# PRE-FEASIBILITY REPORT

## EXECUTIVE SUMMARY

The proposed project of 40.0 Ha is of river bed sand mining and falls under Category- "B1" as per by EIA Notification, 2006 and its subsequent amendments, Ministry of Environment Forests & Climate Change, GOI. Sand Mining Project, Block 22 (Gaya Morhar 09) Sand Ghat fall in Mauja– Haridaspur, Newara, Dihuri Anchal- Paraiya, District-Gaya, Bihar. The proposed project activity will be carried out on the dry river bed. Details of the proposed project are as:-

| S.No. | Information | Details |
|---|---|---|
| 1. | Project name | Sand Mining Project, Block 22 (Gaya Morhar 09) Sand Ghat |
| | Mining Lease Area | 40.0 Ha |
| 3. | Location of mine | |
| | Khata No.& Khasra no. | Khata No. - 223, 14; Khasra No. – 1, 1; Thana No. - 87, 68 |
| | Village/Mauja | Haridaspur, Newara |
| | Tehsil/Anchal | Paraiya |
| | District : | Gaya |
| | State : | Bihar |
| 4. | River/Nalla/Nadi | Morhar River |
| 5. | Minerals of mine | Sand |
| 6. | Mining Period | 5 Years |
| 7. | Proposed Production | 720000 CUM per annum or 1296000 TPA |
| 7. | Bulk Density | 1.8 |
| 8. | Method of mining | Open Cast semi-mechanized Method |
| 9. | Drilling or Blasting | No |
| 10. | No of working days | 250 days |
| 11. | Water demand | Dust Suppression: 7.0 KLD |
| | | Domestic Water : 3.0 KLD |
| | | Green Belt Development : 3.5 KLD |
| | | Total Water Requirement: 13.5 KLD |

| | | |
|---|---|---|
| 12. | Man Power | 100 |
| 13. | Nearest railway station | Paraiya Railway Station at distance of approx. 7.17 km in NNE direction from Gaya Morhar 09 |
| 14. | Nearest Airport | Gaya International Airport at distance of approx. 9.68 Km in NE direction from Gaya Morhar 09 |
| 15. | Nearest state highway/ national highway | Manjhar Raod, 1.07 km in NW direction<br>NH- 119D at approx. 6.15 Km in SE direction from Gaya Morhar 02 |
| 16. | Cost of Project | The total cost of project would be around Rs. 12,49,00,000/- (12.49 Cr or 124.9 Lakhs). |

## 2. INTRODUCTION

### Identification of Project and Project Proponent

LOI has been issued to M/s Gladiata Engineering Makers Private Limted, Director – Sonu Kumar vide letter no-2812 dated 25.09.2024 by District Mining Office for Sand Deposits having an area of 40.0 Ha. The details of the project are given below:

| | |
|---|---|
| Name of the Lessees | M/s Gladiata Engineering Makers Private Limted |
| Name & Address of POA Holder | M/s Gladiata Engineering Makers Private Limted<br>Director – Sonu Kumar , S/o – Surendra Singh<br>Holding Number 63A/L 167 Housing Board Colony, Anugrahpuri, PS – Rampur, Distt - Gaya<br>8757660664 |
| Name of Mine | Block 22 (Gaya Morhar 09) Sand Ghat of District- Gaya, State-Bihar |
| Mineral | Sand |
| Area (ha) | 40.0 Ha |
| Postal Address | Mauja– Haridaspur, Newara Anchal- Paraiya, District- Gaya, Bihar. |
| Status of Mine | Fresh application for Environmental Clearance. |

**Brief description of the nature of the project**

It has been proposed to collect approximately 720000 CUM per annum or 1296000 TPA of sandfrom available area. No mining activity will be undertaken during the monsoon season. So the material will be replenished during the monsoon season every year.

**Surface Mining:** The mining is confined to extraction of sand from the river bed. The operation will be semi mechanized in which the material will be collected in its existing form. Sand Mining will be carried out only upto a depth of 3 m, semi-mechanically. Mining of minor minerals in river-bed proves to be most viable and least disturbing to the environment. The mining process is opencast semi-mechanized method without drilling & blasting. There would be no risk to the employee working in the mines. Except in cases of emergency, when suppliers are to be effected to Government agencies and other requisite parameters of need, semi mechanized mining operations may be resorted to, without drilling & blasting. As the working is going to be methodical i.e. mining will be done in benches. There would be no risk to the employee working in the mines.

