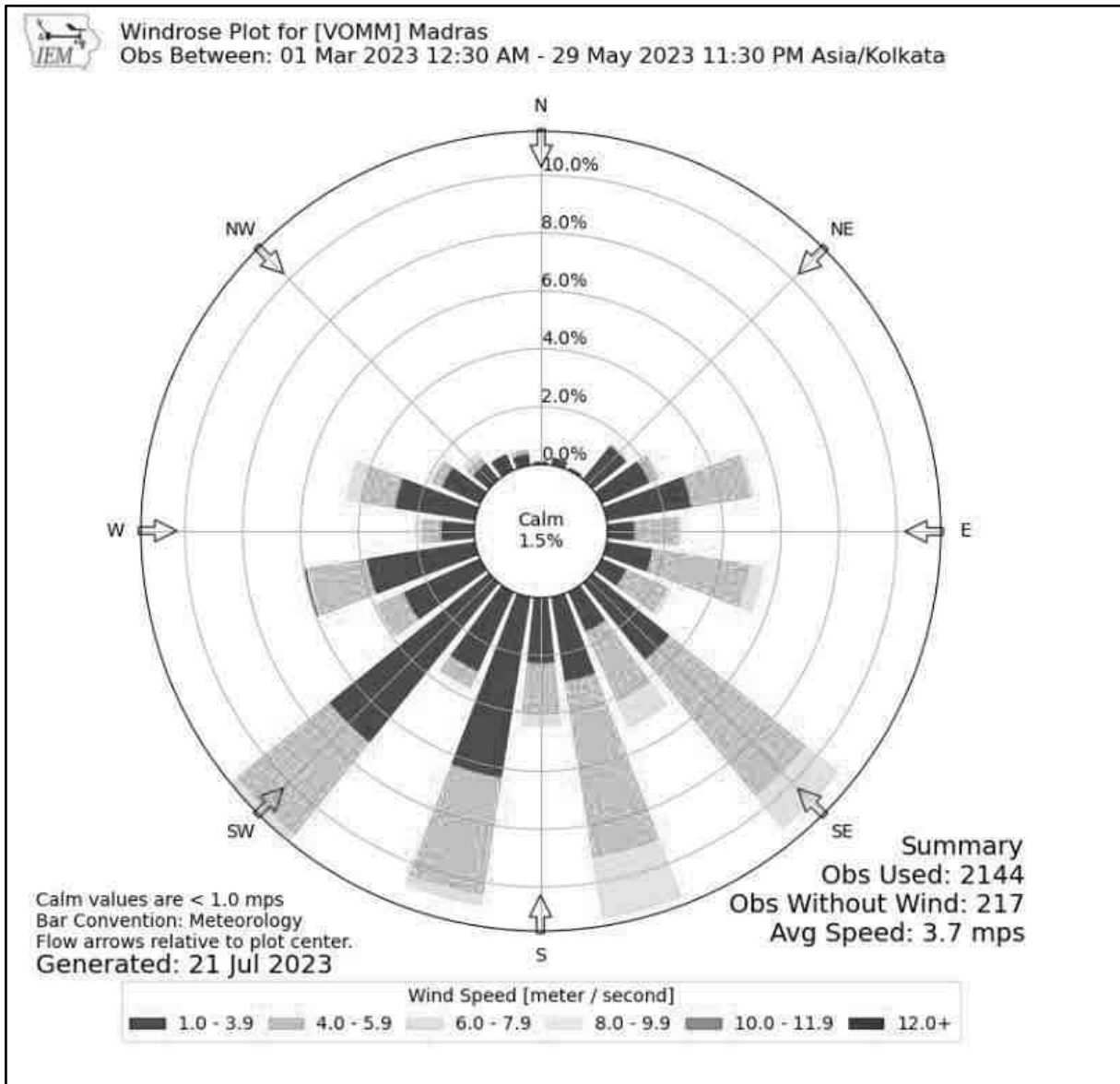
The meteorological data – Temperature, rainfall, Wind Speed, Wind direction are recorded through AWS by setting it up in the site.

**vi) Wind Rose Diagram**

The wind rose denotes a class of diagrams designed to display the distribution of wind direction at a given location over a period of time. Wind roses are also useful as they project a large quantity of data in a simple graphical plot.

The wind speed & wind direction data are taken and wind rose is plotted for March 2023 to May 2023.

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<b>Project Location</b>	<b>Akkinpattu Village, Cheyyur Taluk, Chengalpattu District</b>	



**Figure 3.7 Wind rose**

**3.3.8 Selection of Sampling Locations:**

Six Monitoring locations along with the project site is selected based on Wind Direction & Wind Speed. All the monitoring locations are chosen in the downwind direction.

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### 3.4 AMBIENT AIR QUALITY

**Table 3-8: Selection of Sampling Location**

Environmental Parameters: <i>Ambient Air</i>			
Monitoring Period	March 2023 to May 2023		
Design Criteria	The monitoring stations are selected based on factors like topography/terrain, prevailing meteorological conditions like predominant wind direction (March 2023 to May 2023), etc, play a vital role in the selection of air sampling stations. Based on these criteria, 7 air sampling station were selected in the area as shown below.		
Monitoring Locations	<b>Location &amp; Code</b>	<b>Distance (km)</b>	<b>Direction</b>
	Project Site	--	--
	Government elementary school	1.20	SW
	Elementary school of Nemandham	5.78	SW
	Valigiamman Kovil	3.37	NE
	Virpachiswarer Temple	1.96	ENE
	Panchayat Union Middle school	6.42	NW
	Sri Shridi sai Temple	4.44	NW
Methodology	Respirable Particulate Matter (PM10) - Gravimetric (IS 5182: Part 23:2006) Particulate Matter PM2.5 - Gravimetric (Fine particulate matter) Sulphur Dioxide - Calorimetric (West & Gaeke Method) (IS 5182: Part 02: 2001) Nitrogen Dioxide - Calorimetric (Modified Jacob & Hocheiser Method) (IS 5182: Part 06:2006)		
Frequency of Monitoring	2 days in a week, 4 weeks in a month for 3 months in a season.		

#### 3.4.1 *Ambient Air Quality: Results & Discussion*

The test results of the ambient air quality monitored in project site and other six locations is summarized below.

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
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<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

**Table 3-9 Ambient Air Quality**

Code	Location	PM 10 ( $\mu\text{g}/\text{m}^3$ )				PM 2.5 ( $\mu\text{g}/\text{m}^3$ )				SO2 ( $\mu\text{g}/\text{m}^3$ )				NOx ( $\mu\text{g}/\text{m}^3$ )			
		Min	Max	Avg	98 percentile	Min	Max	Avg	98 percentile	Min	Max	Avg	98 percentile	Min	Max	Avg	98 percentile
AAQ 1	Project Site	39	53	45	52	15	22	19	22	5	9	7	9	10	19	14	19
AAQ 2	Government Elementary school	42	54	49	54	17	25	21	25	5	12	7	10	11	23	16	23
AAQ 3	Elementary school of Nemandham	46	57	53	57	22	27	24	27	6	12	9	12	12	22	16	22
AAQ 4	Valigiamman kovil	52	62	56	61	20	31	25	30	7	16	11	16	13	27	19	26
AAQ 5	Virupachiswarer temple	52	64	58	63	20	33	27	32	9	16	12	16	17	31	22	31
AAQ 6	Panchayat Union Middle School	55	63	60	63	24	30	27	30	11	19	16	19	23	36	29	36
AAQ 7	Sri Shridi Sai Temple	57	67	61	66	25	33	28	32	14	22	18	21	27	40	33	40
NAAQ Standards - Residential Area		100 ( $\mu\text{g}/\text{m}^3$ )				60( $\mu\text{g}/\text{m}^3$ )				80 ( $\mu\text{g}/\text{m}^3$ )				80 ( $\mu\text{g}/\text{m}^3$ )			

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### 3.4.2 Interpretation of ambient air quality:

To assess the impact, AAQ were monitored in project site and four locations.

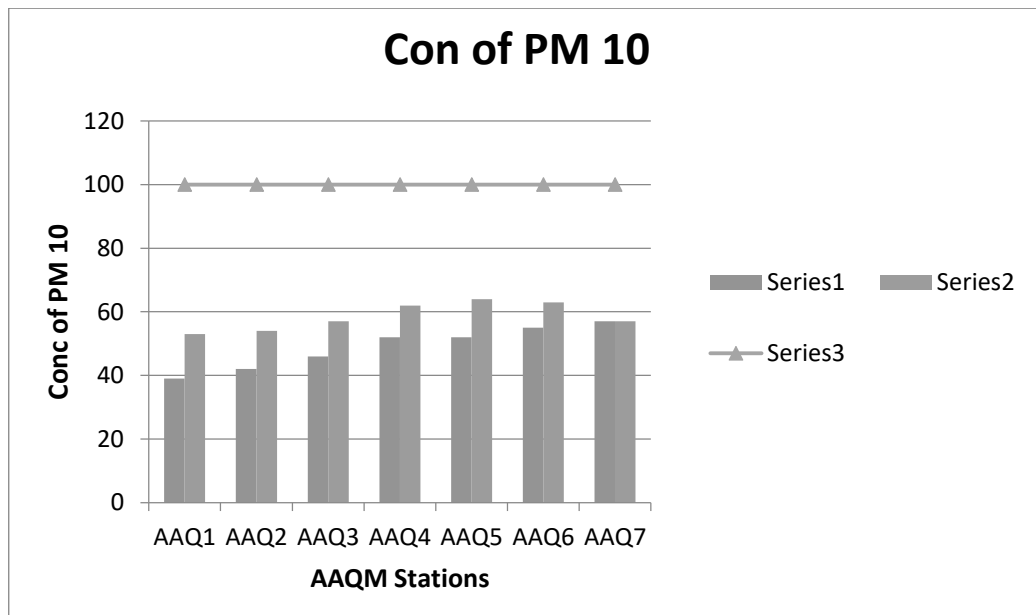
#### Observation:

The Maximum value of PM10 ( $64 \mu\text{g}/\text{m}^3$ ), PM 2.5 ( $33 \mu\text{g}/\text{m}^3$ ), SOx ( $22 \mu\text{g}/\text{m}^3$ ), NOx ( $40 \mu\text{g}/\text{m}^3$ ) is observed in different places.

#### Inference:

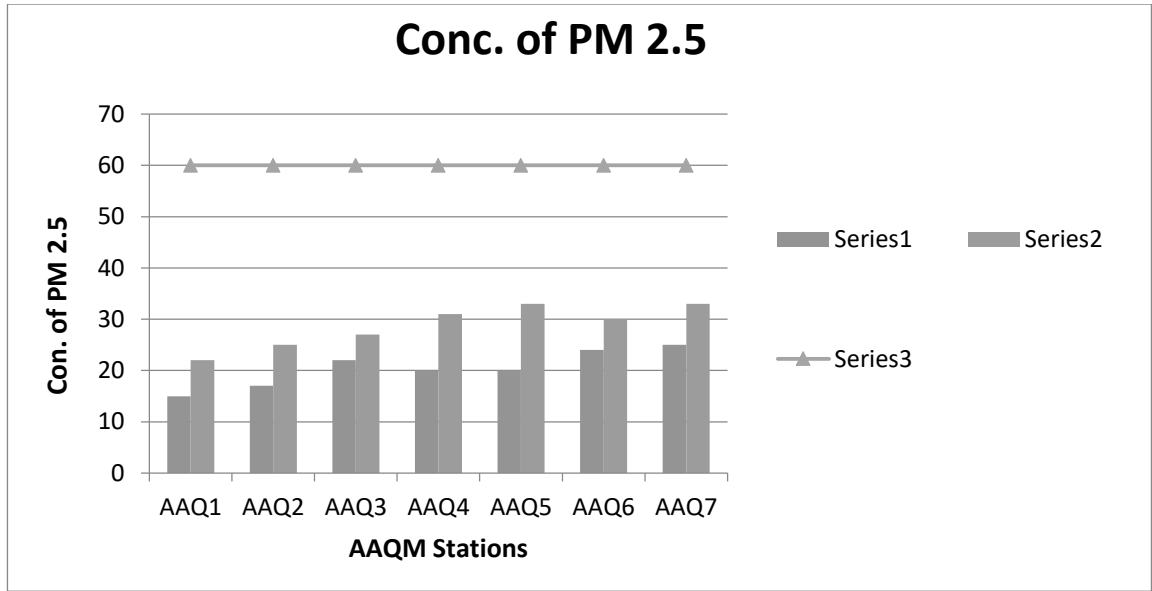
The monitoring results for PM10, PM2.5, Sox, NOx was found to be high in Virpachiswarer Temple and Sri Shirdi Sai Temple which is due to the movement of vehicles.

The observed values are all well within the Standards prescribed by NAAQ.

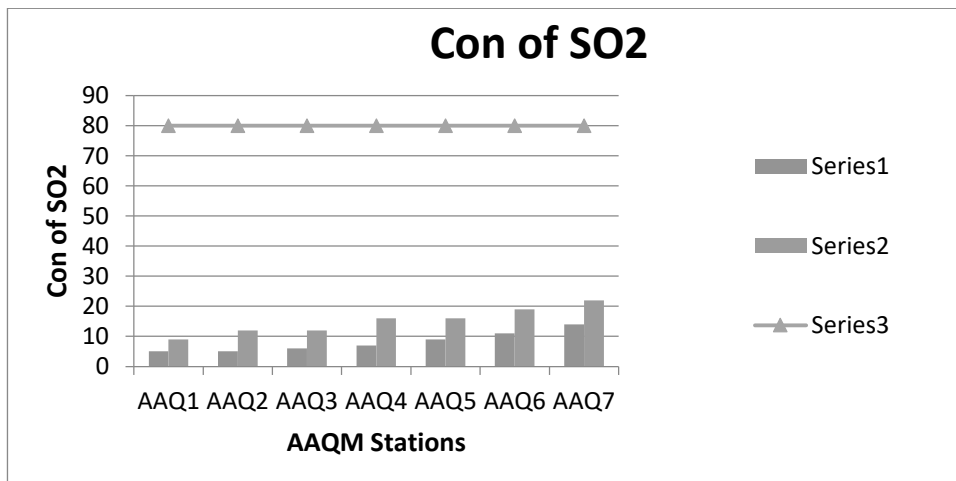


**Figure 3.8 Concentration of PM10 ( $\mu\text{g}/\text{m}^3$ ) in Study Area**

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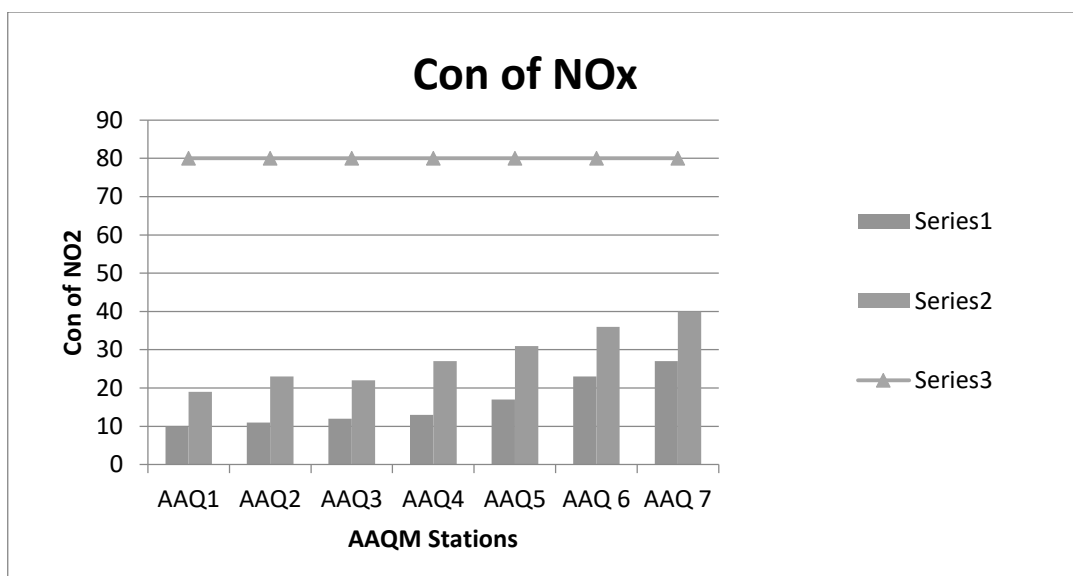


**Figure 3.9 Concentration of PM2.5 (µg/m³) in Study Area**



**Figure 3.10 Concentration of SOx (µg/m³) in Study Area**

<b>Project</b>	<b>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</b>	<b>Draft EIA Report</b>
<b>Project Proponent</b>	<b>M/s.Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</b>	



**Figure 3.11 Concentration of NOx (µg/m³) in Study Area**

### 3.5 NOISE ENVIRONMENT:

**Table 3-10 Noise Analysis**

<i>Environmental Parameters: Noise Analysis</i>	
Monitoring Period	March 2023 to May 2023
Design Criteria	Based on the Sensitivity of the area
Monitoring Locations	Project Site – N 1 Government Elementary school- N 2 Elementary School of Nemandham- N3 Valigiamman Kovil-N 4 Virpachiswarer Temple - N5 Panchayat Union Middle school-N 6 Sri Shirdi Sai Temple-N 7
Methodology	Noise level measurements were taken at the selected locations using noise level meter both during day and night time. Noise level



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	measurements were taken continuously for 24 hours at hourly intervals
Frequency of Monitoring	Noise samples were collected from 7 locations - Once in a season

Ambient Noise Levels are monitored in the chosen 7 Locations including the project Site and the monitoring results are summarized below

### 3.5.1 Day Noise Level (Leq day)

**Table 3-11 Day Noise Level (Leq day)**

Location	Leq day in dB(A)		
	Max	Min	Average
Project Site	50	40	47
Government Elementary school	53	43	49
Elementary school of Nemandham	56	47	53
Valigiamman kovil	54	44	51
Virpachiswarer Temple	59	50	54
Panchayat Union Middle School	60	51	56
Sri Shirdi Sai Temple	60	52	57

### 3.5.2 Night Noise Level (Leq Night)

**Table 3-12 Night Noise Level (Leq Night)**

Location	Leq Night in dB(A)		
	Max	Min	Average
Project Site	39	32	35
Government Elementary school	42	33	37
Elementary school of Nemandham	45	38	41

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Valigiamman kovil	45	36	40
Virpachiswarer Temple	49	41	45
Panchayat Union Middle School	50	42	46
Sri Shirdi Sai Temple	52	44	48

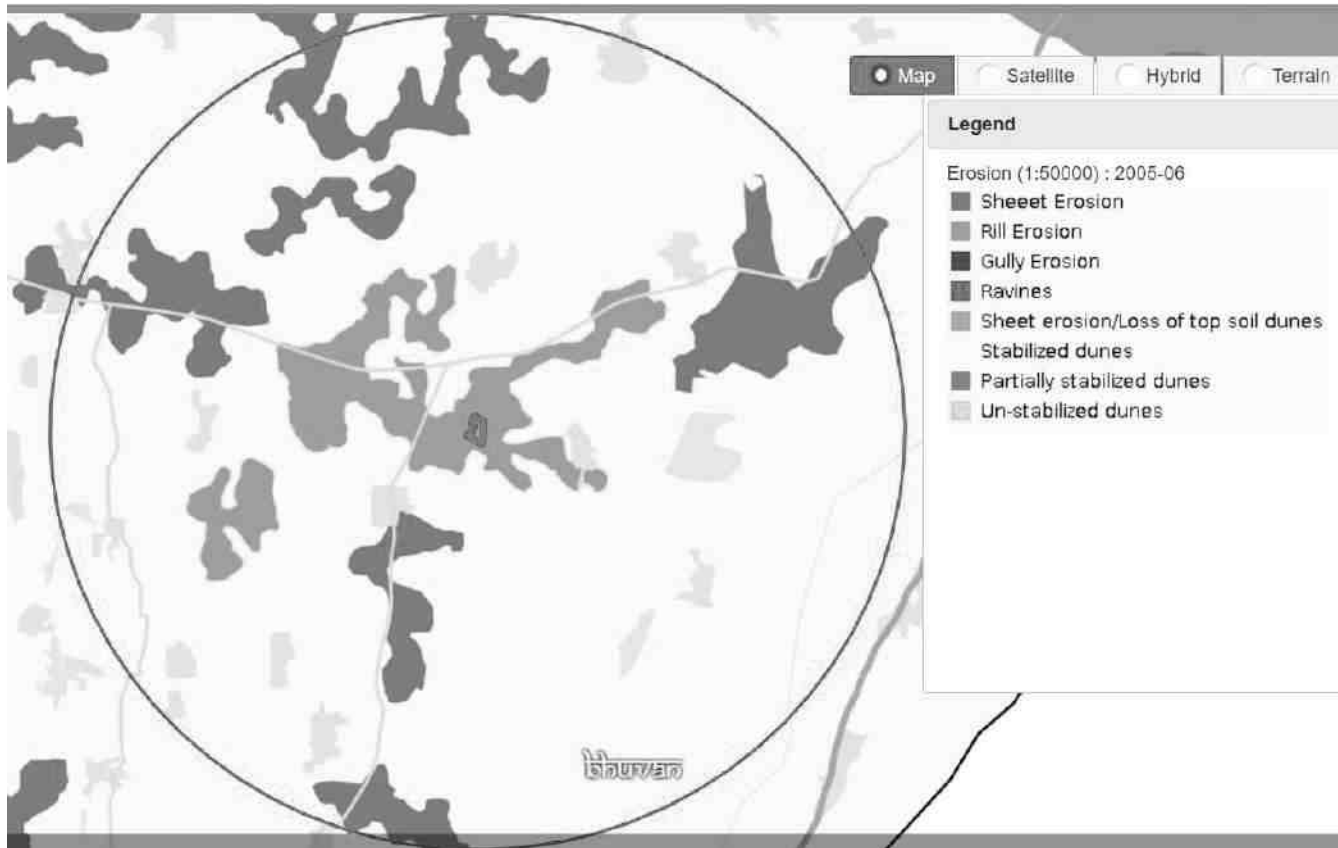
**Observation:**

The maximum Day noise and Night noise were found to be 60 dB (A) and 52 dB(A) respectively in Panchayat Union and Sri Shirdi Sai Temple. The minimum Day Noise and Night noise were 40 dB (A) and 32 dB (A) respectively which was observed in Project site. The observed values are all well within the Standards prescribed by CPCB.

**3.6 SOIL ENVIRONMENT**

Soil environment is studied for 10 km radius from the project site. The 5 km radius image shows that the soil is not affected by any kind of erosion.

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**Figure 3.12 Soil Erosion pattern within 5 km radius of the project site**

### 3.6.1 *Baseline Data:*

The present study of the soil quality establishes the baseline characteristics which will help in future in identifying the incremental concentrations if any, due to the operation Phase of the proposed project.

The sampling locations have been identified with the following objectives:

- To determine the impact of proposed project on soil characteristics and
- To determine the impact on soils more importantly from agricultural productivity point of view.

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**Table 3-13 Soil Quality Analysis**

Environmental Parameters: <i>Soil Quality Analysis</i>	
Monitoring Period	March 2023 to May 2023
Design Criteria	Based on the environmental settings of the study area
Monitoring Locations	Project Site – SQ 1 Government elementary school-SQ 2 Elementary school of Nemandham–SQ 3 Valigiamman kovil- SQ 4 Virpachiswarer Temple - SQ 5 Panchayat Union Middle School -SQ 6 Sri Shirdi Sai Temple -SQ 7
Methodology	Composite soil samples using sampling augers and field capacity apparatus
Frequency of Monitoring	Soil samples were collected from 7 locations Once in a season

To assess the soil quality of the study area, 7 monitoring stations were selected and the results are summarized below.

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**Table 3-14 Soil Quality Analysis**

<b>Parameters</b>	<b>Unit</b>	<b>Project Site SQ 1</b>	<b>Government Elementary school</b>	<b>Elementary school of Nemandham</b>	<b>Valigiamman kovil</b>	<b>Virpachiswarer Temple</b>	<b>Panchayat Union Middle School</b>	<b>Sri Shirdi Sai Temple</b>
pH (at 25°C)	-	6.67	8.53	8.87	6.49	7.39	6.75	8.03
Specific Electrical Conductivity	mS/cm	0.14	0.21	1.39	0.14	0.28	0.12	0.11
Water Holding Capacity	ml/l	2.6	5.2	8.38	4.9	4.8	4.1	4.19
Chloride	g/cm <sup>3</sup>	109	224	172	117	130	117	114
Soluble Calcium	mg/kg	57.6	52.5	290	195	135	129	103
Soluble Sodium	mg/kg	447	786	941	686	907	808	869
Soluble Potassium	mg/kg	408	720	821	791	924	869	857
Organic matter	%	0.18	0.18	3.7	0.6	1.16	1.38	0.32
Sulphates	%	21.3	22.4	183	22.9	38.4	41.8	23
Cation Exchange Capacity	mg/kg	15.2	18.1	16.8	13.1	14.5	9.9	10.2

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Total Nitrogen	%	0.06	0.03	0.46	0.07	0.13	0.08	0.06
Bulk Density	meq/100g	1.38	1.32	1.07	1.24	1.25	1.32	1.24
Phosphorous	meq/kg	49.1	57.2	5.07	66.9	16.6	25.7	9.22
Sand	%	58.8	53.3	58.3	68.4	61.1	58.8	55
Clay	mg/kg	11.8	6.67	8.33	5.26	16.7	11.8	15
Silt	mg/kg	29.4	40	33.3	26.3	22.2	29.4	30
SAR	mg/kg	14.1	25.4	12.9	11.6	16.0	16.7	18.8
Silicon	%	0.092	0.085	0.095	0.092	0.093	0.097	0.094

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### 3.6.1.1 Physical Properties:

Regular cultivation practices increase the bulk density of soils thus inducing compaction. This results in reduction in water percolation rate and penetration of roots through soils. The soils with low bulk density have favorable physical conditions whereas those with high bulk density exhibit poor physical conditions for agriculture crops. The bulk density of the soil in the study area ranged between 1.07 to 1.38 meq/100g which indicates favorable physical condition for plant growth. The water holding capacity was found in the range of 2.6 ml/1 to 8.38 ml/1.

### 3.6.1.2 Chemical Properties:

Chemical characteristics of soils include pH, exchangeable cations and fertility status in the form of NPK values and organic matter. The value of the pH ranges from 6.49 to 8.87, which it indicates majority of pH of the soil is slightly alkaline. The soil in the project site is sodic in nature, which challenges because they tend to have very poor structure which limits or prevents water infiltration and drainage. The organic matter varies from 0.18 to 3.7 %, which indicates the soil is slightly unfertile.

## 3.7 ECOLOGY AND BIODIVERSITY

Ecology and Biodiversity is studied for 10 km radius around the project site. Project site and 2 km around the project site is considered as core zone and from 2 km to 10 km radius, it is considered as buffer zone.

- Primary field survey is carried out for the assessment of flora and fauna in the core zone
- Secondary data from Journals/Literature were studied and compiled to understand the species present in the buffer zone

### 3.7.1 *Methods available for floral analysis:*

#### 3.7.1.1 Plot Sampling Methods

- Quadrat – 2D shape (e.g. square or rectangle, or other shape) used as a sampling unit
- Transect

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- Line transects feature only a length dimension, usually defined by a tape stretched across the area to be sampled.
- Belt transects have a width as well as length.
- Pace-transects are established when the observer strides along an imaginary line across the sample site and uses their foot placement to determine specific sampling points.

### 3.7.1.2 Plot less Sampling Methods

- Closest individual method - Distance is measured from each random point to the nearest individual.
- Nearest neighbour method - Distance is measured from an individual to its nearest neighbour.
- Random pairs method - Distance is measured from one individual to another on the opposite side of the sample point.
- Point-centered quarter (PCQ) method - Distance is measured from the sampling point to the nearest individual in each quadrat.

### 3.7.2 *Field study & Methodology adopted:*

To assess the suitability of the methodology, random field survey was done. Field survey was conducted around 2 km radius from the project site and five locations were chosen based on the species density. Quadrat method is chosen for the proposed study as compared to other sampling methods, because they are relatively simple to use. Quadrat plots are uniform in size and shape and distributed randomly throughout the sample area, which makes the study design straightforward. They are also one of the most affordable techniques because they require very few materials.

### 3.7.3 *Study outcome:*

Phyto-sociological parameters, such as *Density, Frequency, Basal Area, Abundance and Importance Value Index* of individual species (Trees) were determined in randomly placed quadrates of different sizes in the study area. Relative frequency, relative basal area and relative density were calculated and the sum of these three represented Importance Value Index (IVI) for various species. For shrubs, herbs and grasses, *Density, Frequency, Relative Density & Relative Frequency were found.*



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Sample plots were selected in such a way to get maximum representation of different types of vegetation and plots were laid out in different part of the study area of 2 km radius. Analysis of the vegetation will help in determining the relative importance of each species in the study area and to reveal if any economically valuable species is threatened in the process.

**Table 3-15 Calculation of Density, Frequency (%), Dominance, Relative Density, Relative Frequency, Relative Dominance & Important Value Index**

<b>Parameters</b>	<b>Formula</b>
Density	Total No. of individuals of species/ Total No. of Quadrats used in sampling
Frequency (%)	(Total No. of Quadrats in which species occur/ Total No. of Quadrats studied) * 100
Dominance	Total Basal Area /Total area sampled
Abundance	Total No. of individuals of species/ No. of Quadrats in which they occur
Relative Density	(Total No. of individuals of species/Sum of all individuals of all species) * 100
Relative Frequency	(Total No. of Quadrats in which species occur/ Total No. of Quadrats occupied by all species) * 100
Relative Dominance	Dominance of a given species/Total Dominance of all species
Important Value Index	Relative Density + Relative Frequency + Relative Dominance

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**Table 3-16 Tree Species in the core Zone**

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Dominance	Relative Density	Relative Frequency	Relative Dominance	IVI	IUCN Conservation Status
1	Ficus Carica	Athi Maram	2	2	6	0.33	33.33	1	0.28	1.68	2.17	4.45	8.31	Least Concern
2	Cocos nucifera	Thennai	10	6	6	1.67	100.0	1.67	0.15	8.40	6.52	2.39	17.32	Not assessed
3	Azadirachta indica	Veppam	17	6	6	2.83	100.0	2.83	0.13	14.29	6.52	1.98	22.79	Not assessed
4	Tamarindus indica	Puli	10	6	6	1.67	100.0	1.66	0.20	8.40	6.52	3.09	18.02	Not assessed
5	Mangifera indica	Mamaram	7	6	6	1.17	100.0	1.16	0.07	5.88	6.52	1.11	13.52	Data insufficient
6	Morinda pubescens	Nuna	6	6	6	1.00	100.0	1	0.24	5.04	6.52	3.74	15.31	Not assessed
7	Couroupita guianensis	Nagalingam	5	3	6	0.83	50.00	1.67	0.14	4.20	3.26	2.18	9.64	Not assessed
8	Bombax ceiba	Sittan	4	4	6	0.67	66.67	1	0.08	3.36	4.35	1.27	8.98	Not assessed
9	Acacia nilotica	Karuvelai	4	4	6	0.67	66.67	1	0.28	3.36	4.35	4.45	12.16	Least Concern
10	Bambusa vulgaris	Moongil	4	4	6	0.67	66.67	1	0.50	3.36	4.35	7.92	15.63	Not assessed
11	Syzygium cumini	naval	5	1	6	0.83	16.67	5	0.11	4.20	1.09	1.79	7.07	Not assessed
12	Carica papaya	Papaya	3	3	6	0.50	50.00	1	0.09	2.52	3.26	1.43	7.21	Not assessed
13	Psidium guajava	Guava	3	3	6	0.50	50.00	1	0.23	2.52	3.26	3.61	9.39	Not assessed
14	Cassia siamea	ManjalKonrai	3	2	6	0.50	33.33	1.5	0.07	2.52	2.17	1.11	5.81	Least Concern
15	Ficus religiosa	Arasa maram	3	3	6	0.50	50.00	1	0.09	2.52	3.26	1.35	7.13	Not assessed

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16	Musa paradise	Vaazhai	3	3	6	0.50	50.00	1	0.08	2.52	3.26	1.19	6.97	Not assessed
17	Prosopis juliflora	Vaelikaruvai	3	3	6	0.50	50.00	1	0.21	2.52	3.26	3.34	9.13	Not assessed
18	Tectona grandis	Thekku	3	3	6	0.50	50.00	1	0.12	2.52	3.26	1.88	7.66	Not assessed
19	Thespesia populnea	Poovarasam	3	3	6	0.50	50.00	1	0.15	2.52	3.26	2.39	8.18	Not assessed
20	Causuarina equisetifolia	Savukku	2	2	6	0.33	33.33	1	0.21	1.68	2.17	3.34	7.20	Not assessed
21	Alstonia scholaris	Elilaipalai	2	2	6	0.33	33.33	1	0.27	1.68	2.17	4.31	8.16	Least Concern
22	Anacardium occidentale	Cashew	1	1	6	0.17	16.67	1	0.44	0.84	1.09	6.96	8.88	Not assessed
23	Artocarpus heterophyllus	Palaa	2	2	6	0.33	33.33	1	0.18	1.68	2.17	2.85	6.70	Not assessed
24	Aegle marmelos	Vilvam	1	1	6	0.17	16.67	1	0.16	0.84	1.09	2.50	4.43	Not assessed
25	Delonix elata	Perungondrai	1	1	6	0.17	16.67	1	0.17	0.84	1.09	2.62	4.54	Least Concern
26	Pithecellobium dulce	Kodukapuli	1	1	6	0.17	16.67	1	0.14	0.84	1.09	2.18	4.11	Not assessed
27	Citrus medica	Elumichai	2	2	6	0.33	33.33	1	0.23	1.68	2.17	3.61	7.46	Not assessed
Total			110	83					5.02					

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**Table 3-17 Shrubs in the Core Zone**

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IUCN Conservation Status
1	Jatropagossypifolia	Kaatamanaku	32	17	24	1.17	0.71	1.65	14.43	17.17	Not Assessed
2	Calotropis gigantea	Erukam	16	12	24	0.58	0.50	1.17	7.22	12.12	Not Assessed
3	Tabernaemontanadivaricata	Crepe Jasmine	4	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
4	Catharanthus roseus	Nithyakalyani	4	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
5	Datura metal	Ummattangani	7	4	24	0.21	0.17	1.25	2.58	4.04	Not Assessed
6	Robiniapseudoacacia	Black locust	15	5	24	0.71	0.21	3.4	8.76	5.05	Least Concern
7	Acalypha indica	Kuppaimeni	18	8	24	0.83	0.33	2.5	10.31	8.08	Not Assessed
8	Stachytarpheartificifolia	Rat tail	13	9	24	0.63	0.38	1.67	7.73	9.09	Not Assessed
9	Woodfordiafruticosa	Velakkai	4	3	24	0.13	0.13	1	1.55	3.03	Least Concern
10	Hibiscus rosa sinensis	Sembaruthi	3	2	24	0.13	0.08	1.5	1.55	2.02	Not Assessed
11	Lantana camara	Unnichi	8	6	24	0.38	0.25	1.5	4.64	6.06	Not Assessed
12	Parthenium hysterophorous	Vishapoonda	45	13	24	2.08	0.54	3.85	25.77	13.13	Not Assessed
13	Euphorbia geniculata	Amman Pacharisi	5	3	24	0.13	0.13	1	1.55	3.03	Not Assessed

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**Table 3-18 Herbs & Grasses in the core zone**

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IUCN Conservation status
1	Helicteresisora	Valampuri	4	2	30	0.07	0.07	1	0.79	2.15	Not assessed
2	Tridax procumbens	Vettukaayathalai	7	4	30	0.17	0.13	1.25	1.98	4.30	Not assessed
3	Heraculem spondylium	Hog Weed	19	10	30	0.67	0.33	2	7.94	10.75	Not assessed
4	Tridax procumbens	Cuminipachai	18	4	30	0.50	0.13	3.75	5.95	4.30	Not assessed
5	Senna occidentalis	Nattamsakarai	30	4	30	0.83	0.13	6.25	9.92	4.30	Not assessed
6	Plumbago zeylanica	Chittiramoolam	12	3	30	0.10	0.10	1	1.19	3.23	Not assessed
7	Scrophularia nodosa	Sarakkothini	18	7	30	0.50	0.23	2.14	5.95	7.53	Not assessed
8	Viburnum dentatum	Viburnum	7	5	30	0.17	0.17	1	1.98	5.38	Least concern
9	Cynodondactylon	Arugu	15	6	30	0.40	0.20	2	4.76	6.45	Not assessed
10	Euphorbia hirta	Amman Pacharisi	7	4	30	0.17	0.13	1.25	1.98	4.30	Not assessed
11	Sida cordifolia	Maanikham	50	4	30	1.50	0.13	11.25	17.86	4.30	Not assessed
12	Sida acuta	Malaidangi	12	3	30	0.33	0.10	3.33	3.97	3.23	Not assessed
13	Laportea canadensis	Peruganchori	28	20	30	1.00	0.67	1.5	11.90	21.51	Not assessed
14	Sporobolus fertilis	Giant Parramatta Grass	10	4	30	0.30	0.13	2.25	3.57	4.30	Not assessed
15	Tephrosia purpurea	Kavali	23	4	30	0.67	0.13	5	7.94	4.30	Not assessed

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### 3.7.4 Calculation of species diversity by Shannon – wiener Index, Evenness and richness by Margalef:

Biodiversity index is a quantitative measure that reflects how many different type of species, there are in a dataset, and simultaneously takes into account how evenly the basic entities (such as individuals) are distributed among those types of species. The value of biodiversity index increases both when the number of types increases and when evenness increases. For a given number of type of species, the value of a biodiversity index is maximized when all type of species are equally abundant. Interpretation of Vegetation results in the study area is given below.

