

# **Ka jingtip heiyatoh wa ka**

**Thanghunai Limestone Quarry**

**(Wow tip ki paidbah)**

**Ya kawa daw pynman :**

**Ha Chnnong Lumshnong**

**District – East Jaiñtia Hills**

**Meghalaya**

**I thaw wow chim wai heh i: 3.00 Ha.**

**Thanghunai Limestone Quarry**

**Address: Thanghunai, Nongtalang**

**District: West Jaiñtia Hills, State: Meghalaya**

**EIA Consultant Organisation**

**Novomine India Private Limited**

**NABET Category 'A' Certified Organisation [Sector 1 (a) (i)]**

**Vide Certificate No. *NABET/EIA/2326/IA 0124***

# DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

FOR THANGHUNAI, NONGTALANG, WEST JAINTIA HILLS DISTRICT, STATE-MEGHALAYA

(AREA – 3.0 HA)

PROJECT PROPONENT: THANGHUNAI  
LIMESTONE QUARRY

## 1. Khajiak heiyatoh wa ini i jingrehkaam:

Ka Thanghunai Limestone , da yoh ko ya ka mining lease wow tih moochuni na Thanghunai, Nongtalang, West Jaintia Hills District, lyngba ka chithi Meghalaya. Letter of Intent (LoI) kawa da e da ka sorkar jylla Meghalaya lyngab ka Letter No. JH/PKP/ML/LS/2018- 19/B/826, Dated 22/12/2024 ha i tahw wa heh kamwa 3.00 ha (Refer Annex II). Katkam ka chithi No. MFG.39/NLFC/MINING/MMMCR/2016/JH/2622 Dated 04/01/2022 wa da e da u Divisional Forest Officer, Jaintia Hills Territorial Division, Jowai, Department of Forests and Environment, Government of Meghalaya, heiwa kani ka project em ko hapoh I thaw wym em khlo namo Non-forest Land (Refer Annex III). Heiwa ka Modified Mining Plan u man ko katkam ka juk ka stat science wa katni namo ka Progressive Mine Closure Plan kwa da ebor da u Divisional Mining Officer, Directorate of Mineral Resources, Meghalaya, Jowai vide letter No. DMO-J/78/MM/Mining Plan/2022-23/20 kawa em ka tarik 31/01/2024 (Refer Annex IV). Heiwa da pdiang ya ka Mining Plan, wei ya ki bynta wow pynkrehkaam ya kani ka project da yoh na u Divisional Mining Officer, Directorate of Mineral Resources, Jowai lyngba ka Vide Letter No. DMO-J/78/MM/Mining Plan/2022- 23/20 wa em ha ka tarik 31/01/2024 (Refer Annex VI). Ka Cluster Certificate, wa em 7 bynta kiwi ki project namo ki tahw tih moo (mines) kiwa heh 21.86 ha jngai ki 500m na I thaw wa toh u tih moochuni da kani ka karkhana katkam kani ka project.

Kani ka project hap ko hapoh ka kyrdan 'B2' Category neidaw wa i thaw who tih moochuni heh i 4.20 Ha). Wei katkam ka O.M. Vide **F. No. L-11011/175/2018-IA-II (M) Dated 12th December, 2018 da klam che wa** lada i thaw wow tih heh i palat 5 ha, daw emkaam ya ka EIA/EMP chwa wow yoh ya ka Environmental Clearance. Kamte emkaam ya ka EIA/EMP Report ya kani ka project chwa wow yoh ya ka Environmental Clearance (EC).

Ka State Environment Impact Assessment Authority (SEIAA), Meghalaya da booh ko ya ki kyndon Terms of Reference (ToR) lyngab ka Letter No. **ML/SEIAA/MIN/EJH/P-336/2023/757 dated 1<sup>st</sup> August 2023** to the applicant (Refer Annex I).