**a)** Mining will be starting from its center and advance toward the banks across the river uniformly. The mineral extraction will be done for a period of 250 days in a year.

**b)** In order to maintain safety and stability of river banks a safety distance of 3 m or 1/10$^{th}$ of the width of the river on both side of river bank will be left as per Sustainable Sand Mining Guidelines issued by MOEFCC in 2016.

**c)** No mining zone has also been left from the bridge for its safety as shown in the Development plan.

**d)** The lease area gets the sediment deposit due to the river flow which remains undisturbed during the monsoons. The extraction process can slow or stop aggradation thereby maintaining the channel's capacity and its flow.

**e)** No mining operations shall be carried out in proximity of 300 meter from any Rail, Road, bridge and/ or embankment.

**f)** No mining operations shall be carried out in proximity of 250 meter from any RF/PF.

For the optimum utilization of the mineral available in the lease area, mine working has been planned in a scientific and systematic way as shown in the working plan and section. The excavation planning, slope, height, width and length of the bench are planned on the basis of

deposit.

**Need for the project and its importance to the country and region**

The project lies on the bed of Morhar River. The sediment in the form of river bed material (RBM) deposited in the last many years had changed the shape of the river bed from a valley to araised land. Hence, it is necessary to remove the materials so that the stream gets channelized. Due to rapid infrastructure development in India, the demand of construction material has increased. To supply this demand, mining of sand is done. This project operation will provide employment directly and indirectly to the people residing in vicinity, thus improving the Socio-economic status of the area.

**Demands-Supply Gap**

The demand for sand is ever growing with the growth of the infrastructure sector in our country. The mineral is used mainly in the construction activities like buildings, bridges etc. The requirement for the mineral is always high in the cities and towns. Therefore there is always a good demand of the mineral in the domestic market.

**Domestic/ Export Markets**

The demand in the domestic market is high especially in the nearby towns and cities and hence the need for sand mining.

**Export Possibility**

There is no proposal to export the mineral as the minerals excavated, cater to the indigenous demand and the development is a never ending process.

**Domestic/ Export Markets**

**a) Domestic Market**

There is always an ever increasing demand of these minerals in the domestic market.

**b) Export Market**

The proposed mining activity is for indigenous consumption only for real state, road making etc. So no export will be envisaged.

**Employment Generation**

The total direct manpower requirement for the proposed mining operation will be around 100**.** Significant Indirect employments are also expected due to the associated activities. This project operation will provide livelihood to the poorest section of the society.

## PROJECT DESCRIPTION

**Type of project including interlinked and interdependent projects, if any**

The proposed project is for the extraction of sand from the bed of a water stream by semimechanized operation. This is an independent project.

**Location**

The Sand Mining Project, Block 22 (Gaya Morhar 09) Sand Ghat falls in Mauja– Haridaspur, Newara Anchal- Paraiya, District-Gaya, and Bihar. The proposed project activity will be carried out in the bed of the River Morhar. The mine site is located at:

**Table-1:-Pillar co-ordinates of the proposed sand mining site**

| S. No | Sand Ghat | Area (in Ha) | Co-ordinates | |
|---|---|---|---|---|
| 1 | Block-22 Gaya Morhar 09 | 40.0 | A | 24°44'44.81"N 84°50'29.26"E |
| | | | B | 24°44'41.97"N 84°50'38.22"E |
| | | | C | 24°43'50.95"N 84°50'20.42"E |
| | | | D | 24°43'53.55"N 84°50'13.02"E |

The Location map of the project site is given below:

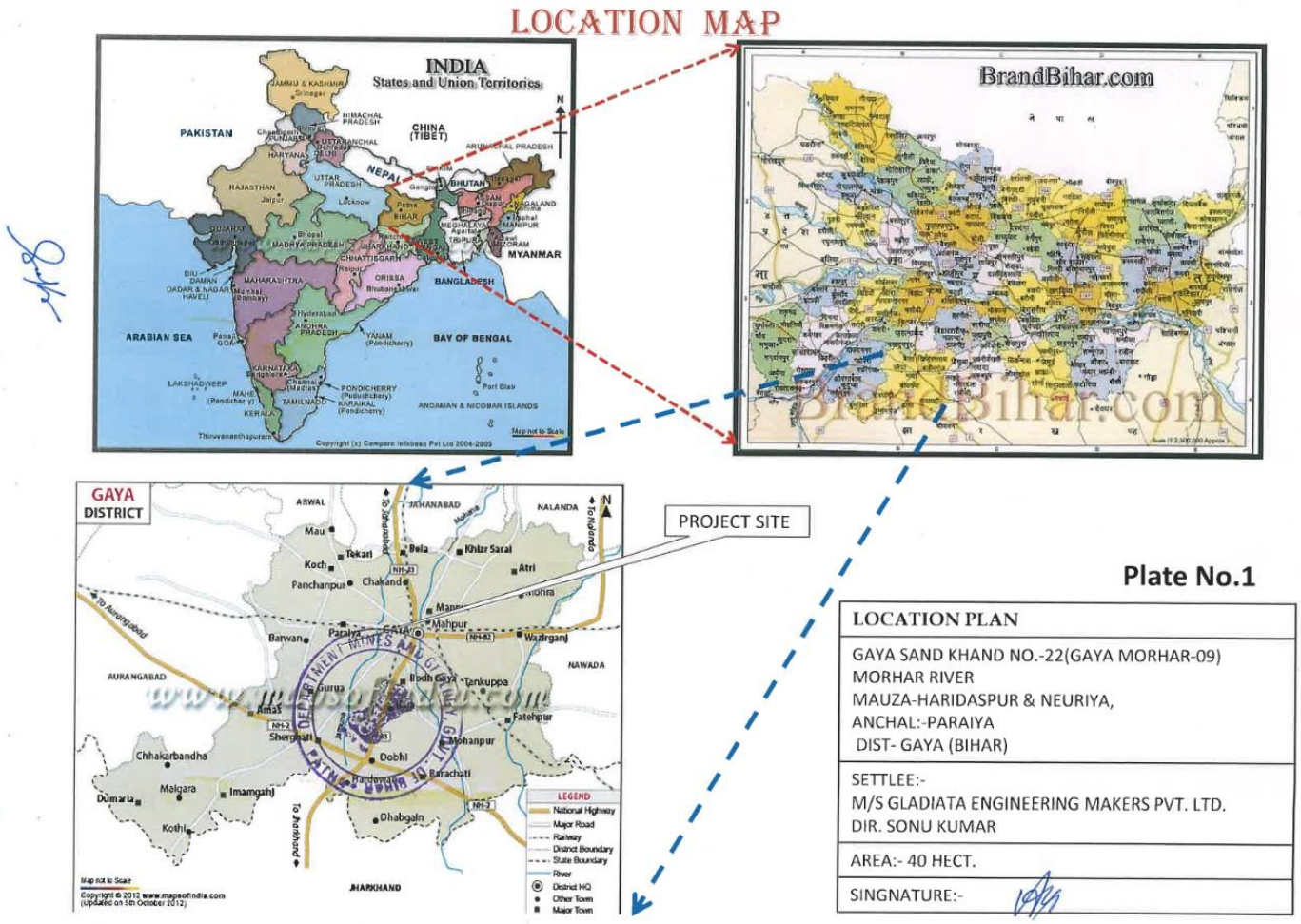


**Figure: - Location map of the proposed site**

**Details of alternate sites considered**

No alternative site has been considered, as the mining is site specific.

