

## EXECUTIVE SUMMARY

- ❖ Dept. of Mines & Geology, Government of Karnataka has issued the Letter of Intent (LoI) for extraction of Boulders for production of Aggregates and M-Sand, in an extent of 16 Acres 07 Guntas (6.546 Hectares) of Non-Forest Government Gomala Land, to M/s Ashritha Stone Crusher, vide their letter No. GaBhuE/UNi(Kha.Aa)/M-Sand/KaGaGu-2/KaGaGuASa-206/16-17/2020-21 dated 18<sup>th</sup> Dec. 2020, under Rule 31-ZC of Karnataka Minor Mineral Concession Rules, 1994 (Amendment-2016)
- ❖ M/s Ashritha Stone Crusher, is a Proprietary Firm, owned by Smt. Suneetha, a resident of Yelahanka New Town, Bangalore City.
- ❖ The proposed Building Stone Quarry Area is under Nashikunte Hosur Village limits, in Chikkaballapura Taluk & District, Karnataka, and the Proponent (M/s Ashritha Stone Crusher) is in possession of the proposed land.
- ❖ The proposed Building Stone Quarry Lease area, falls within a Latitude and longitude of 13° 24' 10.5" N to 13° 24' 24.0" N and 77° 39' 24.4" E to 77° 39' 33.7" E respectively.
- ❖ The Proponent (M/s Ashritha Stone Crusher), has obtained the No Objection Certificate (NOC) dated 14-09-2020 from Revenue Department, Govt. of Karnataka and NOC dated 11-04-2019 from Forest Department, Govt. of Karnataka.
- ❖ There is no agriculture on the proposed mining land.
- ❖ The Proponent had applied for Environmental Clearance to State Environment Impact Assessment Authority (SEIAA), Karnataka and they have issued the Terms of Reference (ToR), for carrying-out Environment Impact Assessment (EIA) studies and preparation of an EIA/ EMP (Environmental Management Plan), for the proposed Building Stone (M-Sand) Quarrying, vide Lr No. SEIAA 114 MIN 2021, dated 27.08.2021.
- ❖ The baseline data collection (environmental monitoring) was conducted as per MOEF & CC norms for post monsoon season (October 2021 to December 2021).
- ❖ Present summary is of the EIA report as per TOR and has been prepared as per generic structure given in Appendix III of EIA notification 2006 by MOEF & CC.
- ❖ It is proposed to mine Building Stone, at an average production of 4,45,670 Tons per Annum and a maximum of 4,61,479 Tons per annum of ROM (incl. waste), by semi-mechanized open cast mining method. The average saleable production is about 4,36,757 Tons per Annum, with a maximum of 4,52,250 Tons per

Annum. There will be a waste generation of about 8,913 Tons per annum (average) with a maximum of 9,229 Tons per Annum.

- ❖ Building Stone Mining is important for the Construction Industry, in domestic market, for use as aggregates and also for M-Sand production.
- ❖ This is a new project & RQP has prepared the mining plan for mining of Building Stone, by maintaining proper safety standards.
- ❖ Life of the mine is 10.60 years, considering an estimated mineable reserve of 47,17,451 Tons (incl. waste). The anticipated saleable quality building stone will be of 98% of the total mined quantity, with 2% in the form of waste generation.
- ❖ The Estimated Geological and Mineable Reserves, are as under:

Description	Geological Reserves Tons	Mineable Reserves Tons
Proved	44,29,538	39,24,070
Probable	8,95,620	7,93,381
<b>TOTAL</b>	<b>53,25,158</b>	<b>47,17,451</b>

