SUMMARY EIA

of

Takli Jena Bellora (North) & Takli Jena Bellora (South) Coal Mine

Villages: Takli, Jena, Bellora & 8 Others, Tehsil – Bhadravati,
District – Chandrapur, State – Maharashtra
Mining lease area: 936 Ha
Expansion in Production Capacity: 1.50 MTPA to 3.00 MTPA
(Project Category 'A') (Brownfield Project)

Submission for

Public Hearing

to

Maharashtra Pollution Control Board

Project Proponent

AURO INFRA PVT. LIMITED

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AURO MINING

EIA Consultant

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NABET Accredited
EIA Consultant Organization
Certificate No. NABET/EIA/25-28/RA 0423 Valid till 12/05/2028

APRIL 2026

SUMMARY EIA

1.0 INTRODUCTION:

Environment Clearance for Takli Jena Bellora (North) & Takli Jena Bellora (South) Coal Mine for mining of coal @ 1.50 MTPA in a ML area of 936 ha (no forest land involved) was accorded by Ministry of Environment, Forest and Climate Change (MoEF&CC) on 03-11-2022 in favour of M/s Aurobindo Realty & Infrastructure Pvt. Ltd.

The mine commenced its operations with opencast mining on 08/11/2023 (with coal production beginning in January 2024), based on the aforesaid Environmental Clearance (EC), and after obtaining the mandatory Consent to Establish (CTE) and Consent to Operate (CTO) from the Maharashtra Pollution Control Board (MPCB), along with NOC from CGWA and Coal Controller permission dated 15/06/2023.

Thereafter on the request of the present Company, the Nominated Authority i.e. Ministry of Coal (MoC), Government of India (GoI) issued a Corrigendum to the Vesting Order in favour of M/s Auro Infra Pvt. Limited vide its letter dated 04/06/2024. Subsequently, an application for Transfer of Environmental Clearance from M/s Aurobindo Realty & Infrastructure Private Limited to M/s Auro Infra Private Limited (the present Project Proponent/Company) has been submitted on PARIVESH portal on 03.01.2025. On this request, MoEF&CC vide its letter dated 08.03.2025 has transferred the aforesaid EC in favour of M/s Auro Infra Private Limited (the present Project Proponent/Company).

2.0 PROJECT DETAILS

Project Name: Takli Jena Bellora (North) & Takli Jena Bellora (South) Coal Mine. Takli Jena Bellora(North & South) Mine situated in Wardha Valley coal field (Area: 936.0 ha) with proposed expansion of coal from 1.50 MTPA to 3.0 MTPA located at village: Bellora & etc., Taluka: Bhadravati, District: Chandrapur, Maharashtra. Covered under Survey of India Toposheet No. F44/T4 - Latitude: 20° 09’ 16” N - 20° 11’ 57” N, Longitude: 79° 03’ 41” E - 79° 06’ 21” E.

Project Proponent: M/s Auro Infra Private Limited (formerly Aurobindo Realty & Infrastructure Pvt. Ltd.) is a rapidly growing Indian EPC player established in 2016. With ten years of experience, it aims to be a key player in Ports, Real Estate, Road & Rail Infrastructure and Mining. Known for pioneering leadership, M/s Auro Infra operates in Telangana, Andhra Pradesh, Tamil Nadu, Madhya Pradesh, Jharkhand and Maharashtra, with plans for further execution and expansion. The Project Proponent is a multi-sector infrastructure company that specializes in engineering and infrastructure projects and has unwavering commitment to quality and speedy project execution. It has various Business Divisions including Realty, Mining, Ports and Industrial City. Auro Mining, a subsidiary of the Auro Infra Group, boasts robust project execution skills and a strong financial base. With a turnover of Rs 500 Crore and a workforce of over 1000 employees, it is involved in 6 mining projects. These include an ICVL mining contract in Tete, Mozambique, two Continuous Miner Operations in Western Coal Field’s underground mines, and four Greenfield Coal Blocks across two states and one operating mine in Maharashtra.

Mine Lease Area: There is no forest land involved in the Mining Lease Area. The total land involved is 936.00 ha. Out of this, 893 ha (95.40%) is Agricultural land, 12.5 ha (1.34%) is covered under Surface Water bodies, 11 ha (1.18 %) is under settlements and remaining 19.5 ha classified as others.

Project Cost: Rs.1641.00 Crores

Employment: The total manpower requirement for the Project including expansion will be 1162 numbers. The local youths shall be provided preference during employment. Further,

there will development of secondary and tertiary small businesses like Work Shop for repair of maintenance of vehicles & tools, transport services etc.