**Size or magnitude of operation**

The proposed mine has lease over an area of 11.15 Ha. The total extractable material would be approx. 720000 CUM per annum or 1296000 TPA. The Geological Reserve is 1200000 cum. or 2160000 tonnes. Reserve calculation for the site is mentioned below:

**Table 2: Reserve Calculation**

| BALUGHAT | Area (Hect) | Geological Reserves (m3) | Mineable Reserves (m3) | Annual Production target (m3) | Annual Production Target (tonne) |
|---|---|---|---|---|---|
| Block 22 (Gaya Morhar 09) Sand Ghat | 40.0 | 1200000 | 1090710 | 720000 | 1296000 |

**Project description with process details**

**Method for developing and working the deposits**

The sand deposited as stream bed material will be collected in its existing form.

**Method of mining**

The mining is confined to extraction of sand from the dry river bed. The operation will be semi mechanized in which the material will be collected in its existing form. JCB, Excavators etc. will be used. Mining will be carried out only during the day time. Extraction of the minor mineral will be completely stopped during the monsoon season.

**Working Depth (below ground level)**

The deposits occur in the middle/bottom of the water stream. During the lease period, the mining will be restricted down to 3 m below river bed.

**Raw Material Required Along With Estimated Quantity, Likely Source, Marketing Area of Final Product/S, Mode of Transport of Raw Material and Finished Product**

No raw material will be required in the proposed project. The operation involves the extraction of sand in its existing form and loaded into trucks/trolleys which will transport the material to the local market. The existing roads will be utilized for the transport of sand from mine site tomarket.

**Use of Mineral**

Minor mineral namely sand is used as construction material for buildings, bridges etc.

**Mineral Beneficiation**

No mineral beneficiation is involved.

**Surface Transport**

The transportation of sand will be carried out by the Proponent through their own transport. There are all weather metalled road and then an Unmetalled road right up to the mines to dispatch the material from mines to the market. It will be purchased by the customers at mine site and transported by them through their own arrangement of trucks. The practice is quite sound in the area and ensure continuous lifting of the material. However necessary arrangement of truck can be done from the local truck operator union.

**Resource optimization/ recycling and reuse**

Minerals are generally depleting asset once mined; but minerals like Sand will be replenished naturally. Thus a scientific approach will be taken up for excavation of mineral with systematic method.

**Availability of water its source, energy/ power requirement and source**

**Water Requirement**

Total water requirement will be 13.5 KLD. This water will be supplied by private tankers.

**Table 3:-Water requirement of the project**

| Activity | Water requirement (KLD) |
|---|---|
| Dust suppression | 7.0 |
| Domestic | 3.0 |
| Green Belt Development | 3.5 |
| Total | 13.5 |

**Power Requirement**

Mining activities will be carried out in semi-mechanized manner. The operation will be done only from sunrise to sunset hence there is no power requirement for the project at site.

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

**Solid Waste Generation & its Disposal**

There are no mineral rejects of any kind produced during mining.

**Liquid Effluent**

No liquid effluents will be generated at the mine site.

## 4. SITE ANALYSIS

**Connectivity**

The project site is connected to the nearest metalled road through an approach Unmetalled road. Site is well connected by metalled road which is at distance of approx. 1.07 km in NW direction. Other form of connectivity is as:-

**Table 4: Connectivity**

| | |
|---|---|
| Nearest Railway Station | Paraiya Railway Station at distance of approx. 7.17 km in NNE direction |
| Nearest Airport | Gaya International Airport at distance of approx. 9.68 Km in NE direction |
| Nearest Highway | Manjhar Road at approx. 1.07 Km in NW direction from Gaya Morhar 01<br>NH- 119D at approx. 6.15 Km in SE direction |

**Land form, land use and land ownership**

The proposed activity is to take place in the dry river bed of concerned rivers. The land form is mostly river bed and non-forest land. The entire land is Government land.

Moreover there will be no change in land use as the mining will be confined to the river bed, which will get replenished naturally with the continuous flow of water.

**Topography**

The district of Gaya is broadly divided into two distinct physical units. The south is a region of broken undulating country merging into long ranges of hills, with a wide belt of brushwood jungle at their base. Much of this tract is high and barren and incapable of much cultivation; the soil has poor crops and the population is sparse. These high lands project into the alluvial plains to the north as spurs from the Chhotanagpur Plateau. The greater part of the district, however, consists of the flat alluvial plain. This wide alluvial plain of the north forms part of the Gangetic depression with alluvial deposits of immense depth and are broken here and there by groups and low ranges of hills or isolated peaks arising abruptly from the level country at their feet. The alluvial plain is protected from drought by a wonderful system of indigenous irrigation consisting of ahars (reservoirs) and pains (channels). It is, therefore, a region of great fertility when compared with the southern part of the district and is comparatively densely populated. The northern portion, which is highly cultivated and extensively irrigated.