- ❖ Local Geology: The area exposed is generally of Granite gneisses trending in N-S direction and dipping due N65 to 75 towards east as a narrow belt. It has essentially medium grained texture, light grey color, petrologically termed monzonites and monzo-granites and is traversed by fine grained grey to pink color pegmatites and aplites. The granite gneisses are seen all along the quarry lease applied area. The quarry exposes the sheet rocks acting as a ridge at 20 m above the ground level. This area of grey color granite gneisses is moderately disturbed and exhibits well-developed joints. Granitic-gneisses outcrops are prominently exposed in the Quarry applied area. Specific gravity is around 2.63.
- ❖ Topography of the site: The topography of the area consists of stony ridges and slopes/gradient in all directions. The average elevation of the subject area is 990 m above the MSL. Topography and the drainage of the area is both structurally and lithological controlled. The subject area falls within the region confined to a part of Nashikunte Hosur Village. The highest elevation is 1010 m and lowest elevation is 978 m above the MSL.
- ❖ There are no sensitive receptors or ecosystems or water bodies in the core zone.
- ❖ Nearest Village is Nashikunte Hosur at 1.50 km.
- ❖ There is no agriculture on the lease.
- ❖ There are no eco sensitive areas within 10 km of the lease. There are no major

industries within this area, except some stone crushers and M-Sand units.

### **Proposed Mining**

- ❖ Building stone Quarrying of applied area for the proposed plan period is by Semi-Mechanized method of opencast quarrying.
- ❖ Considering the technical parameters like surface topography, quality variations, geo-technical aspects, required rate of production & available resources etc., it is proposed to work this deposit by adopting 3 m bench height and with an ultimate pit slope of 85° by medium scale quarrying activity with small dia jack Hammer drilling & controlled Blasting and use of Hydraulic Rock Breaker.
- ❖ The benches height and the width will be maintained as specified by DGMS. The width of the working benches shall not be less than the height.
- ❖ In view of the Quarrying plan for production of Building Stone, it is planned to operate the quarry by deploying machineries for development & productions, using drilling equipment, hydraulic rock breakers, excavator/loaders and tippers/tractors.
- ❖ Small diameter jack hammer and blasting will be proposed to be carried out by engaging licensed & certified blaster on contractual basis and by obtaining permission from competent authority
- ❖ Proper blasting would be undertaken ensuring lower ground vibrations by Controlled Blasting Methodology.
- ❖ The noise levels will be ensured to below 90 dB. Blast holes of 32 mm diameter with 5' depth will be charged with a maximum of 187.5 gms of explosives.
- ❖ Excessive charges will be avoided. Instead of inclined drilling, vertical holes will be drilled
- ❖ Loading of building stone blocks will be done mechanically to Tippers of 10 tons capacity and transported from the quarry to the Crushing & Screening Plant, located within 2 km from Quarry site.
- ❖ Mineral rejection/waste will also be handled mechanically. In the quarry, roads will be maintained at 1 : 16 gradient.
- ❖ Sufficient number of bunds, parapet walls will be made all along the quarry haulage roads wherever necessary in order to maintain safe working conditions by using waste generated during the course of quarry operations
- ❖ Considering an average annual production of 4,45,670 Tons per Annum of ROM (Incl. Waste) and 300 working days in a year, the average daily production will be about 1,486 Tons per day.
- ❖ About 44,565 tons of intercalated waste is required to be handled during the plan period, which will be utilized for strengthening the approach road.
- ❖ The details of year wise excavation during the plan period, are as under:

Year	Total ROM Production		Saleable Mineral @ 98% (Tons)	Waste @ 2% (Tons)
	CuM	Tons		
1 <sup>st</sup> Year	1,75,467	4,61,479	4,52,250	9,229
2 <sup>nd</sup> Year	1,72,367	4,53,326	4,44,260	9,066
3 <sup>rd</sup> Year	1,69,267	4,45,173	4,36,270	8,903
4 <sup>th</sup> Year	1,66,167	4,37,020	4,28,280	8,740
5 <sup>th</sup> Year	1,64,012	4,31,353	4,22,726	8,627
<b>Total</b>	<b>8,47,280</b>	<b>22,28,351</b>	<b>21,83,786</b>	<b>44,565</b>
Average	1,69,456	4,45,670	4,36,757	8,913
Maximum	1,75,467	4,61,479	4,52,250	9,229

**Base line environmental quality:**

**Air:**

- ❖ There are no industrial gaseous -emission sources. Predominant wind directions in the order are from ENE (19.70%), NE (14.58%), E (12.82%) and ESE (10.05%). Average wind speed is 2.48m /sec.
- ❖ Atmospheric stability class at Chikkaballapura Area is “moderately unstable to slightly unstable” during the day. Area has rural setting.
- ❖ Concentrations of criteria pollutants were found to be well below National air quality criteria viz. PM10, PM2.5, SO2 and NOx which are respectively 100, 60, 80 and 80 µg/m<sup>3</sup>.
- ❖ Predominant emissions during open cast mining operations would be generation of particulate matter during drilling, blasting, loading/unloading and transportation activities.

