EXECUTIVE SUMMARY

1. Project Name and Location

The proposed Lofandi river bed sand mining project on Arpa River of area 20 Hectare situated near the khasra no. 1(part) of village Lofandi, Gram Panchayat Lofandi, tehsil & district Bilaspur, state Chhattisgarh. The project is issued in favor of shri Vikas Yadav, by the office of Collector (Mining Branch) district Bilaspur Chhattisgarh, under Chhattisgarh Minor Mineral Ordinary Sand (Quarrying and Trade) Rules, 2019 and Chhattisgarh Minor Mineral Rule 2015.

This mining project comes under Category 'B1' Project or activity 1(a) as per EIA Notifications 2006 and its subsequent amendments and will be appraised at SEAC, Chhattisgarh. The lease is individual project which is above 5 Ha. As per EIA Notification dated 15th January 2016 and MoEF&CC OM vide letter No. L-11011/175/2018-IA-II (M) Dated 12.12.2018 and and NGT order dated 13th September 2018 all the area from 5 to 25 ha falling under category B2 will be considered as B1 including cluster situation and therefore it is B1 category project.

2. Requirement of Land, Water, Power, Fuel with Source of supply.

- **Land Area:** The total land area is 20 Hectare or 49.40 acres under rules of Chhattisgarh Minor Mineral Ordinary Sand (Quarrying and Trade) Rules, 2019 read with C.G. Minor Mineral Rule 2015, mine plan has been prepared by B.D. Pandey, Bilaspur, whose Registration No. RQP/DGMCG/109/2020 valid up to - 29.01.2025.

- **Water:** Total water requirement will be around 9.50 KLD out of which 8 KLD will be used in dust suppression and plantation. Remaining 1.50 KLD will be used for domestic purposes (sanitation & drinking). The water will be collected from active river water channel and from jurisdictional Gram Panchayat through tankers.

- **Power:** Power is not required in operation phase of the proposed project, as diesel equipment's will be used. There is no power requirement for the project as excavators will run on diesel and the excavation will be done only day time.

3. **Process Description in brief, specifically indication the gaseous emission, liquid effluent and solid/hazardous waste.**

- **Gaseous emission:** No gases will be generated from the mining activity.
- **Liquid effluent:** No chemical or liquid shall be used in mining activity which will generate liquid effluents. Domestic effluent is expected to be generated which will be treated through septic tank followed by soak pits.
- **Solid Waste:** No sub-grade/waste mineral will be generated during excavation of sand. There is no residential or commercial arrangements, in turn would not generate any municipal waste.

4. **Measures for mitigating the impact on the environment and mode of discharge or disposal.**

As this is a sand mining project, after excavation of the sand the area will remain the same through replenishment of river and it does not have any kind of impact. There is no sewage and other effluents are discharged into the water or on the land.

5. **Capital Cost of the Project, Estimated time of completion.**

- Total project cost of the entire project will be 97.60 lakhs and the estimated time of completion is up to 5 years from the grant of EC of this project, date of agreement for mining with government & work order to applicant.

6. **Site selected for the project- Natural of land – Agricultural (Single/double crop), barren, Govt./Private land, status of is acquisition, nearby (in 2-3 km) water body, population, within 10 km other industries, forest. Eco-sensitive zones, accessibility.**

Land Details: The project site is a riverbed sand mining. The land is a Government river land. Total Land area is 20 Hectare. Letter of intent for ordinary sand mining for this mine has been issued by district collector to the preferred bidder under 7(1) vide letter number 1939/Khani/Ret Nilami/2023 Bilaspur dated 06/10/2023. And Extension of LOI vide letter number 3732/Khani 02/ ret (Rule 7)/Na.Kra. 38/1996 Nawa Raipur Atal nagar, dated 23/10/2024. The proposed Lofandi sand mining project of area 20.00 Hectare or 49.40 acres situated in the Plot no. 1 (part) of village – Lofandi, tehsil & district - Bilaspur, State - Chhattisgarh. The project is issued in favour of Vikas Yadav under rules of Chhattisgarh

Minor Mineral Ordinary Sand (Quarrying and Trade) Rules, 2019 read with C.G. Miner Mineral Rule 2015. This mining project comes under Category 'B1' Project or activity 1(a) as per EIA Notifications 2006, and its subsequent amendments and will be appraised at SEAC, Chhattisgarh. The lease is falling in the B-1 category as per EIA Notification dated 15th January 2016 and MoEF&CC OM vide letter No. L-11011/175/2018-IA-II (M) Dated 12.12.2018 and and NGT order dated 13th September 2018.