**Table 3-19 Calculation of species diversity**

<b>Description</b>	<b>Formula</b>
Species diversity – Shannon – Wiener Index	$H = -\sum [(p_i) * \ln(p_i)]$ Where $p_i$ : Proportion of total sample represented by species $i$ : number of individuals of species $i$ / total number of samples
Evenness	$H/H_{max}$ $H_{max} = \ln(s) =$ maximum diversity possible $S =$ No. of species
Species Richness by Margalef	$RI = S - 1 / \ln N$ Where $S =$ Total Number of species in the community $N =$ Total Number of individuals of all species in the community

### 3.7.5 Calculation of species diversity by Shannon – wiener Index, Evenness and richness by Margalef for trees

#### i. Species Diversity

<b>Scientific Name</b>	<b>Common Name</b>	<b>No. of Species</b>	<b>Pi</b>	<b>ln (Pi)</b>	<b>Pi x ln (Pi)</b>
Ficus Carica	Athi Maram	2	0.018182	-4.00733	-0.07286

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Cocos nucifera	Thennai	10	0.090909	-2.3979	-0.21799
Azadirachta indica	Veppam	17	0.154545	-1.86727	-0.28858
Tamarindus indica	Puli	10	0.090909	-2.3979	-0.21799
Mangifera indica	Mamaram	7	0.063636	-2.75457	-0.17529
Morinda pubescens	Nuna	6	0.054545	-2.90872	-0.15866
Couroupita guianensis	Nagalingam	5	0.045455	-3.09104	-0.1405
Bombax ceiba	Sittan	4	0.036364	-3.31419	-0.12052
Acacia nilotica	Karuvelai	4	0.036364	-3.31419	-0.12052
Bambusa vulgaris	Moongil	4	0.036364	-3.31419	-0.12052
Syzygium cumini	naval	5	0.045455	-3.09104	-0.1405
Carica papaya	Papaya	3	0.027273	-3.60187	-0.09823
Psidium guajava	Guava	3	0.027273	-3.60187	-0.09823
Cassia siamea	ManjalKonrai	3	0.027273	-3.60187	-0.09823
Ficus religiosa	Arasa maram	3	0.027273	-3.60187	-0.09823
Musa paradise	Vaazhai	3	0.027273	-3.60187	-0.09823
Prosopis juliflora	Vaelikaruvai	3	0.027273	-3.60187	-0.09823
Tectona grandis	Thekku	3	0.027273	-3.60187	-0.09823
Thespesia populnea	Poovarasam	3	0.027273	-3.60187	-0.09823
Causuarina equisetifolia	Savukku	2	0.018182	-4.00733	-0.07286
Alstonia scholaris	Elilaipalai	2	0.018182	-4.00733	-0.07286
Anacardium occidentale	Cashew	1	0.009091	-4.70048	-0.04273
Artocarpus heterophyllus	Palaa	2	0.018182	-4.00733	-0.07286
Aegle marmelos	Vilvam	1	0.009091	-4.70048	-0.04273
Delonix elata	Perungondrai	1	0.009091	-4.70048	-0.04273
Pithecellobium dulce	Kodukapuli	1	0.009091	-4.70048	-0.04273
Citrus medica	Elumichai	2	0.018182	-4.00733	-0.07286
Total		110			-3.02215005

H (Shannon Diversity Index) =3.02

### Shrubs

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Jatropagossypifolia	Kaatamanaku	32	0.183908	-1.69332	-0.31142
Calotropis gigantea	Erukam	16	0.091954	-2.38647	-0.21945
Tabernaemontanadivaricata	Crepe Jasmine	4	0.022989	-3.77276	-0.08673
Catharanthus roseus	Nithyakalyani	4	0.022989	-3.77276	-0.08673
Datura metal	Ummattangani	7	0.04023	-3.21315	-0.12926
Robiniapseudoacacia	Black locust	15	0.086207	-2.45101	-0.21129
Acalypha indica	Kuppaimeni	18	0.103448	-2.26868	-0.23469
Stachytarphaurticifolia	Rat tail	13	0.074713	-2.59411	-0.19381

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Woodfordiafruiticosa	Velakkai	4	0.022989	-3.77276	-0.08673
Hibiscus rosa sinensis	Sembaruthi	3	0.017241	-4.06044	-0.07001
Lantana camara	Unnichi	8	0.045977	-3.07961	-0.14159
Parthenium hysterophorous	Vishapoonda	45	0.258621	-1.35239	-0.34976
Euphorbia geniculata	Amman Pacharisi	5	0.028736	-3.54962	-0.102
Total		174			-2.2234

H (Shannon Diversity Index) =2.22

### Herbs

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Helicteresisora	Valampuri	4	0.015385	-4.17439	-0.06422
Tridax procumbens	Vettukaayathalai	7	0.026923	-3.61477	-0.09732
Heraculem spondylium	Hog Weed	19	0.073077	-2.61624	-0.19119
Tridax procumbens	Cuminipachai	18	0.069231	-2.67031	-0.18487
Senna occidentalis	Nattamsakarai	30	0.115385	-2.15948	-0.24917
Plumbago zeylanica	Chittiramoolam	12	0.046154	-3.07577	-0.14196
Scrophularia nodosa	Sarakkothini	18	0.069231	-2.67031	-0.18487
Viburnum dentatum	Viburnum	7	0.026923	-3.61477	-0.09732
Cynodondactylon	Arugu	15	0.057692	-2.85263	-0.16457
Euphorbia hirta	Amman Pacharisi	7	0.026923	-3.61477	-0.09732
Sida cordifolia	Maanikham	50	0.192308	-1.64866	-0.31705
Sida acuta	Malaidangi	12	0.046154	-3.07577	-0.14196
Laportea canadensis	Peruganchori	28	0.107692	-2.22848	-0.23999
Sporobolus fertilis	Giant Parramatta Grass	10	0.038462	-3.2581	-0.12531
Tephrosia purpurea	Kavali	23	0.088462	-2.42519	-0.21454
Total		260			-2.51

H (Shannon Diversity Index) =2.51



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### **i. Species diversity calculation**

<b>Details</b>	<b>H</b>	<b>Hmax</b>	<b>Evenness</b>	<b>Species Richness (Margalef)</b>
Trees	3.02	3.36	0.89	5.95
Shrubs	2.22	2.56	0.86	2.32
Herbs	2.51	2.70	0.92	2.51

From the above, it can be interpreted that herb community has higher diversity. While the tree community shows less diversity. It is also observed that most of the quadrates have controlled generation of plant species with older strands. Higher herb species diversity can be interpreted as a greater number of successful species and a more stable ecosystem where more ecological niches are available, environmental change is less likely to be damaging to the ecosystem. Species richness is high for herb community when compared with tree and shrubs.

#### **3.7.6 Floral study in the Buffer Zone:**

Economically important Flora of the study area

**Agricultural crops:** The important crops of this district are Paddy, Maize, Ragi, Banana, Sugarcane, Cotton, Tamarind, Coconut, Mango, Groundnut, Vegetables and Flowers also grown by the local people.

**Medicinal species:** The nearby area is also endowed with the several medicinal species which are commonly available in the shrub forest and waste lands. The common medicinal species of the region are *Asparagus racemosus* (satamulli), *Azadirachta indica* (Neem) etc.

**Rare and endangered floral species:** There are no rare or endangered or threatened (RET) species of in the study area. During the vegetation survey, there are no any species which are endangered or threatened under IUCN (International Union for Conservation of Nature and Natural resources) guidelines.

#### **3.7.7 Faunal Communities**

Both direct and indirect observation methods were used to survey the fauna.

- Point Survey Method: Observations were made in each site for 15 minutes duration.

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Roadside Counts: The observer traveled by motor vehicles from site to site, all sightings were recorded (this was done both in the day and night time). An index of abundance of each species was also established.

Pellet and Track Counts: All possible animal tracks and pellets were identified and recorded (South Wood, 1978).

Additionally, survey of relevant literature was also done to consolidate the list of fauna distributed in the buffer zone.

Based on the Wildlife Protection Act, 1972 (WPA 1972, Anonymous. 1991, Upadhyay 1995, Chaturvedi and Chaturvedi 1996) species were short-listed as Schedule II or I and considered herein as endangered species. Species listed in Ghosh (1994) are considered as Indian Red List species.

#### **Methodology Adopted:**

Point Survey method was adopted for this development project where observations were made in each site for 15 minutes duration (10 times).

#### **Study in the core zone:**

Point Survey method was adopted for the study within 2 km radius and the following species were observed.

**Mammals:** No wild mammalian species was directly sighted during the field survey. Discussion with local villagers located around the study area also could not confirm presence of any wild animal in that area. Three striped Palm Squirrel, Common Indian Hare, Common mongoose, Common Mouse etc were observed during primary survey.

**Avifauna:** Since birds are considered to be the indicators for monitoring and understanding human impacts on ecological systems (Lawton, 1996) attempt was made to gather quantitative data on the avifauna by walk through survey within the entire study area and surrounding areas. From the primary survey, a total of 26 species of avifauna were identified and recorded in the study area. The diversity of avifauna from this region was found to be quite high and encouraging.

The list of fauna species found in the study area is mentioned in Table below.

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**Table 3-20 List of fauna species**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Schedule of wild life protection act</b>	<b>IUCN conservation status</b>
<b>Mammals</b>			
Funambulus pennanti	Palm Squirrel	IV	Least Concern
Mus rattus	Indian rat	IV	Not listed
Bandicota bengalensis	Indian mole rat	IV	Least Concern
Funambulus palmarum	Three stripped palm squirrel	IV	Least Concern
Herestes edwardsii	Common Mongoose	IV	Not listed
Mus musculus	Common Mouse	IV	Least Concern
Bandicota indica	Rat	IV	Least Concern
Lepus nigricollis	Indian Hare	IV	Least Concern
Felis catus	Cat	Not listed	Not listed
Canis lupus familiaris	Indian dog	Not listed	Not listed
Bos Indicus	Indian Cow	Not listed	Not listed
Bubalus bubalis	Buffalo	I	Not listed
Sus scrofa domesticus	Domestic pig	Not listed	Not listed
<b>Birds</b>			
Milvus migrans	Black kite	IV	Least concern
Saxicoloides fulicatus	Indian Robin	IV	Least concern
Pycnonotus cafer	Red vented Bulbul	IV	Least concern
Phragamaticola aedon	Thick billed warbler	IV	Least concern
Pericrocotus cinnamomeus	Small Minivet	IV	Least concern
Eudynamys scolopaceus	Koel	IV	Least concern
Psittacula krameni	Rose ringed parakeet	IV	Least concern
Dicrurus marcocercus	Black drongo	IV	Least concern
Columba livia	Rock pigeon	IV	Least concern
Corvus splendens	House crow	IV	Least concern

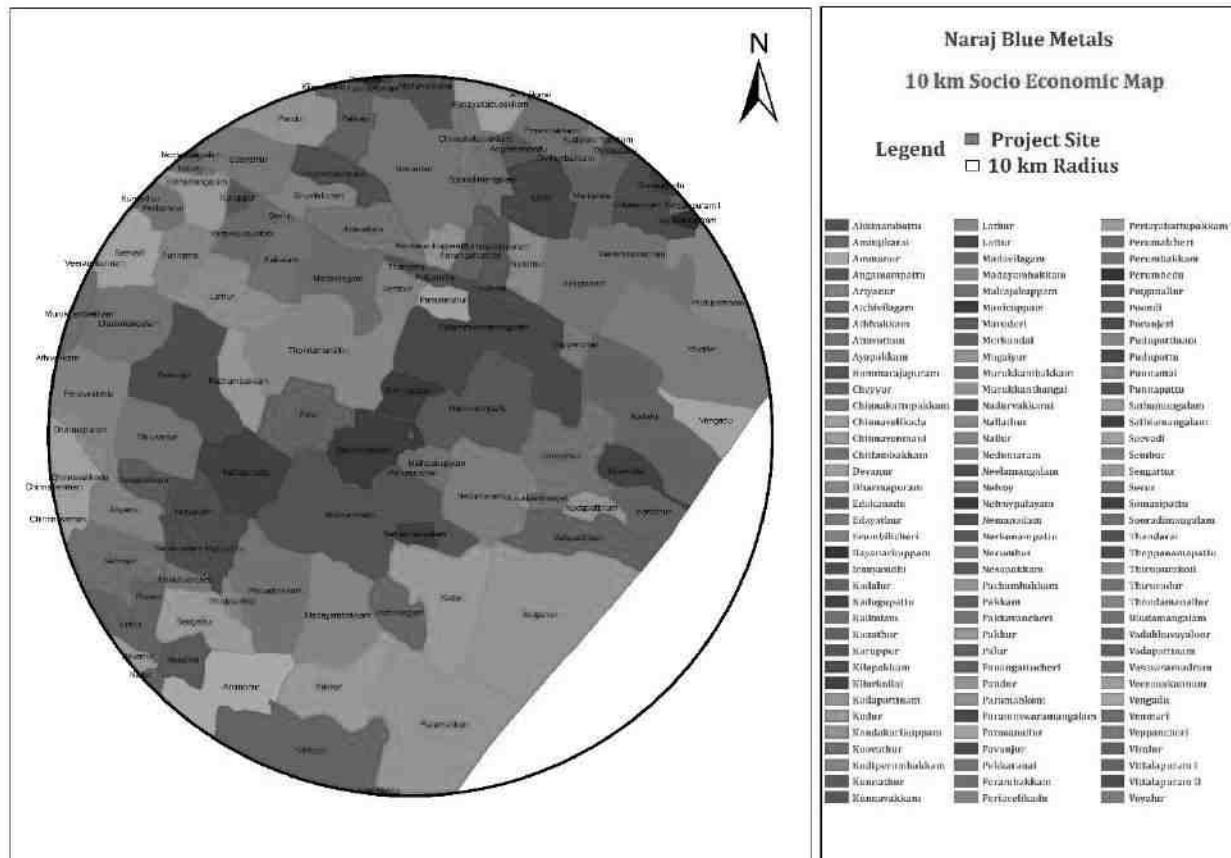
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Alcedo atthis	Small blue kingfisher	IV	Least concern
Cuculus canorus	Common Cukoo	IV	Least concern
Reptiles & Amphibians			
Chameleon zeylanicum	Chameleon	IV	Not listed
Calotes versicolor	Common garden lizard	II	Not listed
Bungarus caeruleus	Common krait	IV	Not listed
Ophisops leschenaultia	Snake eyed lizard	--	Not listed
Bufo melanostictus	Toad	IV	Least concern
Ptyas mucosa	Rat snakes	IV	Least concern
Hemidactylus sp.	House lizard	--	Not listed
Butterflies			
Danaus chrysippus	Plain Tiger	--	Not listed
Papilio demoleus	Common lime	--	Not listed
Euploea core	Common crow	--	Least concern
Danaus genutia	Common tiger	--	Not listed
Eurema brigitta	Small grass yellow	--	Least concern

### 3.8 DEMOGRAPHY AND SOCIO ECONOMICS

The demography survey study is done within 10km radius from the project site.

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**Figure 3.13 Socio Economic map surrounding the project site**

The population, Household, Sex ratio, Literacy rate, SC, ST details for all the villages in the study area is listed below:

**Table 3-21: Demography Survey Study**

Source: Census of India, 2011

Villages	Household	Population	Sex Ratio		Literacy Rate		SC	ST
			Male	Female	Male	Female		
Vengadu	249	1011	491	520	363	291	381	0
Pandur	201	804	408	396	285	229	303	102

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Palur	1660	6964	3466	3498	2496	2141	4504	285
Nelvoy	144	496	264	232	189	150	179	40
Athivakkam	204	761	382	379	279	191	358	3
Madavilagam	122	470	237	233	201	179	11	22
Kunnathur	427	1713	849	864	662	490	489	8
Kilapakkam	305	1228	609	619	367	319	956	0
Perumbedu	277	1151	557	594	414	337	642	0
Kunnavakkam	222	879	455	424	321	240	184	31
Aminjikarai	202	802	422	380	321	230	236	16
Periyakattupakkam	115	451	231	220	178	150	93	0
Pandur	406	1566	788	778	539	409	618	77
Merkandai	197	792	391	401	273	209	615	0
Uludamangalam	99	416	212	204	164	144	338	0
Dharmapuram	136	526	243	283	153	140	291	26
Ariyanur	171	669	340	329	223	175	382	0
Viralur	118	467	231	236	149	119	255	22
Poondi	4	12	7	5	5	5	0	0
Devanur	56	204	102	102	73	53	82	0
Cheyyur	50475	206019	103169	102850	74769	60619	97823	2227
Karuppur	184	774	385	389	222	168	669	2
Parasanallur	161	595	317	278	212	146	226	0
Poranjeri	28	124	56	68	46	37	6	0
Kadalar	1619	6175	3109	3066	2020	1652	1851	15
Koovathur	1127	4534	2272	2262	1728	1473	1787	69
Kalkulam	276	1208	620	588	413	308	844	0
Sathamangalam	111	402	203	199	161	124	161	0
Pekkarani	146	582	296	286	194	159	510	9
Lathur	333	1273	662	611	431	344	980	0
Pavunjur	351	1409	729	680	541	425	395	8

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Periavelikadu	198	802	410	392	282	251	540	0
Kadugupattu	450	1765	874	891	561	461	908	0
Nelvoypalayam	116	454	224	230	151	127	257	11
Perumalcheri	88	413	211	202	138	110	138	0
Kanathur	169	642	319	323	211	175	333	0
Vadapattinam	348	1299	628	671	440	373	752	18
Mugaiyur	1004	3888	1920	1968	1433	1156	1591	11
Kodur	775	2867	1442	1425	1046	866	1846	60
Akkinambattu	691	2553	1236	1317	850	697	837	26
Perumbakkam	604	2448	1223	1225	868	625	1065	4
Pudupattu	123	443	220	223	149	126	381	0
Nemanadam	153	538	267	271	189	123	37	0
Atchivilagam	10	56	21	35	7	10	0	56
Paramankeni	847	3325	1615	1710	1081	862	1154	23
Pakkur	326	1229	599	630	423	337	636	15
Ammanur	589	2334	1167	1167	915	707	940	10
Maruderi	42	152	74	78	62	47	0	0
Voyalur	81	368	201	167	144	94	203	0

### 3.9 TRAFFIC IMPACT ASSESSMENT

Traffic data collected continuously for 24 hours by visual observation and counting of vehicles under three categories, viz., heavy motor vehicles, light motor vehicles and two/three wheelers. As traffic densities on the roads are high, two skilled persons were deployed simultaneously at each station during each shift- one person on each of the two directions for counting the traffic. At the end of each hour, fresh counting and recording was undertaken. Total numbers of vehicles per hour under the three categories were determined.

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**Figure 3.14: Site Connectivity**

**Table 3-22: No. of Vehicles per Day**

S. No	Vehicles Distribution	Number of Vehicles Distribution/Day	Passenger Car Unit (PCU)	Total Number of Vehicle in PCU
		NH-332A	-	NH-332A
1	Cars	493	1	493
2	Buses	238	3	714
3	Trucks	281	3	843
4	Two wheelers	593	0.5	296
5	Three wheelers	192	1.5	288
	<b>Total</b>	<b>1797</b>	<b>-</b>	<b>2634</b>



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**Table 3-23: Existing Traffic Scenario and LOS**

<b>Road</b>	<b>V (Volume in PCU/hr)</b>	<b>C (Capacity in PCU/hr)</b>	<b>Existing V/C Ratio</b>	<b>LOS</b>
NH332 A	2634/24=109	286	0.38	<b>B</b>

<b>V/C</b>	<b>LOS</b>	<b>Performance</b>
0.0-0.2	A	Excellent
0.2-0.4	B	Very Good
0.4-0.6	C	Good/ Average/ Fair
0.6-0.8	D	Poor
0.8-1.0	E	Very Poor

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## 4 Anticipated Environmental Impacts & Mitigation Measures

This chapter describes the anticipated impacts on the environment and mitigation measures. The method of assessment of impacts including studies carried out, modeling techniques adopted to assess the impacts where pertinent should be elaborated in this chapter. It should give the details of the impacts on the baseline parameters, both during the construction and operational phases and suggests the mitigation measures to be implemented by the proponent.

### 4.1 INTRODUCTION

An environmental impact is defined as any change to the environment, whether adverse or beneficial, resulting from a facility's activities, products, or services. The anticipation of the possible & potential Environmental impact due to the proposed project is a key step in EIA. Based on the impacts assessed, appropriate mitigation measures should be adopted to maintain the environment with less or no damage.

Environmental Impacts can be group into Primary impacts & Secondary Impacts

**Primary Impacts:** These impacts are directly attributed by the project

**Secondary Impacts:** These are those which are induced by primary impacts and include the associated investments and changed patterns of the social and economic activities by the action.

Assessment of impacts is done for the following Environmental Parameters:

- Land Environment
- Water Environment
- Air Environment
- Noise Environment
- Biological Environment
- Socio Economic Environment

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#### 4.2 LAND ENVIRONMENT:

<b>Aspect</b>	<b>Impact</b>	<b>Mitigation Measures</b>
<b><i>Mining of rough stone and Gravel</i></b>	<p>The proposed 4.32.10 Ha mine located in Akkinampattu Village having 866500 m<sup>3</sup> of Rough stone. The quarry operation is proposed to carry out with conventional open cast mechanized mining with 5.0 meter vertical bench and bench width of 5.0 meter.</p> <p>The main impact of open cast mining on land-use is land degradation. The land is bound to be excavated for mining of Rough Stone Quarry.</p> <p>Impact on soil of the study area will be minimal as there are no wastewater generated, heavy metal infusion, stack emissions.</p> <p>Impact due to transformation of terrain characteristics over the large area results in soil degradation.</p> <p>Solid waste will be generated from the mining activity as there will be refuse also generation of domestic</p>	<p>The proposed project site is not prone to any kind of soil erosion (<b>Source: Bhuvan</b>).</p> <p>In addition, garland drainage of 1m x 1m will be provided to avoid storm water run-off.</p> <p>It is proposed to plant 2200 No's of local tree species (Neem, Vilvam Vaagai, Pungam, Magizha maram, Eachai, etc.) along the roads, outer periphery of the mining area which enhances the binding property of the soil.</p> <p>It is proposed to improve the affected land wherever possible for better land use, so as to support vegetation and creation of water reservoir in the ultimate pit after quarrying.</p> <p>The source of dust generation is majorly due to drilling, blasting, loading &amp; unloading of the mined out mineral, the impact will be mitigated by water sprinkling regularly once in 3hrs.</p>

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	<p>waste. If it is not properly managed, may cause odor and health problem to the workers.</p>	<p>The proposed mining activity is carried out in hilly terrain.</p> <p>After removal of minerals, undulating portion will be created. Excavated area or ultimate pit at the end of the mine period will be converted into water reservoir. Two tier tree belts will be planted along the safety distance.</p> <p>The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the mining activity. Apart from that, a very meagre quantity of domestic waste will be generated in the project, which will be handed over to the local body on daily basis.</p>
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#### 4.3 WATER ENVIRONMENT:

<b>Aspect</b>	<b>Impact</b>	<b>Mitigation Measures</b>
<i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i>	The mining in the area may cause ground water contamination due to intersection of the water table and mine runoff.	The water table will not be intersected during mining, as the ultimate depth is limited upto 49 m (below ground level), whereas the ground water table is at 70-75 m below the ground level. The municipal wastewater will be disposed into

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	<p>The ground water depletion may occur due to mining activity</p> <p>Chemicals consisting of nitrate used for blasting may pollute the surface run off.</p> <p>Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labours.</p>	<p>septic tanks of 5 cum and soak pit. No chemicals consisting of toxic elements will be used for carrying out mining activity.</p> <p>The ground water table is at a depth of 70-75 m BGL, the mining operation will not affect the aquifer. The ultimate pit at the end of the mining operation will be used for rain water storage, the stored water will be used for green belt development and further the stored water will be used for domestic purposes (other than drinking) after proper treatment.</p> <p>Further, the run-off water will be stored in sumps and after proper treatment; water will be used in the mining operation for dust suppression.</p> <p>Provision of urinals/Latrines along with septic tank followed by soak pit arrangement will be provided in the Mine Lease area for the proper management of wastewater</p>
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#### 4.4 AIR ENVIRONMENT:

<b>Aspect</b>	<b>Impact</b>	<b>Mitigation Measures</b>
<p><i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i></p>	<p><i>Impacts during Operation Phase</i></p> <p>During mining operation, fugitive dust and other air pollutants like particulate matter (PM10 &amp; PM 2.5) will be generated.</p> <p>The main source of pollutants arises due to drilling and blasting. 2 Nos of Tipper will be used for loading and unloading, 1 Nos of Excavator (0.90 m<sup>3</sup> bucket capacity, and 1 Nos Jack Hammer will be used for excavation of the mineral which contributes to the generation of fugitive dust. In addition, blasting will be done using explosives leading to the generation of dust.</p>	<p><i>Mitigation Measures during Operation Phase</i></p> <p>It is proposed to plant 2200 Nos of local species along the haul roads, outer periphery within the lease area to prevent the impact of dust in consultation with Forest department for the plantation of trees (Neem, Magizham, Tamarind, Elandhai and Vilvam) in two tier to combat air pollution and with herbs (Nerium) in between the tree species.</p> <p>Planning transportation routes of the mined out mineral, so as to reach the nearest paved roads (an approach road) by shortest route connecting to NH332 A , ECR Road</p> <p>Alternatively, gravelled road may be constructed between mine lease area and nearest paved road connectivity. The speed of trucks plying on the haul road will be limited to 20km/hr to avoid generation of dust.</p>

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	<p><u>Effect on Human</u></p> <ul style="list-style-type: none"> <li>• Adverse effect on human health of working labourers and neighbouring villagers like effect on breathing and respiratory system, damage to lung tissue, influenza or asthma.</li> <li>• Dust generation due to loading and unloading of mineral and due to transportation can also affect the workers as well as nearby villagers.</li> </ul> <p><u>Effect on Plants</u></p> <ul style="list-style-type: none"> <li>• Stomatal index may be minimized due to dust deposit on leaf.</li> </ul>	<p>The trucks will be covered by tarpaulin.</p> <p>Overloading will be avoided.</p> <p>Personal Protective Equipments (PPEs) like eye goggles, dust mask, leather gloves, safety shoes &amp; boots will be provided to the workers engaged at dust generation points like excavation and loading points.</p> <p>0.5 KLD of water will be proposed for sprinkling on unpaved roads to avoid dust generation during transportation.</p>
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### **Air Quality Modeling:**

The AERMOD is actually a modeling system with three separate components:

- AERMOD (AERMIC Dispersion Model),
- AERMAP (AERMOD Terrain Preprocessor)
- AERMET (AERMOD Meteorological Preprocessor)

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#### 4.4.1 *Source Characterization*

A detailed listing of all emission sources and their corresponding modelling input release parameters and emission rates is listed in this report. A general description of how each source type was treated is presented below.

The emission Sources from the proposed operation are

##### **Point Sources:**

Point sources for mining operations typically include dust collectors, hot water heaters, and emergency generator(s). Since at the present project the following sources are anticipated.

1. Hydraulic excavator – 0.90 Cum Bucket Capacity (with Rock Breaker Attachment)
2. Jack Hammer 32 mm Dia
3. Tipper
4. Tractor Mounted - Compressor
5. Drilling and excavation with Accessories

##### **Road Sources:**

A road network was developed to depict the anticipated haul truck routes and truck discharge locations during the mine operations. The anticipated emissions from the road sources and corresponding anticipated impact during the monitoring period of March to May 2023 emissions were estimated. Emissions due to haul road and general plant traffic on the unpaved road network were modelled as volume sources. The model volume source parameter for the haul roads initially utilized USEPA developed emission factors for hauling trucking. The haul road sources utilized source to source spacing of 6 meters along the simulated haul roads. The initial lateral dimension of the sources were set to 3 m were used as an input to replicated a 2 truck travel adjacent for a typical mining scenario.

The parameters considered for the hauling operation include the following,

- size of haul trucks commonly used
- degree of dust control/compaction of permanent haul roads



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### **Other fugitive particulate emission sources:**

Other fugitive particulate emission sources that were modelled as volume sources include the following:

- Fugitive emissions from trucks unloading at the primary crusher were represented by a single volume source. The release height was set to 0 meters (dump pocket is at grade level).
- Fugitive emissions due to wind erosion is not considered as the mining area is predominately rocky surface with minimal wind erosion. If an wind erosion is anticipated to occur, it would be localized.
- Fugitive emissions from transfer points were represented by single volume sources. The release heights for these sources were set to the actual height of the truck transfer process.

### **Post Project Scenario**

Emissions from operations will result from process equipment and mining operations. Process equipment was modeled at maximum capacity. Emissions from mining were based upon the mining rate and haul truck travel necessary to transport the stones and waste from the pit to the storage area.

Predicted maximum ground level concentrations considering micro meteorological data of March 2023 to May 2023 are superimposed on the maximum baseline concentrations obtained during the study period to estimate the post project scenario, which would prevail at the post operational phase. The overall scenario with predicted concentrations over the maximum baseline concentrations is shown in the following table along with isopleths.

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**Table 4-1 Emission Factors for uncontrolled mining**

<b>Activity</b>	<b>Emission Factor</b>		<b>References</b>	
Topsoil handling	Scraper	0.029 Kg TSPM/ average time between spray application	<b>USEPA (2008)</b>	Jose I. Huertas & Dumar A. Camacho & Maria E. Huertas, Standardized emissions inventory methodology for open-pit mining areas, Environmental Science Pollution Research, 2012.
	Bulldozing	15.048 kg PM10/ Hr excavation	<b>USEPA (2008)</b>	
	Loading	2.3237E-04 kg PM10/ average time between spray application	<b>USEPA (2006a)</b>	
	Haulage	0.69718 kg PM10/VKT	<b>USEPA (2006a) Cowherd (1988)</b>	
Rough stone mining	Wet drilling	8.00E-5 lbs PM10/ Ton produce	<b>EPA. August, 2004. Section 11.19.2, Crushed Stone Processing and Pulverized Mineral Processing. In: Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition, AP-42. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina.</b>	
	Loading	1.00E-4 lbs PM10/ Ton produce		

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#### 4.5 NOISE ENVIRONMENT:

<b>Aspect</b>	<b>Impact</b>	<b>Mitigation Measures</b>
<i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i>	<p>Usage of Equipments (Excavator, Tipper, Jack Hammer), Machinery and trucks used for transportation will generate noise.</p> <p>Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure.</p> <p>Number of vehicles will be increased due to the proposed mining activity hence vehicle may collate which may result in unwanted sound and can also cause impact on human health like breathing and respiratory system, damage to lung tissue, influenza or asthma.</p>	<ul style="list-style-type: none"> <li>• The machinery will be maintained in good running condition so that noise will be reduced to minimum possible level.</li> <li>• Awareness will be imparted to the workers once in six months about the permissible noise level and effect of maximum exposure to those levels. Adequate silencers will be provided in all the diesel engines of vehicles.</li> <li>• It will be ensured that all transportation vehicles carry a valid PUC Certificates.</li> <li>• Speed of trucks entering or leaving the mine will be limited to moderate speed (20km/hr) to prevent undue noise from empty vehicles.</li> </ul> <p>The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipments.</p> <ul style="list-style-type: none"> <li>• It is proposed to plant 2200 Nos. of local species (Neem, Mandharai, Athi, Tamarind, Ashoka, Casuarinas and Villam) to reduce the</li> </ul>

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		<p>impact of noise in the study area. The development of green belts around the periphery of the mine will be implemented to attenuate noise.</p> <ul style="list-style-type: none"> <li>• The trucks will be diverted on two roads viz. NH332 A and a District Road to avoid traffic congestion.</li> <li>• Health check-up camps will be organized once in six month.</li> <li>• Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.</li> <li>• Provision of quiet areas, where employees can get relief from workplace noise.</li> </ul>
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#### **4.6 BIOLOGICAL ENVIRONMENT:**

<b>Aspect</b>	<b>Impacts</b>	<b>Mitigation Measures</b>
Site Clearance	Loss of habitat due to site clearance which may lead to ecological disturbance.	The proposed mining lease is already a dry land hence no site clearance is required. Only few shrubs and herbs like parthenium sp., prosopis juliflora were present.

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<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

Planting of trees	Development of afforestation in the mine lease area will have a positive impact as the land was initially a barren.	safety distance will be provided all along the boundary of the mine lease area and safety. Around 0.75.25 Ha of land is utilized for greenbelt development (2200 Nos – 5 years). This will attract avifauna thus enhancing the existing ecological environment.
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#### 4.7 SOCIO ECONOMIC ENVIRONMENT:

Aspect	Impact	Mitigation Measures
Proposed implementation of Mining activity	Land acquisition for the implementation of the project may result in loss of assets, which in return will make the PAP to shift, losing their normal routine and livelihood	The proposed project is a patta land of <b>Thiru Naraj Blue Metals Pvt Ltd</b> and the land is vacant where there are no human settlement within 300m radius. Hence the project does not involve Rehabilitation and resettlement
Drilling, Blasting, Loading and Transportation of the mined out mineral	The mining activities may cause dust emission, noise pollution thereby causing disturbance to the local habitat	No human activity is envisaged near the project site. The nearest human settlement is observed in Vettakarakuppam village which is 1.14 km, ESE from site
Grazing and Rearing activities in the nearby villages	The Grazing and rearing of local animals like Sheep, Goat and cows is observed in the nearby villages, which may be affected due to the project as the	It is proposed to use gravelled road and nearest paved road and preferred not to use unpaved roads. In addition to that, the speed of trucks will be limited to 20km/hr to avoid any accidents.

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	movement of the vehicles may affect/injure the animals	
Employment opportunity	The project will improve the livelihood of the local people	After the development of the proposed mine, it will improve the livelihood of local people and also provide the direct and indirect employment opportunities. The rough stone for the infrastructural development in the area will be made available from the local markets at reasonably lower price.
Corporate Environmental Responsibility	The proposed project will help in natural resource augmentation & Community resource development.	As a part of CER i.e, 5 Lakhs will be allocated. Developing sports facilities, providing hygienic toilet, R.O Water facilities to Panchayat Union Middle School, Elathur, Akkinampattu

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
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#### 4.8 OTHER IMPACTS:

<b>S. No</b>	<b>Aspect</b>	<b>Impact</b>	<b>Mitigation measure</b>
1.	Risk due to the proposed mining	Accidents may occur in the mine area	Proper PPE kit (Safety jacket, Helmet, Safety Shoes, Gloves) etc will be provided to each and every employee in the mine lease concerning the safety of each labour
2.	Blasting	Injury to the labours due to the blasting activity	Alarm system in the form of Siren will be engaged in the project site to caution the blasting activity. In addition to that, the blasting activity will be scheduled at particular time – 5 P.M to 6 P.M (or whenever required) so that the employees will be aware of the activity. Smoking will be banned in the site and sign boards will be displayed in various places at site.
3.	Screening of Labors	Labors will be checked for health condition before employing them in mining activity	All the labors will be checked and screened for health before employing them. After employing them, periodical medical checkups will be held once in every six months.

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## 5 Analysis Of Alternatives

### 5.1 GENERAL

Analysis of alternative is a significant aspect in planning and designing any project. Cost benefit analysis should be work out along with other parameters while choosing an alternative in such a way that the production is maximum and the mining operation is environment friendly and cost effective. The mine plan and mine closure plan Mining Plan was approved by The Assistant Director , Geology & Mining, Chengalpattu District prior to submission of the Form-1 and PFR. ToR issued by the SEIAA-TN vide Letter No. SEIAA-TN/ F. No.9926/ ToR-1572/2023 Dated: 13.09.2023. The study for alternative analysis involves in-depth examination of site and technology.

#### 5.1.1 *Analysis for Alternative Sites and Mining Technology*

##### 5.1.1.1 **Alternative Site**

The proposed project is the mining of Rough Stone Quarry and is proposed after prospecting the area. In other words, these can be implemented in the mineral available zone. Since the mining block has been allotted in principal by the State Government, there is no case for studying and exploring any other site as an alternative.

##### 5.1.1.2 **Alternative Technology**

The open cast mining could be manual/mechanized depending upon the geological and topographical setup of the mineral (ROM) to be won and the daily/annual targeted production.

**Table 5-1: Alternative for Technology and other Parameters**

S. No.	Particular	Alternative Option 1	Alternative Option 2	Remarks



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1.	Technology	Opencast semi mechanized mining	Opencast mechanized mining	Opencast semi mechanized Involving drilling and blasting are preferred. Benefits: Material is hard so to make it loose and to bring it to appropriate size.
2.	Employment	Local employment.	Outsource employment	Local employment is preferred Benefits: Provides employment to local people along with financial benefits No residential building/
3.	Labour transportation	Public transport	Private transport	Local labours will be deployed from Ponnakudi village so they will either reach mine site by bicycle or by foot. Benefits: Cost of transportation of labors
4.	Material transportation	Public transport	Private transport	Material will be transported through trucks/trolleys on the contract basis Benefits: It will give indirect employment.
5.	Water	Tanker supplier	Ground water/	Tanker supply will be preferred. Water will be sourced from Vettakarakuppam village which is 1.14 km, ESE from site.

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<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

## 6 Environmental Monitoring Program

### 6.1 GENERAL:

This chapter covers the planned environmental monitoring program. It also includes the technical aspects of monitoring the effectiveness of mitigation measures.

Monitoring is important to measure the efficiency of control measures. Post project monitoring of environmental parameters is of key importance to assess the status of environment. The monitoring program will serve as an indicator for identifying environmental degradation due to operation of the project and help in selection of appropriate mitigation measures to safeguard the environment.

Regular monitoring is as important as control of pollution since the efficacy of control measures can only be determined by monitoring. The project proponent has awarded **M/s. Ecotech Labs Pvt Ltd** for carrying out the post project environmental monitoring (PPM) and timely compliance report submission to various regulatory authorities.

Therefore, regular monitoring programme of the environmental parameters is essential to take into account the changes in the environmental quality. The objectives of monitoring are to:-

- Verify effectiveness of planning decisions;
- Measure effectiveness of operational procedures;
- Confirm statutory and corporate compliance; and
- Identify unexpected changes.

**Table 6-1: Environmental Monitoring Programme**

<b>Parameters</b>	<b>Sampling</b>	<b>Frequency</b>	<b>Location</b>
Air environment – Pollutants PM 10 PM 2.5	7 locations	24 hourly twice a week 4 hourly.	Project Site,

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SO <sub>2</sub> NO <sub>x</sub>		Twice a week, One non monsoon season 8 hourly, twice a week 24 hourly, twice a week	
Noise	7 locations	24 hourly Once in 7 locations	Project Site,
Water (Ground water) <ul style="list-style-type: none"> <li>• pH</li> <li>• Temperature</li> <li>• Turbidity</li> <li>• Magnesium Hardness</li> <li>• Total Alkalinity</li> <li>• Chloride</li> <li>• Sulphate</li> <li>• Fluoride</li> <li>• Nitrate</li> <li>• Sodium</li> <li>• Potassium</li> <li>• Salinity</li> <li>• Total nitrogen</li> <li>• Total Coliforms</li> <li>• Fecal Coliforms</li> </ul>	7 locations	Once in 7 locations	Project Site,

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<p>Water (surface water)</p> <ul style="list-style-type: none"> <li>• pH</li> <li>• Temperature</li> <li>• Turbidity</li> <li>• Magnesium Hardness</li> <li>• Total Alkalinity</li> <li>• Chloride</li> <li>• Sulphate</li> <li>• Fluoride</li> <li>• Nitrate</li> <li>• Sodium</li> <li>• Potassium</li> <li>• Salinity</li> <li>• Total nitrogen</li> <li>• Total Coliforms</li> <li>• Fecal Coliforms</li> </ul>	<p>Sample from nearby lakes/river</p>	<p>One time Sampling</p>	<p>Palar river</p>
<p>Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)</p>	<p>7 locations</p>	<p>Once in 7 locations</p>	<p>Project Site,</p>

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Ecology and biodiversity Study	Study area covering 5 km radius	One time Sampling	
Socio- Economic study (Population, Literacy Level, employment, Infrastructure like school, hospitals & commercial establishments)	Villages around 5 km radius	One time Sampling	

**Table 6-2: Monitoring Schedule during Mining**

<b>S. No.</b>	<b>Attributes</b>	<b>Parameters</b>	<b>Frequency</b>	<b>Location</b>
1.	Ambient Air Quality at Mine Site & Fugitive Dust Sampling	PM 10 PM 2.5 SO <sub>2</sub> NO <sub>x</sub>	Once in a Month	Project Site
2.	Ground water Quality	Drinking Water Parameters, As per IS - 10500: 2012	Half yearly	Project Site
3.	Surface Water Quality	Class will be assessed as per the CPCB Guidelines	Half yearly	Project Site
4.	Soil Quality	(Organic matter, Texture, pH, Electrical Conductivity,	Half yearly	Project Site

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		Permeability, Water holding capacity, Porosity)		
5.	Noise Level Monitoring	Noise level in dB(A) Quaterly/half yearly	Half yearly	Project Site

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## 7 Additional Studies

### 7.1 GENERAL

This chapter covers the details of the additional studies viz. Risk assessment, Disaster Management, Public Hearing, Rehabilitation and Resettlement.

#### 7.1.1 *Public Hearing:*

As the proposed mining project falls under 1(a), Category B1 – Cluster Mining (includes **Existing Quarries-** Tv1.Uma Blue Metals -3.20.00 Ha, S.Balaji-1.62.00 Ha **Abandoned /Old Quarries** – R.Ranganathan – 1.24.50 Ha **Proposed Quarries** – M/s.Naraj Blue Metals Pvt Ltd -4.32.10 Ha

Hence under 7(III) of EIA notification 2006 and its subsequent amendments, the project involves the Public Consultation and the same will be conducted under SPCB (TN) in Chengalpattu District. The proceedings of the same will be incorporated in the Final EIA Report.

#### 7.1.2 *Risk assessment:*

For mining projects to be successful, it should meet not only the production requirements, but also maintain the highest safety standards for all the workers. The industry has to identify the hazards, assess the associated risks and bring the risks to tolerable level regularly. Mining has considerable safety risk to miners. Unsafe conditions and practices in mines lead to a number of accidents and causes loss and injury to human lives, damages the property, interrupt production etc. Risk assessment is a systematic method of identifying and analyzing the hazards associated with an activity and establishing a level of risk. The hazards cannot be completely eliminated, and thus there is a need to define and estimate an accident risk level possible to be presented either in quantitative or qualitative way.

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### 7.1.3 Identification of Hazard

#### 7.1.3.1 Blasting Pattern:

The quarrying operation will be carried out in conjunction with conventional method of mining using Jack hammer drilling and blasting for shattering effect and loosen the Rough stone.

#### 7.1.3.2 Drilling and Blasting:

Drilling and Blasting parameters are as follows:

<b>Parameters</b>	<b>Details</b>
Diameter of hole	30-32 mm
Spacing between holes	1.2 m
Pattern of hole	Zigzag multi rows
Inclination of holes	80° from horizontal
Use of delay detonators	25 milli seconds delays
Detonating fuse	“Detonating” Cord

#### a. Types of explosives to be used:

Slurry Class 3 explosives, type of nitro compound are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling or Primary blasting is proposed. Detonators of Class 3 and Safety fuse of Class 6 are used.

#### b. Measures proposed to minimize ground vibration due to Blasting:

The quarry is situated more than 1.0 km from the nearby villages. Controlled blasting measures will be adopted for minimizing ground vibration and fly of rock. Shallow depths jackhammer drilling & blasting is proposed to be carried out with minimum use of explosive mainly to give the shattering effect in rough stone for easy excavation and to control fly of rocks.

Diameter of Holes = 30-32mm

Depth = 1 to 1.5 m



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Storage and safety measures to be taken while blasting: The proponent will engage an authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory Foreman/Permit Mines Manager.

***Heavy Machineries:*** The following heavy machineries will be used in the proposed area:

- For Mining – Excavator of 0.90 Cum Bucket capacity , Jack Hammers (30-32 mm Dia) of 4 Nos.
- Loading Equipment – Excavator of 0.9 Cum Bucket Capacity
- Transportation (includes within the mine and mine to destination) – Tipper 2 No of 10 M.T capacity (from quarry to needy peoples and local crushers)

***a. Risk:***

Most of the accidents during transport of mined out mineral using other heavy vehicles are often attributed to mechanical failures and human errors.