Terms of Reference: File no. IA-J-11015/62/2021-IA-II (M) dated 03/11/2025

Corrigendum to Terms of **Reference:** File no. IA-J-11015/62/2021-IA-II (M) dated 19/01/2026

Production Capacity & Life: The Project envisages extraction of 62.109 Million Tonnes (MT) of coal out of which 51.294 MT of coal by Open Cast Methodology and 10.815 Million Tonnes of coal by Underground Methodology. Further, about 0.668 Million Tonnes of coal has already been mined out from the mine by opencast only. Thus, the estimated total balance Extractable Reserves in Takli Jena Bellora (North) & Takli Jena Bellora (South) Coal Mine Coal Mining Project is 61.441 Million Tonnes out of which OC reserve is 50.626 MT and reserve of UG which is yet to be touched remains at 10.815 MT. In the overall anticipated life span of 52 Years (OC – 31 & UG – 23—Overall 52).

Mining Operations : As per the approved plan, the coal has been proposed to be exploited by opencast cum underground method and accordingly coal mining started with opencast mining. At present the opencast mining is being carried out by shovel dumper combination with drilling & blasting for OB as well as coal. As per the ToR (03/11/2025), same opencast mining will be continued for proposed expansion. However, it may be mentioned here that, the underground mining as per the approved Mining Plan & Mine Closure Plan will start after 30 years and as per the ToR, prior permission for UG mining from MoEF&CC will be taken.

As per the guidelines of Ministry of Coal for preparation of mining plan and mine closure plan, there is a provision for revision of mining plan every five years after scientific study and accordingly this project has been studied in light of increase of extractable reserves from this coal mine. The revision has thus been carried out with a substantial increase in percentage of extraction from 41% to 67%. Also, capacity enhancement is proposed for the mine within the same lease area. In addition to the above objective, the revised plan has also examined the possibility of utilisation of OB for segregation of sand. The salient features of the revised mining plan for expansion may be summarized as below.

- There is no additional land required. Forest clearance not applicable.
- There is no additional R&R involved beyond existing EC.
- There is no additional diversion of nallah except for re-scheduling the execution plan.
- There is no change in the method of work/ technology beyond existing EC.

As explained, the mine is already in operation with its infrastructural setup and the same is adequate to handle the additional load of expansion as such no major specific development activity is required to be undertaken. It may be further mentioned that the existing operations are being carried out with due regard to the existing statute and continue to be operated during expansion following the law of the land.

Waste Generation & Management : Out of total OB excavation of 690.220 Mm^3,the project has envisaged one external OB dump~~s~~ in an area of 205.92 ha with 90.0 m height (In 3 tiers of 30 m each) with total hard OB of 94.413 Mm^3 plus 10.471 Mm^3 of Top Soil over it thus accommodating 104.884 Mm^3 of excavated material. There will be internal dumping of 554.730 Mm3 of hard OB with 30.569 Mm^3 of Top Soil spreading thereby accommodating 585.299 Mm^3 of excavated material and balance only 0.037 Mm^3 will be used for Embankment.

Proposed Diversions : As per the present approved Mining Plan & Mine Closure Plan, there are 3 nallahs viz. Bellora nallah, Takli nallah and Khandala nallah which are proposed for diversion.

- Bellora nallah is planned to be diverted in the first year,
- Takli nallah after four years and
- Khandala nallah after Twelve Year.

These diversions are proposed for increasing the capacity of mine taking into consideration of extraction of reserves blocked beneath these nallahs. These diversions will be carried out only after detailed design through Maharashtra State Agencies (CDO, Nashik) and subsequent approval from the State Irrigation Department.

As per the Joint Measurement Report, Bellora village, consisting of about 313 houses, is situated almost in the middle of quarriable area and will need to be relocated and resettled. SIA Survey has been completed for Rehabilitation & Resettlement. No additional shifting is involved in the expansion proposal. Approximately 270 families are living in Bellora Village. Option forms have been distributed to the villagers, almost 96% PDF's have opted for one time compensation in lieu of constructed house in Rehabilitation and Resettlement colony.

Water / Power Requirement & Source: Since, the ToR has prescribed for opencast mining operations only, as per the approved Mining Plan & Mine Closure Plan, the water requirement for the said expansion project (OC Only) has been estimated as 600 KLD, out of which 250 KLD will be used for dust suppression, 200 KLD will be used for greenbelt, 50 KLD will be used for workshop. Potable usage will be 20 KLD and pit head bath and general usage will be 80 KLD. NOC from CGWA has been secured for present operation at 1668 m3/day of dewatering plus 94.03 m3/day of fresh water vide letter no. CGWA/NOC/MIN/REN/1/2025/11499 Dated 24.04.2025 which is valid up to 30.08.2026. The power requirement for the said project is 4 MVA and the same will be sourced from Kondah Substation of MSEDCL located about ~5 km from the project site of the coal block. High-Tension/Transmission Line is proposed for diversion as with due approvals.

Transportation: At present, the extracted coal is being transported within and outside the mining lease in the following manner:

- In pit to surface coal stock yard: By Road
- Surface coal stock yard to Railway siding: By Road (towards Tadali railway siding at a distance of 17 km)
- Siding to loading onto Wagons: - by FEL - Quantity being transported by Road/ Rail/ conveyer/ ropeway: About 2300 TPD (last year production of 0.75 Mt) by road.