## 2. I pyrtuid ka project wa I thaw wow em i:

Thanghunai Limestone Quarry ka wow em ha Thanghunai, Nongtalang, West Jaintia Hills District,

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**PROJECT PROPONENT: THANGHUNAI**

**LIMESTONE QUARRY**

Meghalaya.

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(AREA – 3.0 HA)

PROJECT PROPONENT: THANGHUNAI  
LIMESTONE QUARRY

Toposheet No.	83C/4 (Restricted)
Total area	3.0Ha
Total Mineral Reserve	16,21,598Tonnes
Targeted peak production	14,89,08Tonnes

### 3. I rukom tih moochuni katkam ka juk wa katni (MINING METHOD)

- U pynemkaam da ka Opencast Semi-mechanized Mining neibynta 5 snem neidaw wa u moochuni man u uwa boon wa uwa skah ha ini i thaw.
- Daw pynemkaam da ka kor Jack Hammer Drill Machine wow siam thlu kiwa kmai 39 mm hadooh 34 mm wei u pynpiah ya u mochuni ha ini i thaw daw pynkreh da ki bru.
- Wow pynpdung ya ki thlu toh ki wow jngai 0.8m x 1.0 m talawiar soodong.
- Daw pynemkaam da ka Muffled Blasting wow pyntikna wow ym sied ki moo. U tih ya l khyndaw toh da ki puh-chilum.
- Daw bood ya ka Benching System wa 6m x 6m yow bood ya ki kyndon ka Metalliferous Mines Regulations, 1961.
- Ka Bench Slope Angle u pynneh ya i chariñ hapoh 45° donhi.

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Ki mar wow pynemkaam (Raw Material Required):

Inputs	Approx. quantity	Basis
<b>High Speed Diesel Requirement</b>		
Diesel	~0.1	
<b>Water Requirement</b>		
Water for Drinking and Domestic Purposes	1.5 KLD	Water requirement for drinking & domestic per person is 50 liters/day. Therefore, requirement is $37 \times 50 = 1400$ liter/ day say ~2 KLPD
Dust Suppression	3.0	
Water for green belt development	3.0	
Cleaning of HEMMs and other Machinery	2.0	
<b>Total</b>	<b>10.0</b>	

## 4. I bor pynmih moochuni (PRODUCTS AND CAPACITIES):

Ya u moochuni u tih na i tahw wa heh 3.0 Ha ha Thanghunai, Nongtalang, Dist – West Jaintia Hills, Meghalaya.

### DESCRIPTION OF ENVIRONMENT MICRO-METEOROLOGICAL PARAMETERS

#### AMBIENT AIR QUALITY (AAQ) RESULTS

The baseline data has been collected from December 2023 to February 2024. The details area given below:

**Temperature:** Temperature of the area varied from 8.4°C to 28.1°C.

**Relative Humidity:** Relative Humidity of the area varied from 23.7% to 100%.

**Wind Speed:** Maximum wind speed was 40.7 Km/hr with average wind speed was 5.65 Km/hr. Calm wind was 12.73%.

Samples were collected from 6 sampling locations during the baseline data collection period. The results are given below:

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## **PROJECT PROPONENT: THANGHUNAI LIMESTONE QUARRY**

### ***Particulate Matter (PM<sub>10</sub>)***

The results of PM<sub>10</sub> of all the locations are showing variations from 48.7µg/m<sup>3</sup> in the Pamtbuh Village to 68.0 µg/m<sup>3</sup> at the project site. Hence, the results are within the limits of the National Ambient Air Quality Standards (NAAQS).

### ***Particulate Matter (PM<sub>2.5</sub>)***

The results of PM<sub>2.5</sub> of all locations are showing variations from 23.5µg/m<sup>3</sup> in the Pamtbuh Village to 41.0 µg/m<sup>3</sup> at the project site. However, the results are within the limits of the National Ambient Air Quality Standards (NAAQS).