**Noise:** Ld, Ln & Ldn values were typical of rural background.

	Lease (Core) dB(A)	Buffer (Min.) dB(A)	Buffer (Max.) dB(A)
Ld	38	40	52
Ln	36	36	48
Ldn	37	39	50

Sources of noise would be during drilling and blasting.

**Water:** There are no surface sources viz. rivers/ lake in the lease area. The average annual rainfall in Chikkaballapura District is about 756mm per year. As per the Ground Water Brochure (August 2012) prepared for Chikkaballapura District, by Central Ground Water Board, GoI, the average ground water levels in Chikkanagavalli & Peresandra Region is about 30-40m BGL (Pre-Monsoon) and 25-30m BGL (Post-Monsoon).

The ground water quality in and around the proposed lease area is slightly alkaline, with the pH levels ranging from 7.38 to 8.09. The total hardness is ranging from 188 to 344 mg/liter as CaCO<sub>3</sub>, whereas the Total Dissolved Solids content is varying between 234 to 475 mg/liter. The fluoride levels are ranging from 0.391 to 1.098 mg/liter and the nitrate levels are varying between 2.51 to 8.49 mg/liter. The sulphate levels are ranging from 22.1 to 31.3 mg/liter and the chloride levels are varying between 52.98 to 160.95 mg/liter. In general, the ground water quality in the study area, confirms to the permissible limits of IS:10500-2012 (Drinking Water Specification).

- Surface runoffs during monsoon from lease will enter the quarry pits. Of this, some water will evaporate and some can slowly percolate down.

#### **Solid waste:**

During the mining plan period, the mineral rejects are estimated to be 44,565 Tons.

These mineral rejects, predominantly being weathered rock, can be used with M-Sand and also for the maintenance of the approach road.

#### **Impacts:**

**Land:** There is not much top soil in the proposed lease area, also there is no agriculture. There are no existing quarry pits within the proposed lease area. A single pit will be made during the operational phase of the quarry. Hence there would not be any major adverse impact on topography/drainage or on land use or agriculture. Appearance will continue to be as it is. Backfilling or reclamation of the mined out area is not proposed. Thus, mined out pit will be a "rainwater" storage structure. It is likely that recharge of ground water aquifer takes place. Also reservoir water can be used for miscellaneous purposes like plantation, fish culture etc.

During the plan period, about 45,565 Tons of mineral rejects (waste) is expected to be generated, which predominantly being weathered rock, will be used along with M-Sand and also for maintenance (strengthening) of the approach road. This waste is not expected to cause any adverse impact on the surrounding environment.

The Landuse details, in lease area, are as under:

Sl. No.	Item	Existing Landuse (Acres-Guntas)	Landuse at the end of plan period (Acres-Guntas)
1.	Mining area	-	13-05
2.	Overburden / dump	--	0-10
3.	Mineral Storage	--	0-20
4.	Infrastructure, office	--	0-01
5.	Roads	-	0-10

6.	Safety/Green Belt	--	2-01
7.	Unused / virgin area	16-07	--
<b>Total</b>		<b>16-07</b>	<b>16-07</b>

**Air:**

Ground level concentrations as per AERMOD model for dispersion of air pollutants for lease area source show that there would not be any adverse impact on ambient air quality.

**Water:**

There would not be any impact on aquatic environment including hydrology, drainage or quality because a) there is no drain in the lease, b) ground water table will not be intercepted, c) dewatering of pits will not be required and d) granite pit water is suitable for irrigation. Regular monitoring for fluoride content is required.