The same system is going to be continued during the proposed expansion following the directives of MoEF&CC and MPCB for pollution control.

3.0 ENVIRONMENTAL SENSITIVITY:

Project does not fall in the Critically Polluted Area (CPA)/Severally Polluted Area (SPA). As per CEPI Assessment, 2018 and necessary certificate to this extent has been provided by MPCB vide letter no. MPCB/SROC/1276/2025, dated 27.03.2025.

Forest Area: The project does not involve any forestland.

Protected Area: The project is not located within 10 KM of any ESZ/ ESA/ national park/ wildlife sanctuary/ biosphere reserve/ tiger reserve/ elephant reserve/ elephant corridor etc. The Tadoba Andhari Tiger Reserve (TATR) is located at 15.43 km towards east of the project.

Wildlife conservation plan for 33 Schedule – I species has been prepared and submitted to PCCF (WL), Government of Maharashtra for approval

4.0 BASELINE ENVIRONMENTAL STATUS:

The baseline environmental monitoring for various components of environment, viz. Ambient Air, Ambient Noise, Surface & Ground Water Quality, Soil Quality, Land and Socio-economic has been carried out during the post monsoon season spread over from October 2024 to December 2024 in the study area covering the core zone as well as in 10 km around the Mining Lease i.e. Buffer Zone of the proposed expansion project. Other environmental data on flora and fauna, land-use pattern, forest etc. have also been generated through field

surveys and also collected from different State Govt. Departments. The prominent wind direction was from NE to SW as recorded during the study period.

Ambient Air quality: 12 nos. of ambient air quality monitoring were set up considering the standard protocal as prescribed in the ToR. The results are detailed below:-

- **Core Zone:** The max. value of PM_{10} was 57.2 µg/m^3 & $PM_{2.5}$ was 29.5 µg/m^3, SO_2 was 20.6 µg/m^3, NO2 was 25.6 µg/m^3 and CO are observed to be Below Detectable Level (BDL). All these recorded values are within the limits of National Ambient Air Quality Standards (NAAQS).
- **Buffer Zone:** The max. value of PM_{10} ranges from 43.2 µg/m^3 to 69.8 µg/m^3, max. $PM_{2.5}$ ranges from 21.9 µg/m^3 to 33.6 µg/m^3, SO_2 ranges from 14.4 µg/m^3 to 24.3 µg/m^3, NO_2 ranges from 16.3 µg/m^3 to 31.6 µg/m^3 & CO are observed to be Below Detectable Level (BDL). All these values are within the limits of National Ambient Air Quality Standards (NAAQS). As per the Air Quality Index by CPCB the air quality of the buffer zone is found to be satisfactory during the sampling period.

Thus, it can be concluded from the above results that all the parameters are within the range of the NAAQS.

Ambient Noise levels : Monitored at 12 locations around the mining site by using precision noise level meter (Mip-OY Integrated Sound Level meter IEC- 179A) during post monsoon Season 2024 continuously for 24 Hour duration at each of the identified locations. The results are discussed below:-

- **Daytime Noise Levels (Leq Day):** Daytime noise levels ranged from 57.8 to 62.1 in Core Zone (Industrial Area) whereas in Buffer Zone the noise levels ranged from 49.2 to 59.6 dB (A). The lowest noise level (49.2 dB (A)) was observed at Jena Nivali Village (N4), which is surrounded by the agricultural area and is connected only by minor roads linking it to nearby villages. The absence of major roads, heavy traffic contributes to the low noise levels in this area. The highest daytime noise level (62.1 dB(A)) was recorded on Mine Site Office (N1) which may be due to mining activities and transportation in the area.
- **Night-Time Noise Levels (Leq Night):** Night-time noise levels ranged from 39.8 to 43.2 in Core Zone (Industrial Area) whereas in Buffer Zone the noise levels ranged from 39.2 to 47.6 dB (A). Consistent with daytime observations, the lowest noise level (39.2 dB (A)) was recorded at Jena Nivali village (N4), which majorly constitutes agricultural land and because of the remote location the noise levels in the village are low. Conversely, the highest noise level (47.6 dB (A)) was observed at Nandori village (N11), likely due to vehicular movement on State Highway 930 (Mancherial-Chandrapur-Nagpur Road) during night time.

About 9 (Nine) Ground water and 10 Surface water (ten) samples were collected in 10 km buffer zone of Mine Lease area during the last week of November/December 2024. The results are indicated below.

- **Dissolved Oxygen**: All surface water samples showed dissolved oxygen levels ranging from 4.6 to 6.0 mg/l.
- **Total Dissolved Solids**: All ground water samples showed total dissolved solids concentration from 598 to 766 mg/l whereas all surface water samples showed total dissolved solids ranging from 286 to 436 mg/l which are below permissible limit of 2000 mg/l as per IS 10500:2012 for ground water samples and below permissible limit of 1500 as per IS 2296 (Class C) for Surface Water.
- **Chlorides**: The chloride concentrations in all ground water samples were 201.5 to 348.6 mg/L and 38.6 to 60.3 mg/L in surface water respectively which is below permissible limit of 600 mg/L as per IS-2296 (Class C) for Surface water. All ground water values are above acceptable limit of 250 mg/L but below permissible limit of 1000 mg/L as prescribed in IS 10500:2012.