### ***Gaseous Pollutants***

The results of SO<sub>2</sub> concentration at all locations are showing variations from 6.4µg/m<sup>3</sup> in the Nongtalang College (Permanent Campus) to 14.9 µg/m<sup>3</sup> at the project site. However, the results are within the limits of the National Ambient Air Quality Standards (NAAQS).

The results of NO<sub>2</sub> concentration at all locations are showing variations from 13.2µg/m<sup>3</sup> in the Nongtalang College (Permanent Campus) to 20.8 µg/m<sup>3</sup> in the project site. However, the results are within the limits of the National Ambient Air Quality Standards (NAAQS).

### **Ambient Noise Level (ANL) Results**

Samples were collected from 6 sampling locations during the baseline data collection period.

#### **WATER QUALITY RESULTS**

#### **SOIL QUALITY RESULTS**

The results are given below:

The ambient noise level at day time varied from 43.5 dB (A) at Pamtbuh village to 63.1 dB(A) at the project site which is within the standard limits of an Industrial area of 75 dB(A). The night time noise result varied from 37.9 dB(A) at Pamtbuh village to 52.6 dB(A) at the project site which is within the standard limits of an Industrial area of 70 dB(A).

The samples were collected from 4 ground water locations and 3 surface water locations (2 water sources). The results are given below:

#### ***Groundwater Results***

All results comply with the standard drinking water standards of India, i.e., IS: 10500:2012.

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**PROJECT PROPONENT: THANGHUNAI  
LIMESTONE QUARRY**

## ***Surface Water Results***

The surface water quality results of the upstream and downstream water sampling locations of Wah Umngot and a sampling location of Wah Amkshar are within the IS standard 2296:1992 and prescribed CPCB Water Quality Criteria Class-C.

Samples were collected from 5 sampling locations during the baseline data collection period. The results are given below:

pH ranging from 6.34 to 6.82 in the study area. Bulk density of the study area ranges between 1.34 gm/cm<sup>3</sup> S<sub>3</sub> (Amtapoh) to 1.56 gm/cm<sup>3</sup> at S<sub>1</sub> (Project Site). Electrical conductivity of the soil samples is found to be average and ranges from 340 µmhos/cm to 371 µmhos/cm. Organic carbon of the soil samples varies from 1.42% in S<sub>2</sub> (Nongtalang) to 1.70% in S<sub>5</sub> (Pantbuh). Nitrogen content in the surface soil of the study area varies between 24.8 mg/100g at S<sub>4</sub> (Amlarem) to 28.7 mg/100g at S<sub>3</sub> (Amtapoh). Available Phosphorus ranges between 0.80 mg/100g at S<sub>2</sub> (Nongtalang) to 8.3 mg/100g at S<sub>5</sub> (Pantbuh). Potassium content in the study area ranges between 0.53 mg/100g at S<sub>1</sub> (Project Site) to 7.0 mg/100g at S<sub>2</sub> (Nongtalang).

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**PROJECT PROPONENT: THANGHUNAI  
LIMESTONE QUARRY**

### **5. Wow yada ya ka mariang (ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES)**

Daw bood ya ki kyndon ka MMDR Act-1957, MMR-1961, Mine Act-1952, Mines Rules-1955, MMMCR-2016 khnang wow lait ini i tih moochui u ktah ya ki thaw wa em soodong sookun.

### **6. ESTIMATED COST OF THE PROJECT:**

The proposed Thanghunai Limestone Quarry over an area of 3.0 Ha. is privately owned by the applicant Shri Plenty K Pyngrope. The estimated project cost is around **₹25 Lakhs**. The project proponent will bear 5% of the total estimated Project Cost (approx. ₹25 L) as mentioned in the Pre-Feasibility Report, which comes to **₹1.25 L** to be spent under **Corporate Social Responsibility (CSR) plan** annually to mitigate impacts due to this mining project and concerns raised during public consultation.