**Source:** http://www.cgwb.gov.in/District_Profile/Bihar/Gaya.pdf

**Local Geology**

The main geological formation of the region is of Quaternary age. The area is mostly covered by unconsolidated sediments which is known as Alluvial deposits followed by consolidated deposits of Satpura range. Few areas are also characterized by units of Archaean ages. The Satpura range mainly exposed in Gaya hills and Rajgir hills comprises low grade supracrustals – Schists, ferruginous phyllite, quartzites and phyllitic slate. The Archeans are the oldest rock formation in the area. The most predominant rock type is gneisses and granites with basic intrusives and medium to fine sand geologically the area comprising of Terrace alluvium deposited in depositional terraces of old rivers & contain cyclic sequence of fine to course grained sand. It is angular to sub angular and the angularity of the grains of this category of sand decreases with depth.

Source: http://www.cgwb.gov.in/District_Profile/Bihar/Gaya.pdf

**Existing land use pattern**

Urban and rural areas mainly depend on Socio-economic and Socio-cultural factors. The salient features of land use pattern in the district (2008-09) are given below:-

Area under forest: 77836 hectares

Barren & uncultivable land: 27541 hectares

Land put to non-agril use: 72923 hectares

Barren Unculturable Area: 27541 hectares

Permanent pastures: 2098 hectares

Other fallow land: 11463 hectares

Current fallow: 124267 hectares

Net sown area: 170522 hectares

Gross cropped area; 203713 hectares

Area sown more than once: 27677 hectares

Net area irrigated: 126000 hectares

Gross Irrigated area; 164000 hectares

**Source:** http://www.cgwb.gov.in/District_Profile/Bihar/Gaya.pdf

**Soil classification**

Sandy soil, red and yellow soil and younger alluvial soil are the important soil types of the area. The Sandy soil, red and yellow soil are restricted to the southern and northeastern parts of the area occupied by the plateau, the pediplain and the high level marginal alluvial plain (terrace). These soils are locally called balwat, balmat or balsundri, which are extremely deficient in nitrogen and organic matter and hence infertile. younger alluvial soil is restricted to the Sone-Ganga plain. The soil consists chiefly of loam with a small proportion of sand and clay (kewal). The soils of this tract are rich in nitrogen and calcium and thus are fertile.

**Source:** http://www.cgwb.gov.in/District_Profile/Bihar/Gaya.pdf

**Climatic data from secondary sources**

**RAINFALL & CLIMATE**

The area experiences a continental monsoon type of climate owing to its great distance from the sea. The climate is extreme and comprises three broad seasons-the summer, the monsoon and the winter. The summer months from the middle of March to May are characterized by hot blasts of westerly winds commonly known as 'loo'. The peak of summer is in May when mercury shoots to $46^0$C. The cold spell starts from December and continues till end of February. During this period the mercury drops down to as low as $4^0$C. The monsoon sets in the end of June. The months of July and August receive the maximum rainfall when average maximum rainfall of

338.4 and 231.3 mm is recorded. The annual normal rainfall of the district (1901-1970) is 1086 mm. As per available rainfall data, the district of Gaya received annual rainfall between 568.5 mm and 1109 mm over a period of 2004 to 2009.

**Source:** http://www.cgwb.gov.in/District_Profile/Bihar/Gaya.pdf

## 5. PLANNING BRIEF

**planning concept**

Production of sand will be done as per the market demand not exceeding 720000 CUM per annum or 1296000 TPA.

**Population projection**

The project will employ most of the workers from nearby villages. There will not be any increase in population due to the project.

**Land use planning**

The land use of the mine lease area is the Morhar River and there will be no change in land use after operation. The excavated sand will be replenished every year during the monsoon season. Hence the ultimate land use of the mine lease area will not be change.