- **Sulphates**: The sulphate concentrations in all ground water samples were 145.3 to 202.2 mg/l, and 21.4 to 34.6 mg/l in surface water respectively which is below permissible limit of 400 mg/l as per IS-2296 (Class C) for Surface water and for ground water the values are above acceptable limit of 200 mg/l but below permissible limit of 400 mg/l as prescribed in IS 10500:2012.
- **Total Hardness**: All ground water samples showed hardness values ranging from 168 and 276 mg/l which are below permissible limit of 600 mg/l as prescribed in IS 10500:2012. All surface water samples showed hardness values ranging from 132 and 214 mg/l.

Health related Parameters:

- **Fluoride:** All ground water samples showed fluoride values ranging from 0.54 to 0.81 mg/l which is within the acceptable limit of 1 mg/L as prescribed in IS 10500:2012, whereas all surface water samples showed fluoride values ranging from 0.29 to 0.78 mg/l which is also within the prescribed limit of 1.5 mg/l.
- **Nitrate:** All ground water samples showed nitrate values ranging from 12.8 to 25.3 mg/l which are below the acceptable limit of 45 mg/l as prescribed in IS 10500:2012,whereas all surface water samples showed nitrate values ranging from 0.31 to 4.75 mg/l which is within the prescribed limit of 50 mg/l.
- **Trace Metals:**
- **Arsenic, Cadmium, Mercury, Lead:** All ground water and surface water samples showed the concentration of above trace metals as Below Detectable Level (BDL).
- **Chromium:** All ground water samples as well as all surface water samples showed chromium values as BDL.
- **Copper:** All ground water samples showed concentration of copper as BDL except GW-01 which showed concentration of 0.021 mg/l which is below acceptable limit limit of 0.05 mg/l a per 10500-2012 standards whereas the surface water samples showed concentration of copper are 0.019 to 0.082 which are within permissible limits of 1.5 as per IS 2296 (Class C)..
- **Iron:** All ground water samples showed concentration of iron as 0.137 to 0.218 mg/l and which are below acceptable limit of 0.3 mg/l as per 10500:2012 standards. The corresponding concentration in surface water samples was observed are ranging from 0.071 to 0.241 mg/l which are below permissible limit of 50 mg/l.
- **Manganese:** All ground water samples as well as surface water samples showed concentration of Manganese as Below Detectable Level.
- **Zinc:** All ground water samples showed concentration of zinc as 0.036 to 0.142 mg/l which were below the acceptable limit (5 mg/l) of IS 10500:2012,whereas the zinc concentration in surface water ranged from 0.018 to 0.036 mg/l which are below permissible limit of 15 mg/l.
- **Total Coliforms:** All ground water samples showed coliforms as not detectable whereas coliforms is reported between 4 to 24 MPN/100 ml in all surface water which is below permissible limit of 5000 as per IS 2296 (Class C).

Traffic Survey, manual traffic counts at 4 locations were undertaken in November 2024The traffic survey location was selected at maximum vehicular density point on the road which will be used for transport of the coal produced from the mine. Vehicles plying in to and from both directions are observed for traffic survey.

Hydrogeological survey has been carried out to assess the groundwater, aquifer disposition, aquifer parameter and hydrogeological regime. 22 locations in the study area for ground water monitoring has been covered for hydrogeological monitoring. Hydrogeological investigations were carried out in the study area between November 2024 to December 2024. The annual water level fluctuation varies between 1.50 m to 7.35 m average being 3.70 m.

The **land use pattern** of the study area (10 km radius around the mine site) has been estimated by using satellite image and detailed out in Draft EIA. The agriculture land 56.27% constitute the major land use component and forest land is 6.65%. A Drone Survey in the core zone and the nearby area has also been conducted during January 2025.

Soil samples were collected from four selected locations in the study area during December 2024 to assess the existing soil quality around the study area mine lease area. A total of 5 Samples were collected from 5 different locations representing agriculture and waste land. The samples were homogenized and analyzed as per the prescribed scientific methods for soil analysis.

5.0 ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES:

Impact on Climate: The subject project is an expansion of the presently operating opencast mine by continuing with the same mining methodology and as such the proposed expansion Project is not expected to have any major irreversible impact on the climatological features like temperature, rainfall, wind speed, humidity etc.

Impact on Topography: The opencast mining activities have already started and will continue in the same ML area with the same system of mining operations. As such, there would not be any additional impact due to the proposed mining activities on the topography.