***b. Mitigation measures to minimize the risk***

- At the time of loading no person will be allowed within the swing radius of the excavation.
- The dumpers/ trucks will stand near the loading equipment and fully braked when the muck is filled in it.
- The truck would be brought to a lower level so that the loading operation suits to the ergonomic condition of the workers.
- The workers will be provided with helmets, gloves and safety boots; loading and unloading operations will be carried out only during daylight
- All the mining machineries will be regularly maintained and checked such as brakes, lights and horns to keep in the efficient working order.

***7.1.4 General Precautionary measures for the Risk involved in the proposed mine:***

- In order to take care of above hazard/disaster, the following control measures will be adopted:

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- All safety precautions and provisions of Mine Act, 1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations;
- Entry of unauthorized persons will be prohibited;
- Firefighting and first-aid provisions in the ECC and mining area;
- Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the workers (18 Nos.) and regular inspection for their use;
- In case of eventuality, first aid will be given by the senior safety officer in the mine area initially to the injured person. The safety officer will give notice of accident as per Rule-23 of Mines Act-1952;
- The safety officer (common for 3 mines within 500m radius) will be responsible for coordination between management district authorities/DGMS etc. Regarding general safety as per Rule-181 of MMR 1961, “No person shall negligently or willfully do anything likely to endanger life or limb in the mine, or negligently or willfully omit to do anything necessary for the safety of the mine or of the persons employed there in”. The workers will be provided with protective footwear and safety helmets;
- Cleaning of mine faces will be regularly done;
- Handling of explosives, charging and blasting will be carried out by highly skilled laborers only;
- Regular maintenance and testing of all mining equipment as per manufacturer’s guidelines;
- Suppression of dust by sprinkling water on the haulage roads;

#### 7.1.5 *Safety Team:*

The effective implementation of compliance of Safety Rules/ Statutory Provisions will be ensured. The safety officer will be engaged, meeting the requirement of Mines Act and their duties and responsibilities. The safety officer will be responsible for identification of the hazardous conditions and unsafe acts of workers and advice on corrective actions, conduct safety audit, organize training programs and provide professional expert advice on various issues related to occupational safety and health. Organizing safety training will be conducted to employees and contractor laborers periodically.

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### 7.1.6 *Emergency Control Centre*

The emergency control center will be provided to handle the emergency. The site main controller, key personnel and the senior officers of the fire and police services will attend it. The center will be equipped to receive and transmit information and directions from and to the incident controller and other areas of the works, as well as outside. The emergency control center will be sited in an area of minimum risk. This common Emergency control centre will be used for the mines around the 500m radius

## 7.2 DISASTER MANAGEMENT

The possible risks in the case of stone along with associated minor minerals mining projects are fly rock, vibration failure of pit, slope and waste dump, accidents due to transportation. Mining and allied activities are associated with several potential hazards to both the employees and the public at large. Safety of the mine and the employees is taken care of by the mining rules & regulations, which are well defined with laid down procedure for safety, which when scrupulously followed, safety is ensured not only to manpower but also to machines & working environment.

### 7.2.1 *Emergency Management Plan For Proposed Mines On Site- Offsite Emergency Preparedness Plan:*

The emergency plan delineates the procedures for dealing with accidents or unexpected events and natural calamities arising from mining activity. An experience of any accidents that have occurred in other manufacturing/mining projects is considered to prepare this plan. This Emergency plan should be periodically reviewed and modified. It should also be changed based on the observations of emergency mock drills and experience of handling actual emergencies.

Major objectives of this onsite – offsite emergency plan are:

- To take necessary proactive and preventive actions to avoid the emergency.

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**The main aim of any emergency plan should be to prevent emergency situations.**

To train the manpower to handle the emergencies of the following nature:

- Onsite (Within ML boundary)
- Offsite (Outside ML boundary)

#### *7.2.1 Onsite off-site emergency Plan:*

##### **1- Emergency on account of:**

- Fire
- Explosion
- Major accidents involving man-made collapse of the mining edges.
- Snake bites, attack by honey bees or attack by wild animals.

##### **2- Disaster due to natural calamities like:**

- Flood/ heavy rains which can involve natural landslides.
- Earth quake
- Cyclone
- Lightening

#### *7.2.2 Emergency Plan:*

- The mining operations should be immediately stopped in case of any emergency. A siren will be sounded during emergency time.
- An emergency assembly point will be created and all the workers will guide visitors or contractors to approach assembly point.
- Emergency vehicle (Ambulance) will be available in the nearby place, in proximity to the three mines and will rush to the emergency control centre at the blowing of emergency siren. The driver of emergency vehicle will follow the instructions of Incident Controller/Site Main Controller.
- Workers will be trained for the precautions to be taken during natural disasters like heavy rain, floods, earthquake and cyclone.
- All escape routes from mines to the assembly point or any other safe location will be made and the escape plan will be displayed in many places in the mine area

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### 7.2.3 *Emergency Control:*

- Shut down of mining operations: Raising the alarm or siren followed by immediate safe shut down of the power supply, and isolation of affected areas.
- Treatment of injured: First aid and hospitalization of injured persons
- Protection of environment and property: During mitigation, efforts will be made to prevent impacts on environment and property to the extent possible.
- Preserving all evidences and records: This will be done to enable a thorough investigation of the true causes of the emergency.
- Ensuring safety of personnel prior to restarting of operations: Efforts required will be made to ensure that work environment is safe prior to restarting the work.

### 7.3 NATURAL RESOURCE CONSERVATION

There are no natural resources within the premises. The conservation strategies for energy will be followed in the proposed mine lease area. The pollutants of the mine will be minimized by adopting appropriate mitigation measures as mentioned Chapter 5 to prevent the effects on nearest water bodies. No surface runoff from the project site will be let into the nearest water bodies.

### 7.4 RESETTLEMENT AND REHABILITATION:

The proposed Mine lease area is a patta land. There is no displacement of the population within the project area and adjacent nearby area and hence Rehabilitation & Resettlement is not applicable.

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## 8 Project Benefits

### 8.1 GENERAL

This chapter covers the benefits accruing to the locality, neighborhood, region and nation as a whole. It brings out the details of benefits by way of improvements in the physical infrastructure, social infrastructure, employment potential and other tangible benefits.

#### 8.1.1 Physical Benefits

The opening of the proposed project will enhance the following physical infrastructure facilities in the adjoining areas:

**Market:** Generating useful economical resource for construction. Due to demand supply chain, excavated mineral (Rough stone) will sold in the market in the affordable price.

**Infrastructure:** The excavated rough stone will be used for *Laying Roads, Building & Construction Projects, Bridges.*

**Enhancement of Green Cover & Green Belt Development:** As a part of reclamation plan, native tree species will be planted along the safety boundary of the mine lease area. A suitable combination of trees that can grow fast and also have good leaf cover will be adopted to develop the green belt. It is proposed to plant 2200 numbers of native species along with some fruit bearing and medicinal trees during the mining plan period.

### 8.2 SOCIAL BENEFITS

The mining in the area will create rural employment. During site visit, it has been observed that the economic conditions of the villages in the study area is quite normal. After the development of the proposed mine, it will improve the livelihood of local people and also provide the indirect employment opportunities. The rough stone for the infrastructural development in the area will be made available from the local markets at reasonably lower price.

As a part of CER, i.e., 5 Lakhs will be allocated. The detailed agenda, which is to be executed has been framed. The salient features of the programmes are as follows:

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Construction of Infrastructure, additional class room, Environmental books for library (in Tamil language), Greenbelt facilities and basic amenities such as safe drinking water, Hygienic Toilets facilities, furniture to Panchayat Union Middle School, Elathur, Akkinampattu.

### 8.3 PROJECT COST / INVESTMENT DETAILS

<b>S. No.</b>	<b>Description</b>	<b>Cost (Rs.)</b>
1	Fixed Asset Cost	78,81,500/-
2	Operational Cost	40,00,000 /-
	<b>Total</b>	<b>1,18,81,500/-</b>

#### **EMP Cost:**

	<b>Mitigation Measure</b>	<b>Provision for Implementation</b>	<b>Capital</b>	<b>Recurring</b>
<b>Air Environment</b>	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	43200	43200
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	200000	25000
	Air Quality will be regularly monitored as per norms within ML area & nearby Reserve forest with necessary permission	Yearly Compliance as per CPCB norms	0	40000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / steel mesh / old tyres / used conveyor belts	0	0

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalattu District</i>	

	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance	25000	2500
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed	5000	0
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	86400
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	40000	10000
<b>Noise Environment</b>	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting	Provision made in OHS part	0	0



<b>Project</b>	<b>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</b>	<b>Draft EIA Report</b>
<b>Project Proponent</b>	<b>M/s.Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akkampattu Village, Cheyyur Taluk, Chengalpattu District</b>	

	site at the time of charging.			
	Ambient Noise will be regularly monitored as per norms within ML area & near Reserve forest with necessary permission	Yearly Compliance as per CPCB norms	0	20000
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Compentent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	50000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	1172500
<b>Water Environment</b>	Water management	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	43200	5000
<b>Waste Management</b>	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	1000	5000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0

<b>Project</b>	<b>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</b>	<b>Draft EIA Report</b>
<b>Project Proponent</b>	<b>M/s.Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akkinpattu Village, Cheyyur Taluk, Chengalpattu District</b>	

<b>Implementation of EC, Mining Plan &amp; DGMS Condition</b>	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	7000	1000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee)	136000	34000
	Health check up for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	34000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	8640
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000
	Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	864000	10000
	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	216000	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	2000	5000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 <sup>st</sup> Class / 2 <sup>nd</sup> Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for	0	380000

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinpattu Village, Cheyyur Taluk, Chengalpattu District</i>	

		Manager & @ 25,000/- for Foreman / Mate		
<b>Green Belt Development</b>	Green belt development - 500 trees per one hectare (200 Inside Lease Area & 300 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	172800	25920
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	388800	38880
			<b>2209000</b>	<b>1983040</b>
			<b>4192040</b>	

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

## **9 Environmental Management Plan**

### **9.1 INTRODUCTION**

This chapter comprehensively presents the Environmental Management Plan (EMP), which includes the administrative and technical setup, summary matrix of EMP, the cost involved to implement the EMP, during various Mining activities and provisions made towards the same in the cost estimates of project. This chapter describes the proposed monitoring scheme as well as inter-organizational arrangements for effective implementation of the mitigation measures.

### **9.2 SUBSIDENCE**

Mining will be carried out by opencast mechanized mining method with drilling & blasting as per mining plan approved by Department of Mining and Geology, Chengalpattu. Subsidence/slope failures are not envisaged because there are no loose strata overlying the deposit (mineral to be excavated). The bench height will be 5m. The individual bench slope has been proposed to be kept at 60° from horizontal. Moreover, all safety standards/ safeguards will be implemented as per guidelines prescribed by Director General of Mines Safety.

### **9.3 MINE DRAINAGE**

#### **9.3.1 Storm water Management**

The following measures will be taken with respect to the prevailing site conditions.

- Storm water drains with silt traps of size 1m x 1m will be suitably constructed all along the periphery of the pit area to collect the run-off from the mine area and divert into the pit.
- All measures will be taken not to disturb the existing drainage pattern adjacent to the mine lease area.
- The storm water collected from the mine area will be utilized for dust suppression on haul roads, plantation within the premises, etc.,

#### **9.3.2 Drainage**

Local workers will be deployed for the project. But, urinals and Latrines will be provided and the same will be connected to septic tank followed by soak pit arrangement. No domestic waste will be deposited into the nearby area. Regular checking will be carried out to find any

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

blockage due to silting or accumulation of loose materials. The drains will also be checked for any damage in lining / stone pitching, etc.

### 9.3.3 *Administrative and Technical Setup*

The Environment Management Plan (EMP) will consist of all mitigation measures for each component of the environment due to the activities increased during mining operation to minimize adverse environmental impacts resulting from the activities of the project.

To carry out the above activities, M/s. Naraj Blue Metals Pvt Ltd will work in association with M/s. Ecotech Labs Pvt Ltd.

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

**Table 9-1: Impacts and mitigation measures**

<b>S. No</b>	<b>Impacts on Environment</b>	<b>Activity / Aspect</b>	<b>Anticipated impacts</b>	<b>Mitigation measures</b>
1.	Air	Fugitive Emission	During mining operation, fugitive dust and other air pollutants like particulate matter (PM10 & PM 2.5) will be generated.	Planting of trees along the safety distance of the Mine Lease Area  Water will be sprinkled in the site as dust suppression measure.
2.	Water	Wastewater Generation	Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labors	Provision of urinals/Latrines along with septic tank followed by soak pit arrangement will be provided in the Mine Lease area for the proper management of wastewater.
3.	Noise	Mining activities like drilling, blasting, loading and transportation	Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure. Apart from Mining activities like drilling, blasting may generate noise	Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.
4.	Land	Improper management of Storm water Runoff	Storm water Runoff may result in Soil Erosion	Garland drainage of 1m x 1m will be provided to avoid storm water runoff.
5.	Social Responsibility	Mining workers	Unhygienic site sanitation facilities may cause health damage to workers.	The objective is to ensure health and safety of the workers with effective provisions for the basic facilities of sanitation, drinking water, safety of equipments or machinery etc. The following will be done in the site

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

				<ul style="list-style-type: none"> <li>✓ By complying with the safety procedures, norms and guidelines (as applicable) as outlined in the National Building Code of India, Bureau of Indian Standards.</li> <li>✓ Provide adequate number of decentralized latrines and urinals</li> <li>✓ Providing Septic tank along with Soak pit arrangement</li> <li>✓ Providing First Aid room, conducting frequent health checkups to labor and conducting free medical camps</li> <li>✓ Providing safety helmet, Gloves, Jacket &amp; Boots</li> <li>✓ Providing measures to prevent fires. Fire fighting extinguishers and buckets of sand will be provided in the construction site</li> </ul>
6.	Building materials resource conservation	Building Material consumption	Use of farfetched construction materials than the locally available construction materials may lead to over exploitation of natural resources & increase in carbon footprint.	<ul style="list-style-type: none"> <li>• Use of locally available construction materials.</li> </ul>

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

## 10 Summary & Conclusion

This chapter summarizes the overall justification for implementation of the project and explains how the potential impacts are mitigated.

### 10.1 INTRODUCTION

M/s.Naraj Blue Metals Pvt Ltd (Naresh Director) site is a cluster of four mining project. Total cluster area is 10.38Ha. The individual mine lease area is 4.32.10 Ha of Rough Stone Quarry located at S.F.Nos. 264/2(P), 264/3A(P), 267/1B, 267/2(P) & 267/3 of Akkinampattu Village, Cheyyur Taluk, Chengalpattu District.

### 10.2 PROJECT OVERVIEW

**Table 10-1: Project Overview**

<b>S. No.</b>	<b>Description</b>	<b>Details</b>
1	Project Name	M/s.Naraj Blue Metals Pvt Ltd Rough stone and gravel quarry
2	Proponent	Thiru.P.Naresh (Director)
3	Mining Lease Area Extent	4.32.10 Ha
4	Location	264/2(P), 264/3A(P), 267/1B, 267/2(P) & 267/3
5	Latitude	12° 25' 46.02" N to 12° 25' 57.66" N
6	Longitude	80° 02' 57.81" E to 80° 03' 04.76" E
7	Topography	Plain terrain
8	Site Elevation above MSL	100 m from MSL
9	Topo sheet No.	66 D/3 of Survey of India
10	Minerals of Mine	Rough Stone and Gravel Quarry
11	Proposed production of Mine	866500 m <sup>3</sup> of Rough stone
12	Ultimate depth of Mining	49 m below ground level
13	Method of Mining	Open cast mechanized mining
14	Water demand	2.5 KLD



<b>Project</b>	<b>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</b>	<b>Draft EIA Report</b>
<b>Project Proponent</b>	<b>M/s.Naraj Blue Metals Pvt Ltd</b>	
<b>Project Location</b>	<b>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</b>	

15	Source of water	Water will be supplied through tankers supply
16	Man power	34Nos.
17	Mining Plan Approval	Mining Plan was approved by The Assistant Director (i/c), Department of Geology and Mining, Chengalpattu District vide letter Roc.No.101/Mines/2022 dated 31.03.2023
18	Production details	Geological reserves: 2424780m <sup>3</sup> of Rough stone Proposed year wise reserves: 866500m <sup>3</sup> of Rough stone
19	Boundary Fencing	7.5 m barrier all along the boundary for adjacent patta lands and 10 m safety distance for Govt. Lands. Fencing will be provided.
20	Disposal of overburden	The overburden is in the form of Gravel formation, it has been removed earlier quarry operation. The excavated rough stone will be directly loaded into tipper to the needy crushers/ other buyers for road project and construction works for filling and levelling of low lying areas.
21	Ground water	Ground water table in this area is below 70-75 mts from ground level. The quarrying is up to a maximum depth of 49m below the ground level. Hence the quarry operation will not be affected by the ground water. There are few agricultural wells within 1 km radius of the project area.
22	Habitations within 300m radius of the Project Site	There is no Habitation within 300m radius of the project site.
23	Drinking water	Water will be supplied through tankers from Vettakarakuppam village which is 1.14 Km ESE of the area

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

### **10.3 JUSTIFICATION OF THE PROPOSED PROJECT**

The said project plays a significant role in the domestic as well as infrastructural market. To achieve a huge infrastructure being envisaged by Government of India, particularly in road and housing sector, there is a need for basic building materials. The rough stone form the primary building material.

Rough stone is one of the most valuable natural building materials. Aggregates are mostly used for building roads and footpaths Aggregates – stone used for its strong physical properties – crushed and sorted into various sizes for use in concrete, coated with bitumen to make asphalt or used 'dry' as bulk fill in construction. Mostly used in roads, concrete and building products. Aggregates represent about 98% of quarry output, most of which is used in road construction, maintenance and repair. Much of this goes to the production of asphalt; the remainder is used 'dry' without the addition of other materials to provide a sturdy base for roads.

Charnockite is applied to any orthopyroxene-bearing quartz-feldspar rock, composed mainly of quartz, perthite or antiperthite and orthopyroxene (usually hypersthene) formed at high temperature and pressure, commonly found in granulite facies metamorphic regions, as an end-member of the charnockite series. Charnockite is extensively quarried for rough stone which is used as blue metals for construction of building, laying roads and for preparation of hollow bricks. In some places, charnockite is used as grinder stone. Charnockite is exposed as discontinuous body in ENEWSW direction from Karanampettai in the west to Unjappalayam in the east and from Pallapalayam in the north to Kodanipalayam-Sukkampalayam in the south. More than 50 quarries are located in Kodangipalayam and Itchipatti areas. An isolated charnockite body is exposed for a length of 4kw with 1to 1.5 km wide from Sedarpalayam-Morattupalayam in the north to Velliyampalayam-Sarkar Periyapalayam in the south. Active quarries are located in Timmanayakkanpalayam, Govindampalayam and A.Periyapalayam. Charnockite is very well exposed in NW Madathukulam area of Udumalai taluk. Eastwest trending rock is available for more than 5 km length with 2 km width. Active quarries are located in this area for rough stone i.e. for construction material.

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<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

**Table 10-2: Anticipate Impacts & Appropriate Mitigation Measures**

<b>S. No.</b>	<b>Potential Impact</b>	<b>Mitigation Measure</b>
1	The main impact in the air environment is dust emission during various mining activities such drilling, blasting, excavation, loading and transportation. The dust emission may affect the quality of ambient air in the and around the mine area. The increased emission may cause respiratory & Cardiovascular problems in human health	Proper mitigation measures like water sprinkling on haul roads will be adopted to control dust emissions.  To control the emissions regular preventive maintenance of equipments will be carried out on contractual basis.  Plantation will be carried out along approach roads & mine premises.
2	Waste water will be generated due to mining activity and from other domestic activities. These may contaminate the ground water leading to ground water. The mining activity may affect the ground water table	No waste water will be generated from the mining activity of minor minerals as the project only involves lifting of over burden from mine site. The wastewater generated from the domestic activity will be disposed off safely through the proposed septic tank.  Mining will not intersect ground water table. Hence the water table will not be impacted due to the proposed project
3	Noise will be generated in the mine area during various mining activities such as blasting, drilling, excavation. During transportation of the mined out mineral, there may be noise generation due to the movement of vehicles. This may impact the	Periodical monitoring of noise will be done.  No other equipments except the transportation vehicles and Excavator (as & when required) for loading will be allowed at site.

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

	health condition of the workers by creating headache	Noise generated by these equipments shall be intermittent and does not cause much adverse impact. Plantation will be carried out along approach roads. The plantation minimizes propagation of noise and also arrest dust.
4	Solid waste will be generated from the mining activity as there will be refuse after 95% recovery and also generation of domestic waste	The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the mining activity. Apart from that, a very meagre quantity of domestic waste will be generated in the project, which will be handed over to the local body on daily basis.
5	During mining activities, there are chances of workers getting health issues or may be prone to accidents	Dust masks will be provided as additional personal protection equipment to the workers working in the dust prone area. Periodical trainings will be conducted to create awareness about the occupational health hazards due to activities like blasting, drilling, excavation Workers health related problem if any, will be properly addressed.

<i>Project</i>	<i>Rough stone and Gravel Quarry- 4.32.10 Ha by M/s.Naraj Blue Metals Pvt Ltd</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>M/s.Naraj Blue Metals Pvt Ltd</i>	
<i>Project Location</i>	<i>Akkinampattu Village, Cheyyur Taluk, Chengalpattu District</i>	

## 11 Disclosure of Consultant

### 11.1 INTRODUCTION

This chapter presents the details of the environmental consultants engaged, their background and the brief description of the key personnel involved in the project. Specific studies on the mining project have been carried out by engaging engineers/experts of Ecotech Labs Pvt. Ltd, Chennai. Ecotech Labs Pvt. Ltd (ETL), Chennai is NABET accredited consultancy organization. ETL is equipped with in-house, spacious laboratory, accredited by NABL (National Accreditation Board for Testing & Calibration Laboratories), Department of Science & Technology, Government of India and MoEF & CC.

### 11.2 ECO TECH LABS PVT. LTD – ENVIRONMENT CONSULTANT

Eco Tech Labs Pvt. Ltd is a multi-disciplinary testing and research laboratory in India. Eco Tech labs provides high quality services in environmental consultancy, engineering solution, chemical and microbiological laboratory analysis of food, water and environment (Air, Water, Soil) with highest accuracy.

#### **The Quality policy**

- We at Eco Tech Labs Pvt. Ltd. engaged in providing Environmental consulting services and we are committed to strengthen our capabilities in all areas of our operations in line with customer requirements & expectations, applicable legal requirements & stakeholders expectations.
- We are committed to establish and maintain Quality Management System (QMS) for continual improvement in processes and Services
- We are committed to provide customized solutions in realistic, time bound and cost effective to achieve highest degree of customer satisfaction and Environmental improvement.
- We shall establish, maintain & periodically review our documented management systems, objectives and performance in consultation with our employees and prevailing best practices.
- Effective communication of organization's policy and objectives to employees and seeking feedbacks from all our employees and concerned stakeholders for continual improvement.

**ANNEXURE-I**

**STANDARD TOR CONDITIONS WITH  
ADDITIONAL TOR POINTS**



**THIRU.DEEPAK S. BILGI, I.F.S.  
MEMBER SECRETARY**

**STATE LEVEL ENVIRONMENT IMPACT  
ASSESSMENT AUTHORITY-TAMILNADU**

3<sup>rd</sup> Floor, Panagal Maaligai,  
No.1, Jeenis Road, Saidapet,  
Chennai - 600 015.

Phone No. 044-24359973

Fax No. 044-24359975

**TERMS OF REFERENCE (ToR)**

**LrNo.SEIAA-TN/F.No.9926/ToR- 1572/2023 Dated: 13.09.2023.**

To

M/s. Naraj Blue Metals Private Limited,  
Thiru.P.Naraj (Director),  
Plot No.109&110,  
Kamatchi Amman Nagar East,  
Mangadu, Chennai – 600122.

Sir /Madam,

**Sub:** SEIAA, Tamil Nadu – Terms of Reference with public Hearing (ToR) for the Proposed Rough Stone and Gravel quarry over an extent of 4.32.10 Ha in S.F.No. 264/2(P), 264/3A(P), 267/1B, 267/2(P) & 267/3 of Akkinampattu Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu by M/s. Naraj Blue Metals Private Limited- under project category – ‘‘B1’’ and Schedule S.No.1 (a) – ToR issued along with Public Hearing – preparation of EIA report – Regarding.

- Ref:**
1. Online proposal No.SIA/TN/MIN/421650/2023, dated: 16.03.2023.
  2. Your application submitted for Terms of Reference dated: 21.03.2023.
  3. Minutes of the 367<sup>th</sup>SEAC meeting held on 31.03.2023.
  4. Minutes of the 614<sup>th</sup> Authority meeting held on 24.04.2023 & 25.04.2023.
  5. Project proponent reply dated: 11.05.2023.
  6. Minutes of the 631<sup>st</sup> Authority meeting held on 19.06.2023.
  7. Project proponent reply dated: 24.08.2023.
  8. Minutes of the 654<sup>th</sup> Authority meeting held on 13.09.2023.

**MEMBER SECRETARY  
SEIAA-TN**

Kindly refer to your proposal submitted to the State Level Impact Assessment Authority for Terms of Reference.

The proponent, M/s. Naraj Blue Metals Private Limited has submitted application for Terms of Reference (ToR), for the Proposed Rough Stone and Gravel quarry over an extent of 4.32.10 Ha in S.F.No. 264/2(P), 264/3A (P), 267/1B, 267/2(P) & 267/3 of Akkinampattu Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu.

**SEAC Remarks: -**

The proposal was placed in this 367<sup>th</sup> Meeting of SEAC held on 31.03.2023. The project proponent gave detailed presentation. The details of the project furnished by the proponent are available in the website ([pafive.sh.nic.in](http://pafive.sh.nic.in)).

The SEAC noted the following:

1. The project proponent, M/s. Naraj Blue Metals Pvt Ltd has applied for Terms of Reference for the proposed Rough Stone and Gravel quarry over an extent of 4.32.10 Ha in S.F.No. 264/2(P), 264/3A (P), 267/1B, 267/2(P) & 267/3 of Akkinampattu Village, Cheyyur Taluk, Chengalpattu District, Tamil Nadu.
2. The project activity is covered under Category "B1" of Item 1(a) "Mining of Mineral Projects" of the Schedule to the EIA Notification, 2006.
3. As per the approved mining plan, the lease period is 10 years. The mining plan is for 5 years & production should not exceed 14,325 cu.m of Rough Stone for first five years and 4,52,175 m<sup>3</sup> for remaining five years and 68,592 cu.m of Gravel for two years. The annual peak production 1,02,100 cu.m of Rough Stone & 35,100 cu.m of Gravel. The maximum depth of mining would be 64m BGL.
4. The proponent had submitted online application in the name of Thiru. P. Naraj Rough stone and Gravel Quarry and the application number is SIA/TN/MIN/418675/2023 and offline File No.9841/2023. Due to change in name of the project, the proponent tried to withdraw the application but the withdraw option was not available due to technical issues. Subsequently, the proponent had submitted new online application in the name of M/s. Naraj Blue Metals Private Limited Rough stone and Gravel Quarry and the application number is SIA/TN/MIN/421650/2023 and offline File No.9926/2023 and requested before the committee to appraise the proposal pertaining to online proposal number SIA/TN/MIN/421650/2023 and File No.9926/2023.

  
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- 5- Based on the above facts, committee accepted the request of the proponent to appraise SIA/TN/MIN/421650/2023 (offline File No.9926/2023) and accepts the proponent request to withdraw the online number vide SIA/TN/MIN/418675/2023 (offline File No.9841/2023).

Based on the presentation and documents furnished by the project proponent, SEAC decided to recommend the proposal with following changes in its geometry of operation:

Year	As per Approved Mining Plan (First Five Years)					Revised as per SEAC Meeting for recommendations of ToR				
	Section	Bench	Height (m)	Width (m)	Depth (m)	Section	Bench	Height (m)	Width (m)	Depth (m)
1 <sup>st</sup> year	XY-AB	98-100	135	130	2	XY-AB	98-100	135	130	2
		96-98	135	130	2		96-98	135	130	2
		91-96	130	122	5		91-96	130	122	5
2 <sup>nd</sup> year	XY-AB	96-99	39	130	2	XY-AB	98-100	39	130	2
		96-100	39	130	2		96-98	39	130	2
	XY-CD	96-99	84	139	2	XY-CD	98-100	84	139	2
		96-100	84	139	2		96-98	84	139	2
	XY-AB	91-96	40	122	5	XY-AB	91-96	40	122	5
	XY-CD	91-96	80	131	5	XY-CD	91-96	80	131	5
86-91		10	121	5		86-91	10	121	5	
3 <sup>rd</sup> year	XY-CD	86-91	65	121	5	XY-CD	86-91	65	121	5
	XY-AB	86-92	80	112	5	XY-AB	86-91	80	112	5
4 <sup>th</sup> year	XY-AB	86-91	85	112	5	XY-AB	86-91	85	112	5
		81-86	73	102	5		81-86	73	102	5
5 <sup>th</sup> year	XY-AB	81-86	87	102	5	XY-AB	81-86	87	102	5
	AB-CD	81-86	70	111	5	AB-CD	81-86	70	111	5
Total		4,14,325 m <sup>3</sup>				Total	4,14,325 m <sup>3</sup>			

Year	As per Approved Mining Plan (Next Five Years)					Revised as per SEAC Meeting for recommendations of ToR				
	Section	Bench	Height	Width	Depth	Section	Bench	Height	Width	Depth

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			(m)	(m)	(m)			(m)	(m)	(m)	
6 <sup>th</sup> year	XY-CD	76-81	65	101	5	XY-CD	76-81	65	101	5	
	XY-AB	76-81	115	92	5	XY-AB	76-81	115	92	5	
7 <sup>th</sup> year	XY-AB	76-81	40	92	5	XY-AB	76-81	40	92	5	
	XY-CD	71-76	60	91	5	XY-CD	71-76	60	91	5	
	XY-AB	71-76	106	82	5	XY-AB	71-76	106	82	5	
8 <sup>th</sup> year	XY-AB	71-76	44	82	5	XY-AB	71-76	44	82	5	
		66-71	145	72	5		66-71	145	72	5	
	XY-CD	66-71	45	81	5	XY-CD	66-71	45	81	5	
9 <sup>th</sup> year	XY-CD	66-71	10	81	5	XY-CD	66-71	10	81	5	
		61-66	50	71	5		61-66	50	71	5	
		56-61	45	61	5		56-61	45	61	5	
	XY-AB	61-66	140	62	5	XY-AB	61-66	140	62	5	
		56-61	30	52	5		56-61	30	52	5	
10 <sup>th</sup> year	XY-AB	56-61	105	52	5	XY-AB	56-61	105	52	5	
		51-56	130	42	5	XY-AB	51-56	130	42	5	
		46-51	120	32	5						
		41-46	110	22	5						
		36-41	100	12	5						
		XY-CD	51-56	40	51	5	XY-CD	51-56	40	51	5
Total (VI-X Years)			4,52,175 m <sup>3</sup>			Total (VI-X Years)			4,14,875 m <sup>3</sup>		
Grand Total (I-X Years)			8,60,000 m <sup>3</sup>			Grand Total (I-X Years)			8,29,200 m <sup>3</sup>		

**1 REVISED PRODUCTION DETAILS**

YEAR	Revised Yearly Production (m <sup>3</sup> )									Annual Peak Production Capacity (m <sup>3</sup> )					
	As per Approved Mining Plan					Revised as per SEAC Meeting for recommendations of ToR				As per Approved Mining Plan			Revised as per SEAC Meeting		
	Section	Ben ch	Rough Stone (m <sup>3</sup> )	Weathered rock (m <sup>3</sup> )	Gravel (m <sup>3</sup> )	Ben ch	Rough Stone (m <sup>3</sup> )	Weathered rock (m <sup>3</sup> )	Gravel (m <sup>3</sup> )	Rough Stone (m <sup>3</sup> )	Weathered rock (m <sup>3</sup> )	Gravel (m <sup>3</sup> )	Rough Stone (m <sup>3</sup> )	Weathered rock (m <sup>3</sup> )	Gravel (m <sup>3</sup> )
I	XY-AB	98-100			35100	98-100			35100			35100			35100
		96-		35100		96-		35100		35100			35100		

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		98				98													
		91-96	79300			91-96	79300			79300						79300			
II	XY-AB	96-99			10140	98-100				10140									
		96-100		10140		96-98		10140											
	C D	96-99			23352	98-100				23352									
		96-100		23352		96-98		23352		82,850	33,492	33,492	82,850		33,492		33,492		
		91-96	24400			91-96	24400												
X Y-C D	9-96	100	52400		91-96	52400													
	86-91	6050			86-91	6050													
III	X Y-C D	86-91	39325			86-91	39325			84,125					84,125				
		86-92	44800			86-91	44800												
IV	X Y-A B	86-91	47600			86-91	47600			84,830					84,830				
		81-86	37230			81-86	37230												
V	X Y-A B	81-86	44370			81-86	44370			83,220					83,220				
		81-86	38850			81-86	38850												

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Sub Total (I to V)	414	6859	68	414	6859	68	414	68592	685	414	68592	685
	325	2	59	325	2	59	325	2	92	325	68592	92

Y E A R	Revised Yearly Production (m <sup>3</sup> )							Annual Peak Production Capacity (m <sup>3</sup> )											
	As per Approved Mining Plan				Revised as per SEAC Meeting for recommendations of ToR			As per Approved Mining Plan			Revised as per SEAC Meeting								
	Section	Bench	Rough Stone (m <sup>3</sup> )	Weathered rock (m <sup>3</sup> )	Gravel (m <sup>3</sup> )	Bench	Rough Stone (m <sup>3</sup> )	Weathered rock (m <sup>3</sup> )	Gravel (m <sup>3</sup> )	Bench	Rough Stone (m <sup>3</sup> )	Weathered rock (m <sup>3</sup> )	Gravel (m <sup>3</sup> )	Bench	Rough Stone (m <sup>3</sup> )	Weathered rock (m <sup>3</sup> )	Gravel (m <sup>3</sup> )		
VI	XY-CD	76-81	328-25	-	-	7-8	328-25	-	-	76-81	-	-	-	85-725	-	-	85-725	Nil	Nil
	XY-AB	76-81	529-00	-	-	7-8	529-00	-	-	76-81	-	-	-	-	-	-	-	-	-
VI I	XY-AB	76-81	184-00	-	-	7-8	184-00	-	-	76-81	-	-	-	-	-	-	-	Nil	Nil
	XY-CD	71-76	273-00	-	-	7-7	273-00	-	-	71-76	-	-	-	89-160	-	-	89-160	-	-
	XY-AB	71-76	434-60	-	-	7-7	434-60	-	-	71-76	-	-	-	-	-	-	-	-	-
VI II	XY-AB	71-76	180-40	-	-	7-7	180-40	-	-	71-76	-	-	-	88-465	-	-	88-465	Nil	Nil
	XY-AB	66-71	522-00	-	-	6-7	522-00	-	-	66-71	-	-	-	-	-	-	-	-	-

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						1												
	XY - CD	66 - 71	182 25	-	-	6 6- 7	182 25	-	-	66 - 71		-	-					
IX		66 - 71	405 0	-	-	6 6- 7	405 0	-	-	66 - 71		-	-				Nil	Ni 1
	XY - CD	61 - 66	177 50	-	-	6 1- 6	177 50	-	-	61 - 66		-	-					
		56 - 61	137 25	-	-	5 6- 6	137 25	-	-	56 - 61	86, 725	-	-	86, 725				
		61 - 66	434 00	-	-	6 1- 6	434 00	-	-	61 - 66		-	-					
	XY - AB	56 - 61	780 0	-	-	5 6- 6	780 0	-	-	56 - 61		-	-					
		56 - 61	273 00	-	-	5 6- 6	273 00	-	-	56 - 61		-	-					Nil
X		51 - 56	273 00	-	-	5 1- 5	273 00	-	-	51 - 56		-	-					
	XY - AB	46 - 51	192 00	-	-	4 6- 6	192 00	-	-	46 - 51	1,0 2,1 00	-	-	64, 800			Ni 1	
		41 - 46	121 00	-	-	4 1- 6	121 00	-	-	41 - 46		-	-					
		36 - 41	600 0	-	-	3 6- 6	600 0	-	-	36 - 41		-	-					
		51 - 56	102 00	-	-	5 1- 5	102 00	-	-	51 - 56		-	-					
	XY - CD	51 - 56	102 00	-	-	5 1- 5	102 00	-	-	51 - 56		-	-					

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Sub Total (V I to X)	452 175	Nil	Nil 1	414 875	Nil	Nil 1	452 175	4,1 4,8 75	Nil	Nil 1	
	Grand Total	8,6 6,5 00	6859 2	68 59	8,2 9,2 00	6859 2	68 59 2	8,6 6,5 00	68 59 2	8,2 9,2 00	6859 2

Based on the presentation made by the proponent SEAC recommended grant of Terms of Reference (TOR) with Public Hearing, subject to the following TORs, in addition to the standard terms of reference for EIA study for non-coal mining projects and details issued by the MOEF & CC to be included in EIA/EMP Report:

1. The proponent is requested to submit the valid registered lease document during the EIA appraisal after the previous lease granted for the mining operations is legally surrendered (or) lapses with the reconset of the competent authority.
2. The proponent must withdraw the duplicate application in Parivesh Portal vide Online proposal Number as follows.
3. ToR - SIA/TN /MIN/4 18675/202 3 D 13.17.02 .20
4. The PP shall maintain the proposed quarrying operation restricted to an ultimate depth of 49m only for securing safety of the persons employed and accordingly the revised production & development plan to be submitted during the EIA appraisal.
5. Since there are many wells situated in and around the proposed mine lease area, the proponent shall furnish the details regarding the aquifer and the radius of influence of well which are situated within 1km radius.
6. The proponent shall submit the details regarding the nature of blasting activity which will be carried out.
7. The PP shall provide individual notice regarding the Public Hearing to the nearby house owners located in the vicinity of the project site.

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8. In the case of proposed lease in an existing (or old) quarry where the benches are non-existent (or) partially formed critical of the bench geometry approved in the Mining Plan, the Project Proponent (PP) shall prepare and submit an 'Action Plan' for carrying out the realignment of the 'highwall' benches to ensure slope stability in the proposed quarry lease which shall be vetted by the concerned Asst. Director of Geology and Mining, during the time of appraisal for obtaining the EC.
9. The Project Proponent shall furnish the conceptual slope stability action plan for the planned working of the quarry by maintaining appropriate benches incorporating the haul road with proper gradient, along with the proposed stabilizing measures during the appraisal while obtaining the EC, as the depth of the proposed working is extended beyond 30 m below ground level.
10. **If the blasting operation is to be carried out, the PP shall present a conceptual design for carrying out the NONEL initiation based controlled blasting operation involving line drilling & muffle blasting and Simulation Model indicating the Blast-induced Ground Vibration levels predicted at a distance of 100m, 150m, 200m, 300m, 400m, and 500m from the boundary of the proposed quarry as per the conditions stipulated by the DGMS Circular No.7 of 1997, during the EIA Proposal.**
11. Details of Green belt & fencing shall be included in the EIA Report.
12. Public Hearing points raised and commitments of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.
13. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
14. The PP shall produce/display the EIA report, Executive summery and other related information with respect to public hearing in Tamil Language also.

#### ANNEXURE-I

1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:

  
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- (i) Original pit dimension
  - (ii) Quantity achieved Vs EC Approved Quantity
  - (iii) Balance Quantity as per Mineable Reserve calculated.
  - (iv) Mined out Depth as on date Vs EC Permitted depth
  - (v) Details of illegal/illicit mining
  - (vi) Violation in the quarry during the past working.
  - (vii) Quantity of material mined out outside the mine lease area
  - (viii) Condition of Safety zone/benches
  - (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.
2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
  3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
  4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
  5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
  6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
  7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining

  
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- Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.
8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
  9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
  10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.
  11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
  12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
  13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
  14. Quantity of minerals mined out.
    - Highest production achieved in any one year
    - Detail of approved depth of mining.
    - Actual depth of the mining achieved earlier.
    - Name of the person already mined in that leases area.
    - If EC and CTO already obtained, the copy of the same shall be submitted.
    - Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
  15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).