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LIMESTONE QUARRY

Table 7: CER Budget

S. No.	Activity	Total Cost (Rs.)
1	Organization of quarterly (every 3 months) health check-up camps for the mine workers and villagers of the nearby villages of Nongtalang, Amjajer Roko, and others	0.65
2	Tree plantation drive for avenue plantation works on both sides of the roads and in community areas in the nearby village areas	0.6
Total		1.25

## 7. I man i long ka Mariang (BASELINE ENVIRONMENTAL DATA):

Ya ki jingkheĩñ toh ha u September 2023 hadooh u November 2023. Ki jingkheĩñ man ki kamni hawah:

**Ka lyer namo Ambient Air Quality Results:** Da chim sample na 5 tylli ki thaw wei iwa chem man ki kamni hawah:

### Particulate Matter 10 (PM<sub>10</sub>)

The results of PM<sub>10</sub> of all locations are showing variations from 21.38 µg/m<sup>3</sup> to 28.52 µg/m<sup>3</sup>.

### Particulate Matter 2.5 (PM<sub>2.5</sub>)

The results of PM<sub>2.5</sub> of all locations are showing variations from 27.38.5µg/m<sup>3</sup> to 38.78 µg/m<sup>3</sup>.

### Gaseous Pollutants

The results of SO<sub>2</sub> of all locations are showing variations from 14.35 µg/m<sup>3</sup> to 16.12 µg/m<sup>3</sup>.

The results of NO<sub>2</sub> of all locations are showing variations from 16.58 µg/m<sup>3</sup> to 19.05 µg/m<sup>3</sup>.

**I ood I thai namo Noise Quality Results:** da chim sample na 5 tylli ki thaw wei iwa chem man I kamni hawah:

The ambient noise level at day time varies from 45.8 dB (A) to 58.3 dB(A) and at night time noise levels vary from 35.3 dB (A) to 42.6 dB (A)

**I khooid ka um namo Water Quality Results:** Da chim sample na 4 tylli ki thaw heiyatoh w aka um chapoh khyndaw namo ground water wa 4 tylli ki thaw wa chong wei mih ka um namo surface water sources wei da chem kamni:

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### **PROJECT PROPONENT: THANGHUNAI LIMESTONE QUARRY**

Ground Water results: All results comply with the standard drinking water standards (IS: 10500).

Surface Water results: The surface water quality of the upstream and downstream points of two different rivers namely Seshympha and Wah Lukha is within the prescribed CPCB Water Quality Criteria Class of water.

**I man I long I khyndaw namo Soil Quality Result: Da chim sample na ki 5 tylli ki thaw.**

Da chem wa man I khyndaw iwa sboh wei iwa miat iwa ye u mih jingthung (Based on the provided data, it can be inferred that the soil in the study area has moderate fertility, indicated by sufficient levels of phosphorus and organic Carbon for plant growth and foliage development).

**I man I long ki mrad wa kiwi (Ecology and Biodiversity Results):**

I thaw wow pynkreh man iwa syllen. Heiwa da puræ bniah ya I thaw wa 10 km talawiar.

**Ki manyung wa I kamai kajih (Socio Economic Condition):**

Ym em wa chong was ah ha I thaw wow tih moo, wei em 22 tylli ki chnong kiwa tawiar ya ka buffer zone. Em 8757 ngut kiwa chong chnong wei 1854 tylli ki manyung. Ha kawi ka manyung em 5.5 ngut kiwa chong wa sah. Kiwa chong chnong toh ki Scheduled Tribes (ST) kwia em 98.13% katwa ki Scheduled Caste (SC) em ki 0.14%. I stat I tip man i 49.6% na kiwa chong chnong. Ki chynrang em 50.5%, kiwa stat wa tip wei 49.5% toh ki kynthai. Kiwa boon kiwa chong chnong toh kiwa im nei rep

Ya ini I jingkheĩñ da chim leh n aka Census of India 2011 Report.