Impact on Drainage: As already deliberated in the earlier paragraphs, there would be diversion of three nallas (in different time frame over the mine life) presently flowing over the ML area which need to be diverted to extract the coal blocked beneath these nallas. All these diversions would be carried out only after due study & design through CDO, Nasik covering the likely impact and the corresponding remedial measures for overcoming them and permission from the concerned State Government Authority. The implementation of the diversions will be carried out following the aforesaid design, recommendations & permission.

Impact on Land Use: The proposed expansion in production capacity will be restricted to opencast mining only in the already sanctioned EC ML area and with same system of operation. Due to the proposed expansion, there would be change in land use in terms of the excavation area as per the approved Mining Plan & Mine Closure Plan. Similarly, the External OB dump area would also get increased**.**

Impact on Soil: Soil erosion may also get accelerated on areas where the overburden will be dumped. As there is neither a toxic effluent nor solid waste from the mines, quality of soil is not expected to be adversely affected. Impact on soil will be localized i.e. around the mine site. Likelihood of any adverse impact from soil erosion and disturbance in quality is remote.

Impact on Air Quality due to Mining: In order to estimate the ground level concentrations, due to the emission from the proposed increase in production, EPA approved Industrial Source Complex AERMOD View Model has been employed. Highest predicted 24 hourly Ground Level Incremental Concentrations of PM_{10}, $PM_{2.5,}$ SO_2 and NOx are **13.3** $\mu g/m^3$, 5.71 $\mu g/m^3$, 1.54 $\mu g/m^3$, 22.4 $\mu g/m^3$ respectively, which will be occurring near the source within the mine lease area. (As per modelling done)

Impact on Air Quality due to Transportation: The maximum ground level concentration due to proposed transport is estimated to be increased by 17.2 ug/m^3.

Impact on Noise Quality: From the modeling results, it is observed that the maximum increase of resultant noise levels in the nearby village habitations will be about 4.2 dB(A) in Belora village located within the mining lease area, due to the mining activities, whereas the coal transportation activities will increase the ambient noise levels by 7.4 dB(A) in Kiloni village located along coal transport route to Railway Siding. There is no noticeable increase in ambient noise levels predicted at other village habitations due to the mining and mineral transport activities.

Impact due to Ground Vibrations & Fly Rocks: In order to assess the impact of ground vibration and flyrock due to blasting, a study including modelling has been carried out. The estimated maximum explosive charge for different distances has been given so as to maintain the peak particle velocity limit of 5 mm/sec. However, necessary control measures needs to be adopted to avoid the impacts due to ground vibrations and fly rocks due to blasting accordingly.

Impact on Water Regime: It is expected that surface water runoff will decrease and ground water runoff (base flow) will increase in Konda nalla. The mine operation will be above water table as there are no shallow aquifer exist in the core zone. Accordingly there will not be any adverse impact on ground water. It is expected that suspended particle in surface water during rainy season may increase. The suspended solids generated during the mining operations pose major problem for contamination of surface water. Due to mining in the area there will be addition recharge to the tune of 1.16 MCM/year and impact is limited to 3 km at the end of mining as estimated for radius of influence.

Impact on Flora & Fauna: Due to mining and associated activities, fugitive dust in the atmosphere may deposit on different parts of the plants in the surrounding area leading to adverse impact on the growth & survival of flora. During operational phase, various vehicle/ machinery movement and blasting activities would create excessive noise that may force the movement of animals from nearby forest patches. There is no Forest Land involved in the mine lease area. There is no Wildlife Sanctuary or National Park in 15 Km radius of the Takli Jena Bellora (North) & Takli Jena Bellora (South) Coal Mine Coal Mining Project. There is no reported migratory path of wildlife or bird species of threatened or protected species. However due to presence of 33 Schedule 1 species of Fauna identified during study , the necessary WLCP has been prepared and submitted for approval, which shall be implemented.

Impact on Socio-Economic Aspects: The project is likely to create positive impacts due to creation of employment opportunities both direct and indirect. Bellora village, consisting of about 313 houses, is situated almost in the middle of quarriable area and will need to be relocated and resettled. SIA Survey has been completed for Rehabilitation & Resettlement. No additional shifting is involved in the expansion proposal. Approximately 270 families are living in Bellora Village. Option forms have been distributed to the villagers, almost 96% PDF's are opted for one time compensation in lieu of constructed house in Rehabilitation and Resettlement colony

MITIGATION MEASURES:

Mitigation Measures at the source level and an overall Environmental Management Plan at the Study Area Level are elicited so as to improve the supportive capacity of the Study Area and also to preserve the assimilative capacity of the receiving bodies. The Report provides detailed Action Plan for each pollutant viz. Air, Water, Noise, Socio-Economic, Land Use and Plantation Activities. This Environment Management Plan inter- alia includes the measures required for minimizing the adverse impacts along with the financial provisions and the organizational set – up to implement the same so that the goals fixed by the EC are not compromised.