  
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16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,
17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.
19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.
22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and

  
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- other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
  26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
  27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
  28. Impact on local transport infrastructure due to the Project should be indicated.
  29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
  30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
  31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
  32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
  33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS

  
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- coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
  35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
  36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
  37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
  38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
  39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
  40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
  41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.
  42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
  43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

  
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**Appendix -I****List of Native Trees Suggested for Planting**

1. *Aeglemarmelos*-Vilvam
2. *Adenaantherapavonina*-Manjadi
3. *Albizialebbeck*-Vaagai
4. *Albiziaamara*-Usil
5. *Bauhinia purpurea* - Mantharai
6. *Bauhinia racemosa* - Aathi
7. *Bauhinia tomentosa*-Iruvathi
8. *Buchananiaaillaris*-Kattuma
9. *Borassusflabellifer*- Panai
10. *Buteamonosperma* - Murukkamaram
11. *Bobaxceiba*- Ilavu, Sevvilavu
12. *Calophylluminophyllum* - Punnai
13. *Cassia fistula*- Sarakondrai
14. *Cassia roxburghii*- Sengondrai
15. *Chloroxylonsweitenia* - Purasamaram
16. *Cochlospermumreligiosum*- Kongu, Manjallavu
17. *Cordiadichotoma*- Mookuchalimaram
18. *Cretevaadansonii*-Mavalingum
19. *Dilleniaindica*- Uva, Uzha
20. *Dilleniapentagyna*- SiruUva, Sitruzha
21. *Diospyrosebenum*- Karungali
22. *Diospyroschloroxylon*- Vaganai
23. *Ficusamplissima*- Kalltchi
24. *Hibiscus tiliaceous*-Aatrupoovarasu
25. *Hardwickiabinata*- Aacha
26. *Holopteliaintegrifolia*-Aayili
27. *Lanneacoromandelica* - Odhiam
28. *Lagerstroemia speciosa* - Poo Marudhu
29. *Lepisanthustetraphylla*- Neikottaimaram

  
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30. *Limoniaacidissima* - Vila maram
31. *Litseaglutinosa* - Pisinpattai
32. *Madhucalongifolia* - Illuppai
33. *Manilkarahexandra* - UlakkaiPaalai
34. *Mimusopselengi* - Magizhamaram
35. *Mitragynaparvifolia* - Kadambu
36. *Morindapubescens* - Nuna
37. *Morindacitrifolia* - VellaiNuna
38. *Phoenix sylvestre* - Eachai
39. *Pongamiapinnata* - Pungam
40. *Premnamollissima* - Munnai
41. *Premnaserratifolia* - Narumunnai
42. *Premnatomentosa* - PurangaiNaari, PudangaNaari
43. *Prosopiscinerea* - Vannimaram
44. *Pterocarpusmarsupium* - Vengai
45. *Pterospermumcanescens* - Vennangu, Tada
46. *Pterospermumxylocarpum* - Polavu
47. *Puthranjivaroxburghii* - Puthranjivi
48. *Salvadorapersica* - Ugaamaram
49. *Sapindusemarginatus* - Manipungan, Soapukai
50. *Saracaasoca* - Asoca
51. *Streblusasper* - Pirayamaram
52. *Strychnosnuxvomica* - Yetti
53. *Strychnopotatorum* - TherthangKottai
54. *Syzygiumcumini* - Naval
55. *Terminaliabellerica* - Thandri
56. *Terminalia arjuna* - Venmarudhu
57. *Toona ciliate* - Sandhanavembu
58. *Thespesiapopulnea* - Puvarasu
59. *Walsuratrifoliata* - valsura
60. *Wrightiatinctoria* - Vep

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**SEIAA Remarks: -**

The proposal was placed in the 654<sup>th</sup> Authority meeting held on 13.09.2023. The proposal was earlier placed in the 367<sup>th</sup> SEAC Meeting held on 31.03.2023.

The SEAC noted the following:

4. The proponent had submitted online application in the name of Thiru. P. Naraj Rough stone and Gravel Quarry and the application number is SIA/TN/MIN/418675/2023 and offline File No.9841/2023. Due to change in name of the project, the proponent tried to withdraw the application but the withdraw option was not available due to technical issues. Subsequently, the proponent had submitted new online application in the name of M/s. Naraj Blue Metals Private Limited Rough stone and Gravel Quarry and the application number is SIA/TN/MIN/421650/2023 and offline File No.9926/2023 and requested before the committee to appraise the proposal pertaining to online proposal number SIA/TN/MIN/421650/2023 and File No.9926/2023.

Subsequently, the proposal was placed in 614<sup>th</sup> SEIAA meeting held on 24.04.2023 & 25.04.2023.

The Authority after detailed deliberation, decided that

1. The proponent shall give clear justification for withdrawal of the online proposal no. SIA/TN/MIN/418675/2023 and offline File No.9841/2023.
2. The proponent shall submit withdrawal request in online through Parivesh Portal pertaining to online proposal no. SIA/TN/MIN/418675/2023.
3. The proponent is requested to upload the approved mining plan in the Parivesh Portal for the online proposal number SIA/TN/MIN/421650/2023.

In the view of the above, Authority decided that the process for online proposal no. SIA/TN/MIN/421650/2023 and File No.9926/2023 shall be kept in abeyance until proper justification and withdrawal process of F.No.9841 is completed.

The Authority decided to request Member Secretary – TN to communicate the minutes to the proponent.

Subsequently, proponent had submitted a representation to O/o SEIAA on 11.05.2023.

Based on the above, the proposal was again placed in 631<sup>st</sup> SEIAA meeting held on 19.06.2023.

  
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The Authority after detailed deliberation decided that the proponent shall approach National Informatics Centre (NIC) in withdrawing the file pertaining to SIA/TN/MIN/418675/2023 and offline File No.9841/2023 in Parivesh Portal. Upon the completion of withdrawal process further action with respect to SIA/TN/MIN/421650/2023 and File No.9926/2023 shall be taken. The MS-SEIAA may also address NIC/Parivesh to assist in withdrawal and the proponent expressed his difficulties in withdrawal.

Subsequently, the proponent submitted a reply vide letter received by this O/o SEIAA dated: 24.08.2023. The authority noted that

1. The proponent/consultant had approached monitoring team, Forest and Climate Change Informatics Division (FCCID), MoEF&CC to address their difficulties in withdrawing the proposal pertaining to online proposal number SIA/TN/MIN/418675/2023 via E-mail dated 20.07.2023.
2. Subsequently, monitoring team had replied to the above request made by the proponent/consultant that

*"...proposal can be withdrawn before adding in the agenda"*

In the view of the above facts, Authority after detailed deliberation decided that

- A. The proponent's application vide online proposal number SIA/TN/MIN/418675/2023 herewith stands closed and recorded, since the project name and the company name in the Parivesh portal is different. Hence, decided that MS-SEIAA shall intimate to the proponent that for afore-stated reasons, the proponent's application is closed and recorded.
- B. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing for proposal pertaining to online number vide SIA/TN/MIN/421650/2023** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the following conditions and the conditions mentioned in 'Annexure B' of this minute:

**Annexure 'B'**

**Cluster Management Committee**

1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.

  
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2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,
3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.
4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.
5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.
6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.
7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.
8. The committee shall furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.

**Impact study of mining**

12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
  - a) Soil health & soil biological, physical land chemical features.
  - b) Climate change leading to Droughts, Floods etc.
  - c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
  - d) Possibilities of water contamination and impact on aquatic ecosystem health.
  - e) Agriculture, Forestry & Traditional practices.

  
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- f) Hydrothermal/Geothermal effect due to destruction in the Environment.
- g) Bio-geochemical processes and its foot prints including environmental stress.
- h) Sediment geochemistry in the surface streams.

### **Agriculture & Agro-Biodiversity**

- 13. Impact on surrounding agricultural fields around the proposed mining Area.
- 14. Impact on soil flora & vegetation around the project site.
- 15. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.
- 16. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
- 17. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
- 18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.

### **Forests**

- 19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
- 20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
- 21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
- 22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.

### **Water Environment**

- 23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will

  
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intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.

24. Erosion Control measures.
25. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.
28. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.

#### **Energy**

31. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.

#### **Climate Change**

32. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.
33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.

#### **Mine Closure Plan**

34. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.

#### **EMP**

35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.

  
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36. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.

**Risk Assessment**

37. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.

**Disaster Management Plan**

38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.

**Others**

39. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.

40. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.

41. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

**A. STANDARD TERMS OF REFERENCE**

- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
- 2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
- 3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.

  
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- 4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land

  
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- area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
  - 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
  - 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
  - 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
  - 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
  - 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
  - 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for

  
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implementing the same should be made as part of the project cost.

- 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
- 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- 22) One season (non-monsoon) [i.e., March-May (Summer Season); October-December (post monsoon season); December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air

  
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quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
- 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
- 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
- 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of

  
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- plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
- 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
  - 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
  - 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
  - 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
  - 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
  - 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
  - 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
  - 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided

  
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- and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed: -
- Executive Summary of the EIA/EMP Report
  - All documents to be properly referenced with index and continuous page numbering.
  - Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
  - Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
  - Where the documents provided are in a language other than English, an English translation should be provided.
  - The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
  - While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA. II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
  - Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.
  - As per the circular no. J-11011/618/2010-IA. II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the

  
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existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.

- j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

**In addition to the above, the following shall be furnished: -**

**The Executive summary of the EIA/EMP report in about 8-10 pages should be prepared incorporating the information on following points:**

1. Project name and location (Village, District, State, Industrial Estate (if applicable)).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.

  
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15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of its acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

  
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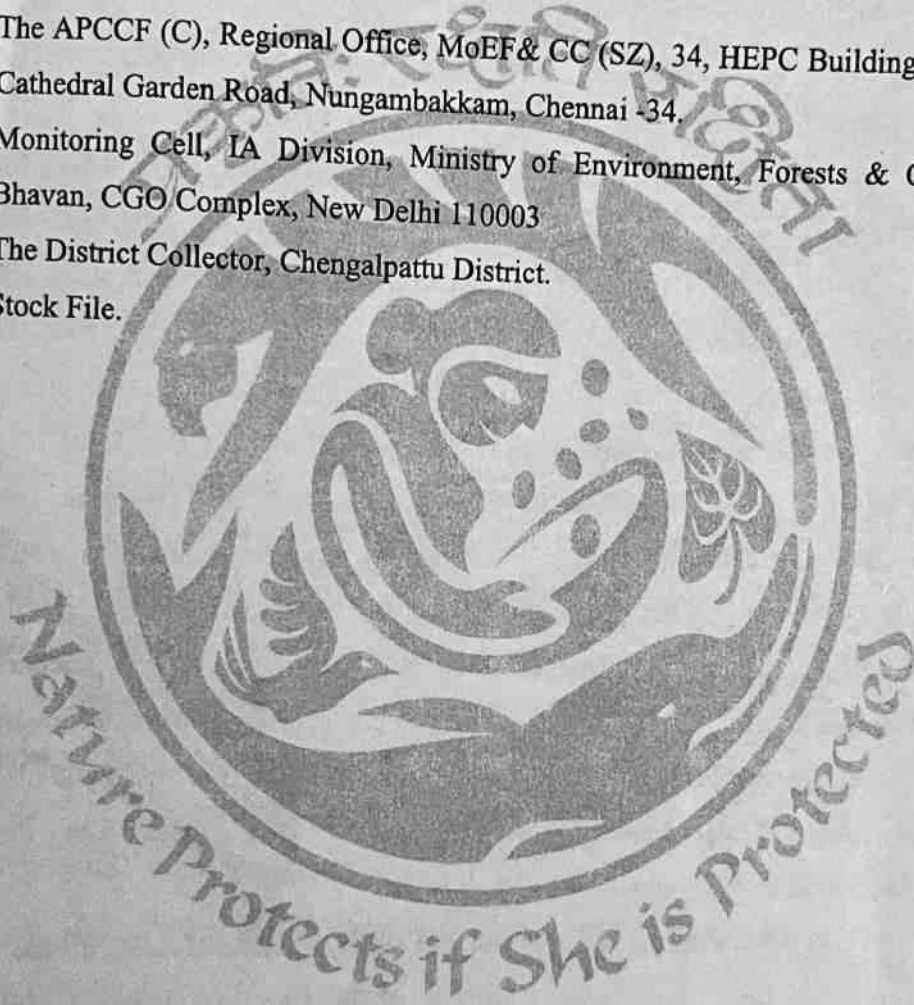
**Besides the above, the below mentioned general points should also be followed: -**

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF& CC vide O.M. No. J-11013/41/2006-IA. II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2<sup>nd</sup> December, 2009, 18<sup>th</sup> March 2010, 28<sup>th</sup> May 2010, 28<sup>th</sup> June 2010, 31<sup>st</sup> December 2010 & 30<sup>th</sup> September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.
  - After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
  - The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
  - The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29<sup>th</sup> August, 2017.

  
MEMBER SECRETARY  
SEIAA-TN

**Copy to:**

1. The Additional Chief Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai-600 032.
4. The APCCF (C), Regional Office, MoEF & CC (SZ), 34, HEPC Building, 1<sup>st</sup> & 2<sup>nd</sup> Floor, Cathedral Garden Road, Nungambakkam, Chennai -34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
6. The District Collector, Chengalpattu District.
7. Stock File.



TOR Reply of Rough stone and gravel Quarry Over an Extent of 4.32.10 Ha

**COMPLIANCE OF TOR CONDITIONS**

**Point wise compliance of ToR points issued by SEIAA, TN vide letter No. SEIAA-TN/F. No. 9926/ToR-1572/2023 Dated: 13.09.2023 for Mining of Minor Minerals in the Mine of “Rough stone and gravel Quarry ” Over an Extent of 4.32.10 Ha at S.F.No. 264/2(P), 264/3A(P), 267/2(P) & 267/38 of Akkinampattu Village, Cheyyur Taluk, Chengalpattu District, Tamilnadu State.**

ToR Ref.	Description	Response	Page Ref. in EIA Report
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification, 1994 came into force w.r.t. the highest production achieved prior to 1994.	Precise area communication letter received from the Assistant director Chengalpattu District vide letter Na.Ka.No.101/Kaniman/2022, dated 10.01.2023.  Mining Plan was approved by The Assistant Director (i/c), Department of Geology and Mining, Chengalpattu District vide letter Roc.No.101/Mines/2022 dated 31.03.2023  The Production of Rough Stone & Gravel for five years is proposed in the EIA/EMP in chapter no-2.	Chapter-2  Table No.2.2  Page No.35
2.	A copy of document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	The mine lease area of 4.32.10 hectare in Akkinampattu Village for Rough stone quarry approved by Deputy Director, Geology & Mining, Chengalpattu vide letter letter Na.Ka.No.101/Kaniman/2022, dated 10.01.2023.	Annexure-III

**TOR Reply of Rough stone and gravel Quarry Over an Extent of 4.32.10 Ha**

3	All documents including approved mine plan, EIA and public hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management and mining technology and should be in the name of the lessee.	All the documents i.e., Mining Plan, EIA and public hearing are compatible with each other in terms of ML area production levels, waste generation and its management and mining technology are compatible with one another.  Mining Plan was approved by The Assistant Director (i/c), Department of Geology and Mining, Chengalpattu District vide letter  Roc.No.101/Mines/2022 dated 31.03.2023	Annexure-III
4	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/toposheet should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Details of coordinates of all corners of proposed mining lease area have been incorporated in mining plan and Chapter 2 of EIA/ EMP Report.	Chapter-2, Fig no. 2.2  Page. no. 37
5	Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, important water bodies, streams and rivers and soil characteristics	Topo map as attached in Chapter-2	Chapter-2, Fig no. 2.4  Page. no. 40



TOR Reply of Rough stone and gravel Quarry Over an Extent of 4.32.10 Ha

6.	<p>Details about the land proposed for mining activities should be given with information as to whether conforms to the land use policy of the state; land diversion for mining should have approval from State land use board or the concerned authority</p>	<p>Details about the land proposed for mining activities should be given Chapter 2.</p>	<p>Chapter-2 Page 42</p>
7	<p>It should be clearly stated whether the proponent company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions?</p> <p>The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances /</p>	<p>Noted.</p>	

TOR Reply of Rough stone and gravel Quarry Over an Extent of 4.32.10 Ha

	violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large may also be detailed in the EIA report.		
8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	It is an open cast mining project. Blasting details are incorporated in chapter 2	Chapter-2,  Page no.51
9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc should be for the life of the mine / lease period.	Study area comprises of 10 km radius from the mine lease boundary. Key Plan showing core zone (ML area).	Chapter-2  Fig no. 2.5  Page no.41
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other	Land Use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, National park, migratory routes of fauna, water bodies, human settlements and other ecological features has been prepared and incorporated in Chapter-3 of EIA/ EMP Report.	Chapter 3

## TOR Reply of Rough stone and gravel Quarry Over an Extent of 4.32.10 Ha

	<p>ecological features should be indicated.</p> <p>Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.</p>	<p>There is no wildlife sanctuary and national park, migratory routes of fauna in the study area.</p>	<p>Chapter 2, Table no. 2.4 Page no.42</p>
11	<p>Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&amp;R issues, if any, should be given.</p>	<p>The top soil formation will be removed and dumped in North Western and South Western side of the 10.0 m boundary barrier of the lease area. This will be utilized for road low laying area and plantation purposes.</p>	<p>Chapter-2,  Page no.51</p>
12	<p>A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area.</p> <p>In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on</p>	<p>Complied.</p> <p>The mine lease area is not falling under forest land.</p>	

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	which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.		
13	Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	The mine lease area is not falling under forest land.	
14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	Not Applicable.  There is no involvement of forest land in the project area.	
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be	Details of flora have been discussed in Chapter-3 of the EIA/EMP Report.	Chapter-3 Pg No. 60

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16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly detailed mitigative measures required, should be worked out with cost implications and submitted.	There is a relatively poor sighting of animals in the core and buffer areas of the mining lease.  No significant impact is anticipated	
17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/Elephant Reserves/ (existing as well as proposed), if any, within 10km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the State Wildlife Department/Chief	There is no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger / Elephant Reserves / Critically Polluted areas within 10 km radius of the mining lease area.	Chapter 2, Table no. 2.4 Page no.42

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18	<p>A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.</p>	<p>Details biological study (flora &amp; fauna) within 10 km radius of the project site have been incorporated in Chapter-3 of EIA/ EMP Report.</p> <p>No flora &amp; fauna listed in scheduled I have been found in study area so there is no need of conservation plan. However, all care will be taken for protection of flora &amp; fauna, if any in the lease hold area.</p>	<p>Chapter – 3 Pg No. 93</p>
19	<p>Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance</p>	<p>The proposed mining lease area is not falling under critically polluted area.</p>	

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	<p>certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.</p>		
20	<p>Similarly, for coastal projects, A CRZ map duly authenticated by one of the authorized agencies Similarly, for coastal projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority)</p>	<p>There is no Coastal Zone within 15km radius of the project site.</p>	
21	<p>R&amp;R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&amp;R Plan, the relevant State/National Rehabilitation &amp; Resettlement Policy should be kept in view. In respect of</p>	<p>There is no Rehabilitation and resettlement is involved. Land classified as Patta land</p>	

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	<p>SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village located in the mine lease area will be shifted or not. The issues relating to shifting of Village including their R&amp;R and socio-economic aspects should be discussed in the report.</p>		
22	<p>One season (non-monsoon) and (Summer Season), (Post monsoon) primary baseline data on ambient air quality CPCB Notification of 2009 water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report.</p>	<p>Baseline data collected during Pre-Monsoon Season and Monsoon (March to May 2023) has been incorporated in EIA/EMP report.</p> <p>The key plan of monitoring station has been discussed in Chapter-4. Locations of the monitoring stations have been selected keeping in view the pre- dominant downwind direction and location of the sensitive receptors and also that they represent whole of the study area.</p>	Chapter 3



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	<p>Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.</p>		
23	<p>Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided.</p>	<p>Air quality modelling &amp; Impact of Air quality will be furnished in Final EIA report.</p> <p>Transportation of mineral during operation of mines will be done by road &amp; MDR-422 through dumpers and the impact of movement of vehicles are incorporated in EIA/EMP report.</p>	<p>Chapter-4</p> <p>Chapter 3 Page No.106</p>

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	<p>The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing predominant wind direction may also be indicated on the map.</p>		
24	<p>The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.</p>	<p>Total water requirement: 2.5 KLD  Dust Suppression: 0.5 KLD  Domestic Purpose: 1.50 KLD  Plantation :0.5 KLD  Domestic Water will be sourced from nearby Vettakarakuppam Village which is about <math>\approx</math> 1.14 km on ESE side of the area.</p>	<p>Chapter-2  Table 2.14  Page no.54</p>
25	<p>Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.</p>	<p>Not Applicable  Water will be taken from nearby villages</p>	
26	<p>Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.</p>	<p>At the last stage of mining operation, almost complete area will be worked to restore the land to its optimum reclamation for future use as water reservoir.</p>	

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27	Impact of the project on the water quality, both surface and groundwater should be assessed and necessary safeguard measures, if any required, should be provided.	Impact of the project on the water quality & its mitigation measures has been incorporated in Chapter-4 of EIA/EMP report.	Chapter-4 Page No.109
28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	Maximum working depth: 49 m The ground water table is reported as 70 m to 75 m below surface ground level in nearby wells of this area. Now, the present quarry shall be proposed above the water table and hence, quarrying may not affect the ground water So mine working will not be intersecting the ground water table.	Chapter-2 Table 2.2 Page no. 35
29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	There is no any stream crossing in the proposed quarry	Executive Summary

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30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.	Site Elevation: 100 AMSL Depth: 49 m	Chapter-2 Table no. 2.2 Page no. 35
31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant pollution	Green Belt Development plan is proved given in Chapter 2.	Chapter-2

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32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project proponent shall conduct impact of Transportation study as per Indian Road Congress Guidelines	Impact on local transport infrastructure due to the project has been assessed. There shall not be much impact on local transport. Traffic density from the proposed mining activity has been incorporated in EIA/EMP report.	Chapter-3  Page No.106
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA report.	Adequate infrastructure & other facilities shall be provided to the mine workers. Details are given in chapter-2 of EIA/EMP	Chapter-2
34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate	Conceptual post mining land use and Reclamation and restoration sectional plates are given in Mining Plan followed by Scheme of mining.	Mining Plan and Plates as Annexure V and VI

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	number of sections) should be given in the EIA report.		
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project in the mining area may be detailed.	Suitable measure will be adopted to minimize occupational health impacts of the project. The project shall have positive impact on local environment. Details are given in chapter-10 of EIA/EMP.	Chapter-10 Pg No. 143
36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Suitable measure will be adopted to minimize occupational health impacts of the project.	Chapter-10 Pg No. 143
37	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be	Suitable measures has been discussed in Chapter 4	Chapter-4 Pg No. 109

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	indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.								
38	Detailed environmental management plan to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	Environment Management Plan has been described in detail in Chapter-10 of the EIA/EMP Report.	Chapter-10 Pg No. 143						
39	Public hearing points raised and commitment of the project proponent on the same along with time bound action plan to implement the same should be provided and incorporated in the final EIA/EMP Report of the Project.	Public Hearing proceedings will be furnished in Final EIA report							
40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the project should be given.	Not applicable  No. litigation is pending against the project in any court.							
41	The cost of the project (capital cost and recurring cost) as well as the cost towards	<table border="1"> <thead> <tr> <th>S. No</th> <th>Description</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Fixed Asset Cost</td> <td>1,18,81,500</td> </tr> </tbody> </table>	S. No	Description	Cost	1	Fixed Asset Cost	1,18,81,500	Chapter-8 Pg No. 138
S. No	Description	Cost							
1	Fixed Asset Cost	1,18,81,500							

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	implementation of EMP should clearly be spelt out.	<b>Total</b>	<b>1,18,81,500</b>	
		<b>EMP Cost:</b> <b>28255964/- for 10 Years</b>		
42	Disaster Management Plan shall be prepared and included in the EIA/EMP Report.	Disaster Management and Risk Assessment has been incorporated in Chapter-7		Chapter-7 Pg No. 130
43	Benefits of the project if the project is implemented should be spelt out. The benefits of the project shall clearly indicate environmental, social economic, employment potential etc.	Benefits of the project has incorporated		Chapter-8 Pg No. 137
44	Besides the above, the below mentioned general points are also to be followed:			
(a)	Executive Summary of the EIA/EMP report	Executive Summary of EIA Report is given from page No.10-25		
(b)	All documents to be properly referenced with index and continuous page numbering.	Complied		
(c)	Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.	Complied		
(d)	Project Proponent shall ) enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF & CC NABL	Complied		



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	accredited laboratories. All the original analysis/testing reports should be available during appraisal of the project.		
(e)	Where the documents provided are in a language other than English, an English translation should be provided.	Complied	
(f)	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	The complete questionnaire has been prepared	
(g)	While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF vide O.M. No. J- 11013/41/2006-IA. II(I) dated 4th August 2009, which are available on the website of this Ministry, should also be followed.	The EIA report has been prepared and complying with the circular issued by MoEF vide O.M. No. J-11013/41/2006-IA. II(I) dated 4th August 2009.	
(h)	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF with reasons for such changes and permission	There are no changes in prepared EIA as per submitted Form-1 & PFR	

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	<p>should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation</p>		
(i)	<p>As per the circular no. J-11011/618/2010-IA. II(I) dated 30.5.2012, report on the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project by the Regional Office of Ministry of Environment &amp; Forests, if applicable.</p>	<p>Will be complied after grant environment clearance from SEIAA, Tamilnadu</p>	
(j)	<p>The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections (iii) sections of mine pit and external dumps, if any clearly showing the features of the adjoining area.</p>	<p>All Sectional Plates of Quarry is enclosed in Mining Plan.</p>	

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**Additional TOR by SEAC**

S.No.	Condition	Compliance
1.	The proponent is requested to submit the valid registered lease document during the EIA appraisal after the previous lease granted for the mining operations is legally surrendered (or) lapsed with the consent of the competent authority.	Agreed. It will be complied
2.	The proponent must withdraw the duplicate application in Parivesh portal vide online proposal Number as follow	Noted
3.	TOR – SIA/TN/MIN/418675/2023 Dated : 17.02.2023	Complied
4.	The PP shall maintain the proposed quarrying operation restricted to an ultimate depth of 49m only for securing safety of the persons employed and accordingly the revised production & development plan to be submitted during the EIA appraisal.	Agreed to comply
5.	Since there are many wells situated in and around the proposed mine lease area, the proponent shall furnish the details regarding the aquifer and the radius of influence of well which are situated within 1km radius.	Noted
6.	The Proponent shall submit the details regarding the nature of blasting activity which will be carried out.	Agreed to comply

TOR Reply of Rough stone and gravel Quarry Over an Extent of 4.32.10 Ha

7.	The PP shall provide individual notice regarding the Public Hearing to the nearby house owners located in the vicinity of the project site.	
8.	In the case of proposed lease in an existing (or old) quarry where the benches are non-existent (or) partially formed critical of the bench geometry approved in mining plan, the project proponent (PP) shall prepare and submit an 'Action Plan' for carrying out the realignment of the 'highway' benches to ensure slope stability in the proposed quarry lease which shall be vetted by the concerned Asst .Director of Geology and Mining, during the time of appraisal for obtaining the EC.	Noted. It will be submitted in the Final EIA report.
9.	The PP shall furnish the conceptual slope stability action plan for the planned working of the quarry by maintaining appropriate benches incorporating the haul road with proper gradient, along with the proposal working is extended beyond 30m below ground level.	Noted. It will be submitted in the Final EIA report.
10.	If the blasting operation is to be carried out, the PP shall present a conceptual design for carrying out the NONEL initiation based controlled blasting operation involving line drilling & muffle blasting and Simulation Model indicating the Blast-induced Ground Vibration levels predicted at a distance of 100m, 150m, 200m, 300m, 400m and 500m from the boundary of the proposed quarry as per the conditions stipulated by the DGMS Circular No.7 of 1997, during the EIA Proposal.	Noted. It will be submitted in the Final EIA report.

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11.	Details of Green belt & fencing shall be included in the EIA Report.	Noted
12.	Public Hearing points raised and commitments of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF & CC accordingly.	Noted. Agreed to comply
13.	The Public Hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	Noted
14.	The PP shall produce/display the EIA report, Executive summary and other relate information with respect to public hearing in Tamil Language also.	It will be complied

**ANNEXURE - 1**

1.	<p>In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following :</p> <ul style="list-style-type: none"> <li>(i) Original dimension</li> <li>(ii) Quantity achieved Vs EC Approved Quantity</li> <li>(iii) Balanced Quantity as per Mineable Reserve calculated.</li> <li>(iv) Mined out Depth as on date Vs EC Permitted depth</li> <li>(v) Details of illegal/illicit mining</li> </ul>	
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	<p>(vi) Violation in the quarry during the past working.</p> <p>(vii) Quantity of material mined out outside the mine lease area</p> <p>(viii) Condition of Safety Zone/benches</p> <p>(ix) Revised/Modified Mining Plan showing the benches of not exceeding 6m height and ultimate depth of not exceeding 50m.</p>	
2.	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	Noted
3.	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m. (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship. industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building. number of residents, their profession and income, etc.	Noted
4.	The Project Proponent shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.	Noted. It will be submitted in the Final EIA report.
5.	The proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	Noted. It will be submitted in the Final EIA report.

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6.	The DFO letter stating that the proximity distance of Reserve Forest, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25km from the proposed site.	Noted
7.	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved mining Plan, the project proponent(PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research Academic Institutions - CSIR - Central Institute of Mining & Fuel Research/ Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering - IIT - Madras , NIT - Dept of Mining Engg, Surathkal, and Anna University Chennai- CEG Campus. The PP shall a copy of the aforesaid report indicating the stability status of the quarry wall and possible migration measures during the time of appraisal for obtaining the EC.	Noted. Agreed to comply.
8.	However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30m below ground level.	Agreed to comply
9.	The PP shall furnish the affidavit stating that the blasting operation in the proposal quarry is carried out by the statutory competent person as per the	Noted

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	MMR 1961 such as blaster, mining mate, mine foreman, II/I class mines manager appointed by the proponent.	
10.	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast site.	Noted
11.	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	Noted
12.	If the proponent has already carried out the mining activity in the proposal mining lease area after 15.01.2016, then the proposal shall furnished the following details from AD/DD, Mines.	Noted
13.	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD Mines?	Nil
14.	Quantity of minerals mined out. <ul style="list-style-type: none"> <li>• Highest production achieved in any one year</li> <li>• Details of approved depth of mining</li> <li>• Actual depth of the mining</li> <li>• Name of the person already mined in the leases area.</li> <li>• If EC and CTO already obtained, the copy of the same shall be submitted.</li> </ul>	Nil



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	<ul style="list-style-type: none"> <li>• Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.</li> </ul>	
15.	All corner coordinates of the mine lease area, superimposed on a High - Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Noted
16.	The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,	Noted. It will be submitted in the Final EIA report.
17.	The Proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	Agreed to comply.
18.	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.	The Project Proponent will provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.
19.	The Project Proponent shall provide the Organization chart including the appointment of	The Project Proponent will provide the Organization chart including the

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	various statutory officials and other competent persons to be appointed as per the provisions of the mines Act '1952 and MMR,1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	appointment of various statutory officials and other competent persons to be appointed as per the provisions of the mines Act '1952 and MMR,1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
20.	The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD/TWAD so as to assess the impacts on the wells due to mining activity. Necessary data and documentation in this regard may be provided.	The Project Proponent will conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD/TWAD so as to assess the impacts on the wells due to mining activity. Necessary data and documentation in this regard may be provided.
21.	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.	The proponent will furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.

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22.	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	The Proponent will carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
23.	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted	Noted.
24.	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated.  Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Noted
25.	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine

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		lease, its land use, R&R issues, if any, will be provided.
26.	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.	Noted
27.	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	Noted
28.	Impact on local transport infrastructure due to the Project should be indicated.	It will be discussed in chapter-3 of Final EIA report
29.	A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	It will be discussed in chapter-3 of Final EIA report
30.	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	A detailed mine closure plan for the proposed project will be included in EIA/EMP report which should be site-specific.
31.	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	Noted

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32.	The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.	Noted
33.	Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner	Agreed to comply.
34.	A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period	A Disaster management Plan will be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period
35.	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	A Risk Assessment and management Plan will be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.

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36.	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Noted
37.	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures will be detailed along with budgetary allocations.
38.	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	The Socio-economic studies will be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
39.	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	Noted

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40.	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	Noted
41.	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF & CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	Noted. Agreed to comply
42.	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The PP will prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
43.	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	Noted

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**Additional TOR by SEIAA**

1.	Cluster Management Committee, which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	Agreed to comply. Cluster Management Committee, will include all the proponents in the cluster as members including the existing as well as proposed quarry.
2.	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,	Agreed to comply.
3.	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	Agreed to comply.
4.	Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	Agreed to comply.
5.	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan	Risk management plan is discussed in Chapter-7 of the Draft EIA Report.
6.	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the	Agreed to comply.



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	committee in implementing the environmental policy devised shall be given in detail.	
7.	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	Agreed to comply.
8.	The committee shall furnish the Emergency Management plan within the cluster.	Emergency management plan is discussed in Chapter-7 of the Draft EIA Report.
9.	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	Health of workers and staff is discussed in Chapter-9 of the Draft EIA Report.
10.	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety	Agreed to comply.
11.	The committee shall furnish the fire safety- and evacuation plan in the case of fire accidents.	Agreed to comply.
12.	<p>Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following.</p> <ul style="list-style-type: none"> <li>a) Soil health &amp; bio-diversity</li> <li>b) Climate change leading to Droughts, Floods etc.,</li> <li>c) Pollution leading to release Greenhouse gases (GHG), rise in Temperature &amp; Livelihood of the local people.</li> <li>d) Possibilities of water containment and impact on aquatic ecosystem health.</li> </ul>	<p>The biodiversity has been studied and discussed in chapter 3 of the Draft EIA Report.</p> <p>The soil erosion map 5km surrounding the project site has been given in chapter 3 of the Draft EIA Report.</p> <p>The detailed study will be carried out and will be enclosed in the Final EIA Report.</p>

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	<p>e) Agriculture, Forestry &amp; Traditional practices.</p> <p>f) Hydrothermal/Geothermal effects due to destruction in the Environment.</p> <p>g) Bio-geochemical processes and its foot prints including environmental stress</p> <p>h) Sediment geochemistry in the surface streams</p> <p>Sediment geochemistry in the surface streams.</p>	
13.	Impact on surrounding agricultural fields around the proposed mining Area.	Impact on surrounding agricultural fields around the proposed mining Area is discussed in Chapter 4 of the Draft EIA Report.
14.	Impact on soil flora & vegetation around the project site	Impact on soil flora & vegetation around the project site discussed in Chapter-4 of the Draft EIA Report.
15.	Details of type of vegetation no.of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	Type of vegetation no.of trees & shrubs is discussed in Chapter-3 of the Draft EIA Report.
16.	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	The biodiversity has been studied and discussed in chapter 3 of the Draft EIA Report.
17.	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	Noted. Agree to comply.

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18.	The PP shall study and furnish the impact on plantations in adjoining Patta lands, Horticulture, Agriculture and livestock.	There is no plantation surrounding 500m from project site. Hence there won't be any impact in adjoining patta lands, Horticulture, Agriculture and livestock.
19.	The PP shall detailed study on impact of mining on Reserve forests free ranging wildlife.	There is no Reserve Forest within 1 km radius of the Project Site. Hence our project will not cause any damage to reserve forest. Also, we have received letter from DFO indicating the nearest reserve forest and attached with Annexures.
20.	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	The biological environment impacts, and its mitigation measures has been given in Chapter 4 of the Draft EIA Report.
21.	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	There is no existing trees in the project site and surrounding the project site. Only thorny shrubs were present.
22.	The EIA should study impact on protected areas, Reserve forests, National parks, Corridors and Wildlife pathways, near project site.	There is no Reserve Forest within 1 km radius of the Project Site. Hence our project will not cause any damage to reserve forest. Also, we have received letter from DFO indicating the nearest reserve forest will be furnished with Final EIA Report

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		There is no protected areas, National Parks, Corridors and Wildlife pathways near project site.
23.	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc., within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data and documentation in this regard may be provided, covering the entire mine lease period.	The hydro-geological study will be conducted and submitted in Final EIA report.
24.	Erosion Control measures	Agreed to comply.
25.	Detailed study shall be carried out regard to impact of mining around the proposed mine lease area on the nearby villages, Water-bodies/Rivers, & any ecological fragile areas.	The detailed study will be carried out and will be furnished in the Final EIA Report.
26.	The project proponent shall study impact on fish habitats and the food WEB/food chain in the water body and reservoir.	There is no water bodies within 1km radius. Hence there won't be much impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
27.	The PP shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.	Noted and agreed to comply.
28.	The PP shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site and archaeological	Noted. Agreed to comply.

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	sites possible landform changes visual and aesthetic impacts	
29.	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	The soil erosion map 5km surrounding the project site has been given in chapter 3. The soil samples have been collected surrounding the project site and physical, chemical components and microbial components study has been carried out and the results are tabulated in chapter 3
30.	The Environmental Impact Assessment should study on wetlands, water bodies, river streams, lakes and farmer sites.	The water environment impacts and its mitigation measures has been given in Chapter 4
31.	The measures taken to control Noise, Air, water. Dust control and steps adopted to efficiently utilise the Energy shall be furnished.	Noted. Agreed to comply.
32.	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks, and temperature reduction including control of other emission and climate mitigation activities.	Noted and will be complied
33.	The EIA should study impact on climate change, temperature rise, pollution and above soil carbon stock.	Noted and will be complied in Final EIA report.
34.	Detailed mine closure plan covering the entire mine lease period as per precise area communication order issued.	Mine closure plan has been attached along with mining plates as Annexure VI.

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35.	Detailed Environment Management plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Environment Management Plan has been described in detail in Chapter-10 of the Draft EIA/EMP Report.
36.	The EIA should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.	The EMP details has been given in Chapter 8
37.	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of mining.	A Risk Assessment and management Plan is prepared and included in the Draft EIA/EMP Report.
38.	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazard & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	Disaster Management and Risk Assessment has be incorporated in Chapter-7
39.	The project proponent shall furnish VAO Certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures. railway lines, roads. water bodies such as streams, odai, vaari, canal, channel. river, lake pond, tank etc	Obtained and same has been attached as Annexure.
40.	As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	Noted and public hearing details will be included along with final EIA report.

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41.	The PP shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impact of plastic & microplastic on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	There will not be any plastic and microplastic pollution due to mining activity. Also, we ensure that we won't use any single use plastics in the project site.
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**ANNEXURE-II**  
**PRECISE AREA COMMUNICATION LETTER**





நக.எண். 101/கனிமம் /2022  
நாள். 10.01.2023

உதவி இயக்குநர் அலுவலகம்,  
புவியியல் மற்றும் சுரங்கத்துறை,  
செங்கல்பட்டு.

**அறிவிக்கை**

**பொருள் :** கனிமங்களும் குவாரிகளும் - சாதாரண கற்கள் மற்றும் கிராவல் மண் - செங்கல்பட்டு மாவட்டம் - செய்யூர் வட்டம் - ஆக்கினாம்பட்டு கிராமம் - புல எண்கள். 264/2(P), 264/3A(P), 267/1B, 267/2(P) மற்றும் 267/3 -ன் மொத்த பரப்பு 4.32.10 ஹெக்டேர் பட்டா நிலம் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க பத்து ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் கோரி - தி/ள்.நராஜ் புளுமெட்டல்ஸ் (பிரைவேட்) லிமிடெட் இயக்குநர் திரு.ப.நரேஷ் என்ற நிறுவனத்தினர் என்பவர் தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி எண்.19(1) - ன்கீழ் மனு செய்தது - தகுதி வாய்ந்த நிலப்பரப்பாக தெரிவித்தல் - தொடர்பாக.


- பார்வை :**
1. தி/ள்.நராஜ் புளுமெட்டல்ஸ் (பிரைவேட்) லிமிடெட், இயக்குநர் திரு.ப.நரேஷ், S.No.488/2, Plot No.109 & 110, காமாட்சி அம்மன் நகர் கிழக்கு, மாங்காடு, சென்னை-122 என்பரின் விண்ணப்பம் பெறப்பட்ட நாள் 12.09.2022.
  2. மதுராந்தகம் வருவாய் கோட்டாட்சியர் அவர்களின் அறிக்கை நக. எண். 3755/2022/ஆ, நாள்.26.12.2022.
  3. காஞ்சிபுரம், புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர் மற்றும் தனி வருவாய் ஆய்வாளர் அவர்களின் புலத்தணிக்கை அறிக்கை, நாள்: 07.01.2023.
  4. செங்கல்பட்டு மாவட்ட ஆட்சியர் அவர்களின் செயல்முறைகள் ஆணை நக.எண்.38590/2019/ஆ2 நாள் 08.05.2021
  5. மற்றும் தொடர்புடைய ஆவணங்கள்.

செங்கல்பட்டு மாவட்டம், செய்யூர் வட்டம், ஆக்கினாம்பட்டு கிராமம், புல எண்கள். 264/2 (0.20.30), 264/3A (1.17.00), 267/1B (0.64.30), 267/2 (1.17.00) மற்றும் 267/3 (1.13.50) -ன் மொத்த பரப்பு 5.05.30 ஹெக்டேர் பரப்பில் 4.32.10 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல்மண் வெட்டியெடுக்க தி/ள். நராஜ் புளுமெட்டல்ஸ் (பிரைவேட்) லிமிடெட் என்பவர் குவாரி குத்தகை உரிமம் கோரி விண்ணப்பித்துள்ளார்.