**Noise:**

Sources during mine operation would be drilling and blasting. Drillers would be exposed to about 75-80 dB(A). In this case, blasting is involved. Pit-walls would absorb the vibrations due to drilling and blasting. Hence, there would not be any major adverse impact. There are no structures over the lease area, as well as within 1 km radius of the quarry lease area.

**Biological:**

There is no sensitive fauna and flora or endangered species within 10 km radius of the lease. Lease is part of non-forest area. Also, this area is not known for any special kind of biodiversity. Project proponent will carry out plantation in scientific way. He will choose locally suitable species in consultation with local forest department.

**Socioeconomic & health:**

There will not be any displacement on account of this project because land is in possession of the Project Proponent. It is proposed to a) prefer employment to deserving local persons in mining related trades like loading/unloading of boulders, waste handling, drilling etc., b) train residents of nearby villages for harvesting rain water, and sanitation practices etc., c) employment of local people for works related to development & maintenance of greenbelt and afforestation.

**Monitoring schedule:**

Env. segment	Parameter	Frequency
Water quality	IS 10500	Quarterly
G.W. table	Fluctuation in pre-monsoon & post monsoon period	May & October

AAQ	Particulate matter PM10 & PM2.5	during drilling, blasting - Quarterly
Noise	Equi. noise levels	during drilling, blasting- Quarterly
Health	Pulmonary function, eye sight, audiometry, B.P., etc.	Annual record
Plantation	Survival	annual survival rate
Data analyses	Efficiency of mitigation measures	Half Yearly

**Plantation:**

The proposed quarry area and its buffer zone, has a rocky outcrop and hence it is not possible to take-up any plantation in the 7.5 m wide safety zone. However, it is proposed to take-up plantation, on either side of the approach road. It is proposed to plant about 1,000 locally suitable species, as part of green belt development. One cubic meter pits will be made on either side of the approach road and will be filled with top soil from lease area. Refuse or garbage will be added as per availability. Growth in the first year will be observed. Species will be chosen from the following and depending on availability.

Common name	Botanical name
Aakasha Mallige	Millingtoniasp
Kakke	Cassia fistula
Kanchuvala	Bahuniavariegata&accuminate
Bangala Jaali	Acacia auruculiformis
Arali	Ficus religiosa

**Occupational Health & Safety Measures:**

The employees working in the quarrying activity will be provided with suitable personnel protective equipment (PPE) like safety shoes, dust masks, helmets, etc. Also, they will be subjected to annual health check-up, particularly for hearing related illness and respiratory disorders. Protective shelters for workers with treated R.O. Water, First Aid facilities, Dining facility etc. will be provided.

**Corporate Social Responsibility:**

A few are mentioned below:

- (i) Supply of Solar Street Lights  
Solar Street lights will be installed in nearby villages within 5 km radius.  
Approximate cost is Rs. 20,000/ to Rs, 25,000/- per unit
- (ii) Project Proponent will organize annual health camp, in the nearby villages.

**CSR - funds**

Activity	Anticipated funds/year Rs
Supply of Solar Street Lights	Rs. 20,000 to 25,000/ unit, and the budget allocated is about Rs. 2,00,000/- Annum

Annual Health camps in the nearby villages	Rs. 1,00,000/- per camp
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N.B. Costs are indicative

**Economics of project:**

Granitic Gneiss deposits in Nashikunte Hosur Area and its surroundings are suitable for building stone and M-Sand production. It has high demand in the construction industry from the nearby Bangalore city. The proposed land has a rocky patch and is non-productive and unsuitable for agriculture. Therefore mining will be in the interest of State revenue and of the people around. Direct and indirect employment to locals is assured.

Lease is a rocky land in Non-Forest Area. It has no major trees, except some thorny bushes. The rain water collected in the quarry pits will be used for purposes like dust suppression, tree watering etc. Therefore there would not any damage to environmental quality.

Initiation of mining by M/s Ashritha Stone Crusher, will improve revenue to the state without deterioration in environmental quality. On the contrary population in nearby villages will become aware of importance of potable water quality and sanitation.

Openings for indirect employment to locals in plantation, loading/ unloading operations etc. are possible. Additional water supply source in form of pit-water, recharge of aquifer is likely.