Air Pollution Management: Haul Roads will be frequently sprinkled with water for which truck mounted water tankers with atomized mist spray sprinkler arrangement will be deployed. Trucks carrying Coal and Sand will be covered by tarpaulins and will be optimally loaded avoid any spillage as well as to prevent spread of dust from it during transportation. Regular maintenance of vehicles and machineries will be carried out in order to control vehicular emissions. Green Belt Development will be taken up at various places. The dust respirators will be provided to all the workers. Good housekeeping and proper maintenance will be practiced which will help in controlling the pollution.

Water Pollution Management: The Mining Project shall require continuous supply of water for various purposes during mining, plantation etc apart from drinking water supply. The

main source of water pollution in opencast mining is the surface run-off due to rainfall. There may be accumulation of rain water during monsoon season; the accumulated water in the main mine sump may contain suspended particles. The capacity of this sump will be adequate enough to allow settlement of suspended particles. As such, in the main mine sump, there will be primary settlement/ treatment. From the sump, only supernatant water will be pumped out on surface and will thereafter be led onto Surface Sedimentation tank/Settling tank for further settlement of suspended particles as Secondary treatment. The treated water (overflow) will be used for plantation and dust suppression.

The mine water pumped from opencast pit will be collected in a Settling Tank at surface and part of it will be utilized for water spraying in the mine, plantation and the excess balance treated water will be discharged to natural watercourse.
Sanitary wastewater generated from offices at mine site is proposed to be treated in Portable Sewage Treatment Plant (STP). For treating the domestic effluent, M/s AIPL has installed Sewage Treatment Plant (STP) of 44 m^3/day capacity.

Workshop effluent will be treated in Effluent Treatment Plant (ETP) which will be designed for a capacity of 100 m^3/day. The oil, grease & sludge collected from the ETP will be recycled through authorized CPCB vendors and the treated water from ETP will be reused in workshop.

In order to restrict the surface runoff from mines to control the soil erosion and wash off from dumps following measures will be adopted:

- Garland Drains will be provided around the mine wherever required to arrest any soil from the mine area being carried away by the rain water;
- Gully formations, if any, on sides of the benches will be provided with check dams of local stone or sand filled bags. The inactive slopes will be planted with bushes, grass, shrubs and trees after applying top soil to prevent soil erosion;
- Loose material slopes will be covered by plantation by making contour trenches at 2 m interval to check soil erosion both due to wind and rain;
- Retaining walls (concrete or local stone) will be provided, around the dump or wherever required to support the benches or any loose material as well as to arrest sliding of loose debris.

Noise & Vibration Management: Noise is best abated at source by choosing machinery and equipment suitably, by proper mounting of equipment & ventilation systems and by providing noise insulating enclosures or padding where practicable. Proper maintenance of vehicles will be done which keeps the noise level within limits. At the boundary of mining lease, Green Belt of local trees will be planted which acts as acoustic barriers and also planting of bushy trees of rich canopy in and around the mine area to intercept noise transmission shall be done. A Green Belt of trees of different heights shall be useful to act as noise attenuator in the mining areas.

Use of specific blasting plans, correct charging procedures and blasting ratios, delayed / micro delayed or electronic detonators, and specific in-situ blasting tests (the use of down the hole initiation with short-delay detonators improves fragmentation and reduces ground vibrations) will be done.

Implementation of ground vibration and overpressure control with appropriate drilling grids will be practised. Ground vibrations caused by blasting will be monitored in order to know their degree and to build safe guards.

Solid Waste Management: The solid waste generated during mining operations is not hazardous in nature. During these mining operations simultaneous back filling of the OB will be done. After levelling the dumps/backfilled area, plantation will be carried out for stabilization of all the OB dumps in the mining lease area. Construction of parapet walls/bund is proposed at toe of dumps to avoid siltation towards sloping side of the ML area due to dumps. No toxic and hazardous element is present in the OB. Hence no toxic contamination is expected and protective measure is required. The non-active sides of the dump will be vegetated and stabilized by fast growing grasses. It is proposed to undertake Technical and Biological Reclamation of the backfilled area towards progressive and final mine closure activities. In order to have gainful utilization of the OB stacked in the external dumps the following is proposed:

- Production of sand from sandstone by crushing overburden is a proposal as a part of mine closure activity as the amount of sand likely to be produced shall not be used for backfilling.
- "Advising measures to recycle and reuse on of OB in a sustainable manner. Exploring and suggesting various usage of OB material – extraction of sand for use in construction projects, processed OB as stowing material, use of OB in road/rail, use in earthen bunds etc."
- Overburden waste to be removed from coal mine may produce about 60% of fine, medium, coarse grained sandstone which may be crushed to sand particles by setting up suitable Sand Segregation plant having a capacity of crushing 5000 cum/ day of OB.

Top Soil Preservation: Efforts will be made to excavate and segregate top soil separately. Top will shall be scrapped by dozer before the ground preparation for drilling and blasting. Scraped top soil will be transported to the top soil storage area. During initial period of mining the top soil will be directly utilized for plantation of saplings along the proposed roads and barren land. As and when the internal waste dump gets stabilized the stored top soil will be spread over the area of dump to facilitate plantation.