X B. Nares



நிறுவனத்தினருக்கு தெரிவிக்கப்படுகிறது. மேலும் குவாரி அனுமதி வழங்குவது தொடர்பாக வரைவு சுரங்கத் திட்டத்தை (Mining Plan) மூன்று மாத காலத்திற்குள் உதவி இயக்குநர் முன்பு சமர்ப்பித்து ஒப்புதல் பெறவும் குவாரி உரிமம் பெறுவது தொடர்பாக மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் (SEIAA) இசைவினை பெற்று சமர்ப்பிக்கவும் அறிவுறுத்தப்படுகிறது.

  
உதவி இயக்குநர் (பொ),  
புவியியல் மற்றும் சுரங்கத்துறை,  
செங்கல்பட்டு.

  
10/11/23

பெறுநர்  
தி/ள்.நராஜ் புளுமெட்டல்ஸ் (பிரைவேட்) லிமிடெட்,  
இயக்குநர் திரு. P. நரேஷ்,  
S.No.488/2, Plot No.109 & 110,  
காமாட்சி அம்மன் நகர் கிழக்கு,  
மாங்காடு, சென்னை- 600 122.

நகல்:-

- 1) தலைவர், மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையம், சென்னை.
- 2) ஆணையர், புவியியல் மற்றும் சுரங்கத்துறை, கிண்டி, சென்னை 600 032.

  
S. LAKSHMIKANTHAN  
RQP/MAS/262/2014/A

  
P. Naras

**ANNEXURE-III**  
**MINING PLAN APPROVED LETTER**

From  
A. Arumuganainar, M.Sc.,  
Assistant Director(i/c),  
Dept. of Geology and Mining,  
Chengalpattu.

To  
M/s. Naraj Blue Metals Pvt. Ltd.,  
Thiru. P. Naresh (Director),  
Plot No.109&110,  
Kamatchi Amman Nagar East,  
Mangadu,  
Chennai - 600 122.

**Rc.No. 101/Mines/2022, Dated.31.01.2023**

Sir,

Sub: Mines and Quarries - Chengalpattu District -Cheyyur Taluk - Akkinampattu Village - S.F. Nos. 264/2(P), 264/3A(P), 267/1B, 267/2(P) and 267/3- over an extent of 4.32.10 Hectares of patta lands - permission requested for Quarrying Rough stone and Gravel under rule 19(1) of Tamil Nadu Minor Mineral Concession Rules 1959 - applied by M/s. Naraj Blue Metals Pvt. Ltd., Thiru. P. Naresh (Director) - Mining Plan submitted for approval - **Mining Plan approved for Ten years** - directed to obtain Environmental clearance from State Level Environment Impact Assessment Authority, Tamil Nadu -Reg.

- Ref:**
1. Application of M/s. Naraj Blue Metals Pvt. Ltd., Thiru. P. Naresh (Director), Plot No.109&110, Kamatchi Amman Nagar East, Mangadu, Chennai - 600 122, dated.12.09.2022.
  2. Precise are notice issued by the Assistant Director(i/c), Geology and Mining, Chengalpattu in Rc.No.101/Mines/2022, dated.10.01.2023.
  3. Representation of M/s. Naraj Blue Metals Pvt. Ltd., Thiru. P. Naresh (Director), dated.24.01.2023.

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In the reference 1<sup>st</sup> cited, one M/s. Naraj Blue Metals Pvt. Ltd., Thiru. P. Naresh (Director), Plot No.109&110, Kamatchi Amman Nagar East, Mangadu, Chennai - 600 122 has applied for quarrying Rough stone and gravel from S.F. Nos. 264/2(P) (0.20.30), 264/3A(P) (1.17.00), 267/1B (0.64.30), 267/2 (P) (1.17.00) and 267/3 (1.13.50) over an extent of 4.32.10 hectares of Akkinampattu Village, Cheyyur Taluk, Chengalpattu District under Rule 19(1) of Tamil Nadu Minor Mineral Concession Rules, 1959.

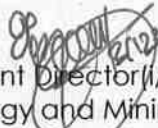
Based on the recommendations of the Revenue Divisional Officer, Maduranthagam, Tahsildar, Cheyyur and Inspection report submitted by the Assistant Geologist, O/o. Assistant Director, Geology and Mining, Kancheepuram the above application was considered for quarrying Rough


stone and Gravel from the above area under rule 19(1) of Tamil Nadu Minor Mineral Concession Rules,1959 for a period of **Ten years** subject to certain conditions and precise area has been communicated to the applicant vide reference 2<sup>nd</sup> cited.

In exercise of the power delegated under Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959, I hereby approve the mining plan submitted by M/s. Naraj Blue Metals Pvt. Ltd., Thiru. P. Naresh (Director) for 4.32.10 Hectares 264/2(P) (0.20.30), 264/3A(P) (1.17.00), 267/1B (0.64.30), 267/2 (P) (1.17.00) and 267/3 (1.13.50) over an extent of 4.32.10 hectares of Akkinampattu Village, Cheyyur Taluk, Chengalpattu District the mineable reserves of Rough stone & Gravel after leaving safety distance is arrived as 8,66,500 M<sup>3</sup> of Rough stone, 68,592 M<sup>3</sup> of Gravel for **Ten years** upto a depth of 64 meter (BGL). This approval is subject to the following conditions:-

- i) That the Mining Plan is approved without prejudice to any other Law applicable to quarrying Rough stone and Gravel from time to time whether such laws are made by the Central Government/State Government or any other authority.
- ii) The approval of the Mining Plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act, 1957 or any other connected laws including Forest (Conservation) Act, 1980 Forest Conservation Rules 1981, Environment Protection Act, 1980, Indian Explosives Act, 1884 (Central Act IV of 1884) and the rules made there under the Tamil Nadu Minor Mineral Concession Rules,1959.
- iii) The Mining Plan is approved without prejudice to any other order or direction from any Court of competent jurisdiction.

**Encl:** Approved Mining Plan

  
Assistant Director(I/c),  
Geology and Mining,  
Chengalpattu.

  
3.1.1.2023

**ANNEXURE-IV**  
**500M Radius letter**

From  
A. Arumuganainar, M.Sc.,  
Assistant Director(i/c),  
Dept. of Geology and Mining,  
Chengalpattu.

To  
M/s. Naraj Blue Metals Pvt. Ltd.,  
Thiru. P. Naresh (Director),  
Plot No.109&110,  
Kamatchi Amman Nagar East,  
Mangadu,  
Chennai – 600 122.

**Rc.No. 101/Mines/2022, Dated.31.01.2023**

Sir,

Sub: Mines and Quarries – Rough stone and Gravel -  
Chengalpattu District –Cheyyur Taluk – Akkinampattu  
Village - S.F. Nos. 264/2(P), 264/3A(P), 267/1B, 267/2(P)  
and 267/3 - over an extent of 4.32.10 Hectares of  
patta lands – Quarry lease application preferred  
by M/s. Naraj Blue Metals Pvt. Ltd., Thiru. P. Naresh  
(Director) – Details of quarries situated within 500  
meter radial distance – furnished - reg.

- Ref : 1. Precise are notice issued by the Assistant  
Director(i/c), Geology and Mining, Chengalpattu  
in Rc.No.101/Mines/2022, dated.10.01.2023.
2. Representation of M/s. Naraj Blue Metals Pvt. Ltd.,  
Thiru. P. Naresh (Director), dated.24.01.2023.

\*\*\*\*\*

With reference to your letter in the reference 2<sup>nd</sup> cited, the details of  
existing, proposed and abandoned quarries located within 500 meter radius  
from the proposed Rough Stone and Gravel quarry, over an extent of 4.32.10  
Hectares of patta lands in S.F.Nos. 264/2(P) (0.20.30), 264/3A(P) (1.17.00), 267/1B  
(0.64.30), 267/2 (P) (1.17.00) and 267/3 (1.13.50) over an extent of 4.32.10 hectares of  
Akkinampattu Village, Cheyyur Taluk, Chengalpattu District are as follows.

**I. Existing quarries:**

Sl. No.	Name of the lessee / permit holder	Name of the Mineral	Taluk & Village	S.F. Nos.	Extent (in hecets)	Lease period	Remarks
1.	Tvl.Uma Blue Metals, Vettaikarakuppam, Kodur Post, Cheyyur Taluk, Kancheepuram 603 305	Roughstone & Gravel	Cheyyur, Akkinampattu	270/1, 270/2, 272/4, 272/5A,	3.20.00	08.11.2018 To 07.11.2023 (5 Years)	Operation


2.	S. Balaji, S/o. K. Sundaramoorthy, Manamai Village and Post, Kalpakkam, Thirukazhukundram Taluk, Chengalpattu District - 603 102	Roughstone & Gravel	Cheyur, Akkinampattu	264/1A( P)	1.62.00	30.09.2020 To 29.09.2025 (5 Years)	Operation
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## II. Proposed Quarries :

Sl. No.	Name of the lessee / permit holder	Name of the Mineral	Taluk & Village	S.F. Nos.	Extent (in hecets)	Remarks
1.	M/s. Naraj Blue Metals Pvt. Ltd., Thiru. P. Naresh (Director), Plot No.109&110, Kamatchi Amman Nagar East, Mangadu, Chennai - 600 122.	Roughstone & Gravel	Cheyur, Akkinampattu	264/2(P), 264/3A(P), 267/1B, 267/2(P), 267/3,	4.32.10	Under Processing (Present Application)

## III. Abandoned quarries :

Sl. No.	Name of the lessee / permit holder	Name of the Mineral	Taluk & Village	S.F. Nos.	Extent (in hecets)	Lease period
1.	R. Ranganathan M/s.Uma Blue Metals, Vettaikarakuppam, Kodur Post. Cheyyur Taluk.	Roughstone & Gravel	Cheyur, Akkinampattu	268/1B1B	1.24.50	06.02.2014 To 05.02.2019 Lease Expired

  
 Assistant Director(i/c),  
 Geology and Mining,  
 Chengalpattu.

  
 31.01.2022



**ANNEXURE-V**  
**FMB, A REGISTER, VILLAGE MAP**

# ANNEXURE



அளவைப்படிவம் எண் 23

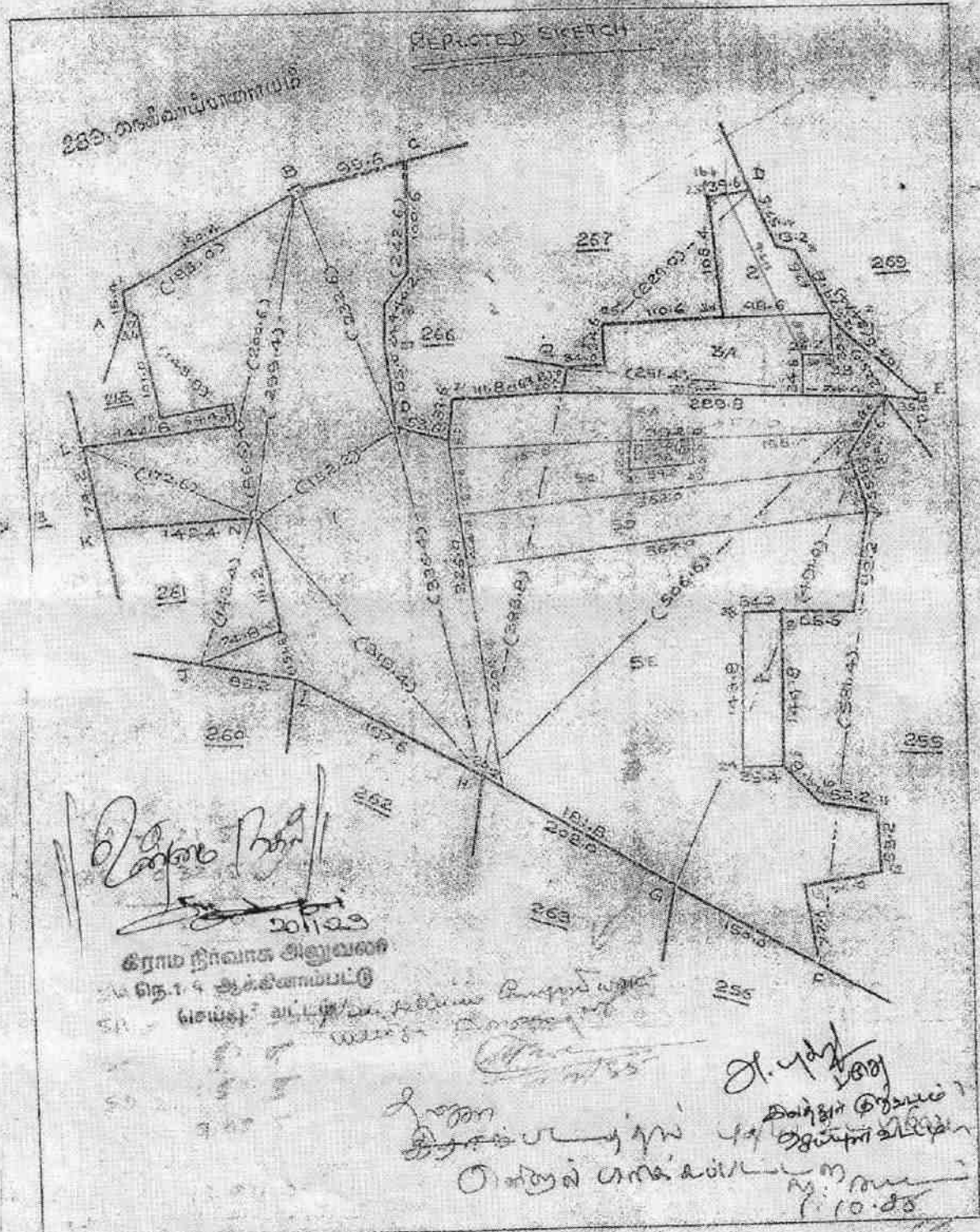
புவியியல் திட்டம்

எண் 101  
 கிராமம் பெரிய கீரிமங்கலம்

வட்டம் மதுரை

பரப்பு - 27 ஏ. 72.0

பலகை 264



*[Handwritten Signature]*  
 20/11/03

கிராம நிர்வாக அலுவலர்  
 பெரிய கீரிமங்கலம்

*[Handwritten Signature]*  
 10.03

அளவு 1:5000  
 16/12/05



மாண்புமிகு : தலைநகர்

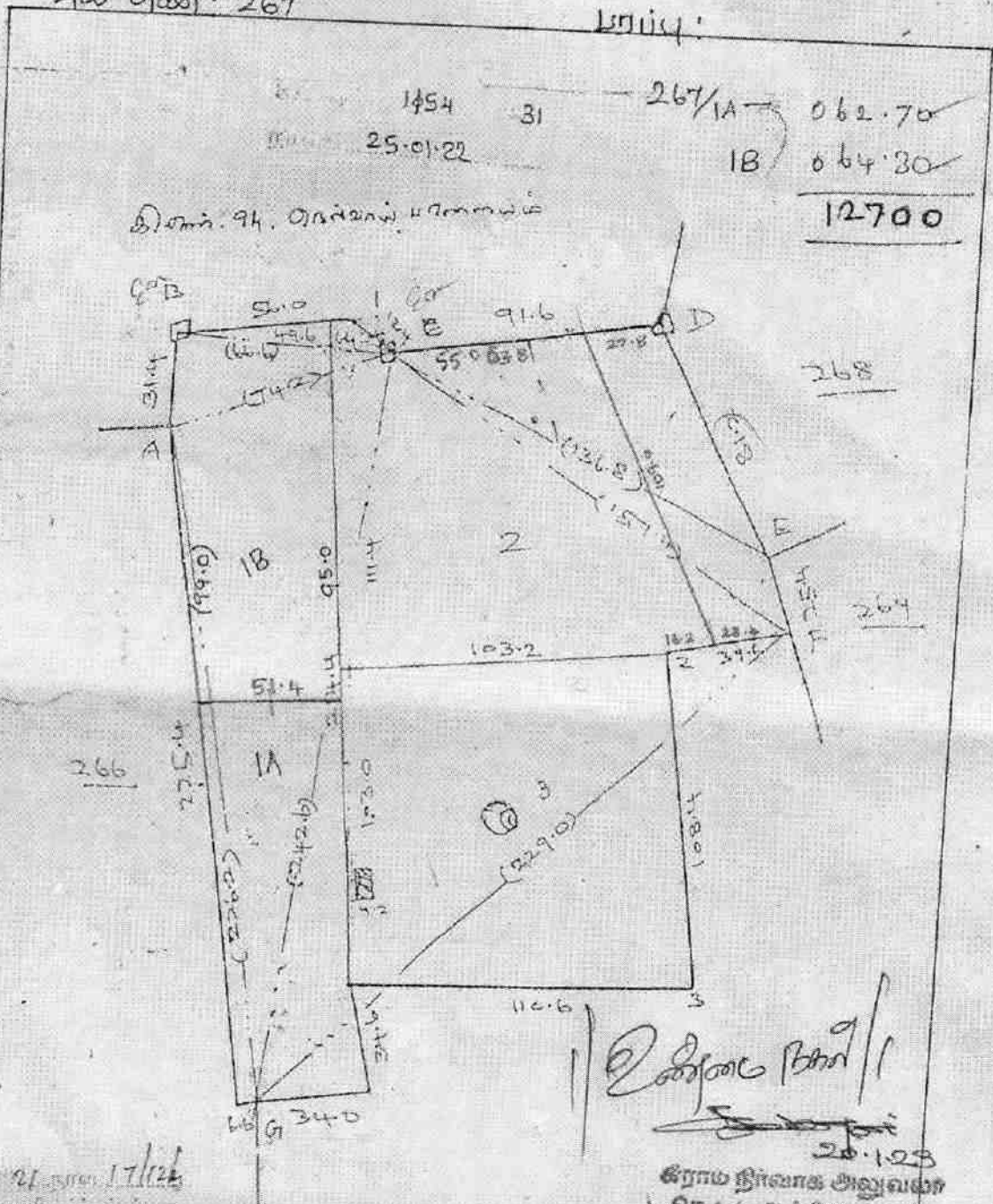
பகுதி : 267

பெரிய எண் : 114

பெயர் : சி. சி. சி. சி. சி.

40 எண் : 267

பகுதி :



267/1A 062.70  
 1B 064.30  
12700

17/12/2014  
 17/12/2014

*[Signature]*  
 27/12/2014

JPT no. 352019  
 சி. சி. சி. சி. சி.  
 267/1

*[Signature]*  
 27/12/2014

*[Signature]*  
 26-1-2015  
 சி. சி. சி. சி. சி.  
 114 எண் : 267/1  
 பகுதி : 267

*[Signature]*  
 சி. சி. சி. சி. சி.  
 267/1



அ-பதிவேடு விவரங்கள்

மாவட்டம் : செங்கல்பட்டு

வட்டம் : செய்யூர்

கிராமம் : ஆக்கினாம்பட்டு

1. புல எண்	264	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	2	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	264-2	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 77.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	2.38
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1974
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.நராஜ் புளூ மெட்டல்ஸ் பி லிட்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 50421 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : செங்கல்பட்டு

வட்டம் : செய்யூர்

கிராமம் : ஆக்கினாம்பட்டு

1. புல எண்	264	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	3A	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	264-3	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	1 - 21.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	3.75
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1974
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.நராஜ் புளு மெட்டல்ஸ் பி லிட்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 50421 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.



அ-பதிவேடு விவரங்கள்

மாவட்டம் : செங்கல்பட்டு

வட்டம் : செய்யூர்

கிராமம் : ஆக்கினாம்பட்டு

1. புல எண்	267	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	1B	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	267-1	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 64.30
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	1.99
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	1974
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.நராஜ் புஞ் மெட்டல்ஸ் பி லிட்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 50421 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.



அ-பதிவேடு விவரங்கள்

மாவட்டம் : செங்கல்பட்டு

வட்டம் : செய்யூர்

கிராமம் : ஆக்கினாம்பட்டு

1. புல எண்	267	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	2	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	267-2	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	1 - 29.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	3.99
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1974
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.நராஜ் புளூ மெட்டல்ஸ் பி லிட்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 50421 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.



அ-பதிவேடு விவரங்கள்

மாவட்டம் : செங்கல்பட்டு

வட்டம் : செய்யூர்

கிராமம் : ஆக்கினாம்பட்டு

1. புல எண்	267	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	3	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	267-3	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	1 - 13.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	3.50
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1974
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.நராஜ் புளு மெட்டல்ஸ் பி லிட்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 50421 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.



**ANNEXURE-VI MINING PLAN REPORT &  
PLATES**



# MINING PLAN FOR AKKINAMPATTU ROUGH STONE & GRAVEL QUARRY

(Prepared under Rule 19 (1), 20, 41 & 42 of Tamilnadu Minor Mineral Concession Rules, 1959 and amended Tamilnadu Minor Mineral Conservation and Development Rules, 2010)

**Lease in Own Patta Land**

**Lease Period: (Ten) 10 Years**

IN

## LOCATION OF THE LEASE APPLIED AREA

**EXTENT : 4.32.10 Ha**  
**S.F.Nos : 264/2(P), 264/3A(P), 267/1B,  
267/2(P) & 267/3**  
**VILLAGE : AKKINAMPATTU**  
**TALUK : CHEYYUR**  
**DISTRICT : CHENGALPATTU**  
**STATE : TAMIL NADU**

FOR

### APPLICANT

M/S.NARAJ BLUE METALS PVT LTD

THIRU.P.NARESH (DIRECTOR),  
PLOT NO- 109 & 110,  
Kamatchi Amman Nagar East, Mangadu,  
Chennai, Tamil Nadu-600 122.

### Prepared by

S.LAKSHMIKANTHAN, M.Sc.,  
Recognised Qualified Person,  
Reg. No. RQP / MAS / 262 / 2014 / A  
Regd.office: D.No. 4/160 A3,  
II nd Street, MVS Nagar,  
Opp ESI Hospital, Steel Plant Road,  
Salem-636 030, Tamilnadu  
Cell: 98426 63162, 94866 63162  
E.mail: lakshmikanthan.as@gmail.com  
info.geomts@gmail.com



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*P. Narasimhan*



### LIST OF ANNEXURE

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6	Copy of RQP Certificate	VI

### LIST OF PLATES

S.No	Description	Plate No	Scale
1	Location Plan	I	Not to scale
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6	Quarry Lease and Surface Plan	VI	Plan-1:1000
7	Topography, Geological Plan & Section Year wise Development, Production Plan & Sections	VII, VII-A, VII-B & VII-C	Plan-1:1000 SecHor-1:1000; Ver-1:500
8	Conceptual Plan & Sections Land Use Pattern & Afforestation plan	VIII, VIII-A & VIII-B	Plan-1:1000 Sec Hor-1:1000; Ver-1:500

3 + P. Naras



## CONSENT LETTER FROM THE MINE OWNER

The Mining Plan in respect of **Rough stone & Gravel quarry** over an extent of **4.32.10 Hectares** in **Own Patta Land** at S.F.Nos. **264/2 (0.20.30), 264/3A (1.17.00), 267/1B (0.64.30), 267/2 (1.17.00) & 267/3 (1.13.50)** of **Akkinampattu Village, Cheyyur Taluk, Chengalpattu District** and **Tamilnadu State**, has been prepared by **Thiru.S.Lakshmikanthan, M.Sc.**, **Recognised Qualified Person** and **Registration Number RQP/MAS/262/2014/A**.

I request the *Assistant Director*, Department of Geology and Mining, Chengalpattu District to make further correspondence regarding modifications of the Mining Plan with the said **Recognised Qualified Person** on this following address.

**S.LAKSHMIKANTHAN, M.Sc.,**  
**Recognised Qualified Person**  
**Reg.No.RQP/MAS/262/2014/A**  
Regd.office: D.No. 4/160 A3, II nd Street,  
MVS Nagar, Majara Kollapatty,  
Opp ESI Hospital, Steel Plant Road,  
Salem District - 636 030, Tamilnadu.  
Cell- 98426 63162, 9486663162  
email : lakshmikanthan.as @gmail.com,  
info.geomts @gmail.com

I hereby undertake that all modifications so made in the Mining Plan by the **Recognised Qualified Person** may be deemed to have been made with my knowledge and Own and shall be acceptable to me and building on me in all respects.

X 

Signature of the Applicant

**P. NARESH**  
**(Director)**

Place : Chennai-122

Date : 24.01.2023.



**M/S NARAJ BLUE METALS PVT LTD**

Thiru.P.Naresh (Director),  
Plot No- 109 & 110,  
Kamatchi Amman Nagar East, Mangadu,  
Chennai, Tamil Nadu- 600 122.

**DECLARATION**

The Mining Plan in respect of **Rough stone & Gravel quarry** over an extent of **4.32.10 hectares** in **Own Patta Land** at S.F.Nos. **264/2 (0.20.30), 264/3A (1.17.00), 267/1B (0.64.30), 267/2 (1.17.00) & 267/3 (1.13.50)** of Akkinampattu Village, Cheyyur Taluk, Chengalpattu District and Tamil Nadu State has been prepared with my consultation and I have understood the contents and agree to implement the same in accordance with the Mining Laws.

X

Signature of the Applicant

**P. NARESH**  
**(Director)**

Place : Chennai - 122

Date : 24.01.2023



**S.LAKSHMIKANTHAN, M.Sc.,**

Recognised Qualified Person,

Reg.No.RQP/MAS/262/2014/A

Regd.office. No. 4/160 A3, II nd Street,

MVS Nagar, Majara Kollapatty,

Opp ESI Hospital , Steel Plant Road,

Salem District - 636 030, Tamilnadu

### **CERTIFICATE**

This is to certify that, the provisions of Minor Minerals Conservation and Development Rules, 2010 (MMCDR) have been observed in the Mining Plan for the grant of **Rough stone & Gravel quarry** lease over an extent of **4.32.10 hectares** in **Own Patta Land** at S.F.Nos. **264/2 (0.20.30), 264/3A (1.17.00), 267/1B (0.64.30), 267/2 (1.17.00) & 267/3 (1.13.50)** of Akkinampattu Village, Cheyyur Taluk, Chengalpattu District and Tamil Nadu State has been applied by the applicant **M/s. Naraj Blue Metals Pvt Ltd**

Wherever specific permission / exemptions / relaxations or approvals are required, the applicant will approach the concerned authorities of State and Central Government for granting such permissions etc.,

It is also certified that information furnished in the below Mining Plan are true and correct to the best of my knowledge.

**Certified**

Signature of Recognised Qualified Person

Place : Salem

Date : 24.01.2023

**S. LAKSHMIKANTHAN, M.Sc.,**  
Recognised Qualified Person  
Reg. No. RQP/MAS/262/2014/A



**S.LAKSHMIKANTHAN, M.Sc.,**

Recognised Qualified Person,

Reg.No.RQP/MAS/262/2014/A

Regd.office: D.No. 4/160 A3, II nd Street,

MVS Nagar, Majara Kollapatty,

Opp ESI Hospital, Steel Plant Road,

Salem District - 636 030, Tamilnadu

### CERTIFICATE

Certified that, in preparation of Mining Plan for **Rough stone & Gravel quarry** over an extent of **4.32.10 hectares** in **Own Patta Land** at S.F.Nos. **264/2 (0.20.30), 264/3A (1.17.00), 267/1B (0.64.30), 267/2 (1.17.00) & 267/3 (1.13.50)** of Akkinampattu Village, Cheyyur Taluk, Chengalpattu District and Tamil Nadu State

**M/S Naraj Blue Metals Pvt Ltd** covers all the provisions of Mines Act, Rules, and Regulations etc., made there under and whenever specific permission are required, the Applicant will approach the Director General of Mines Safety, Chennai. The standards prescribed by DGMS in respect of Mines Health will be strictly implemented.

**Certified**

Signature of Recognised Qualified Person

Place : Salem

Date : 24.01.2023

S. LAKSHMIKANTHAN, M.Sc.,  
Recognised Qualified Person  
Reg.No.RQP/MAS/262/2014/A

+ 7 P. Narasimhan





# **MINING PLAN FOR AKKINAMPATTU** **ROUGH STONE & GRAVEL QUARRY**

(Prepared under Rule 19(1), 20, 41 & 42 of Tamilnadu Minor Mineral Concession Rules, 1959 and amended Tamilnadu Minor Mineral Conservation and Development Rules, 2010)

## **1.0. INTRODUCTION**

1. The Mining Plan and Environmental Management Plan are prepared for **M/s. NARAJ BLUE METALS PVT LTD, P. Naresh (Director)**, Plot No - 109 & 110, Kamatchi Amman Nagar East, Mangadu, Chennai - 600 122. The excavated Rough Stone is used for building and road construction stones and also used for crushing units and Gravel is used for filling and leveling of low lying areas of road projects and other infrastructure development work in and around the district.
2. The application was meritoriously processed and precise area communication letter issued by the Assistant Director, Department of Geology & Mining, Chengalpattu District has passed an order vide *R.C.No.101/Mineral/2022 A. dated 10/01/2023.*
3. The applicant has to submit Mining Plan and to get approval from the Assistant Director, Department of Geology & Mining, Chengalpattu District and to obtain Environmental Clearance from the State Level Environment Impact Assessment Authority SEIAA, Tamil Nadu State, notified by MoEF and Climate Change and the procedure prescribed under the EIA Notification, 2006 and by incorporating all the details proposed in the letter No. SEIAA-TN/Minor Minerals /2012 dated 17.04.2013 of State Level Environmental Impact Assessment Authority.
4. Geological Resources is estimated at **24,24,780m<sup>3</sup>** of Rough Stone & **80,826m<sup>3</sup>** of Gravel up to a depth of **64.0m(Max)** and Mineable Reserves is estimated at **8,66,500m<sup>3</sup>** of Rough Stone and **68,592m<sup>3</sup>** of Gravel up to a depth of **64.0m (Max)** after leaving the safety distance of 7.5m for adjacent Patta lands and 10.0m for Government lands from the boundary of lease area as indicated in precise area communication letter and relevant mining laws in force.

*P. Naresh*



5. **Production Schedule** is proposed an average production of **8,66,500m<sup>3</sup>** (1,44,417 Lorry Loads) of **Rough Stone** (ie., 2.0m- 64.0m) and **68,592m<sup>3</sup>** (11,432 Lorry Loads) of **Gravel** (ie., 0m- 2.0m) up to a depth of **64.0m (Max)** for the period of (Ten) **10 Years** only.

**I. ENVIRONMENTAL PARAMETERS,**

**i. Forest Conservation Act, 1980: (Reserve Forest)**

❖ Vedanthangal Birds Sanctuary - 25.0 Km - NW

**ii. Interstate Boundary:**

❖ Kalapet, Puducherry State - 48.0 Km - South

**iii. Wildlife (Protection) Act, 1972:**

❖ The area does not attract the Wild Life Sanctuary around 10Km Radius from the boundary of lease applied area.

**iv. The Coastal Regulation Zone (CRZ) Notification 1991:**

❖ Bay of Bengal- 8.0 Km - eastern side

**v. Infrastructure around 500m Radius :**

Table - 1

<b>S.No</b>	<b>Description</b>	<b>Distance from boundary of Quarry site</b>	<b>Direction</b>
1	Approach Road	340 m	SW
2	Water Bodies (River, Urani, Pond, Odai etc.,	746 m	North
3	Habitation	350 m	W
4	HT Line	---	---

9 



## II. ENVIRONMENTAL MEASURES TO BE ADOPTED SHALL BE,

- 1) Dust Control at source while *wet drilling* and *controlled blasting*.
- 2) Dust suppression at loading point and transport haul roads.
- 3) Noise Control in Blasting, control of fly rock missiles and Vibration by doing peak particle velocity with in standard as prescribed by the DGMS and MoEF.
- 4) Unnecessary land degradation should be avoided or damaged land should be reclaimed or rehabilitated.
- 5) Avoid uneven rat hole mining and follow scientific and systematic mining by safe bench system of open cast mining.
- 6) Mining near major fracture zones if any should be avoided to control ground water fluctuation in the adjacent agricultural lands.
- 7) Emission test of vehicles should be in tack to maintain minimum emission level of fuel gases.
- 8) Noise level should not exceed *80db* and the vehicles should use only permitted Air Horn while on road near residential areas.
- 9) Safety zones as prescribed by the Department of Geology and Mining from adjacent infrastructures should be strictly to adhere to.
- 10) Any other conditions as stipulated by the concerned authorities should be followed to protect the Environment and Ecology of the area.

*P. Naras*



## 2.0.EXECUTIVE SUMMARY

The area applied for lease is a Rough stone & Gravel quarry lease in Own Patta Land at Survey Number – 264/2(P), 264/3A(P), 267/1B, 267/2(P) & 267/3 over an extent of 4.32.10 Ha of Akkinampattu Village, Cheyyur Taluk, Chengalpattu District and Tamil Nadu State.

1. Name of the Village Panchayat – Akkinampattu
2. Name of the Panchayat Union – Cheyyur
3. The proposed Total Mineable Reserves is estimated at 8,66,500m<sup>3</sup> of Rough Stone (ie.,2.0m-64.0m) and 68,592m<sup>3</sup> of Gravel (ie.,0m-2.0m) up to a depth of 64.0m (Max) below ground level.
4. **Production Schedule** is proposed an average production of **8,66,500m<sup>3</sup>** (1,44,417 Lorry Loads) of **Rough Stone** (ie.,2.0m-64.0m) and **68,592m<sup>3</sup>** (11,432 Lorry Loads) of **Gravel** (0m- 2.0m) up to a depth of **64.0m** (Max) below ground level for the period of (Ten) **10 Years** only.
5. Topography of the area – The area exhibits Plain Topography
6. Total extent of the area – **4.32.10** Hectares
7. Proposed Lease Period – (Ten) **10 Years** only
8. Existing depth of mining – It is fresh and virgin area
9. Proposed Depth of mining – **64.0m** (Max) below ground level
10. Method of mining / level of mechanization - Opencast, Semi-mechanized Mining with a bench height of 5.0m & width of 5.0m is proposed and Involves shallow Jackhammer drilling, Slurry blasting is proposed for this type of quarrying operation.
11. Types of Machineries are proposed to deploy for quarrying operation.
12. Jack hammer 30-64mm dia,



13. Tractor mounted compressor attached with 1 Jack hammer capacity (Diesel Drive)
14. Excavator of 0.9m<sup>3</sup> bucket capacity and attached with Rock breaker (Rental basis)
15. No Trees will be uprooted due to this quarrying operation.
16. The existing road from the main road to quarry is in good condition and the same will be maintained and utilized for Transportation of Rough stone & Gravel.
17. There is no Export of this quarrying Rough stone & Gravel.
18. Topo sketch covering 10Km, 1Km, 500m, 300m radius around the proposed area with markings of Habitations, Water bodies like Streams, Rivers, Roads, Major structure like Bridges, Wells, Archeological, Historical importance, Places of worship is marked and enclosed as Plate No. IV & V
19. The lease applied area is 4.32.10 Ha bounded by 13 corners, the corners are designated a 1-13 Clockwise from the North western corner and the coordinates are clearly marked in Plate no - VI
20. The diagram showing the Mining area, dimensions of the Pit, proposed depth of mining for the Mining Plan period are enclosed as Plate No - VI
21. The lease applied area is 10 Km away from the
  - Protected area under Wildlife Production Act 1972,
  - Critically polluted area as identified by CPCB
  - Notified Eco sensitive areas.
22. There are no wastages anticipated during this quarry operation, hence waste dump is not proposed in this lease applied area.
23. Around 34 Employees are deploying in this quarrying operation.

*P. Neres*



**1. The lease applied area is bounded by all corners and the coordinates are clearly marked in Plate no - VI**

Table- 2

<b>BOUNDARY COORDINATES</b>		
<b>LABEL</b>	<b>LATITUDE</b>	<b>LONGITUDE</b>
1	N12°25'57.66"	E080°03'01.05"
2	N12°25'56.82"	E080°03'02.67"
3	N12°25'56.43"	E080°03'02.77"
4	N12°25'55.72"	E080°03'04.76"
5	N12°25'47.06"	E080°03'04.26"
6	N12°25'46.02"	E080°03'03.82"
7	N12°25'49.45"	E080°02'57.81"
8	N12°25'50.01"	E080°02'57.97"
9	N12°25'49.50"	E080°02'58.97"
10	N12°25'50.47"	E080°02'59.57"
11	N12°25'53.50"	E080°03'00.81"
12	N12°25'54.17"	E080°02'59.39"
13	N12°25'56.92"	E080°03'00.32"
<b>WGS 84 DATUM</b>		

The Mining plan and Environment Management Plan is prepared by incorporating the conditions stipulated in the precise area communication and by the considering all the parameters required for the safe and systematic quarrying operations in order to excavate proposed an average production of 8,66,500m<sup>3</sup> (1,44,417 Lorry Loads) of Rough Stone and 68,592m<sup>3</sup> (11,432 Lorry Loads) of Gravel up to a depth of 64.0m below ground level for the period of (Ten) 10 Years only.



## PART - A

### 3.0. GENERAL INFORMATION:

#### 3.1. Name of the Applicant with Address, contact no, email etc.,

Name : M/S NARAJ BLUE METALS PVT LTD,  
P. NARESH (Director)  
Plot No - 109 & 110,  
Kamatchi Amman Nagar East,  
Mangadu, Chennai, Tamil Nadu - 600 122

Contact no : 78451 58193

E-Mail : narajbluemetals@gmail.com

#### 3.2. Status of the Applicant ( Individual / Company / Firm )

M/s. Naraj Blue Metals Pvt Ltd (company).

#### 3.3. Mineral which the Applicant intends to mine

Rough stone and Gravel only.

#### 3.4. Precise area communication Letter details received from the competent authority of the government

Precise area communication letter issued from the Assistant Director, Department of Geology & Mining, Chengalpattu District vide. *R.C.No.101/Mineral/2022. dated 10/01/2023.*

#### 3.5. Period of permission / lease to be granted

The applicant has applied permission for (Ten) 10 Years. The Assistant Director, Department of Geology & Mining, Chengalpattu District consider grant for a lease period of (Ten) 10 Years only.

#### 3.6. Name and Address of the RQP/Authorized person for preparing the Mining Plan

Name : **S.LAKSHMIKANTHAN, M.Sc.,**

Address : Regd.office: D.No. 4/160 A3, II nd Street,  
MVS Nagar, Majara Kollapatty,  
Opp ESI Hospital, Steel Plant Road,  
Salem District - 636 030, Tamilnadu.