Water Body: The project site is in the Arpa River itself.

Eco-sensitive zones: Achanakmar Wildlife Sanctuary ESZ Area is located around 19.20 km.

Forest Land: Ratanapur protected forest patch at (8.50 km) found within 10 km of project site

Industries within 10 Km: None within 10 km.

Population: According to recent censes (2011) Population of study area is (10 Km radius from project site) 201190 in 43105 households. Male population is 103258 and female population is 97932. Highest population in study area is in Ratanpur (NP) (24636).

Accessibility:

1. Bilasa devi Airport is 22 km away from the project site.
2. Nearest Railway stations is Ghutku at 2.85 km towards south-west away from the project site.
3. Nearest Bus stand is Lofandi in Amtara road which is 935 m away from the project site.
4. Nearest Highway is NH-130 Bilaspur - Ratanpur Road which is 4.20 km away from the project site.

7. Baseline environmental data –

- **Air quality-** Values of PM_{10} in the background environment ranged from 42 $\mu g/m^3$ to 65 $\mu g/m^3$ which within the permissible limit of 100 $\mu g/m^3$. The PM_{10} concentration is bit higher in different area probably because of the nearby township and traffic movement through the adjacent road. The values of $PM_{2.5}$ range from 12 $\mu g/m^3$ to 28 $\mu g/m^3$ which found to be within NAAQ standard of 60 $\mu g/m^3$. The values of Sulphur dioxide levels were found to vary from 5 $\mu g/m^3$ to 15 $\mu g/m^3$ & found to be well within NAAQ standard of 80$\mu g/m^3$. The value of Nitrogen oxide ranged from 8 $\mu g/m^3$ to 20 $\mu g/m^3$ & observed to be well within the NAAQ standard of 80$\mu g/m^3$. The value of CO ranged from 0.1 mg/m^3 to 1.1 mg/m^3, the value of CO found to be within the NAAQ standard of 4 $\mu g/m^3$..

- **Noise Quality-** Noise levels were monitored in eight locations including project within the study area. The noise level ranges between 53.0 to 57.8 dB during day time and 43.1 to 47.8 dB during night time.

- **Surface quality-** Surface water samples analyzed during the study period 05th December 2023 to 05th March 2024. As per the CPCB water quality criteria for surface water the SW1, SW3, SW4 falls under Class B, whereas SW2 falls under Class A.

- **Ground water quality-**

1. The analysis results indicate that the pH ranges in between 7.4 to 7.9, the minimum pH was observed at GW4; the maximum pH was observed at GW2.

2. TDS observed to be ranged from 446 to 676 mg/l, the minimum TDS observed at GW4 and maximum concentration of TDS observed at GW1.

3. Total Hardness expressed as CaCO3 was observed to 232 - 292(mg/L)
4. Zinc and iron found below detectable limit.

All parameters are within desirable limits as per IS 10500:2012 for all stations.

- **Soil characteristic-**

1. It has been observed that the pH of the soil in the study area varied from 7.1 to 7.7 the maximum pH value of 7.7 was observed at S2 where as the minimum value of 7.1 was observed at S2 & S7.
2. The electrical conductivity was observed to range from 295 to 525 µS/cm with the maximum observed at S4 with the minimum observed in S3.
3. The available Nitrogen value varies from 147 to 205 kg/ha.
4. The available Phosphorus value varies from 49 to 77 kg/ha.
5. The available Potassium value varies from 262 to 501 kg/ha.

A total of 8 samples in and around the project site are collected and analyzed. It has been observed that the pH of the soil quality ranged from 7.1 (S8) to 7.7 (S2&S7) indicating that the soil is slightly alkaline in nature.