**Amenities/facilities**

Temporary rest shelters, portable toilets and First aid provision will be made available to the mine workers at the site.

## 6. PROPOSED INFRASTRUCTURE

**Industrial area (Processing Area)**

No industrial area is proposed.

**Residential area (Non Processing Area)**

The mine workers will be hired from nearby villages, so residential areas will not be required.

**Green belt**

Plantation will be raised along both sides of roads and/or civic amenities in consultation with the local authorities. Total 400 trees of will be planted with various types of species & will be maintained.

**Social infrastructure**

- Road facility (existing roads will be maintained regularly)
- Employment opportunity
- Medical camps
- Social awareness camps,
- Donations to schools
- Secondary employment opportunities
- Formation of self-help groups for the women in nearby villages.

**Connectivity**

Sand Mining Project, Block 22 (Gaya Morhar 09) Sand Ghat is well connected to the nearest metalled roads/ Highways. The approach road will be maintained and dust suppression will be done regularly.

**Drinking Water Management**

Water for drinking and operations is proposed to obtain water from ground water from nearby villages. And proper permission will be taken from concerned authorities. About 2.0 KLD is required for drinking purpose.

**Sewerage System**

No Sewerage System is provided at the mine site.

**Industrial Waste Management**

Not applicable

**Solid Waste management**

No solid waste generation is expected from the mining operation.

**Power Requirement & Supply/ Source**

Mining activities will be carried out semi-mechanically. The operation will be done only from sunrise to sun set, hence there is no power requirement for the project at site.

**Environmental Management Plan**

The environmental management plan consists of the set of mitigation, management, monitoring and institutional measures to be taken during the implementation and operation of the project, to eliminate adverse environmental impacts or reduce them to acceptable levels. The present environmental management plan addresses the components of environment, which are likely to be affected by the different operations in the mine area

**Table-5: Budget Allotted for the Environmental Management Plan:-**

| Sl. No | Description | Capital Cost (lakh) | Recurring Cost (lakh) |
|---|---|---|---|
| 1 | Pollution Control & Dust Suppression | **Nil** | **2.0** |
| 2 | Pollution Monitoring<br>i) Air pollution<br>ii) Water pollution<br>iv) Noise Pollution | -- | 2.0 |
| 3 | Plantation and salary for one gardener (part time basis). | 4.00 | 0.5 |
| 4 | Haul road Maintenance Cost | 1.50 | 1.5 |
| **TOTAL** | | **5.50** | **6.0** |

## 7. REHABILITATION AND RESETTLEMENT (R&R) PLAN

Not Applicable

## 8. PROJECT SCHEDULE & COST ESTIMATES.

The project will commence once Environmental Clearance and other necessary certificates are obtained from the respective departments. The total cost of project would be around Rs. 12, 49, 00,000. Break-up of the total project cost areas:-

**Table-6:- Break-Up of Total project cost**

| S. No. | Description | Cost in Rs. |
|---|---|---|
| 1 | Auction Cost | 1,18,800,000 |
| 2 | Cost of Labour & Equipment | 60,00,000 |
| 3 | Miscellaneous | 1,00,000 |
| **Total** | | **12,49,00,000** |

**Corporate Social Responsibility cost:-**

CSR cost will be 2% of the total project cost. This amount will be used for social welfare.

CSR COST is

| Total Project Cost | Percentage | CSR Cost (in Rs.) |
|---|---|---|
| 12,49,00,000 | 0.02 | 24,98,000 |

## 9. ANALYSIS OF PROPOSAL

The project involves collection of sand from the Morhar River bed. This is very essential in order to prevent widening of the riverbeds and to prevent flooding off and damage to the adjoining areas. This can only be achieved by maintaining the existing course of the river.

The river banks, on both sides are covered slightly by vegetation and human habitats. Widening of river banks results in excessive erosion; resulting in damage to flora, agricultural land and settlements which are situated at very close proximity. This project operation will also provide livelihood to the poorest section of the society. It provides employment to the people residing in vicinity directly or indirectly by the project. The sand extracted is in high demand in the local market. This is also to ensure scientific method of sand extraction.

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