Mobile Number : **98426 63162, 94866 63162**

Registration Number : **RQP/MAS/262/2014/A**

Valid Till : **13.11.2024.**

*P. Nares*



#### 4.0. LOCATION

Table - 3

<b>State</b>	Tamil Nadu
<b>District</b>	Chengalpattu
<b>Taluk</b>	Cheyyur
<b>Village</b>	Akkinampattu
<b>S.F.Nos</b>	264/2(P), 264/3A(P), 267/1B, 267/2(P) & 267/3
<b>Extent in (Ha)</b>	4.32.10 Hectare

#### 4.1. Details of Existence of Public road /Railway line, if any nearby and approximate distance.

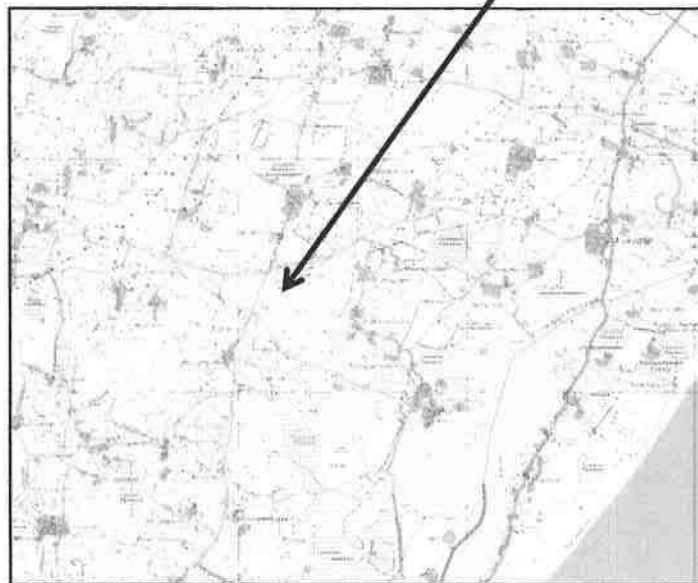
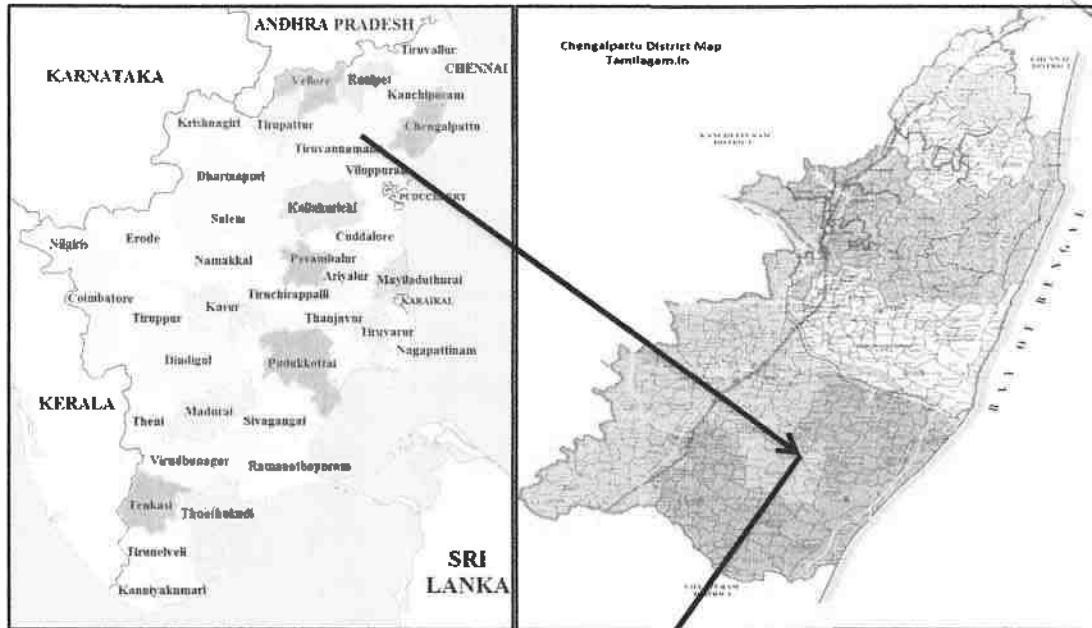
Table - 4

<b>S.No</b>	<b>Description</b>	<b>Place</b>	<b>Distance (Km)</b>	<b>Direction</b>
1	Bus stop	Nelvai Palayam	1.5	North
2	Post Office	Kadugupattu	4	West
3	Government School	Nelvai Palayam	1.5	North
4	Ambulance	Pavunjur	5	West
5	Govt Hospital	Pavunjur	5	West
6	Police Station	Pavunjur	6	West
7	Fire service	Cheyyur	11	South
8	Railway Station	Maduranthakam	20	West
9	Airport	Chennai	64	NE
10	Seaport	Chennai	76	NE

*P. Nares*



## Location Of the Lease Area



**Route :**

**32km**                      **5km**  
**CHENGALPATTU**     $\longrightarrow$  **PAVUNJUR**     $\longrightarrow$  **SITE**

*P. Nares*



**a. Classification of the Area ( Ryotwari / Poramboke / others)**

- ❖ It is a Own Patta Land and non agri land

**b. Ownership / Occupancy of the applied area (Surface rights)**

- ❖ Consent property of M/s.Naraj Blue Metals Pvt Ltd, Chennai ( Mr. P. Naresh, Director) in S.F.Nos - 264/2 Patta No- 1974, 264/3A Patta No - 1974, 267/1B Patta No - 1974, 267/2 Patta No- 1974 & 267/3 Patta No - 1974
- ❖ The applicant has got surface rights. Please refer Annexure-III

**c. Toposheet No. along with Latitude and Longitude**

Toposheet No : 66 D/3

Latitude : N 12°25'46.02" to N 12°25'57.66"

Longitude : E 80°02'57.81" to E 80°03'04.76"

**5.0. GEOLOGY AND MINERAL RESERVES**

**5.1. Topography:**

- ❖ The lease applied area is exhibits Plain Area covered by Rough stone & Gravel formation.
- ❖ The massive Charnockite / Which contains mostly Quartz and feldspar with some ferromagnesian mineral formation is clearly visible to the pit of the quarried area followed by the 2m of Gravel and 2m weathered or Overburden , the altitude of the area is above 100m MSL.
- ❖ No major river is found nearby the lease applied area.
- ❖ Water Level is found at a depth of 70m to 75m below ground level, 70m in Rainy seasons and 75m in Summer seasons by monitoring nearby bore hole.
- ❖ Temperature of the area is reported to be 20°C to a maximum of 37°C during summer.
- ❖ Rainfall of this area is about 1105mm to 1214mm during the both NE & SW monsoons.

X P. Naresh



### 5.2. General Geology of the area (with plans):

- ❖ The area is underlain by the wide range of metamorphic rocks of peninsular gneissic complex. These rocks are extensively weathered and overlain by the recent valley fills and alluvium at places.
- ❖ The geological formations found in the district are Archaean rocks like Gneisses, Granites, Charnockite, basic granulites and calc-gneisses. The younger formations are Quartz veins and pegmatite.
- ❖ The rock type noticed in the area for lease is Charnockite which contains mostly Quartz and Feldspar with some ferromagnesian minerals.
- ❖ The Charnockite is part of peninsular Gneisses and It is a high grade metamorphic rock.
- ❖ The strike of the Charnockite formation is  $N45^{\circ}E-S45^{\circ}W$  with vertical dipping

**The General Geological succession of the area is given as under.**

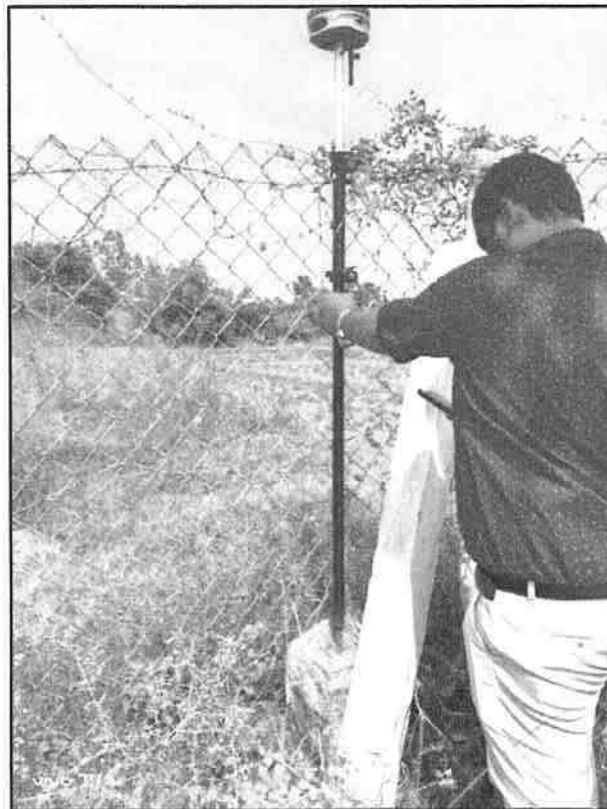
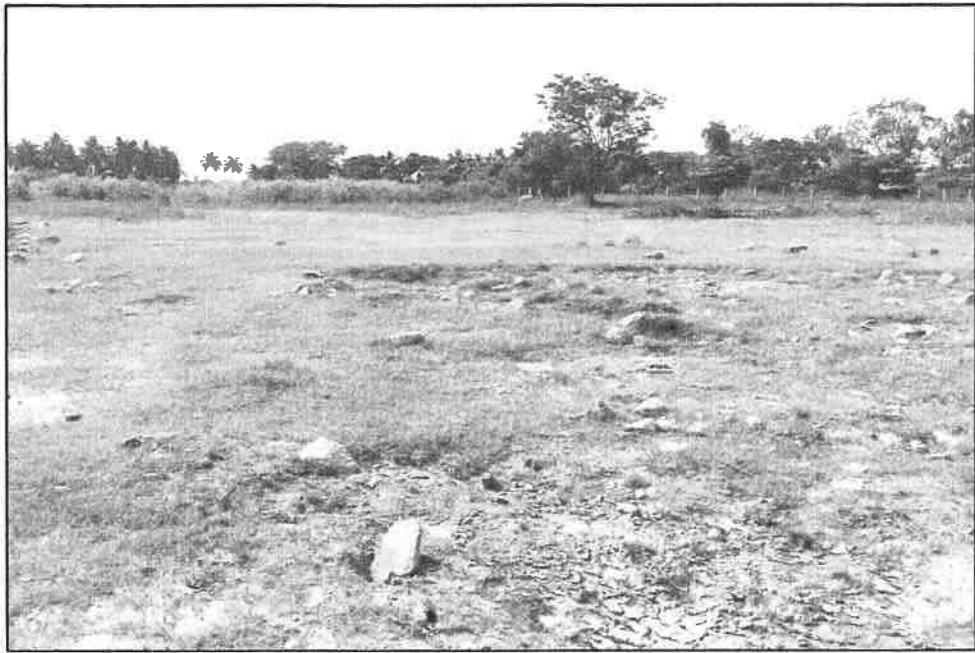
Age	Formation
Recent (Pliocene to lower Pleistocene)	- Laterite & Alluvium (Gravel)
-----Unconformity-----	
Archaean	- Granite, basic granulites, Peninsular Gneiss, Calc Gneiss and Charnockites

### 5.3. Details of Exploration already carried out if any:

- ❖ There is no exploration was carried out in this applied quarry area.
- ❖ The Department of Geology and Mining has been carried out geological exploration and regional mapping study of the lease area.
- ❖ Besides the RQP and his Team members made a detailed geological study of the area the massive Rough stone & Gravel formation is clearly inferred to visible in nearby outcrop areas.

*P. Narees*

**PROPOSED QUARRY SITE PHOTOS**



***Boundary Pillars Fixed Using D-Gps***

*P. Naras*



**5.3. a. Estimation of Reserves ( Geological Resources with geological sections on a scale of 1:2000/1:1000)**

- ❖ As far as Rough stone & Gravel (Charnockite) is concerned, the only practical method is the systematic geological mapping and delineation of Rough stone & Gravel within the field and careful evaluation of body lustre, physical properties, engineering properties, commercial aspects etc.,
- ❖ Totally three sections have been drawn, Two sections drawn length wise as (X-Y) and another Two Sections drawn width wise as (A-B), (C-D) to cover maximum area considered for lease.
- ❖ The Topographical, Geological plan and sections demarcated the commercial, marketable Rough stone & Gravel (Charnockite) deposit has been prepared in Scale 1:2000 and Sections have been drawn with a scale of Hor 1:1000 and Ver 1:500 respectively.
- ❖ Please refer Plate No. VII & VII-A Rough stone & Gravel are terms of Cubic Meters (Volume) only and not for in terms of Tonnage calculations.

**I. GEOLOGICAL RESOURCES :**

Geological Resources is estimated at 24,24,780m<sup>3</sup> of Rough Stone (ie., 2.0m-64.0m) & 80,826m<sup>3</sup> of Gravel (ie., 0m-2.0m) up to a depth of 64.0 m (Max) below ground level.

Table - 5

GEOLOGICAL RESOURCES							
Section	Length in (m)	Width in (m)	Depth in (m)	Volume m <sup>3</sup>	Geological Resources of weathered in m <sup>3</sup>	Geological Resources of Gravel in m <sup>3</sup>	Geological Resources of Rough stone in m <sup>3</sup>
XY-AB	181	145	2	52490		52490	
	181	145	2	52490	52490		
	181	145	60	1574700			1574700
<b>TOTAL</b>					<b>52490</b>	<b>52490</b>	<b>1574700</b>
XY-CD	92	154	2	28336		28336	
	92	154	2	28336	28336		
	92	154	60	850080			850080
<b>TOTAL</b>					<b>28336</b>	<b>28336</b>	<b>850080</b>
<b>GRAND TOTAL</b>					<b>80826</b>	<b>80826</b>	<b>2424780</b>

*Wares*



## II. AVAILABLE MINEABLE RESERVES :

The available Mineable Reserves is estimated at 8,66,500m<sup>3</sup> of Rough stone (ie., 2.0m- 64.0m) and 68,592m<sup>3</sup> of Gravel (0m- 2.0m) up to a depth of 64.0m after leaving the safety distance of 7.5m for adjacent Patta lands and 10m for Government lands from the boundary of lease applied area as indicated in precise area communication letter and relevant mining laws in force.

Table - 6

MINEABLE RESERVES								
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m <sup>3</sup>	Gravel Formation in m <sup>3</sup>	weathered Formation in m <sup>3</sup>	Mineable Reserves of Rough stone in m <sup>3</sup>
XY-AB	98-100	174	130	2	45240	45240	-	-
	96-98	174	130	2	45240	-	45240	-
	91-96	170	122	5	103700	-	-	103700
	86-91	165	112	5	92400	-	-	92400
	81-86	160	102	5	81600	-	-	81600
	76-81	155	92	5	71300	-	-	71300
	71-76	150	82	5	61500	-	-	61500
	66-71	145	72	5	52200	-	-	52200
	61-66	140	62	5	43400	-	-	43400
	56-61	135	52	5	35100	-	-	35100
	51-56	130	42	5	27300	-	-	27300
	46-51	120	32	5	19200	-	-	19200
	41-46	110	22	5	12100	-	-	12100
	36-41	100	12	5	6000	-	-	6000
<b>TOTAL</b>						<b>45240</b>	<b>45240</b>	<b>605800</b>
XY-CD	98-100	84	139	2	23352	23352	-	-
	96-98	84	139	2	23352	-	23352	-
	91-96	80	131	5	52400	-	-	52400
	86-91	75	121	5	45375	-	-	45375
	81-86	70	111	5	38850	-	-	38850
	76-81	65	101	5	32825	-	-	32825
	71-76	60	91	5	27300	-	-	27300
	66-71	55	81	5	22275	-	-	22275
	61-66	50	71	5	17750	-	-	17750
	56-61	45	61	5	13725	-	-	13725
	51-56	40	51	5	10200	-	-	10200
<b>TOTAL</b>						<b>23352</b>	<b>23352</b>	<b>260700</b>
<b>GRAND TOTAL</b>						<b>68592</b>	<b>68592</b>	<b>866500</b>

The available Mineable Reserves is computed as 8,66,500m<sup>3</sup> of Rough Stone and 68,592m<sup>3</sup> of Gravel formation at the rate of 100% recovery up to a depth of 64.0m (Max) below ground level.

*P. Naras*

## 6.0. MINING

### 6.1. Method of Mining ( Open cast / Underground )

Opencast method of semi mechanized mining with 5.0m vertical bench height and width 5.0m of the bench is not less than bench height.

However, as far as the quarrying of Rough stone & Gravel is concerned, observance of the provisions of Regulation 106(2)(b) as below is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence it is proposed to obtain relaxation to the provisions of the below regulation from the Director of mines safety for which necessary provision is available with the regulation 106 (2) (b) of MMR-1961, under Mine Act-1952.

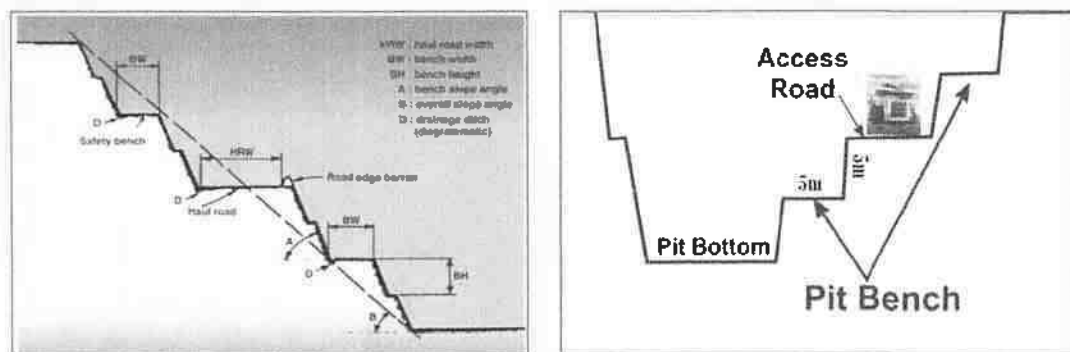


Figure shows Open pit Mining method

### 6.2. Mode of Working (Mechanized, Semi-mechanized, Manual)

- ❖ The Rough stone & Gravel is proposed to quarry 5.0m bench height and 5.0m bench width with conventional opencast semi-Mechanized method. The quarrying operation involves manual Jackhammer drilling, Slurry explosives blasting, loading and transportation of Rough stone & Gravel to the needy nearby crusher units, road formation works of residential and industrial customers.
- ❖ The production of Rough stone & Gravel in this quarry involves the following method which is typical for Rough stone & Gravel quarrying in contrast to other major mineral mining.
- ❖ The splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting ,hydraulic excavators are used for loading of Rough stone & Gravel from pithead to the needy crushers.
- ❖ The hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting.



- ❖ The primary boulders thus splatted are removed from the pit by excavator and further made to smaller sizes by rock breaker attached in excavator. It is a conventional opencast semi-mechanized method of mining.

### **6.3. Proposed bench Height and Width**

The quarrying of Rough stone & Gravel is proposed to safely the bench height of 5.0m and bench width of 5.0m not less than the bench height.

### **6.4. Indicate the overburden/mineral production expected pit wise as detailed as below (Composite plan and section showing pit layout, dumps, disposal of waste if any etc.,)**

- ❖ The overburden Gravel is  $68,592\text{m}^3$  used for filling and leveling of low lying areas of road projects and other infrastructure development work in and around the district. The overburden weathered rock  $68,592\text{m}^3$  of is dumped within lease boundary.
- ❖ The excavated Rough Stone & Gravel will be directly loaded into Tippers to the needy crushers / Customers site.
- ❖ The Composite Plan, Development Plan and section indicating pit layout, Green belt development are shown in Plate No. VII.

*P. Naras*





**III. RECOVERABLE RESERVES :**

The Year wise Recoverable Reserves are calculated by deducting after leaving the safety distance of 7.5m for adjacent Patta lands and 10m for Government lands from the boundary of lease applied area as indicated in precise area communication letter and relevant mining laws in force.

Table - 7

YEARWISE DEVELOPMENT & PRODUCTION RESERVES (I to V YEARS)									
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m <sup>3</sup>	Gravel Formation in m <sup>3</sup>	Weathered Formation in m <sup>3</sup>	Recoverable Reserves of Rough stone in m <sup>3</sup>
I	XY-AB	98-100	135	130	2	35100	35100		-
		96-98	135	130	2	35100		35100	-
		91-96	130	122	5	79300			79300
<b>TOTAL</b>							<b>35100</b>	<b>35100</b>	<b>79300</b>
II	XY-AB	96-99	39	130	2	10140	10140		
		96-100	39	130	2	10140		10140	
	XY-CD	96-99	84	139	2	23352	23352		
		96-100	84	139	2	23352		23352	
	XY-AB	91-96	40	122	5	24400			24400
	XY-CD	91-96	80	131	5	52400			52400
86-91		10	121	5	6050			6050	
<b>TOTAL</b>							<b>33492</b>	<b>33492</b>	<b>82850</b>
III	XY-CD	86-91	65	121	5	39325			39325
	XY-AB	86-92	80	112	5	44800			44800
<b>TOTAL</b>									<b>84125</b>
IV	XY-AB	86-91	85	112	5	47600			47600
		81-86	73	102	5	37230			37230
<b>TOTAL</b>									<b>84830</b>
V	XY-AB	81-86	87	102	5	44370			44370
	AB-CD	81-86	70	111	5	38850			38850
<b>TOTAL</b>							<b>68592</b>	<b>68592</b>	<b>83220</b>
<b>GRAND TOTAL</b>							<b>68592</b>	<b>68592</b>	<b>414325</b>

*P. Nares*

Table - 8



YEARWISE DEVELOPMENT & PRODUCTION RESERVES (VI- X YEARS)								
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m <sup>3</sup>	Gravel Formation in m <sup>3</sup>	Recoverable Reserves of Rough stone in m <sup>3</sup>
VI	XY-CD	76-81	65	101	5	32825		32825
	XY-AB	76-81	115	92	5	52900		52900
TOTAL							-	85725
VII	XY-AB	76-81	40	92	5	18400		18400
	XY-CD	71-76	60	91	5	27300		27300
	XY-AB	71-76	106	82	5	43460		43460
TOTAL							-	89160
VIII	XY-AB	71-76	44	82	5	18040		18040
		66-71	145	72	5	52200		52200
	XY-CD	66-71	45	81	5	18225		18225
TOTAL							-	88465
IX	XY-CD	66-71	10	81	5	4050		4050
		61-66	50	71	5	17750		17750
		56-61	45	61	5	13725		13725
	XY-AB	61-66	140	62	5	43400		43400
		56-61	30	52	5	7800		7800
TOTAL							-	86725
X	XY-AB	56-61	105	52	5	27300		27300
		51-56	130	42	5	27300		27300
		46-51	120	32	5	19200		19200
		41-46	110	22	5	12100		12100
		36-41	100	12	5	6000		6000
	XY-CD	51-56	40	51	5	10200		10200
TOTAL							-	102100
GRAND TOTAL							-	452175

- ❖ The Recoverable Reserves are estimated as **8,66,500 m<sup>3</sup>** of **Rough Stone** (ie., 2.0m-64.0m) and **68,592m<sup>3</sup>** of **Gravel** (ie., 0-2.0m) up to depth of **64.0m (Max)** below ground level for a lease period of (Ten) **10 Years** only.

**Production quantity per day** (1Load=6m<sup>3</sup>approx) (1Year=260 Working days)

Rough stone quantity = 8,66,500m<sup>3</sup> / 1,44,417 Loads  
 = 8,66,500m<sup>3</sup>/ 2600 days (10 Years)  
 = 327m<sup>3</sup> or **55 Lorry Loads / day**

Gravel quantity = 68,592m<sup>3</sup> / 11,432 Loads  
 = 68,592m<sup>3</sup>/ 520 days (2 Years)  
 = 131m<sup>3</sup> or **22 Lorry Loads / day**



*P. Naras*

The applicant ensures the total approved quantity of proposed reserves in benches will not exceed the quarrying operation. Besides the Rough stone & Gravel locked up in bench loss will be exploited after obtaining necessary permission from Director General of Mines Safety, Chennai region by submit the relevant documents, appropriate safety plans and its necessary mitigation safety measures etc.,

## 6.5. MACHINERIES TO BE USED


### a. Mining

It is proposed to use the following machineries on rental basis for the development and production work in this quarrying operation,

S.No	Type	Nos	Dia Hole mm	Size capacity	Make	Motive Power	Picture
1	Jack Hammer	3	32	1.2m to 6m	Atlas Copco	Compressed air	
2	Compressor	1	-	400psi	Atlas Copco	Diesel Drive	

### b. Loading


Manual loading (considerable Rough stone & Gravel) accumulates the same will be loaded by Hired front end loader like JCB) Excavator of 0.90m<sup>3</sup> bucket capacity (with Rock breaker attachment)

S.No	Type	Nos	Bucket capacity	Make	Motive Power	Picture
1	Excavator	3	0.90m <sup>3</sup>	Tata Hitachi - 210	Diesel	

*P. Nares*

### c. Transportation

Tippers/Trucks = 10 Nos. 10/20 Tons capacity (from the quarry to destination (customer/other buyers))

S.No	Type	Nos	Capacity	Make	Motive Power	Picture
1	Tippers	10	10/20 Tons	Ashok Leyland	Diesel	

### 6.6. Energy

The Electricity for Mines office and Lights only at nights (Working is restricted on day time only between 8 AM to 5 PM). Diesel (HSD) will be used for quarrying machineries around **6,91,672 Liters of HSD** will be used for the entire project life. Diesel will be brought from nearby diesel pumps. No power is required for this project. Lightings on the Night will be taken from nearby electric poles after obtaining permission from concerned authorities.

#### 1. Rough Stone:

The Excavator will consume = 16 Liters / 1 hour  
 The Excavator will excavate = 20m<sup>3</sup> of Rough Stone  
 Rough Stone quantity = 8,66,500m<sup>3</sup> /20  
 = 42,515 hours  
 Diesel consume = 42,515 hours x 16 liters  
 Total diesel consumption = 6,80,240 Liters of HSD will be utilized  
 for Rough Stone

#### 2. Gravel:

The Excavator will consume = 10 Liters / 1 hour  
 The Excavator will excavate = 60m<sup>3</sup> of Gravel  
 Gravel Quantity = 68,592 m<sup>3</sup>/60  
 = 1,143.2 hours  
 Diesel consume = 1,143.2 hours x 10 Liters  
 Total diesel consumption = 11,432 Liters of HSD will be utilized for  
 Gravel formation

Total consumption for Rough Stone & Gravel is around = **6,91,672 Liters of HSD** for the entire period of life of the quarry.



### 6.7. Disposal of Overburden/Waste

- ❖ The overburden Gravel is  $68,592\text{m}^3$  (ie., Depth 2m= 0m-2.0m) of used for filling and leveling of low lying areas of road projects and other infrastructure development work in and around the district. The overburden weathered rock  $68,592\text{m}^3$  (ie., Depth 2m= 2.0m-4.0m) of is dumped within lease boundary.

### 6.8. Brief Note on Conceptual Mining Plan for the entire lease period

Conceptual Mining Plan is prepared with an object of (Ten) 10 Years of systematic development of bench lay outs, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, selection of sites for construction of infrastructures etc.,

Ultimate pit size is designed based on certain practical factors such as the economical depth of mining, safety zones, permissible areas etc.,

**Ultimate Pit dimension is given as under**

Pit	Length in (m)	Width in(m)	Depth in (m)
I	258	135	64.0 m

Afforestation has been proposed on all along the safety barrier by planting native species of Saplings. All the baseline information studies like Air Quality monitoring, Noise and Vibration monitoring, Water

Analysis studies will be carried out every year as per the MOEF norms. It is proposed to engage any local institution to monitor the EIA and EMP studies during the course of quarrying operation after the grant of quarry lease.

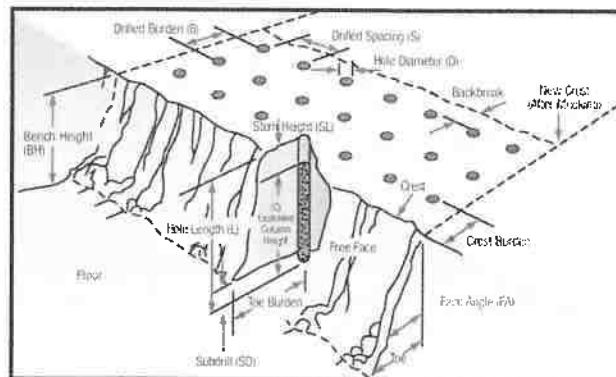
+ P Nares

## 7.0. BLASTING

### 7.1. Blasting Pattern:

The massive formation shall be broken into pieces of portable size by drilling and blasting using jack hammers and shot hole blasting. Powder factor of explosives for breaking such hard rock shall be in the order of 6 to 7 Tonnes per Kg of explosives. Blasting parameters are as follows.

Diameter of the hole	:	30-32 mm
Spacing	:	1.2m
Depth	:	1 to 1.5m
Burden for hole	:	2m
Pattern of hole	:	zig zag-Multi-rows
Inclination of hole	:	80° from the Horizontal
Use of delay detonators	:	25 millisecond
Detonating fuse	:	Detonating cord



### 7.2. Types of Explosives

- ❖ Small dia, 25mm Slurry explosive are proposed to be used for shattering and heaving effect for removal and winning of Rough stone & Gravel. No deep hole drilling or Primary blasting is proposed in this quarrying operation.

### 7.3. Measures proposed to minimize ground vibration due to blasting

- ❖ Controlled blasting measures will be adopted for minimizing ground vibration and fly of rocks. Shallow depth drilling and smooth blasting is proposed to carry out with minimum usage of explosive mainly to give shattering effect in Rough stone & Gravel for easy excavation and control of fly rocks.



- ❖ The following steps shall be adopted to control ground vibration due to blasting. The minimum recommended delay time of 8ms was introduced to minimize ground vibration.
- ❖ In case of electronic detonators, which are inherently much more accurate delays (+/- 0.2 milliseconds delay) to minimize the ground vibration.
- ❖ Use of Ammonium nitrate, fuel oil mixture for shot holes may be avoided because which cause for high fly of rocks in view critical diameter problem. Only high strength explosives like slurry will be used in the form of cartridge.

#### **7.4. Storage of Explosives and Safety measures to be taken while blasting.**

- ❖ The Applicant is advised to engage an authorized explosive agency to carry out small amount of blasting and it will be supervised by the competent statutory Mining Mate /Foreman /Manager. The explosive agency should have the valid Blaster Certificate.
- ❖ He will blast holes in quarry site. After completion the blasting, the agency will take it out back the remaining quantity of explosives to the temporarily available the Magazine at the quarry site. The blasting time of the day is proposed to be 12 PM to 12.30 PM.
- ❖ First Aid Box will be keeping ready at all the time in Mines Office room. Necessary precautionary announcement will be carried out before the blasting operation.

#### **8.0. MINE DRAINAGE**

##### **8.1. Depth of Water Level**

- ❖ The ground Water Level is noticed at the depth of 70m to 75m below ground level by monitoring nearby bore hole, during the climatic conditions, the fluctuations of water level is 70m in Rainy seasons and 75m in Summer seasons of this quarry area.
- ❖ The quarry operation is proposed up to a depth of **64.0m** (Max) below ground level. Hence the quarrying operation may not affect the ground water in any manner.
- ❖ It shall be ensured that quarrying shall not be carried out below ground water table under any circumstances.

*P. Nagesh*

- ❖ If ground water table occurs/intervenes within the permitted depth, then also the quarrying shall be restricted or stopped.

## **8.2. Arrangement and Places where the mine water is finally proposed to be discharged**

- ❖ The ground water may not rise immediately in this type of mining. However, the rain water percolation and collection of from seepage shall be less than 300 LPM and it will be pumped out periodically by a stand by diesel powered Centrifugal pump with 5 HP Motor.
- ❖ The quality of water is potable and no contamination with any hazardous things.
- ❖ Hence, the water stored in quarrying pit will be pumped out via settling of tank and dewatering to the adjacent agricultural fields and further stored in old pit the water is used for Dust suppression and Plantation purposes.



## **9.0. OTHER PERMANENT STRUCTURES**

### **9.1. Habitations / Village Natham (300m)**

- ❖ There are no inhabited sites within the radius of 300m from the boundary of lease area under Rule 36(1-A) (a) TNMMCR 1959.
- ❖ The Nearest Village habitation is Vettakkarakuppam are about 1.3 Km on Eastern side of the lease applied area.
- ❖ The applicant ensures the quarrying operation will be carried out without any hindrance to the habitants and adjoining land owners.

### **9.2. Power lines (HT/LT) (50m)**

- ❖ There are no (LT/HT) lines within a radius of 50m.

### **9.3. Water bodies (River, Pond, Lake, Odai, Channel etc.,) (50m)**

- ❖ There are no **Water bodies** within a radius of 50m.

### **9.4. Archeological / Historical Monuments (500m)**

- ❖ There are no Archeological / Historical Monuments within a radius of 500m from the boundary of lease applied area.

### **9.5. Existence of public road / (SH, NH others), Railway line if any (50m)**

- ❖ There is no existing road from the lease area within a 50m radius





- ❖ SH-49 East Coast road (ECR) is located which is about 6.0 Km on the Eastern side of the Lease area.
- ❖ NH-32 Chennai to Thoothukudi Highway is located which is about 20.0 Km on the NW side of the lease area.
- ❖ The Nearest Railway line is Maduranthakam station line which is about 20.0 Km on the NW side of the lease area.

**9.6. Places of Worship (Temples, Church, Mosque etc.,) (500m)**

There is no Places of Worship within a radius of 500m.

**9.7. Reserved Forest / Forest / Wild Life Sanctuary etc., (10Km)**

There is no RF is located within 10Km radius.

**9.8. Any Other Structures : Nil**

**10.0. EMPLOYMENT POTENTIAL & WELFARE**

**10.1. Employment Potential (Management & Supervisory personal)**

The following man powers are proposed carry out the day to day quarrying activities at the proposed production and also comply with the statutory provision of the MMR 1961.

**Management and Supervisor:**

- |   |        |
|---|--------|
| 1. Mines Manager (with valid statutory qualification) | : 1 No |
| 2. Mines Foreman (with valid statutory qualification) | : 1 No |
| 3. Mines Mate (with valid statutory qualification)    | : 1 No |
| 4. Blaster  | : 1 No |

**Labours, Skilled, Semi-Skilled & Un-skilled**

- |   |          |
|---|----------|
| a. Skilled (Operators- Excavator & Jackhammer)        | : 6 Nos  |
| b. Semi-skilled (Driver)                              | : 14 Nos |
| c. Unskilled (Musdoor/ Labours, Cleaners & Watch man) | : 10 Nos |

**Total : 34 Nos**

Allowing 10% absenteeism, the no.of men of roll will be around 31 Nos.

It is been ensured that, **Child Labours under 18 Years of age will not be engaged for any quarrying operation.**

Necessary Life Insurance policies will be taken by the applicant to all the employees up to the end of the lease period.

*P. Narayana*



## **10.2. Welfare Measures**

### **a. Drinking Water**

- ❖ Drinking water is available from the nearby agriculture land or water vendors in Nelvai Palayam are about 1.5 Km Northern side of the lease applied area

### **b. Sanitary facilities**

- ❖ Semi-permanent latrines & urinals shall be maintained at convenient places for use of Labours as per the provisions of Rule (33) of the Mines Rules, 1955 separately for males and females. Washing facilities shall also be arranged as per Rule (36) of Mines Rules, 1955 and it will be maintained periodically.

### **c. First Aid Facility**

- ❖ First Aid station as per provisions under Rule (44) of the Mines Rules, 1955 will be provided and First aid kits kept in mines office room, the qualified first aid personnel should be appointed or nominated to attend emergency first aid treatment.
- ❖ In case of eventuality, the victim will be given first aid immediately at the site and the injured person will be taken to the nearest Govt Hospital is about 5km on western side of Pavunjur. The competent and statutory of Foreman/Mate/Permit Manager will be incharge of the First aid.

### **d. Labour Health**

- ❖ Periodic medical examination has to be arranged for occupational health once in a year in addition to attending medical treatment of occupational injuries under the Rule 45(A), Mines Rules, 1955.

*P. Nares*

**e. Precautionary safety measures to the Laborers**

- ❖ All the quarry workers will be provided with Safety device include such as safety helmet, mine goggles, ear muffs, ear Plugs, dust mask, sand respirator (avoid silica dusts forms-Silicosis), reflector jackets, safety thick shoes, etc., as Personnel Productive Equipment (PPE) as per the circulars and amendments made for Mine Labours under the guidance of DGMS.



Helmet	Mine	Ear Muffs	Ear	Dust	Sand	Reflector	
	Goggles		Plugs	Mask	Respirator	Jackets	Shoes

- ❖ Periodically medical checkup will be conducted for all workers for any mine health problems.
- ❖ Proper training and induction will be given by qualified and experienced safety officer to all employees about the safe and systematic quarrying operation.
- ❖ The drillers and workers are sent for vocational training periodically to carry out the quarrying operations scientifically to safeguard the men machinery and mineral and to create awareness of conventional opencast quarrying operation.

*P. Nares*



## PART - B

### 11.0. ENVIRONMENTAL MANAGEMENT PLAN

#### 11.1. Existing Land Use Pattern

The area is exhibit Plain topography. The applied area is dry barren land and devoid of agriculture and habitations and the area is not used for the specific vegetation. The surrounding area is practiced by the seasonal cultivation.

*The existing Land use pattern is given as under*

Table - 9

S. No	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)
1.	Quarrying Pit	Nil	3.53.85
2.	Infrastructure	Nil	0.01.00
3.	Roads	Nil	0.02.00
4.	Green Belt	Nil	0.75.25
5.	Unutilized	4.32.10	0.00.00
	<b>Total</b>	<b>4.32.10 Ha</b>	<b>4.32.10 Ha</b>

#### 11.2. Water Regime

Water Level in this area quarry area is noticed at a depth of 70m to 75m below ground level observed nearby borehole the quarrying of Rough stone & Gravel is proposed up to a depth of 64.0m (Max) below ground level. Hence, it will not affect the quality of ground water depletion of this area.

#### 11.3. Flora and Fauna

Neem tree, Aavaram chedi, Thorny bushes, Shrubs are noticed within lease area. Neem, Panai, Coconut trees and Mullumaram are noticed the surrounded area. No plants of botanical interest and animals of zoological interest are noticed in this area.

#### 11.4. Climatic conditions

The area receives annual rainfall of about 1105mm to 1214mm and the rainy season is mainly from Oct - Dec receives rain both in south west and north east monsoon. The summer is hot with maximum temperature of 37°C and during winter encounters a minimum temperature of 20°C.

*P. Norees*

### 11.5. Human Settlement

The nearest habitations with the population, approx. distance within 5.0Km radius from the proposed quarry site are as given under,

S. No	Name of the Village	Approximate distance	Direction from lease applied area	Approximate population
1.	Nelvaipalayam	1.2 Km	North	454
2.	Vettakkarakuppam	1.3 Km	East	19233
3.	Akkinampattu	1.2 Km	SW	2553
4.	Kadugupattu	2.5 Km	West	1765

### 11.6. Plan for Air, Dust Suppression

- ❖ The air quality will be affected by the Suspended Particulate Matter (SPM) generated by the blasting, jack hammer drilling, loading and unloading during the quarrying operation.
- ❖ The following mitigation measures will be carried out, Mist water spraying will be carried out by means of water sprinklers to suppress dust emission in the Haul roads. The native species of Neem etc., will be planted along the lease boundary and Safety buffer zone.
- ❖ The quarried out materials will be fully covered by the Tarpaulin during transportation to avoid the spillage of materials. The Air quality will be monitored periodically as per the norms and mitigates measures carried out to prevent dust and air propagation in to the air.
- ❖ Operators, those exposed directly to such conditions will be provide such as (PPE) Personnel Protective Equipment's like Dust mask, Ear plug, Helmet, Gloze etc., as per the Mines Act -1952.



### 11.7. Plan for Noise Control

- ❖ The quarrying of Rough stone & Gravel will be carried out by Shallow holes of 64mm diameter and 1.5 meter depth of wet drilling and conventional low power explosives such as slurry explosives, ordinary safety fuse only. Hence the ground vibration and noise pollution will be very



x P. Narayana



minimum and restricted within the quarry workings. However, periodical noise level monitoring and other mitigation measures will be carried out to reduce the noise level and vibration in and around the quarry site.

- ❖ Nowhere the noise level should exceed the permissible limit of 80db during the quarry working hours.
- ❖ The drivers will be strictly instructed to move the vehicle during the transportation not exceeding 40.0 Km per Hour, Sentries with Red Flag & whistle will be posted in village junction and regulate traffic.

#### **11.8. Environmental Impact Assessment Statement Describing Impact on mining on the Ten years**

- ❖ The Mining Plan proposed is for a small production of Rough stone & Gravel without involving deep hole drilling and heavy blasting. Such limited mining activity is not likely to cause any impact adversely on environment as far as pollution of Air, Water and Noise is concerned, anyhow environmental impact studies will be conducted as per EIA notification issued by MOEF. It is B2 Category of mine.
- ❖ The estimated Cost would be around **Rs. 7,40,000/-** for a period of (Ten) 10 Years only.

#### **11.9. Proposal for Waste Management**

- ❖ There is no waste anticipated during in this Rough stone & Gravel quarry operation. The quarried out materials 100% will be utilized.

#### **11.10. Proposal of Reclamation of Land affected during mining activities and at the end of mining (refilling/fencing etc.,)**

- ❖ In the proposed Mining Plan only a maximum depth of **64.0m** (Max) below ground level has been envisaged as workable depth for Safe & Economic mining during the lease period. Hence, after quarry reaches Ultimate Pit Limit (for this lease period) of 64.0m depth, *S1 type Fencing* will be constructed around the quarried pits to prevent inherent entry of the public and cattle.
- ❖ There is no proposal for refilling and rehabilitation. The Barbed wire fencing cost would be around **Rs.4,00,000/-**

x P. Nares



### 11.11. Program for Afforestation:

The Own Patta land has been identified to be utilized for Afforestation in a phased manner as described below

Table - 10

Year	No. of Saplings proposed to be planted	Survival %	Area to be covered Ha	Name of the species	No. of Saplings expected to be grown
I	90	80%	0.05.85	Neem & Teak	72
II	90	80%	0.07.72	Neem & Teak	72
III	90	80%	0.08.17	Neem & Teak	72
IV	90	80%	0.08.63	Neem & Teak	72
V	90	80%	0.09.00	Neem & Teak	72
VI	90	80%	0.06.60	Neem & Teak	72
VII	90	80%	0.07.12	Neem & Teak	72
VIII	90	80%	0.06.90	Neem & Teak	72
IX	90	80%	0.07.58	Neem & Teak	72
X	90	80%	0.07.68	Neem & Teak	72
<b>Total</b>	<b>900</b>		<b>0.75.25</b>		<b>720</b>

- ❖ Nearly 7525 Sq.m is proposed to use under Afforestation by planting 90 Nos of Neem & Teak Saplings etc., every year in the spacing interval of (5m X 5m) with an anticipated survival rate of 80%.
- ❖ Appropriate native species of Neem, Pungan, Teak and Casuarinas Saplings will be planted approach roads, service roads, nearby villages, village roads, government school etc.,
- ❖ Saplings of local plants of regional saplings will be planted as per the consultation of the local Forest Department.
- ❖ The Quarry Land use, Layout and Afforestation Plan are showing in Plate No. VIII.