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## 9. Wow yada na iwon iwon I jingjia wym poi pyrkhath (IDENTIFICATION OF HAZARDS AND MITIGATION MEASURES):

Ya kini waroh da booh ha ka Table 8.

Table 8: Possible risks during mining and mitigation measures

Risks	Mitigation Measures
Risks of inundation due to flash floods due to heavy rains during the rainy season	Limited mining will be done during the rainy season.
Risks due to landslide	Avoid working near unstable high walls during rainy seasons.
Risks due to slope failure	<ul style="list-style-type: none"><li>• Bench height and width will be maintained as per the approved Mine Plan so that slope of individual benches and overall safe pit slope be maintained.</li><li>• For determining factor of safety, the bench slopes will be monitored regularly by sensitive instruments at precise level at regular intervals to check for any possible ground movement.</li><li>• A well-developed drainage system over the lease hold area is to be ensured to check the water flow out of the lease area during rainy season.</li><li>• Adequate competent persons for carrying out statutory inspections will be deployed.</li><li>• Monitoring and supervision of active mine benches and also exhausted benches will be made mandatory.</li><li>• Inspection report of the benches with suggested corrective measures to be place before the higher management from time to time.</li></ul>
Risks of accident due to vehicular movement	<ul style="list-style-type: none"><li>• All transportation within the mining lease working will be carried out directly under the supervision and control of the management.</li><li>• The vehicles will be maintained in good condition and checked thoroughly at least once a month by the competent person.</li><li>• Road signs will be provided at each and every turning point up to the main road (wherever required).</li><li>• To avoid danger while reversing the equipment/ vehicles especially at the working place/loading points, stopper should be posted to properly guide reversing/spotting operating, otherwise no person should be there within 10m radius of machine.</li><li>• The maximum permissible speed limit shall be prescribed and ensured.</li><li>• Overloading of material will be avoided.</li></ul>

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	<ul style="list-style-type: none"><li>• Unauthorized persons will not be allowed to ride on vehicles</li><li>• Strict code of conduct will be put in place to avoid driving in intoxicated condition by drivers</li></ul>
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<b>Risks due to mineral loading, unloading and transportation/Use of machinery</b>	<ul style="list-style-type: none"><li>• All the equipment deployed at the mine will be of highest standard</li><li>• All the loading and operating machines will have horns and proper maintenance of mining machinery shall be done</li><li>• Height of the bench will be maintained as per approved mining plan to avoid over hanging of rocks.</li><li>• The mineral will be loaded in trucks mechanically and in safe manner to avoid fly rocks</li><li>• Fencing of the mining area to prevent inadvertent entry of human and livestock.</li><li>• The complete mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.</li><li>• All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, RMMCR 1986 and other laws applicable to mine will strictly be complied with.</li><li>• During heavy rainfall the mining activities will be discontinue.</li><li>• Strict code of conduct will be put in place so that no one goes near the moving part of machines for maintenance.</li><li>• Secured cabin will be provided to all operators to shield them from any fly rocks.</li></ul>
<b>Risks due to drilling and blasting</b>	<ul style="list-style-type: none"><li>• Drilling manual will be put in place which will have detailed procedure for shifting of drill machines and its operation</li><li>• Explosives will be stored in the Magazine approved by Controller of Explosives</li><li>• Burden and spacing will be kept as per the study conducted by the expert agency for designing the blasting parameters</li><li>• Misfires during blasting will be handled as per procedures laid down by DGMS</li><li>• Firing of the charged shot holes shall be done from proper blasting shelter.</li><li>• All the persons working in the mine will be provided safety shoes and helmet to prevent them from fly rock.</li><li>• Explosives will be used and handled under strict supervision of competent persons.</li></ul>
<b>Risks of respiratory disorder due to fugitive emissions</b>	<ul style="list-style-type: none"><li>• Regular water sprinkling will be done at dust generation points and on the haul road to control dust.</li><li>• Drilling and blasting shall be done with proper blast hole pattern to</li></ul>