Plantation: Afforestation shall be done progressively covering an area of 773.13 ha at the end of mining. This will include reclaimed external OB dump of 209.42 Ha, internal dump of 512.84 Ha, 24.20 Ha of safety zone, 4 Ha of embankment and 22.32 Ha of greenbelt. Density of plantation shall be 2000 nos. of plants per Ha. A void of 49.05 Ha with the depth of 36 m shall be converted in to water body at the end of the mine life. As a part of eco-tourism development, it is proposed to develop an eco- park around the final void and open areas with native floral species. The type of species will be selected from the local tree, herbs, shrubs & grasses. Species of local abundance shall be selected and if required guidance of the Forest Department will be sought.

In addition, Sustainable activity Proposed during the expansion are summarized as below:

- **Sand Segregation Plant –** In the approved Mining Plan & Mine Closure Plan, it has already been proposed for a sand segregation plant from excavated OB of capacity 5000 cubic metre/day. This sand production will be a sustainable activity because, it will minimize excavation of natural sand from riverbed to the extent of sand availability from the plant. It will continue during the mine life and helping conservation of natural resources i.e. sand.
- **Skill Development and Training –** It is proposed to provide vocational training to the viallagers in the nearby villages. Also, financial support will be provided/facilitated to the talented poor students of the nearby villages for higher studies.
- **Plantation, Eco-Park & Eco-Tourism Development –** It is proposed to carry out plantation on the reclaimed land with fruit bearing, medicinal & native species. The care for maintenance of minimum 5 years will be taken up for sustainable growth. Also, it is proposed to arrange awareness programs and/or financial assistance for crop productivity. As a part of eco-

tourism development, it is proposed to develop an eco- park around the final void and open areas with native floral species.

- **Flora and Fauna Conservation –** It is proposed to conduct wildlife conservation studies through an external agency and proposed to implement the recommendations through the outsourcing agency.
- **Agricultural, Art & Cultural activities –** It is proposed to organize awareness programs and financial support for crop productivity and conducting cultural programs through villager's participation.
- **Distribution of water pumped out from the mine –** It is proposed that during the mine life, excess pumped out water from the mine, after meeting the in-house demand may be distributed to local agriculturist for irrigation in their fields. This will help in sustaining and conservation of groundwater resources of the area as for meeting their needs agriculturists thereby avoiding additional stress on the groundwater sources.
- **Final Mine Void filled with water –** After the mine comes to an end, a final void of 49.05 ha of depth 36.0m will be filled with water. This water body can be linked with supply of water to agricultural fields. This arrangement will help the villagers as a continuous source of water in their field avoiding withdrawal from groundwater sources and finally this arrangement will help the local area for maintaining the sustainable groundwater resources.
- **Water Reservoir** - The water reservoir left out at the end of mining will act as a recharge reservoir for groundwater resources of the area.
- **Clean Energy Project –** As a part of promoting the clean energy to reduce the carbon footprint, it is proposed to provide solar lighting for domestic use and in common area, energy efficiency rated Ac's, Fans, Pumps & etc. will also be used.
- **Women Empowerment and Sanitation –** As a part of Corporate Social Responsibility, it is proposed to organize training & awareness programs for skill development through Women Self Help Groups (WSHGs), distribution of sewing machines, assistance in getting loans from banks & etc. For the aged and disable persons, it is proposed to provide donations/financial support for their livelihood. Under the sanitation activity, it is proposed to provide sanitary pads/vending machines/awareness / training programs etc.

6.0 IMPLEMENTATION OF EMP & ITS MONITORING:

In order to mitigate the anticipated impacts of the Coal Mining & Allied Activities, implementation and monitoring of the suggested EMP is an important aspect of the Environmental Impact Assessment / Environment Management Plan Document.

M/s AIPL proposes a full-fledged Environment Department consisting of two separate Cells viz. EMP Implementation Cell and Environment Monitoring Cell to review, implement, supervise and monitor the environmental related issues. As regards to air quality monitoring two continuous ambient air monitoring stations will be installed one in the core zone and one in the buffer zone. The water quality, noise level, vibration monitoring, ground water level (using piezometers) will be carried out and the records will be submitted to the competent authorities besides uploading the same on AIPL website. In order to facilitate easy implementation, mitigation measures are phased as per the priority implementation. A separate budgetary allocation of the funds shall be made for the Environmental Protection Measures. The monitoring of the pollution to know the effectiveness of the applied control measures shall be carried out at regular interval.

AIPL consider protection of workers' health and well- being as their prime concern and responsibility. The company accordingly proposes to adopt certain measures for providing proper occupational health services which will ensure optimal physical and mental health of employees & workers.