*P. Narayana*



## 11.12. Proposed Financial Estimate / Budget for (EMP) Environment Management

Table - 11

S.No	Monitory and Analysis Description	Rate per location	No. of location	Total Charges for monitoring		
				6 months	Per Year	10 Years
1	Ambient Air quality monitoring	5000	4	20000	40000	4,00,000
2	Water sampling and analysis	10000	1	10000	20000	2,00,000
3	Noise level monitoring	500	4	2000	4000	40,000
4	Ground vibration monitoring	2500	2	5000	10000	1,00,000
<b>Total EMP Cost</b>				<b>37000</b>	<b>74000</b>	<b>7,40,000</b>

The Environment Monitoring EMP Studies cost would be around **Rs. 7,40,000/-** for a period of (Ten) 10 Years only.

### I. Project Cost & Investment:

#### 1) Land cost

It is a Own Patta land, the approximate present land cost is about Rs.15,00,000/- per Hectare hence the land cost is calculated as **Rs. 64,81,500/-**

#### 2) Refilling/ Fencing

There is proposal for Refilling only Weathered rock 68,592 m<sup>3</sup> , after the excavation of Rough stone & Gravel the quarried out land will be fenced with barbed wire fencing the cost would be around **Rs. 5,00,000/-**

#### 3) Laborers shed

Labours are proposed for quarrying Rough stone & Gravel. The machine operators and workers are from nearby local villages, hence no cost is involved. Rest shelter will be constructed as semi-permanent structure at the cost of **Rs.3,00,000/-**

*P. Naras*





#### **4) Drinking Water facility and other utilities for the labourers**

34 Labours at the rate of Rs.5000/- month for a period of (Ten) 10 Years only, the cost will be around Rs.6,00,000/-

### **II. Machinery to be used :**

The Machineries like Jack Hammers, Tractor mounted compressor attached with Jack hammer, Excavator Of 0.9m<sup>3</sup> bucket capacity attached with Rock Breaker are proposed to deploy for quarrying operation and Tippers/Trucks of 10/20 Tons capacity will be used for the quarrying transportation for hired basis, the cost will be around **Rs.40,00,000/-**

#### **I. Fixed Asset Cost :-**

1. Land cost	= Rs. 64,81,500/-
2. Refilling/Fencing cost	= Rs. 5,00,000/-
3. Rest shelter	= Rs. 3,00,000/-
4. Drinking Water	= Rs. 6,00,000/-

#### **II. Machinery Cost :-**

**Project Cost = Rs. 1,18,81,500/-**

### **III. Expenditure :**

#### **1) Sanitary Facility & arrangement**

Sanitary facility cost should be constructed by semi-permanent structure Rs.1,00,000 and the Sanitary maintenance at the cost of Rs.3000/- month the cost will be around Rs.3,00,000/- and total amount Rs.4,00,000/- for a period of (Ten) 10 Years only.

#### **2) Safety kits**

Rs.60,000/- will be spent for the safety kits such as Helmet, Mine Goggles, Ear plugs, Ear muff, Dust Mask, Reflector jackets and safety Shoes.

#### **3) Water sprinkling (If necessary)**

Rs.15,000/- month will be spent for sprinkling the water on haul roads for Dust suppression; the cost will be around Rs.18,00,000/-for a period of (Ten) 10 Years only.

#### **4) Afforestation etc.,**

Afforestation is proposed within safety zones of the lease applied area and plantations will be carried out on the nearby villages and village roads, Govt School after consultation with the Panchayat authorities. The cost estimate is around Rs.1,50,000/-

*P. Nagesh*



### **Expenditure :**

1. Sanitary Facility & Arrangements = Rs. 4,00,000/-
2. Safety kits = Rs. 60,000/-
3. Water Sprinkling = Rs. 18,00,000/-
4. Afforestation cost = Rs. 1,50,000/-

### **Environment Monitoring/ FiveYears :**

1. Air Quality Sampling = Rs. 4,00,000/-
2. Water Quality Sampling = Rs. 2,00,000/-
3. Noise Level Monitoring = Rs. 40,000/-
4. Ground vibration test = Rs. 1,00,000/-

*EMP Cost Total = Rs. 31,50,000/-*

(Expenditure Including EMP Studies)

**Project Cost (A) = Rs. 1,18,81,500/-**

**EMP Cost (B) = Rs. 31,50,000/-**

**Total Project Cost (A+B) = Rs. 1,50,31,500/-**

### **11.13. Corporate Environment Responsibility (CER):**

- ❖ The Applicant shall be distributed Note books, Stationary items to nearby Govt Primary School and to conduct the Medical camp, Environment awareness program, etc., to nearby villages after consultation with local panchayat authorities.
- ❖ The Applicant shall ensure that a minimum of 2% from the Total project cost (Rs.3,00,630/-) for the entire lease period will be utilized for the CER Activities.
- ❖ *District Mineral Fund @10% of the Royalty shall be given to the Dept. of Geology and Mining.*

*P. Narayan*



## 12.0. MINE CLOSURE PLAN

### 12.1. Steps proposed for phased restoration, reclamation of already mined out area.

- ❖ This conventional Systematic, Scientific and Eco- Friendly quarrying operation for a depth of 64.0m (Max) below ground level and not required any Backfill, Reclamation and Rehabilitation, the quarried out lands will be used for Water storage purpose.
- ❖ The mined out area will be fenced on top of open cast working with S1 Fencing to arrest the entry of cattle and public in to the quarry site.

### 12.2. Measures to be under taken on mine closure as per Act & Rules.

- ❖ Measure will be taken as per Act & Rules. The quarried pit will be fenced by using Barbed wire fencing to prevent inherent entry of public and cattle.

### 12.3. Mitigation measures to be undertaken for safety and restoration/ reclamation of the already mined out area.

#### Air Quality:

- ❖ (Air quality will be degrade due to drilling, blasting, mining operation and transportation)
- ❖ Drilling will be carried out by Wet drilling mode to control the dust propagation into the air.
- ❖ Blasting will be carried out on limited scale.
- ❖ Mist Water spraying on haul roads is proposed to prevent the dust propagation into the air.

#### Noise and Vibration:

- ❖ The noise will be formed due to the drilling, blasting, loading and movement of Vehicles and Machineries.
- ❖ The applicant has proposed to plant native species of Neem & Teak saplings all along safety area to prevent Noise besides wet drilling will be practiced to prevent dust and spillage.
- ❖ All the Vehicles, Machineries will be maintained in good conditions as per RTO and TNPCB Norms to prevent Noise, Smoke and Vibration to maintain Noise levels below 80 dB (decibel).

X P. Nares



### **Water Regime:**

- ❖ The quarrying operation has proposed up to a maximum depth of 64.0 m below ground level is well below the ground water table (Summer 75m and Rainy seasons 70m) for a period of (Ten) 10 Years only. Hence the ground water table will not affect in any manner.
- ❖ The seepage and rain water stored in quarrying pit will be drained out by 5 H.P motor pump and will be discharged through filter media to boundary barrier for afforestation and excess water will be sprayed on haul roads to prevent dust propagation in to the atmosphere.
- ❖ The Rough stone & Gravel quarry will not produce any harmful toxic effluence In the form of Solid, Liquid or Gas.

### **Human Health and Safety:**

- ❖ All the labors are provided with Safety Equipment's like safety Helmet, Goggles, Ear muff, Ear Plug, Safety Jackets, Hand gloves, Thick Shoes etc., at applicant cost, as per the specifications of the Director of Mines Safety.
- ❖ The competent qualified person Foreman/Permit Mines Manager will provide First Aid will take care of small and minor injuries. If any accident happens, the Victim will be taken to the nearby hospital by the own vehicle which is always kept in the mines office. The nearest Govt Hospital is about 5.0 Km on western side of Pavunjur Village.

X *P. Narayana*



**13.0. ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT**

- i. The measures will be taken as per Act & Rules and Regulations and orders made there under shall be complied with, so that the safety of mine, machinery and mine workers will be protected.
- ii. It is expected that the mining will be done skillful, systematically, scientifically, and Eco-friendly quarrying operation.
- iii. There is no deep hole drilling and heavy blasting of this lease area.
- iv. The Applicant will endeavor every attempt to quarry the Rough stone & Gravel economically without any wastage and to improve the environment and ecology.
- v. Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Department.

**Prepared by**

Signature of Recognised Qualified Person

Place : Salem

Date : 24.01.2023

S. LAKSHMIKANTHAN, M.Sc.,  
Recognised Qualified Person  
Reg. No. RQP/MAS/262/2014/A

**This Mining Plan is approved subject to the conditions / stipulations indicated in the Mining Plan approval Letter No. RC/NO.101/mines/2022 Dated., 21.01.2023**

This Mining Plan is approved as per the powers conferred Under Rule 41 (2) of Small Scale Mines Mineral Concession Rules, 1950

Assistant Director of Ecology and Mining,  
Chengalpattu District.

24.01.2023 44



நக.எண். 101/கனிமம் /2022  
நாள். 10.01.2023

உதவி இயக்குநர் அலுவலகம்,  
புவியியல் மற்றும் சுரங்கத்துறை,  
செங்கல்பட்டு.

**அறிவிக்கை**

பொருள் : கனிமங்களும் குவாரிகளும் - சாதாரண கற்கள் மற்றும் கிராவல் மண் - செங்கல்பட்டு மாவட்டம் - செய்யூர் வட்டம் - ஆக்கினாம்பட்டு கிராமம் - புல எண்கள். 264/2(P), 264/3A(P), 267/1B, 267/2(P) மற்றும் 267/3 -ன் மொத்த பரப்பு 4.32.10 ஹெக்டேர் பட்டா நிலம் சாதாரண கற்கள் மற்றும் கிராவல் மண் வெட்டியெடுக்க பத்து ஆண்டுகளுக்கு குவாரி குத்தகை உரிமம் கோரி - தி/ள்.நராஜ் புளுமெட்டல்ஸ் (பிரைவேட்) லிமிடெட் இயக்குநர் திரு.ப.நரேஷ் என்ற நிறுவனத்தினர் என்பவர் தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி எண்.19(1) - ன்கீழ் மனு செய்தது - தகுதி வாய்ந்த நிலப்பரப்பாக தெரிவித்தல் - தொடர்பாக.


- பார்வை :
1. தி/ள்.நராஜ் புளுமெட்டல்ஸ் (பிரைவேட்) லிமிடெட், இயக்குநர் திரு.ப.நரேஷ், S.No.488/2, Plot No.109 & 110, காமாட்சி அம்மன் நகர் கிழக்கு, மாங்காடு, சென்னை-122 என்பரின் விண்ணப்பம் பெறப்பட்ட நாள் 12.09.2022.
  2. மதுராந்தகம் வருவாய் கோட்டாட்சியர் அவர்களின் அறிக்கை நக. எண். 3755/2022/ஆ, நாள்.26.12.2022.
  3. காஞ்சிபுரம், புவியியல் மற்றும் சுரங்கத்துறை உதவி புவியியலாளர் மற்றும் தனி வருவாய் ஆய்வாளர் அவர்களின் புலத்தணிக்கை அறிக்கை, நாள்: 07.01.2023.
  4. செங்கல்பட்டு மாவட்ட ஆட்சியர் அவர்களின் செயல்முறைகள் ஆணை நக.எண்.38590/2019/ஆ2 நாள் 08.05.2021
  5. மற்றும் தொடர்புடைய ஆவணங்கள்.

செங்கல்பட்டு மாவட்டம், செய்யூர் வட்டம், ஆக்கினாம்பட்டு கிராமம், புல எண்கள். 264/2 (0.20.30), 264/3A (1.17.00), 267/1B (0.64.30), 267/2 (1.17.00) மற்றும் 267/3 (1.13.50) -ன் மொத்த பரப்பு 5.05.30 ஹெக்டேர் பரப்பில் 4.32.10 ஹெக்டேர் பரப்பில் சாதாரண கற்கள் மற்றும் கிராவல்மண் வெட்டியெடுக்க தி/ள். நராஜ் புளுமெட்டல்ஸ் (பிரைவேட்) லிமிடெட் என்பவர் குவாரி குத்தகை உரிமம் கோரி விண்ணப்பித்துள்ளார்.

X B. Nares



நிறுவனத்தினருக்கு தெரிவிக்கப்படுகிறது. மேலும் குவாரி அனுமதி வழங்குவது தொடர்பாக வரைவு சுரங்கத் திட்டத்தை (Mining Plan) மூன்று மாத காலத்திற்குள் உதவி இயக்குநர் முன்பு சமர்ப்பித்து ஒப்புதல் பெறவும் குவாரி உரிமம் பெறுவது தொடர்பாக மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் (SEIAA) இசைவினை பெற்று சமர்ப்பிக்கவும் அறிவுறுத்தப்படுகிறது.


  
உதவி இயக்குநர் (பொ),  
புவியியல் மற்றும் சுரங்கத்துறை,  
செங்கல்பட்டு.

  
10/11/23

பெறுநர்  
தி/ள்.நராஜ் புளுமெட்டல்ஸ் (பிரைவேட்) லிமிடெட்,  
இயக்குநர் திரு. P. நரேஷ்,  
S.No.488/2, Plot No.109 & 110,  
காமாட்சி அம்மன் நகர் கிழக்கு,  
மாங்காடு, சென்னை- 600 122.

நகல்:-

- 1) தலைவர், மாநில சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையம், சென்னை.
- 2) ஆணையர், புவியியல் மற்றும் சுரங்கத்துறை, கிண்டி, சென்னை 600 032.

  
S. LAKSHMIKANTHAN  
RQP/MAS/262/2014/A

  
P. Naras

# ANNEXURE



അനുബന്ധം നമ്പർ 23

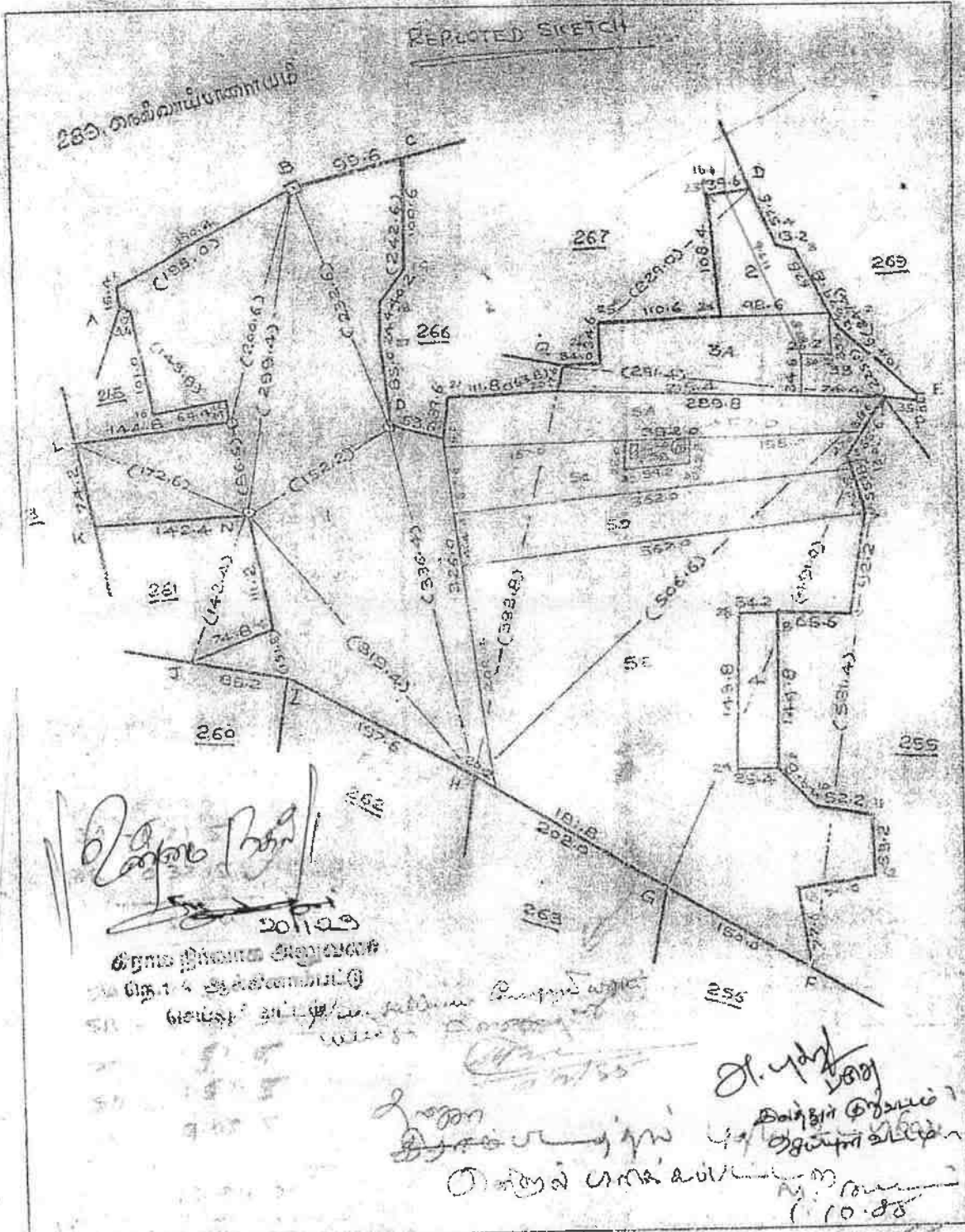
പ്രാബല്യം വിശദീകരിക്കൽ

ഖണ്ഡം മാതൃഭൂമി

പുലത്തൂർ 264

കിഴക്കൻ ഭാഗം  
പുറം കിഴക്കൻ ഭാഗം

പുറം: 27 ഓ. 72.0



*[Handwritten Signature]*  
 2011.09  
 മേൽപ്പറഞ്ഞ വിവരങ്ങൾ  
 ശ്രദ്ധാർഹമായിട്ടുള്ളതായി  
 കണ്ടുപിടിച്ചു.

*[Handwritten Signature]*  
 മേൽപ്പറഞ്ഞ വിവരങ്ങൾ  
 ശ്രദ്ധാർഹമായിട്ടുള്ളതായി  
 കണ്ടുപിടിച്ചു.  
 10.08

പുറം: 27 ഓ. 72.0  
 1:5000  
 10.08

*[Handwritten Signature]*  
 P. Narayana





பகுதி: 2020/114

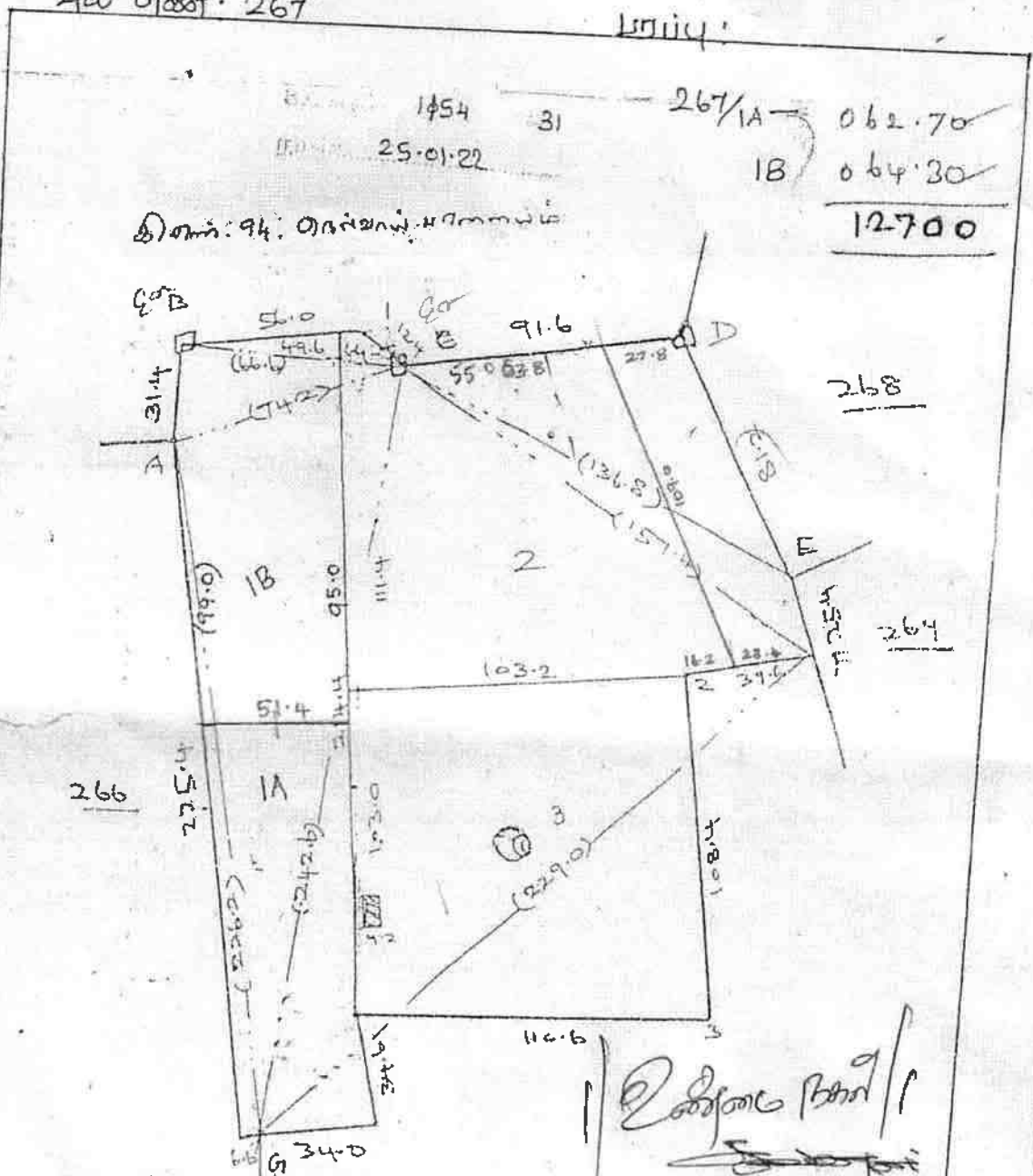
பகுதி: 267

பகுதி: 114

பகுதி: 267

பகுதி: 267

பகுதி: 267



267/1A 062.70  
 1B 064.30  
 12700

266

268

264

17/12/2014

Handwritten signature and date 27/12/2014

Handwritten signature

JPT No. 35209  
 267/1

Handwritten signature and name V. Venkatesh

Handwritten signature and name S. Lakshmi

S. LAKSHMIKANTHAN  
 RQP/MAS/262/2014/A

Handwritten signature and name

Handwritten text: கீழ்க் குறிப்பிட்ட பகுதிகளில்...

Handwritten signature and name

Handwritten text: with a copy of...

Handwritten signature and name P. Narayana



ANNEXURE

தமிழக அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : செங்கல்பட்டு

வட்டம் : செய்யூர்

வருவாய் கிராமம் : ஆக்கினாம்பட்டு

பட்டா எண் : 1974

உரிமையாளர்கள் பெயர்

1. 1.ராஜேஷ் 2.நரேஷ் போலம் ரெட்டி

... நராஜ் புளு மெட்டல்ஸ் பி லிட்

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	
264	2	0 - 77.00	2.38	--	--	--	--	2022/0103 /35/277316--- -- 17-08-2022
264	3A	1 - 21.50	3.75	--	--	--	--	2022/0103 /35/277316--- -- 17-08-2022
264	3B	0 - 32.50	1.00	--	--	--	--	2022/0103 /35/277316--- -- 17-08-2022
267	1B	0 - 64.30	1.99	--	--	--	--	2022/0103 /35/277316--2021 /35/08/000142SD -- 17-08-2022
267	2	1 - 29.00	3.99	--	--	--	--	2022/0103 /35/277316--- -- 17-08-2022
267	3	1 - 13.50	3.50	--	--	--	--	2022/0103 /35/277316--- -- 17-08-2022
		5 - 37.80	16.61					

குறிப்பு 2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 35/08/114/01974/40421 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 10-01-2023 அன்று 03:35:36 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

*P. Narayana*

10/01/2023, 15:39



அ-பதிவேடு விவரங்கள்

மாவட்டம் : செங்கல்பட்டு

வட்டம் : செய்யூர்

கிராமம் : ஆக்கினாம்பட்டு

1. புல எண்	264	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	2	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	264-2	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 77.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	2.38
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	1974
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.நராஜ் புளூ மெட்டல்ஸ் பி லிட்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 50421 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

+ P. Nares

அ-பதிவேடு விவரங்கள்



மாவட்டம் : செங்கல்பட்டு

வட்டம் : செய்யூர்

இராமம் : ஆக்கினாம்பட்டு

1. புல எண்	264	9. மண் வயனமும் ரகமும் 7 - 3	
2. உட்பிரிவு எண்	3A	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	264-3	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	1 - 21.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	3.75
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1974
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.நராஜ் புளூ மெட்டல்ஸ் பி லிட்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 50421 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

P. Nares



அ-பதிவேடு விவரங்கள்

மாவட்டம் : செங்கல்பட்டு

வட்டம் : செய்யூர்

கிராமம் : ஆக்கினாம்பட்டு

1. புல எண்	267	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	1B	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	267-1	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 64.30
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	1.99
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1974
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.நராஜ் புளு மெட்டல்ஸ் பி லிட்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 50421 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

+ P. Nares



அ-பதிவேடு விவரங்கள்

மாவட்டம் : செங்கல்பட்டு

வட்டம் : செய்யூர்

கிராமம் : ஆக்கினாம்பட்டு

1. புல எண்	267	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	2	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	267-2	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	1 - 29.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	3.99
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	1974
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.நராஜ் புளு மெட்டல்ஸ் பி லிட்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 50421 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

x P. Nares



அ-பதிவேடு விவரங்கள்

மாவட்டம் : செங்கல்பட்டு

வட்டம் : செய்யூர்

கிராமம் : ஆக்கினாம்பட்டு

1. புல எண்	267	9. மண் வயனமும் ரகமும்	7 - 3
2. உட்பிரிவு எண்	3	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	267-3	11. தீர்வை (ரூ - ஹெ)	3.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	1 - 13.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	3.50
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	1974
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.நராஜ் புனா மெட்டல்ஸ் பி லிட்

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 50421 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

P. Naras

1432 ஆம் பசலியில் கிராமத்தில் வருடவாரி புலவாரி கைப்பற்று சாகுபடி அடங்கல் கணக்கு

நில வரித் திட்டத்தின் படி புலவாரிகளின் விபரம்.					சாகுபடி யாளரின் பெயர்.	முதல் போதம்.						
(1)	(2)	(3)	(4)	(5)		(6)	(7)	(8)	(9)	(10)	(11)	(12)
264	2	1770	228	1974	மாணம்							
264	34	1215	375	1974	do							
267	18	1642	199	1974	do							
267	2	1990	399	1974	do							
267	3	1125	300	1974	do							

10-1-2014  
 கிராம நிர்வாக அலுவலர்  
 செ. ச. சிவசுப்பிரமணியன்  
 S. LAKSHMIKANTHAN  
 ROP/MAS/262/2014/A

P. Nagesh

இரண்டாம் போதம்.									
(13)	(14)	(15)	(16)	(17)	(18)	(18a)	(19)		
எந்த மாதத்தில் பரீட்சை செய்யப்பட்டது என்பதை அறியவசம் செய்யப்பட்டது.	பயிரின் பெயர்.	பயிராளர் / அறவையாளர் பெயர்.	உண்டாகிய பரப்பளவு ஆதாரம்.	விளைச்சல் அளவு விழுக்காடு.	கிராம அலுவலரின் குறிப்புகள் - (1) பயல்களின் பகுதிகளில் பட்டம் பரிசீலிக்கப்பட்ட இடங்களில் விவசாயிகள் அல்லாத பட்டம் தள்ளப்படும். (2) கையாற்றும் இடத்தை பரிசீலனை செய்து பட்டம் தள்ளப்படும். (3) முக்கிய மாதத்தில் பரப்பளவு உடனடியாக பரிசீலிக்கப்படும். சான்று பதிவுகளைக் கருத்து, பரப்பளவு, மரபுகளில் பரிசீலிக்கப்பட்ட விவரங்கள்.	(அ) வளம், (ஆ) பயலற்ற பயிர் செய்ய இயலாத நிலம், (இ) விவசாயம் மற்றும் பரப்பின் விவரங்கள் ஒவ்வொரு நில அளவை எண் அல்லது அதன் பகுதியில். (ஆ) வளம், (ஆ) பயலற்ற பயிர் செய்ய இயலாத நிலம், (இ) விவசாயம் மற்றும் பரப்பின் விவரங்கள் ஒவ்வொரு நில அளவை எண் அல்லது அதன் பகுதியில். (ஆ) வளம், (ஆ) பயலற்ற பயிர் செய்ய இயலாத நிலம், (இ) விவசாயம் மற்றும் பரப்பின் விவரங்கள் ஒவ்வொரு நில அளவை எண் அல்லது அதன் பகுதியில். (ஆ) வளம், (ஆ) பயலற்ற பயிர் செய்ய இயலாத நிலம், (இ) விவசாயம் மற்றும் பரப்பின் விவரங்கள் ஒவ்வொரு நில அளவை எண் அல்லது அதன் பகுதியில்.	பயிர் பரப்பளவும் அளவு குறிப்புகளும்.		







# NARAJ BLUE METALS PVT LTD

S.No. 488/2, Plot No. 109 & 110, East Kamachiamman Nagar,  
Mangadu, Chennai - 600 122.

E-mail: narajbluemetals@gamil.com

Date : .....

## BOARD RESOLUTION dated 10<sup>th</sup> August 2022

The company has decided to buy 13.28 acres of land at Kollathumalacheri village - Akkinampattu for the purpose of quarrying business and the following resolutions were passed in this regard -

RESOLVED that the company apply for applicable permissions for Rough stone quarrying including mining license from Department of Geology and mining, Pollution clearance from Tamilnadu Pollution control board and Environmental clearance authorities, registration for GST and all other required approvals for setting up of the quarrying unit at the land proposed to be purchased at Kollathumalacheri village - Akkinampattu.

FURTHER RESOLVED that Mr P Naresh, director of the company be authorized to sign, represent, appear and do all such acts on behalf of the company in this regard.

True Copy  
For Naraj Blue Metals Private Limited

K Rajesh  
DIN 09676671  
Director

S. LAKSHMIKANTHAN  
RQP/MAS/262/2014/A



இந்திய அரசாங்கம்  
Government of India

நரேஷ் போலம் ரெட்டி  
Naresh Polam Reddy



பிறந்த நாள் : DOB: 20/05/1984  
ஆண்பால் : Male



3401 6886 5221

ஆதார் - சாதாரண மனிதனின் அதிகாரம்



இந்திய தனிப்பட்ட அடையாள ஆணைப்பலகை  
Unique Identification Authority of India

முகவரி : தந்தை - தாய் பெயர்  
ஜனார்தன் ரெட்டி  
எண் : 2 வது வெற்றி நகர்  
விரிவாக்கம் கிருஷ்ணநகர், மேற்கு  
தாம்பரம், சென்னை, தாம்பரம், தாம்பரம்  
காஞ்சிபுரம், தமிழ் நாடு, 600045

Address: S/O: Janardhan  
Reddy, NO 7 2-ND STREET  
VETTRI NAGAR, EX  
KRISHNA NAGAR, WEST  
TAMBARAM, CHENNAI  
Tambaram, Tambaram,  
Kancheepuram, Tamil Nadu,  
600045

3401 6886 5221

1947  
1800 300 1947

help@uidai.gov.in

www.uidai.gov.in

S. LAKSHMIKANTHAN  
RQP/MAS/262/2014/A

P. Naresh



*S. Lakshmikanthan*

अर्हता प्राप्त व्यक्ति के रूप में मान्यता प्रमाण पत्र  
(खनिज रियायत नियमावली, 1960 के नियम 22सी के तहत)  
**CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON**  
(Under Rule 22C of Mineral Concession Rules, 1960)

श्री एस. लक्ष्मीखानतन, 22/13, कालियम्मन कोविल स्ट्रीट, जाकीरम्मापॉलयम, सेलम-636 302, जिनका फोटो और हस्ताक्षर ऊपर दिया हुआ है, तथा जिनहोंने अपनी अर्हता और अनुभव का संतोषजनक साक्ष्य दिया है, को खनन योजना तैयार करने हेतु खनिज रियायत नियमावली 1960 के नियम 22सी के तहत अर्हता प्राप्त व्यक्ति के रूप में मान्यता प्रदान की जाती है।

Shri S. Lakshmikanthan, 22/13, Kaliyamman Kovil Street, Jagirammalayam, Salem - 636 302, whose **Photograph and signature** is affixed herein above, having given satisfactory evidence of his qualifications & experience hereby **RECOGNISED** under Rule 22C of the Mineral Concession Rule, 1960 as a Qualified Person to prepare Mining Plans.

उनकीपंजीयन संख्या है  
His registration number is

RQP /MAS/ 262/2014/A

यह मान्यता 10 वर्षों की अवधि के लिए मान्यता है जो दिनांक 13.11.2024 को समाप्त होगी।  
This recognition is valid for a period of 10 years ending on 13.11.2024.

उनके द्वारा प्रस्तुत खनन योजना में गलत जानकारी / दस्तावेज पाए जाने की स्थिति में यह प्रमाण पत्र वापस लिया जाएगा / निरस्त किया जाएगा।

This certificate will liable to be withdrawn / cancelled in the event of furnishing the wrong information / documents in the Mining Plan submitted by him.

स्थान/ Place : Chennai  
दिनांक/ Date : 14.11.2014

*S. Lakshmikanthan*











S. LAKSHMIKANTHAN  
RQP/MAS/262/2014/A

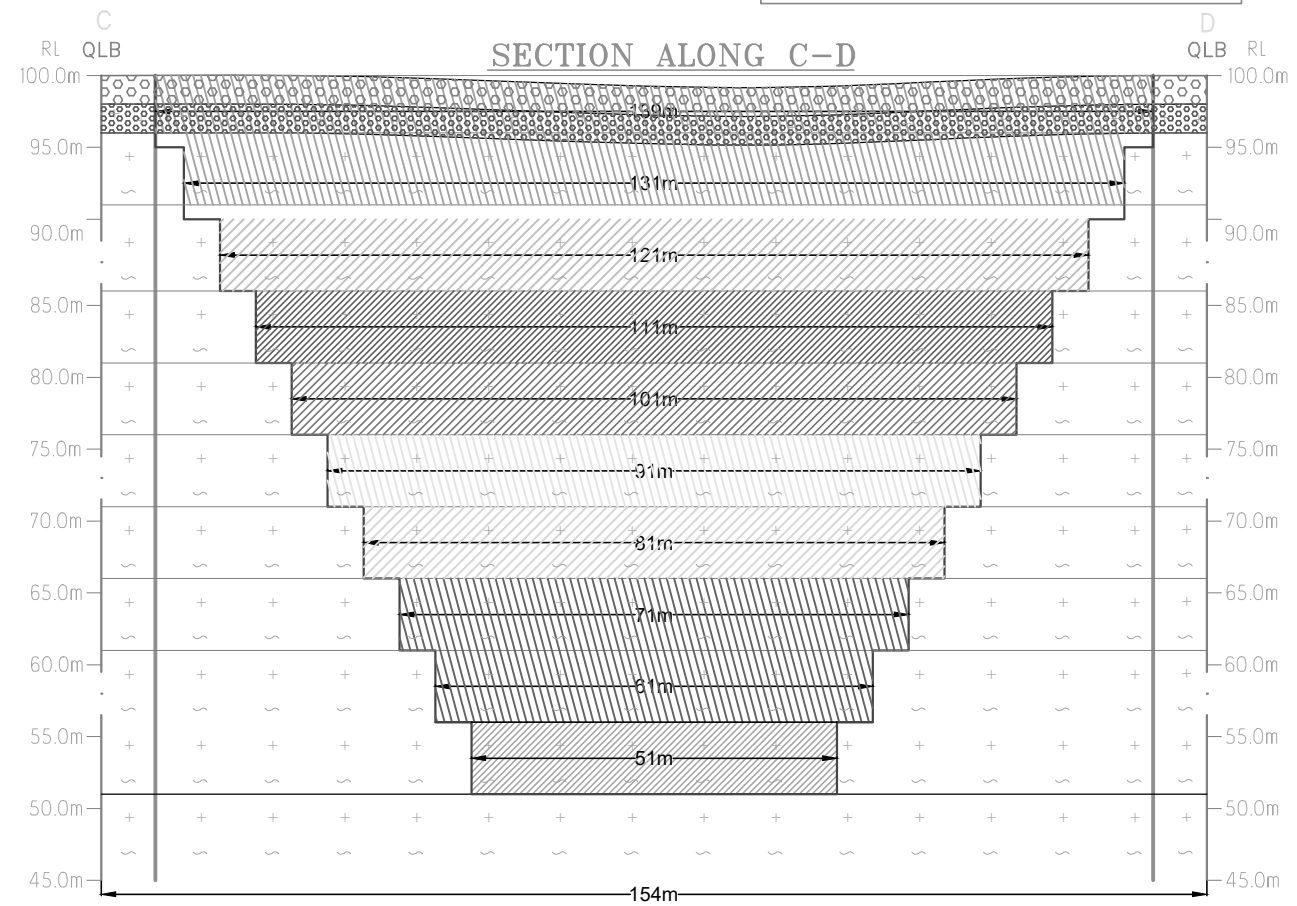
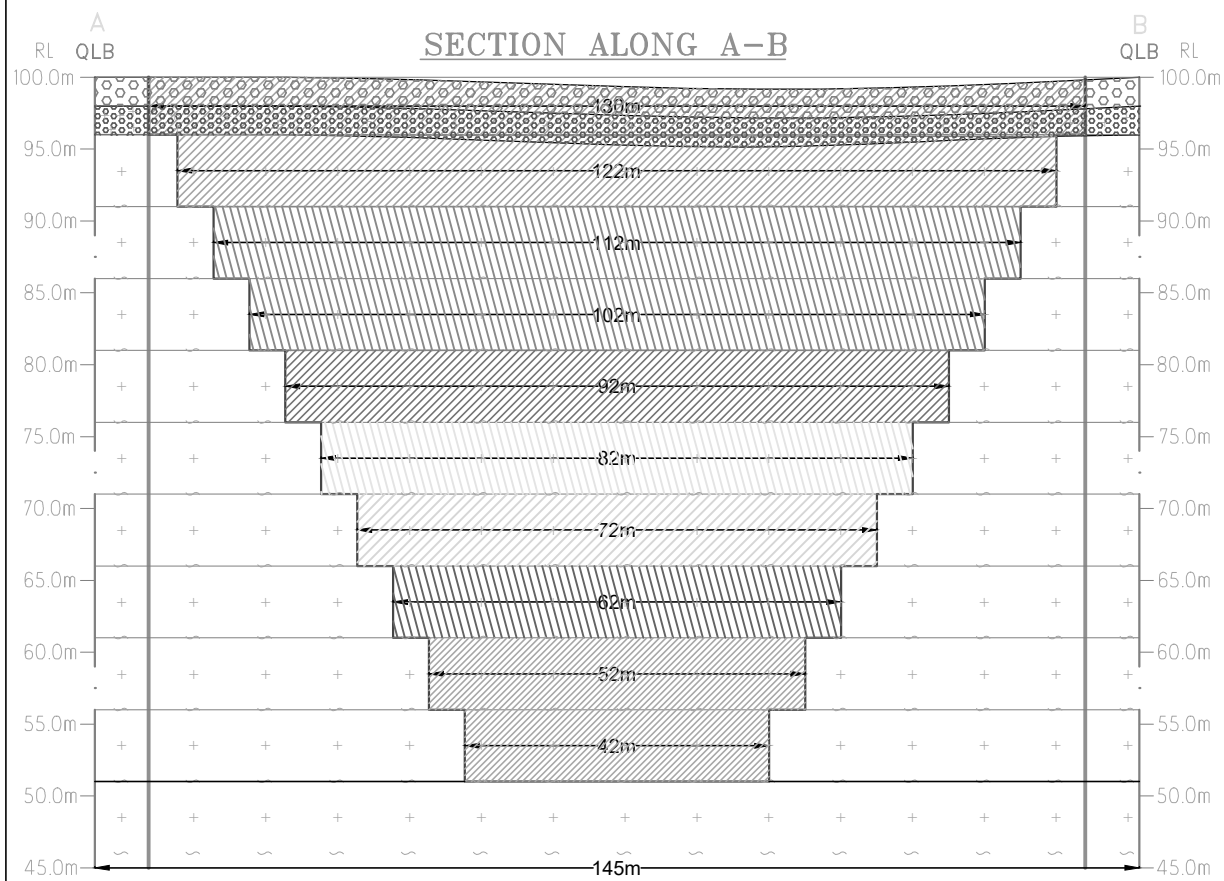
क्षेत्रीय खान नियंत्रक / Regional Controller of Mines  
भारतीय खान ब्यूरो/ Indian Bureau of Mines  
चेन्नई क्षेत्र / Chennai Region

# PLATE NO-VII-B

## TOPOGRAPHY, GEOLOGICAL, YEAR WISE DEVELOPMENT PRODUCTION SECTION

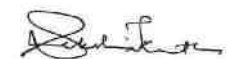
SCALE: SECTION:  
HOR-1:1000  
VER-1:500