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	<p>minimise dust generation.</p> <ul style="list-style-type: none"><li>• Secondary drilling and blasting will be kept bare minimum.</li><li>• During loading and unloading workers involved in the activity will wear dust masks.</li><li>• Load operator will have closed cabins.</li><li>• Transportation of stones will be done in covered dumpers.</li></ul>
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### **I yarap wa wut-wut (EMERGENCY PREPAREDNESS PLAN):**

Daw bood ya ki kyndon ka Metalliferous Mines Regulations of 1961, kawa da kdaw che ya ki kyndon wow pyntikna wa ki kor wa ki rukom kreh man ki kiwa miat wa bha. Ka Disaster Management Plans leh da pynkhreh ya ki kamni hawah:

#### **Plans for Disaster Management Onsite emergency planning:**

An onsite emergency is caused by an accident or hazard that takes place within the plan area and the effects are confined to the plant area.

The onsite emergency plan consists of the following key elements:

- Planning as per hazard analysis
- Preventive measures
- Emergency response procedure
- Recovery procedure

An on-site plan shall be in place which includes the following:

- a. Regular safety audit/inspection
- b. Emergency Response team, its role and responsibility will be clearly defined to each team member
- c. Procedures for taking care of incidents/emergencies
- d. Mock drills are conducted at regular interval
- e. Assembly point will be clearly demarked
- f. Communication system/arrangement with administrative and regulatory agencies, media and public etc.
- g. Siren for declaring/closing emergency.
- h. Regular training on first aid and evacuation etc.

### **11. I pdiang ki paidbah namo ka PUBLIC CONSULTATION:**

Ya I pynsñiaw padibah daw pyndep wei daw pynkhreh u e ya ka Draft EIA cha ki bor sorkar.

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## 12. Wow yada ya ka mariang (ENVIRONMENT MANAGEMENT PLAN):

An EMP is a site-specific plan developed to ensure that the project is implemented in an environmentally sustainable manner. An effective EMP should ensure the application of best practices for environmental management of a project. The purpose of an EMP is to:

- i. Assist Management to perform mining operations in an environment friendly way;
- ii. Improve the contribution of Management so that an EMP can be used effectively;
- iii. Ensure a minimum standard and consistent approach to the implementation of EMP;
- iv. Ensure that the commitments made as part of the project's EIA are implemented throughout the project life, and
- v. Ensure that environment management detail is captured and documented at all stages of a project.

## 13. POST PROJECT MONITORING PLAN:

**Table 10: Location, Monitoring Schedule and Parameters**

Sl. No.	Description of Parameters	Location	Schedule and Duration of Monitoring
<b>A</b>	<b>Air Quality (PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>) monitoring</b>		
A-1	Five monitoring station	One within and four outside the project area covering upwind and downwind directions.	Will be monitored on a quarterly basis as per CPCB/ MoEF&CC Guidelines/ Notifications.
<b>B</b>	<b>Quality of surface and ground water monitoring</b>		
B-1	Four Surface Water Samples will be collected as per EIA Report and in consultation with SPCB.	Up-stream (Two locations) Down-stream (Two locations)	Will be collected on a quarterly basis in accordance with the guidelines and notifications provided by the CPCB and MoEF&CC
B-2	Four Ground Water Samples will be collected as per EIA Report and in consultation with SPCB.	One should be taken near the active working area and four within the study area.	
<b>C</b>	<b>Ambient Noise Level monitoring</b>		
C-1	Five monitoring station	One is at onsite and four within the study area covering approach road connected with main road.	Will be monitored on a monthly/quarterly basis as per CPCB/ MoEF&CC Guidelines/ Notifications.
<b>D</b>	<b>Soil Quality monitoring</b>		
D-1	Soil Samples will be collected from five locations.	Within the study area	Will be collected half-yearly as per CPCB/MoEF&CC Guidelines/ Notifications