8. Identification of hazardous in handling processing and storage of hazardous material and safety system provided to mitigate the risk

There is not any hazardous material involved in this process as it is a sand mining project. The construction materials (during operational and during mining phase) to be handled, stored and used are mostly of non-hazardous type.

9. Likely impact of the project on Air, Water, Land, Flora-fauna nearby population.-

- **Air:**

➢ The major sources of air pollution from the proposed mining project are dust generation due to extraction, loading and haulage of mineral and wind erosion of exposed material.

➢ Emissions from operation of tractors, dumpers, excavators and JCB.

➢ No major air emissions are envisaged during the operation phase other than the fugitive dust emissions from the vehicular movement.

➢ During operation stage the project will not generate any pollutants - which will pollute the air quality of the area. There are no significant impacts on air quality during operational phase

- **Water :**

➢ In sand mining operation water will be mainly used for domestic purpose, dust suppression, plantation and washing of heavy earth moving machineries.

➢ The water required for dust suppression and plantation purpose will meet through the rain water or by river channel.

➢ Mining for each successive year is proposed to its optimum depth of river bed and the mining will not goes to touch the ground water level on river channel so there is no chance to disturbance in ground water table.

➢ As the mining activity is semi mechinised and there is no chemical or physical contamination of the water body, the impact on the surface water quality will be insignificant.

➢ Proper maintenance of transport vehicle & prevention of washing transport vehicle in ponds etc. be helpful to control water pollution.

- **Land :**

➢ Excessive sand mining can accelerate soil erosion in the surrounding areas, particularly

along riverbanks or coastal areas. The soil would become more susceptible to erosion.

- On the Arpa River bed, the sand mining does not carry out any overburden/ waste and during the mining operation, the entire mineral is saleable.
- Improper disposal of the waste generated during construction may cause irreversible negative impacts on land environment.

- **Flora-fauna:**

- As it is a mining project of sand from river bed, activities will be confined to core zone only. The project area is surrounded by agricultural land. There is no forest land involved in mine lease area. Thus no direct impact is foreseen on the flora of the forest area because of mining, whereas activities related to mining as transportation of material and passage of workers to and from mining area will have an adverse impact on the road side flora.

- Significant reduction in total chlorophyll content at road side plant species affects the plant species by affecting the plant metabolism. The reduction in chlorophyll concentration corresponds directly to the reduction in plant growth.

- The run-off from the roads may affect the aquatic communities.

- Barnawapara Wildlife sanctuary, wild life sanctuary is not present 36.50 km from applied land No major wildlife observed within mine lease area during the survey period. However, South East part of buffer area is known for diverse wild fauna. Considering size of mine and management practice by scientific method of mining with proper Environmental Management Plan including pollution control measures especially for air and noise, which will not cause any adverse impact on the surrounding animals.

- Fencing around the entire mine lease area is recommended in order to restrict the entry of stray animals into the mining area.

- Greenbelt development will be carried out which will help in arresting dust and minimizing sound level arising from the mining operation.

- Some fauna will move from the area of the road side as a result of habitat loss and physical disturbance

10. Emergency preparedness plan in case of natural or in plant emergencies-

The hazards and its risk assessed during the operation phase of the proposed Riverbed Sand mining project are low, medium & high. The project proponents are proposed to implement all the mitigation measures to prevent the impact or consequences of the risk expected to be happened in both the project sites. The level of impact after implementing the mitigation measures will be low/medium in all the hazards identified. The details are given in chapter 7.

11. Issues raised during public hearing-

Yet not to be done.

12. Occupational Health Measures-

Occupational safety and health is very closely related to productivity and good employer-employee relationship. The factors of occupational health in mining of Riverbed Sand mining project are mainly dust and land degradation. Safety of employees during operation and maintenance etc. shall be as per Mines rules and regulations.

Occupational hazards involved in mines are related to dust pollution, noise pollution and injuries from equipment and fall from high places. DGMS has given necessary guidelines for safety against these occupational hazards. The management will strictly follow these guidelines.

13. Post Project monitoring plan-

Post-project environmental monitoring is a complex system of observations, assessment and forecast of changes in the state of the environment under the influence of anthropogenic factors, monitoring is an information system of observations with an optimal number of parameters for assessing and forecasting changes. Details is given in Chapter 6.