- I year Proposed area to be Quarried 
- II year Proposed area to be Quarried 
- III year Proposed area to be Quarried 
- IV year Proposed area to be Quarried 
- V year Proposed area to be Quarried 
- VI year Proposed area to be Quarried 
- VII year Proposed area to be Quarried 
- VIII year Proposed area to be Quarried 
- IX year Proposed area to be Quarried 
- X year Proposed area to be Quarried 



**PREPARED BY:**

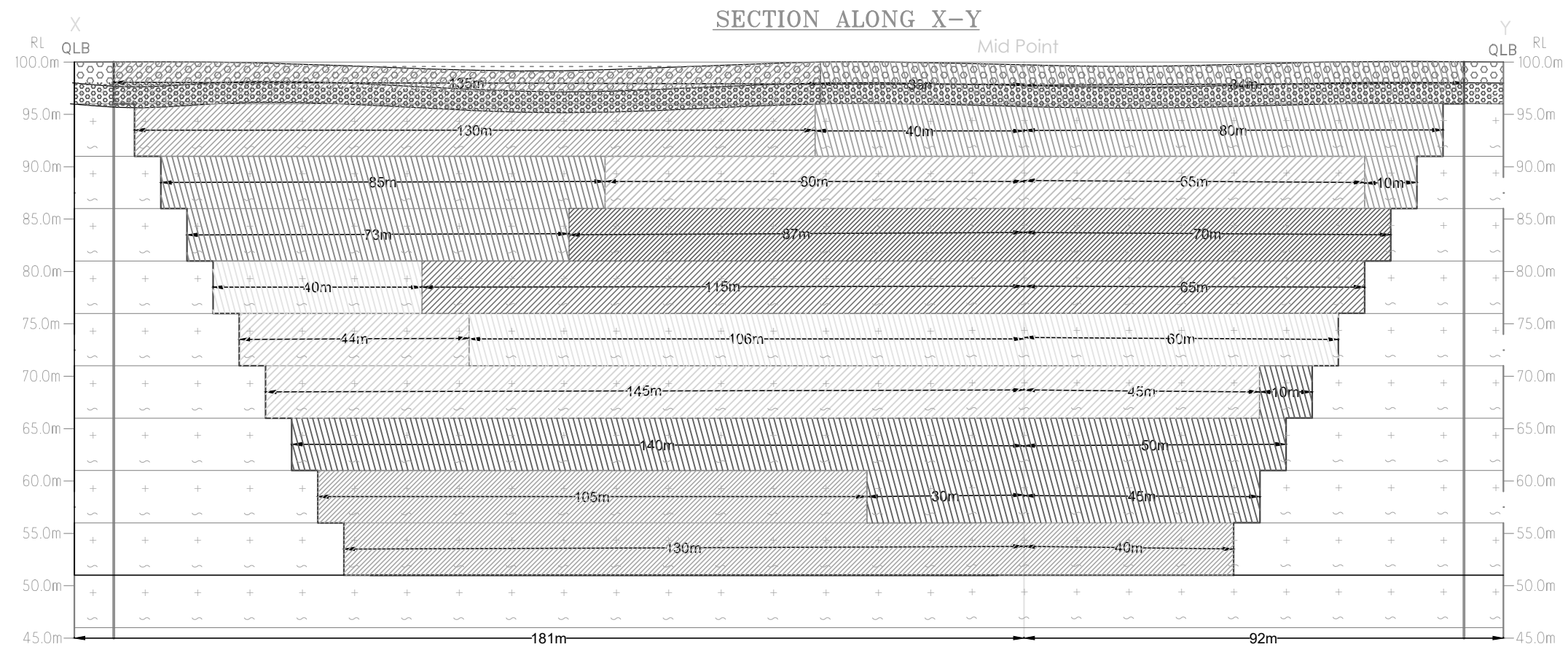
I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE



S.LAKSHMIKANTHAN, M.Sc.,  
RECOGNISED QUALIFIED PERSON  
Reg.No.RQP/MAS/262/2014/A

**PLATE NO-VII-C**  
**TOPOGRAPHY, GEOLOGICAL, YEAR WISE**  
**DEVELOPMENT PRODUCTION SECTION**

SCALE: SECTION:  
 HOR-1:1000  
 VER-1:500



- |  |  |
|--|--|
| I year Proposed area to be Quarried    |  |
| II year Proposed area to be Quarried   |  |
| III year Proposed area to be Quarried  |  |
| IV year Proposed area to be Quarried   |  |
| V year Proposed area to be Quarried    |  |
| VI year Proposed area to be Quarried   |  |
| VII year Proposed area to be Quarried  |  |
| VIII year Proposed area to be Quarried |  |
| IX year Proposed area to be Quarried   |  |
| X year Proposed area to be Quarried    |  |

**PREPARED BY:**

I DO HEREBY CERTIFY THAT THE PLATE  
 HAS BEEN CHECKED BY ME AND IS  
 CORRECT TO THE BEST OF MY KNOWLEDGE

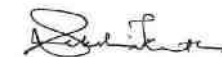
S.LAKSHMIKANTHAN, M.Sc.,  
 RECOGNISED QUALIFIED PERSON  
 Reg.No.RQP/MAS/262/2014/A

YEARWISE DEVELOPMENT & PRODUCTION RESERVES								
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m <sup>3</sup>	Gravel Formation in m <sup>3</sup>	Recoverable Reserves of Rough stone in m <sup>3</sup>
I	XY-AB	96-100	135	130	4	70200	70200	-
		91-96	130	122	5	79300	-	79300
		<b>TOTAL</b>						<b>70200</b>
II	XY-AB	96-100	39	130	4	20280	20280	
		96-100	84	139	4	46704	46704	
	XY-AB	91-96	40	122	5	24400	-	24400
		91-96	80	131	5	52400	-	52400
	XY-CD	86-91	10	121	5	6050		6050
<b>TOTAL</b>						<b>66984</b>	<b>82850</b>	
III	XY-CD	86-91	65	121	5	39325		39325
		XY-AB	86-92	80	112	5	44800	
<b>TOTAL</b>							<b>84125</b>	
IV	XY-AB	86-91	85	112	5	47600		47600
		81-86	73	102	5	37230		37230
<b>TOTAL</b>							<b>84830</b>	
V	XY-AB	81-86	87	102	5	44370		44370
		AB-CD	81-86	70	111	5	38850	
<b>TOTAL</b>							<b>83220</b>	
<b>GRAND TOTAL</b>						<b>137184</b>	<b>414325</b>	

YEARWISE DEVELOPMENT & PRODUCTION RESERVES								
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m <sup>3</sup>	Gravel Formation in m <sup>3</sup>	Recoverable Reserves of Rough stone in m <sup>3</sup>
VI	XY-CD	76-81	65	101	5	32825		32825
		XY-AB	76-81	115	92	5	52900	
<b>TOTAL</b>							<b>85725</b>	
VII	XY-AB	76-81	40	92	5	18400		18400
		XY-CD	71-76	60	91	5	27300	
	XY-AB	71-76	106	82	5	43460		43460
<b>TOTAL</b>							<b>89160</b>	
VIII	XY-AB	71-76	44	82	5	18040		18040
		66-71	145	72	5	52200		52200
XY-CD	66-71	45	81	5	18225		18225	
<b>TOTAL</b>							<b>88465</b>	
IX	XY-CD	66-71	10	81	5	4050		4050
		61-66	50	71	5	17750		17750
		56-61	45	61	5	13725		13725
	XY-AB	61-66	140	62	5	43400		43400
		56-61	30	52	5	7800		7800
<b>TOTAL</b>							<b>86725</b>	
X	XY-AB	56-61	105	52	5	27300		27300
		51-56	130	42	5	27300		27300
	XY-CD	51-56	40	51	5	10200		10200
<b>TOTAL</b>							<b>64800</b>	
<b>GRAND TOTAL</b>						<b>137184</b>	<b>414875</b>	

PREPARED BY:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE



S.LAKSHMIKANTHAN, M.Sc.,  
RECOGNISED QUALIFIED PERSON  
Reg.No.RQP/MAS/262/2014/A

**ANNEXURE-VII**  
**VAO CERTIFICATE**

## சான்று

செங்கீழை மாவட்டம், செல்வநீர் வட்டம், 114, ஆக்கிராமலே

கிராம நிர்வாக அலுவலர் அளிக்கும் சான்று.

சென்னை மாவட்டம், பாந்தாடு வட்டம், கதவுஎண் 109/110  
காலேரி அடையி நகர் என்ற முகவரியில் வசிக்கும்  
திரு. ஜனார்தனன் ரமணி என்பவரின் மகன் திரு. நகுலன் என்பவர்,  
செங்கீழை மாவட்டம், செல்வநீர் வட்டம், ஆக்கிராமலே கிராமம்,  
சர்வேஎண்: 264/2, 264/3A, 267/1B, 267/2, ஸ்டேட் 267/3  
பட்டா நிலத்தில், மொத்தபரப்பு 4.32.10 ஹெக்டர் பரப்பளவில்  
சீல் ஸ்டேட் ஸ்டேட் வெட்டியெடுக்க குவாரி குத்தகை அனுமதி கோரியுள்ளார்.

மேற்கண்ட குவாரி குத்தகை அனுமதி கோரியுள்ள இடத்தை சுற்றி  
சுமார் 300மீட்டர் சுற்றளவில் கிராம நத்த குடியிருப்பு பகுதிகள்,  
அங்கீகரிக்கப்பட்ட வீட்டு மனைகள், கோயில்கள், புராதான வரலாற்று  
சின்னங்கள் மற்றும் மின்மயானங்கள் எதுவும் இல்லை குவாரி அனுமதி  
கோரி விண்ணப்பித்துள்ள புலத்திற்கு வண்டிகள் சென்று வரும் கிராம  
சாலைகளுக்கு இடையூறுகள் எதுவும் இல்லை, மேலும் பொதுமக்களுக்கோ,  
அருகில் உள்ள அரசு புறம்போக்கு மற்றும் பட்டாதாரர்களுக்கோ எந்தவித  
இடையூறுகள் இல்லை என தெரிவித்து கொள்கிறேன்.

கிராம நிர்வாக அலுவலர் கையொப்பம்.

கிராம நிர்வாக அலுவலர்

நெ.1-4 ஆக்கிராமலே

செல்வநீர் வட்டம்

X P. N. S.



**TOPOGRAPHICAL VIEW OF AKKINAMPATTU VILLAGE**

**QUARRY LEASE APPLIED AREA**



Name and Address of the Applicant : **M/s.NARAJ BLUE METALS PVT LTD,**  
**Thiru P.Naresh (Director) S/o. Janardhan Reddy, residing at Plot No.109 &**  
**110,Kamatchi Amman Nagar East, Mangadu, Chennai, Tamilnadu - 600 122**

S.F.Nos : 264/2 (0.20.30), 264/3A (1.17.00), 267/1B  
(0.64.30), 267/2 (1.17.00) & 267/3 (1.13.50)


Extent : **4.32.10** Hectare

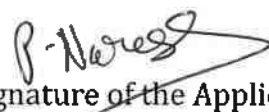
Village : Akkinampattu

Taluk : Cheyyur

District : Chengalpattu

State : Tamilnadu

  
2.2.23  
Attestation of the Village  
Administrative Officer  
செய்யூர் அலுவலர்

  
Signature of the Applicant



# **ANNEXURE-VIII BLASTING AGREEMENT**



भारत सरकार | Government of India  
वाणिज्य और उद्योग मंत्रालय | Ministry of Commerce & Industry  
पेट्रोलियम तथा विस्फोटक सुरक्षा संगठन (पेसो) | Petroleum & Explosives Safety Organisation (PESO)  
पूर्व नाम: विस्फोटक विभाग | Formerly: Department of Explosives  
A और D - विंग, ब्लॉक 1-8, दूसरा तल, शास्त्री भवन | A & D - Wing, Block 1-8, 11nd Floor, Shastri Bhavan  
26 हड्डोउस रोड, नुंगम्बकम चेन्नई | 26 Haddous Road, Nungambakkam Chennai 600006  
फोन (Phone):- 28281023 | फैक्स (Fax):- 28284848  
ई-मेल Email jteecheennai@explosives.gov.in

संख्या (No.): E/SC/TN/22/164(E)10462

दिनांक (Date): 23/04/2019

सेवा में ! To,

M/s. UDAYAM EXPLOSIVES Proprietor J. Sivakumar,  
36 102, Kottabomman Street, Kamarajar Nagar, New Perungalathur, Town Village Chennai  
District-KANCHIPURAM, State-Tamil Nadu, Pincode - 600063

23 APR 2019

विषय Survey No(s) 4/1, ग्राम Natarasampattu, जिला KANCHIPURAM, राज्य Tamil Nadu में विस्फोटक के मैगजीन में उपयोग के लिए कब्जा हेतु विस्फोटक नियम, 2008 के अंतर्गत LE-3 में जारी अनुज्ञप्ति सं E/SC/TN/22/164(E)10462 के नवीनीकरण सदर्भ में।

Subject: Possession for Use of Explosives from magazine situated at Survey No(s) 4/1, Natarasampattu, Dist. KANCHIPURAM, Tamil Nadu Licence No. E/SC/TN/22/164(E)10462 granted in Form LE-3 of Explosives Rules, 2008 - Renewal regarding

संदर्भ : Sir,

आपका उपरोक्त विषय पर पत्र संख्या NII दिनांक 23/04/2019 का संदर्भ ग्रहण करें। विस्फोटक नियम, 2008 के अंतर्गत प्ररूप LE-3 में जारी अनुज्ञप्ति दिनांक 31/3/2023 तक नवीनीकृत कर इस पत्र के साथ भेजी जा रही है।

Reference to your letter No. NII dated. 23/04/2019, the subject licence duly renewed upto 31/3/2023 and issued in Form LE-3 of Explosives Rules, 2008 is forwarded herewith

अनुज्ञप्ति के आगामी नवीकरण हेतु कृपया निम्नलिखित दस्तावेज दिनांक 31/03/2023 से पहले इस कार्यालय को भेजे जाएं।  
For further renewal of licence, please submit the following documents so as to reach this office on or before 31/3/2023

- प्ररूप आरई-1 में विधिवत पूर्ण एवं हस्ताक्षरित आवेदन।  
Application in Form RE-1 duly filled in and signed
- एक से पांच वर्ष के अनुज्ञप्ति शुल्क का बैंक ड्राफ्ट। बैंक ड्राफ्ट किसी भी राष्ट्रीयकृत बैंक के नाम आहरित, संयुक्त मुख्य विस्फोटक नियंत्रक, चेन्नई के पक्ष में चेन्नई में देय हो।  
Licence fees for one to five years in the form of demand draft drawn on any Nationalized Bank in favour of Jt. Chief Controller of Explosives, Chennai payable at Chennai
- अनुमोदित प्लान के साथ मूल अनुज्ञप्ति।  
Original licence with approved plan.
- कृपया इस संबंध में विस्फोटक नियम, 2008 के नियम 112 का भी संदर्भ ग्रहण करें।  
In this connection, please also refer to Rule 112 of Explosives Rules, 2008.
- विस्फोटकों के क्रय हेतु आरई-11 में मांगपत्र (इंडेंट) आपूर्तिकर्ता को दिया जाए और उसी की एक प्रति इस कार्यालय को भेजी जाए (आतिशबाजी गोदाम के लिए लागू नहीं)।  
Indent for purchase of explosives shall be placed in RE-11 with the supplier and copy of the same shall be sent to this office. (Not applicable for fireworks store house)
- कृपया विस्फोटकों की त्रमासिक विवरणी हर तिमाही के अंत में आरई-7 में प्रस्तुत की जाए। विवरणी इस कार्यालय के कार्यालय में आगामी तिमाही के 10 तारीख से पहले पहुंच जानी चाहिए (आतिशबाजी गोदाम के लिए लागू नहीं)। Please submit quarterly returns of explosives in RE-7 at the end of every quarter so as to reach this office by 10th of the succeeding quarter. (Not applicable for fireworks store house)
- सभी ब्लास्टिंग आपरेशन एक सक्षम द्वारा की जाएगी जो उपरोक्त नियमों के तहत एक वैध शॉट फायर प्रमाणपत्र धारक हो। हालांकि, खान अधिनियम 1952 के अधीन आने वाले खानों में ब्लास्टिंग आपरेशन करने वाले ब्लास्टर की योग्यता उसी अधिनियम से निर्धारित हो।  
All blasting operations shall be carried out by a competent person holding a valid shot firer's permit granted under above rules. However, blasting operations in mines coming under the purview of the Mines Act 1952, the blaster shall have qualifications prescribed in the regulations framed under the said Act.

आपके खाते में रु. 600/- बिलाने की राशि शेष है जो इस संदर्भ को उद्घृत करते हुए भविष्य के संव्यवहार में समायोजित की जा सकती है।  
An amount of Rs. 600/- balance is in your credit, which may be utilized for future transaction by quoting this reference

भवदीय Your's faithfully,

डी.सी. पांडेय | D.C. PANDHEY

विस्फोटक नियंत्रक | Controller of Explosives

कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives  
दक्षिणांचल, चेन्नई | South Circle, Chennai

प्रतिलिपि प्रेषित | Copy Forwarded to:

1. जिला मजिस्ट्रेट (District Magistrate), KANCHIPURAM (Tamil Nadu)- सूचना के लिए (for information)

कृते संयुक्त मुख्य विस्फोटक नियंत्रक | For Joint Chief Controller of Explosives  
दक्षिणांचल, चेन्नई | South Circle, Chennai

**अनुज्ञप्ति प्ररूप एल. ई.-3 | LICENCE FORM L.E-3**  
(विस्फोटक नियम, 2008 की अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (घ) देखिए।)  
(See article 3(a) to (d) of Part I of Schedule IV of Explosives Rules, 2008)

(ग) उपयोग के लिए एक समय पर वर्ग 1, 2, 3, 4, 5 या वर्ग 7 के विस्फोटक या किसी मैगजीन में वर्ग 6 के विस्फोटक रखने।  
Licence to possess : (c) for use, explosives of class 1, 2, 3, 4, 5, 6 or 7 in a magazine

अनुज्ञप्ति सं. (Licence No.): E/SC/TN/22/164(E10462)  
वार्षिक फीस रुपए (Annual Fee Rs) 6700/-

1 Licence is hereby granted to

**M/s.UDAYAM EXPLOSIVES Proprietor, J.Sivakumar (अधिमोनी / Occupier : J.SIVAKUMAR), 56/102, Katabomman Street, Kamanjar Nagar, New Perungalathur, Town/Village - Vhenat, District-KANCHIPURAM, State-Tamil Nadu, Pincode - 600063**

को अनुज्ञप्ति अनुदत्त की जाती है।

2 अनुज्ञप्तिधारी की प्रस्थिति। Status of licensee : Individual

3 अनुज्ञप्ति निम्नलिखित प्रयोजनों के लिए विधिमान्य है।

Licence is valid only for the following purpose.

possess for use of Nitrate Mixture, Safety Fuse, Detonating Fuse, Detonators.  
उपयोग के लिए

4 अनुज्ञप्ति विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमान्य है।

Licence is valid for the following kinds and quantity of explosives: - (क) (a)

क्र. सं. Sr. No.	नाम और विवरण Name and Description	वर्ग और प्रभाग Class & Division	उप-प्रभाग Sub-division	मात्रा किसी एक समय में Quantity at any one time
1	Nitrate Mixture	2, 0	0	1800 Kg
2	Safety Fuse	6, 1	0	5000 Mtrs
3	Detonating Fuse	6, 2	0	30000 Mtrs
4	Detonators	6, 3	0	40000 Nos

(ख) किसी एक कैलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञप्ति के लिए)

(b) Quantity of explosives to be purchased in a calendar month (applicable for licensee under article 3(b) and (c)) :

25 times  
as above.

5 निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञप्त परिसर की पुष्टि होती है।

The licensed premises shall conform to the following drawings.

रेखाचित्र क्र (Drawing No) E/SC/TN/22/164(E10462)  
दिनांक (Dated) 20/08/1998

6 अनुज्ञप्त परिसर निम्नलिखित पते पर स्थित हैं। The licensed premises are situated at following address.

Survey No(s), 4/1, ग्राम (Town/Village) Nattarasampattu  
जिला (District) KANCHIPURAM  
दूरभाष (Phone)

राज्य (State)  
ई मेल (E-Mail)

Tamil Nadu

पुलिस थाना (Police Station) : MANIMANGALAM  
पिनकोड (Pincode)  
फैक्स (Fax)

7 अनुज्ञप्त परिसर में निम्नलिखित सुविधाएं अंतर्विष्ट हैं।

The licensed premises consist of following facilities.

Main room, Lobby and Detonators room

8 अनुज्ञप्ति समय - समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2004 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपबंधों के अधीन रहते हुए अनुदत्त की जाती है।

The licence is granted subject to the provision of Explosives Act-1884 as amended from time to time and the Explosives Rules, 2004 framed there under and the conditions, additional conditions and the following Annexures.

1. उपयुक्त क्रम सं 5 में यथा कथित रेखाचित्र (स्थान, सन्निवेश संबंधी और अन्य विवरण दर्शित करते हुए।)  
Drawings (showing site, constructional and other details) as stated in serial No. 5 above
2. अनुज्ञप्ति प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञप्ति की शर्तों और अतिरिक्त शर्तों।  
Conditions and Additional Conditions of this licence signed by the licensing authority.
3. दूरी प्ररूप DE-2। Distance Form DE-2

9. यह अनुज्ञप्ति तारीख 31 मार्च 2008 तक विधिमान्य रहेगी। This licence shall remain valid till 31st day of March 2008.

यह अनुज्ञप्ति, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 1 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपबर्णित इस अनुज्ञप्ति की शर्तों का अधिक्रमण करने या यदि अनुज्ञप्त परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिसंहत की जा सकती है, जहां वह लागू हो।

This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VIII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto

तारीख | The Date - 20/08/1998

संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives  
South Circle, Chennai

**Amendments :**

- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 19/04/2011
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 09/08/2012
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 04/09/2012
- Change in Postal Address dated : 04/09/2012
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 08/02/2013

नवीनीकरण के पृष्ठांकन के लिए स्थान  
Space for Endorsement of Renewal

नवीनीकरण की तारीख  
Date of Renewal

समाप्ति की तारीख  
Date of Expiry

अनुज्ञापन प्राधिकारी के हस्ताक्षर और स्टाम्प  
Signature of licensing authority and stamp

23/04/2019

31/03/2023

Jt. Chief Controller of Explosives, South Circle, Chennai

अनुज्ञप्ति प्रारूप एनई - 7 LICENCE FORM LE-7  
(विस्फोटक नियम 2008 की अनुसूची 4 के भाग 1 का अनुच्छेद 7 देखें)  
(See article no 7 of Part 1 of Schedule IV of Explosives Rules, 2008)

अनुज्ञप्ति : सड़क वैन में विस्फोटकों के परिवहन के लिए  
Licence to : transport explosives in a road van



अनुज्ञप्ति संख्या / Licence No. : E/SC/TN/25/223(E20745)  
वार्षिक फीस / Annual Fee Rs : 2500/-

अनुज्ञप्ति एतद्वारा जारी की जाती है  
Licence is hereby granted to

श्री. J. SIVAKUMAR (Occupier : Shri. J. SIVAKUMAR)  
M/s. Udayam Explosives, No. 6/22, Ramani Nagar, 2nd Street, Mudichur Road, West Tambaram,  
District-KANCHIPURAM, State-Tamil Nadu, Pincode-600045

2. अनुज्ञप्तिधारी की प्रस्थिति / Status of licensee : Individual  
3. सड़क वैन की विशेषितियाँ / Particulars of the road van:

पंजीकरण संख्या / Registration No.	TN-04B-2997
यान का मॉडल एवं मॉडल / Make and model of vehicle	TATA 407
लदान रहित वजन / Unladen weight	2690 Kg(s)
लदान सहित अधिकतम वजन : Maximum laden weight	5300 Kg(s)
परिवहन के लिए अनुज्ञेय विस्फोटकों की अधिकतम मात्रा Maximum quantity of explosives permitted for transport	2610 Kg(s)
इंजिन संख्या / Engine No.	357010845501
चैसिस संख्या : Chassis No.	497 SP 21614369
अन्य फिटिंग्स का विवरण / Description of Other Fittings	AS PER APPROVED DRAWINGS
वाहन के लिए अनुज्ञेय विस्फोटकों की मात्रा / Quantity of Explosives permitted to carry	2610 Kg(s)

4. अनुज्ञप्त परिसर निम्नलिखित आरेखण (आरेखणों) के अनुरूप होना चाहिए / The licensed premises shall conform to the following drawing(s):  
आरेखण संख्या / Drawing No. : E/SC/TN/25/223(E20745) दिनांक / dated : 17/06/2003
5. समय समय पर यथा संशोधित विस्फोटक अधिनियम, 1884 और उसके अधीन बनाए गए विस्फोटक नियम, 2008 के उपबन्धों और शर्तों एवं निम्नलिखित अनुलग्नकों के अधीन अनुज्ञप्ति प्रदान की जाती है  
The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2008 framed thereunder and the conditions and the following annexures  
(क) उपर्युक्त क्रम संख्या 4 में यथाकथित सड़क वैन का आरेखण / (a) Drawings of the road van as stated in serial no. 4 above.  
(ख) अनुज्ञापन प्राधिकारी द्वारा हस्ताक्षरित शर्तें / (b) Conditions signed by the licensing authority.
6. यह अनुज्ञप्ति तारीख 31 मार्च 2005 तक विद्यमान रहेंगी / This licence shall remain valid till 31st day of March 2005

यह अनुज्ञप्ति अधिनियम या उसके अधीन विरचित नियमों या इस अनुज्ञप्ति की शर्तों के उल्लंघन, अनुसूची 4 के भाग 1 में संदर्भित, जहाँ भी लागू हो या यदि अनुज्ञप्त परिसर आरेखण या उससे संलग्न उपावद्धों में दर्शाए गए विवरण के अनुरूप नहीं पाए जाने पर निलम्बित या प्रतिसंहत की जा सकती है।

This licence is liable to be suspended or revoked for any violation of the Act or rules framed there under or the conditions of this licence as set forth under wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and annexure attached hereto.

दिनांक / Date : 17/06/2003

संयुक्त मुख्य विस्फोटक नियंत्रक / Joint Chief Controller of Explosives  
सुदूर दक्षिण, चेन्नै / South Circle, Chennai

Amendments:

• Change in Postal Address dated 02/07/2019  
अनुज्ञप्ति के नवीनीकरण हेतु परस्वीकरण / Endorsement for renewal of licence

नवीनीकरण की तिथि Date of Renewal	वैधता समाप्ति की तिथि Date of Expiry	अनुज्ञापन प्राधिकारी के हस्ताक्षर Signature of licensing authority
07/03/2019	31/03/2021	Sd- J. Chief Controller of Explosives, South Circle, Chennai

सैधान्तिक चेतावनी : विस्फोटकों का लापरवाही से प्रयोग या दुरुस्वयोग, विधि के अधीन गंभीर दण्डित अपराध होगा।  
Statutory Warning : Mishandling and misuse of explosives shall constitute serious criminal offence under the law.

<http://10.0.1.11/IntExp/Form25LicenceLE7Hindi.asp?LetterGeneratedYN=Y>

03-Jul-19

P. Nares



**GOVERNMENT OF INDIA**  
**MINISTRY OF COMMERCE & INDUSTRY**  
**PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION (PESO)**  
*(Formerly Department of Explosives)*  
 A & D - Wing, Block 1-8, 11nd Floor, Shastri Bhavan  
 26 Haddous Road, Nungambakkam Chennai 600006  
 Tele: 28281023 Fax: 28284848  
 Email: jtccechennai@explosives.gov.in

No: E/SC/TN/25/223(E20745)

Dated:02/07/2019

To: **Sri. JSIVAKUMAR**

M/s. Udayam Explosives, No. 6122, Ramani Nagar, 2nd Street, Mudichur Road, West Tambaram, Town/Village -  
 CHENNAI  
 District-KANCHIIPURAM, State-Tamil Nadu, Pincode - 600045

Subject: Road Van for transport of Explosives by Vehicle Reg. No. : TN-04B-2997 Licence No.:  
 E/SC/TN/25/223(E20745) granted in Form LE-7 of Explosives Rules, 2008 -  
 Change in Postal Address .

Sir(s),

Please refer to your letter No. 16348 dated 28/04/2019 on the subject cited above.

The Licence No. E/SC/TN/25/223(E20745) is forwarded herewith duly amended in respect of followings :

**Change in Postal Address as above**

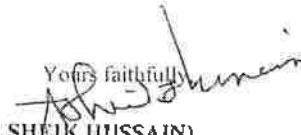
This Licence shall remain valid till 31st day of March 2023.

For further renewal of licence, please follow the procedure under Rule 112 of Explosives Rules, 2008.  
 Receipt of this letter may please be acknowledged.

**Enclosures :**

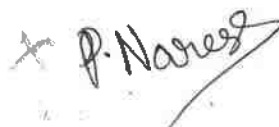
Copy Forwarded to:

1. .
2. Superintendent of Police, CHENNAI, Tamil Nadu

Yours faithfully,  
  
 (Dr. A SHEIK HUSSAIN)  
 Dy. Controller of Explosives  
 For Joint Chief Controller of Explosives  
 South Circle, Chennai

For more information regarding status, fees and other details, please visit our web site <http://peso.gov.in>
<http://10.0.1.11/IntExp/AmdCoveringLetterNew.asp>

03-Jul-19





தமிழ்நாடு தமில்நாடு TAMIL NADU

28/09/2022

Udayam Explosives  
Chennai - 45

15AC 026820

R. NIRMALA  
Stamp Vendor  
9, SHANMUGAM ROAD,  
TAMBARAM, CHENNAI-45.  
L.No.: 9566 B1/2000 DL7.9.2000

1

### BLASTING WORK CONTRACT AGREEMENT

M/s. UDAYAM EXPLOSIVES, Prop Shri. J SIVAKUMAR, No.6/22, Ramani nagar 2<sup>nd</sup> Street, Mudichur Road, West Tambaram, Chennai - 600 045. Having explosives license No:E/SC/TN/22/164(E10462) and magazine situated at Nattarasampattu - village here in after referred as Party 1 entered in to a blasting contract agreement with.

M/s.NARAJ BLUE METALS PVT LTD., Mr.P.Naresh (Director), Plot No.109 & 110, Kamatchi Amman Nagar East, Mangadu, Chennai - 600 122. Having his Blue Metal Quarry at.SF.No.264/2(P), 264/3A(P), 267/1B, 267/2(P), & 267/3 total extent of 4.32.10 Hecter of Akkinampattu Village, Cheyyur Taluk, Chengalpattu District with District Collector, Chengalpattu Proceedings RC.No: 101/Mines/2022 Date:31.01.2023 Vaild up to Ten Years, here in after referred as Party 2, on both the parties agreed for the followings.

For UDAYAM EXPLOSIVES

Proprietor

For NARAJ BLUE METALS PRIVATE LIMITED

Director

- a) **Party 2** has to place his order by oral or written for requirement of explosives to **Party 1**, and **Party 1** has to transport the Explosives as per the order, from his Explosives magazine to work site of the **Party 2**.
- b) **Party 1** has to use his explosives and he has to do Blasting work in the Blue Metal Quarry with an authorized mines mates, which is issued by the Govt, of India, Department of Explosives, or authorized permit holder to carry out the blasting work in mines issued under the mines Act.
- c) **Party 2** has to pay the blasting charges (including the cost of the Explosives, and other expenses incidental to Blasting) to **Party 1** as agreed by the both **Parties 1&2**.
- d) **Party 2** has to make his own arrangement to remove all the broken materials in the work site at his own cost & risk.
- e) This agreement is valid from the date of signing by both the parties till the completion of blasting contract work from **Party 2** by giving in writing for clearing the agreement with the acknowledgement by the Party 1.

**Party 1**

**M/s Udayam Explosives**  
No.6/22, Ramani nagar 2<sup>nd</sup> Street,  
Mudichur Road, West Tambaram,  
Chennai - 600 045.

For UDAYAM EXPLOSIVES

  
Proprietor

**Party 2**

**M/s.NARAJ BLUE METALS PVT LTD.,**  
**Mr.P.Naresh (Director),**  
Plot No.109 & 110,  
Kamatchi Amman Nagar East,  
Mangadu,  
Chennai - 600 122.

For NARAJ BLUE METALS PRIVATE LIMITED

  
Director





**ANNEXURE-IX AFFIDAVIT AND CER  
DETAILS**



தமிழ்நாடு தமில்நாடு TAMILNADU

03 FEB 2023

CY 711670

V.m

NARAJ BLUE METALS PVT LTD,  
CHENNAI

V.MANOHARI (S.V.)  
32, MUTHURANGAM ROAD  
W. TAMBARAM, CHENNAI-45  
No.16558 / C / 89 DT.4.12.85  
Cell:90945 80808

**Affidavit to SEIAA, Tamil Nadu**

I, M/S NARAJ BLUE METALS PVT LTD, Thiru.P.Naresh (Director), S/o.Janardhan Reddy, Plot No- 109 & 110, Kamatchi Amman Nagar East, Mangadu, Chennai, Tamil Nadu- 600 122. solemnly declare and sincerely affirm that:

I have applied for Prior Environment Clearance to SEIAA, Tamil Nadu for quarry lease for quarrying of **Rough stone & Gravel quarry** over an extent of **4.32.10 hectares** in **Own Patta Land** at S.F. Nos. **264/2 (0.20.30), 264/3A (1.17.00), 267/1B (0.64.30), 267/2 (1.17.00)&267/3 (1.13.50)** of **Akkinampattu Village, Cheyyur Taluk, Chengalpattu District, Tamil nadu State.**



*[Signature]*  
B. DORASWAMY NAIDU  
B.A.B.L., D.T.,  
ADVOCATE & NOTARY PUBLIC  
G.O.M.S. No.89/2018  
No.21-A, MUTHULINGAM STREET,  
WEST TAMBARAM, CHENNAI-600 045  
Phone: 22200906, 4210800

For NARAJ BLUE METALS PRIVATE LIMITED

*[Signature]*

Director

X *[Signature]*

....2....

1. I swear to state and confirm that within 10Km radius of the quarry site, none of the following is situated
  - a. Protected Areas notified under the Wild life (Protection) Act, 1972
  - b. Critically polluted areas as notified by the Central Pollution Control Board constituted under Water (Prevention and Control of Pollution) Act, 1974
  - c. Eco-Sensitive areas as notified

2. I will ensure to take up the following Corporate Environment Responsibility (CER) activities as per OM of MoEF& CC dated 01.05.2018

CER Activity	Project Cost (Rs. in Lakh)	CER Cost 2.0% of Project Cost (Rs in Lakh)
Planting and maintaining Native species of Neem and Pungan trees periphery of the village haul road, Or any other recommendations by SEAC	1.18.82	3.01
	<b>1.18.82</b>	<b>3.01</b>

3. List of Other quarries within 500m radius from the periphery of the proposal

i) Details of Existing Quarries

S. No	Name of the lessee / permit holder	Name of the Mineral	Taluk & Village	S.F.Nos	Extent (In Hects)	Lease Period	Remarks
1.	Tvl.Uma Blue Metals, Vettaikarakuppam, Kodur Post, Cheyyur Taluk, Kancheepuram-603 305	Rough stone and Gravel	Cheyyur & Akkinampattu	270/1 270/2 272/4 272/5A	3.20.00	08.11.2018 to 07.11.2023(5 Years)	Operation
2.	S.Balaji S/o.Sundaramoorthy, Manamai Village and Post, Kalpakkam, Thirukazhukundram Taluk, Chengalpattu District-603 102	Rough stone and Gravel	Cheyyur & Akkinampattu	264/1A(P)	1.62.00	30.09.2020 to 29.09.2025 ( 5 Years)	Operation



*B. Doraswamy*  
 B. DORASWAMY  
 B.A.S.L., D.T.  
 ADVOCATE & NOTARY PUBLIC  
 G.D.M.S. No. 89/2018  
 10/11, RUTHILINGAM STREET,  
 WEST TAMBASARI, CHENNAI-600 045  
 Phone: 22260906, 42106811

For NARAJ BLUE METALS PRIVATE LIMITED

*P. Narasimhan*

Director

*P. Narasimhan*

**ii) Details of Proposed quarries**

S. No.	Name of the lessee / permit holder	Name of the Mineral	Taluk & Village	S.F.Nos	Extent ( In Hects )	Lease Period	Remarks
1.	M/s.Naraj Blue Metals Pvt.Ltd, Thiru.P. Naresh(Director) Plot No.109&110,KamatchiAmman Nagar East, Mangadu, Chennai -600 122	Rough stone and Gravel	Cheyur & Akkinampattu	264/2(P) 264/3A(P) 267/1B 267/2(P) 267/3	4.32.10	--	Under Processing (Present Application)
				<b>TOTAL</b>	<b>9.14.10</b>		

**iii) Details of Abandoned Quarries**

S. No.	Name of the lessee / permit holder	Name of the Mineral	Taluk & Village	S.F.Nos	Extent ( In Hects )	Lease Period	Remarks
1	R.Ranganathan, M/s.Uma Blue Metals, Vettaikarakuppam, Kodur Post, Cheyyur Taluk	Rough stone and Gravel	Cheyur & Akkinampattu	264/2(P) 264/3A(P) 267/1B 267/2(P) 267/3	1.24.50	06.02.2014 to 05.02.2019	Lease Expired

4. There will not be any hindrance or disturbance to the people during transportation. No villages are en routed during transportation
  5. There are no approved habitations within 300m radius from the periphery of the quarry
  6. I swear that Greenbelt development will be carried out during the course of quarrying operation and maintained
  7. The required insurance will be taken in the name of the laborers working in the quarry site
  8. I will not engage any child labour in our quarry will be provided to all the laborers working in my quarry
  9. I will not engage any child labour for any kind of quarry works
  10. All types of safety / Personal protective equipment will be provided to all the laborers working in the quarry
  11. There is no permanent structure located within 300m radius from the periphery of the quarry
- I ensure to do all the social and Environment commitment as mentioned in the Mining Plan to the best of my knowledge.

**For NARAJ BLUE METALS PRIVATE LIMITED**

*P. Naresh*

**P NARESH (Director) Deponent**

**Director**



*B. Doraswamy Naidu*  
**B. DORASWAMY NAIDU**  
 B.A.B.L., D.Tx.,  
 ADVOCATE & NOTARY PUBLIC  
 G.O.M.S. No.89/2018  
 No.21-A, MUTHULINGAM STREET,  
 WEST TAMBARAM, CHENNAI-600 045  
 Phone: 22260906, 42108811

# **ANNEXURE-X NABET CERTIFICATE**



## National Accreditation Board for Education and Training



### Certificate of Accreditation

#### Eco Tech Labs Pvt Ltd.,

48, 2nd Main Road, Ram Nagar South Extension, Pallikaranai, Chennai- 600100, T.N.

The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals - including Open cast only	1	1 (a ) (i)	B
2	Thermal power plants	4	1(d)	A
3	Coal washeries	6	2 (a)	B
4	Metallurgical industries - Ferrous only	8	3 (a)	B
5	Synthetic organic chemicals industry (dyes & dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates)	21	5 (f)	A
6	Airports	29	7 (a)	A
7	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	A
8	Building and construction projects	38	8 (a)	B
9	Townships and Area development projects	39	8 (b)	B

**Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in SAAC minutes dated Apr. 20, 2021 and supplementary minutes dated Oct.19, 2021 posted on QCI-NABET website**

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/22/2217 dated Jan. 19, 2022. The accreditation needs to be renewed before the expiry date by Eco Tech Labs Pvt. Ltd., Chennai following due process of assessment.



Sr. Director, NABET  
Dated: Jan. 19, 2022

Certificate No.  
NABET/EIA/2124/SA 0147

Valid up to  
Sep. 15, 2023

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.



QCI/NABET/ENV/ACO/23/2877

September 15, 2023

To,

**Eco Tech Labs Pvt Ltd.,**  
48, 2nd main road, Ram Nagar South Extn,  
Pallikaranai, Chennai-600100, Tamil Nadu  
(**Kind Attention:** Mr. A Dhamodharan)

**Sub.:** Extension of Validity of Accreditation till December 14, 2023– regarding  
**Ref.:** 1. Certificate no. NABET/EIA/2124/SA 0147  
2. Request e-mail dated September 11, 2023

Dear Sir,

This has reference to the Accreditation of your organization under the QCI-NABET EIA Scheme and your request email dated May 15, 2023. It is to inform your good self that the validity of **Eco Tech Labs Pvt Ltd.,** is hereby extended till **December 14, 2023,** or the completion of the accreditation process, whichever is earlier.

2. The above extension is subject to the submission of required documents/information concerning your existing application, timely submission/closure of NC/Obs (if any), and applicable fee (pending if any) during the application process.
3. You are requested not to use this letter after the expiry of the above-stated date.

With best regards.

**(A K Jha)**  
Senior Director  
QCI-NABET