The details of the post project monitoring are given in the table below:

S. No.	Description	Frequency of Monitoring

1.	Ambient Air Quality	Twice a week (Manually) and Online CAAQMS
2.	Water Quality & Level	Monthly
3.	Noise Level Monitoring	Twice a week
4.	Vibration Monitoring	On every blast
6.	Soil Monitoring	Half Yearly
7.	Poly Achromatic Hydrocarbons	Annually

- **Additional Studies** : additional studies in compliance with the ToR conditions Includes Hydrology & hydrogeological studies including watershed management, drone survey, Aquatic biodiversity strudies, Cumulative impact assessment, social impact assessment which have all been conducted and incorporated in this report.
- **Budget for Environmental Management:** In order to mitigate the anticipated impacts of the Coal Mining & Allied Activities, implementation and monitoring of the suggested EMP is an important aspect of the Environmental Impact Assessment / Environment Management Plan Document. The Capital Budget of Environmental Protection Measure for the proposed expansion in production inclusive of the existing EMP budget is proposed to be Rs. 39.54 Cr and the Recurring Budget is proposed to be Rs. 6.24 Cr.
- **Corporate Social Responsibility (CSR):** The capital CSR Budget has been worked out as per the expressed felt needs of villagers. A Corporate Social Responsibility Plan (CSR) plan is prepared for this project. The Total Budget of Rs. 150 Lakhs @ Rs 5 per tonne of Coal produced under CSR ,for this expansion project has been proposed based on the exsiting EC. The Capital Budget of Rs. 120.00 Lakhs and recurring budget of Rs 30.00 Lakhs (@Rs 6 Lakhs/year for five years) has been earmarked for the various CSR activities.
- **Corporate Environmental Responsibility (CER):** Besides various CSR activities M/s AIPL also propose to undertake CER activities as per the directives provided in Office Memorandum of MoEF &CC dated 01.05.2018. Separate budget of Rs 410.25 Lakhs for CER @ 0.25 % of the total capital investment of Rs. 1641.00 Crores has been provided. This will be earmarked to address the issues raised during Public Hearing.

7.0 PROJECT BENEFITS:

Development of this Project has beneficial impact/effects in terms growth in regional economy, transform the region's economy from predominantly agricultural to significantly industrial, increase Government earnings and revenues and accelerate the pace of industrial development in the region. The proposed expansion Project will further provide direct employment to local personnel. This Project will also generate indirect employment for the local families who will render their services for the employees of the Project.

The Project will also encourage ancillary industries in the region, which will not only increase the employment potential but also the economic base of the region will be further strengthened. Therefore, stepping up of coal production either through opening greenfield project and/or enhancing production from the brownfield projects is the need of the hour. The Takli Jena Bellora (North) & Takli Jena Bellora (South) Coal Mine Block has been allotted to the Company for the purpose of commercial use/ sale of coal, including sale to Affiliates and related parties, utilization of coal for any purpose including but not limited to captive consumption, Coal Gasification, Coal Liquification and Export of Coal.

The coal produced from the subject mine will continue to be supplied to the nearby local industries in the Chandrapur District. Thus, implementation of the expansion of Takli Jena Bellora (North) & Takli Jena Bellora (South) Coal Mine Project will be aiding in development of the Country in general and the Chandrapur District in particular.

8.0 CONCLUSION:

The proposed expansion of mining activities in terms of enhancement in the production capacity of the presently operating mine in the same ML area and by continuing with same

system of mining, there is every likelihood that there would be certain negative impacts on the local environment along with host of positive impacts. However with effective implementation of proper mitigation measures against the negative impacts and strengthening of positive impacts as suggested in the Environment Management Plan in this EIA/EMP Report the negative impacts may be minimized to a negligible/insignificant level whereas the positive impacts can be raised to significant level.

The proposed expansion project will prove beneficial to the local people as direct and indirect employment opportunity will be generated. There will be increase in revenue generation to the government by way of government taxes etc. Further improvement in infrastructure will take place like education, roads, availability of drinking water, medical facilities in adjacent villages.

APPEAL

In compliance with the environmental procedure the environmental clearance application is made. Necessary scientific studies have been undertaken as per the guidelines set by the Ministry of Environment Forests & Climate Change (MoEF & CC). The suggestions/recommendations of all the experts, competent authorities, and government officials are being sought for the impacts of the proposed project. Views and guidance of the local residents, community based organizations, social organizations are extremely important in order to devise a full proof Environment Management Plan for the proposed mining project and also mitigate the damages caused due to the project. Allocation of necessary funds, manpower and machinery will be made for the protection and conservation of all the components of environment. It is ensured that all mandatory clearances will be sought from respective competent authorities before operating the proposed expansion in production at Takli Jena Bellora (North) & Takli Jena Bellora (South) Coal Mine *(Proposed Production: 3.0 MTPA Coal) by* M/s Auro Infra Pvt. Limited (AIPL). *M/s. AIPL is committed to implement the suggestions for the improvement of the environment and assure that every attempt will be made for the conservation and protection of the natural resources to the maximum extent.*