स्टील ऑथोरिटी ऑफ इंडिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
बोकारो स्टील प्लांट
BOKARO STEEL PLANT
गुआ अयस्क खान
GUA ORE MINES
सेल SAIL

Ref. No. : GUA/E&L/Duarg.-EC Compl./2025-26/ 028-2 **Date: 29.05.2025**

To,
The Addl. PCCF (C)
Ministry of Environment, Forest and Climate Change
Regional Office (ECZ)
Bungalow No. A – 2, Shyamali Colony
Doranda, Ranchi – 834 002

Sub: Compliance Report of Environmental Clearance accorded by MoEF&CC to the project: Integrated Duarguiburu Iron Ore Mining, Beneficiation and Pelletisation Project of SAIL, located in Ghatkuri Reserve Forest, Tehsil Gua, West Singhbhum Dist., Jharkhand

Ref.: 1. Ministry's Environment Clearance Letter No. J-11015/453/2008-IA. II(M) dated 25.03.2013
2. EC amendment vide Letter No. J-11015/453/2008-IA.II(M) dated 02.02.2015
3. EC amendment vide Letter No. J-11015/453/2008-IA.II(M) dated 06.11.2020

Sir,

As per the provisions of the General Condition no. (x) of above stated Environmental Clearance order granted to the Integrated Duarguiburu Iron Ore Mining Project, the six monthly compliance report on the conditions stipulated in the Environmental Clearance for the period from ***October, 2024 to March, 2025*** is enclosed herewith for kind perusal please.

Thanking you.

For & on behalf of
SAIL-BSL, Gua Ore Mines

General Manager (Mines) and E&L
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Encl: As stated above

Copy to:
1. Director, IA, MoEF&CC, GOI, Indira Paryavaran Bhavan, Aliganj, Jor Bagh Road, New Delhi - 110 003.
2. Member Secretary, JSPCB, HEC, Dhurwa, Ranchi – 834 004.
3. In-charge, Eastern Zone, CPCB, Southern Conclave, Block 502, 5th & 6th Floors, 1582 Rajdanga Main Road, Kolkata - 700 107 (W. B.)
4. The Regional Office, JSPCB, Jamshedpur

Compliances for conditions of Environmental Clearance and its amendments (vide order no. J-11015/453/2008-I.A.II (M), dated 25.03.2013, No. J-11015/453/2008-IA.II (M), dt.02.02.2015 & F. No. J-11015/453/2008-IA.II (M) dated 06.11.2020) of Duarguiburu Iron Ore Mining Lease of Gua Ore Mines, Bokaro Steel Plant, Steel Authority of India Ltd.
(Period: October, 2024 – March, 2025)

S.No.	CONDITION	COMPLIANCES
Specific Conditions:		
(i)	No mining activities will be allowed in forest area for which the Forest Clearance is not available.	Complied with. • Total Lease area of Duarguiburu Mining Lease is 1443.756 ha. However, mining operations are being carried out in the existing broken area of 274.691 ha, for which Stage-II Forest Clearance (Final Approval) obtained from MOEFCC vide Letter No. F. No. 8-251/1986-FC (Pt) dated 22.08.2014. • Further, MoEF&CC accorded Stage-II FC for diversion of additional area of 361.295 ha vide Letter No. F. No. 8-251/1986FC dated 07.12.2020 and land was released by the State Government vide letter no. Vanbhumi-62/2008-261 dated 01.02.02022 and subsequently by the Forest Department vide letter no. MIN/Gua/Topailore-/10/2020/467 dated 18.02.2022. • Mining operation in diverted 361.295 Ha forest land will be started after obtaining all valid statutory clearances. • Phase-wise tree felling job in diverted 361.295 ha area is being undertaken under supervision of State Forest Department after obtaining the necessary clearances. • Presently the mining operations are confined within the approved diverted forest area of 274.691 ha only for which all other valid statutory clearances exists
(ii)	The project proponent will seek and obtain approval under the FC Act, 1980 for diversion of the entire forest land located within the mining lease within a period of two years from 01.02.2013 i.e. the date of issue of guidelines by FC vide their letter F No. 11-362/2012-FC, failing	• MoEF&CC vide F.No.11-599/2014-FC dated 01.04.2015 has issued revised guidelines by suppression of the guideline issued vide F. No. 11-362/2012-FC dated 01.02.2013.

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
	which the mining lease area will be deduced to the non-forest area plus the forest area for which the project proponent has been able to obtain the FC at the end of this time period. In the case of reduction in mine lease area, the project proponent will need to get a revised mining plan approved from the competent authority for reduced area and enter into a new mining lease as per reduced lease area. The EC will be construed to be available for the mining lease area as per the revised mining lease deed.	As per these revised guidelines, in case of existing mining leases in part or in full, where approval under Section 2 of FC Act for a part of the forest land has only been obtained, Central Government accorded general approval under Section 2(iii) of the FC Act for the remaining area of the forest land falling within such mining leases and directed State Governments to realize NPV from the user agency within a period of one year from the date of issue of this letter for entire forest land falling in the mining lease, in case NPV of such forest land has not already been realized. Subsequently, MoEF&CC vide guidelines dated 31.03.2016, extended the deadline for payment of NPV up to 30.09.2016. • Duarguiburu mining lease covers an area of 1443.756 ha forest area out of which NPV was paid for 635.986 ha. However, NPV was not paid for the balance forest area i.e. 807.77 ha as this forest area is not diverted under Section 2 (ii) of FC Act, 1980. Subsequent to the demand of NPV for 807.77 ha forest area, SAIL filed a writ petition before Hon'ble High Court of Jharkhand. The Hon'ble Court vide interim order dated 29.09.2016 & subsequent order dated 28.04.2017 has directed that no coercive steps be taken against petitioner i.e. SAIL. Further, NPV amount of Rs. 84,25,04,110/- was deposited on 24.09.2019 through RTGS by UTR no. SBINR52019092400014277 in Jharkhand CAMPA fund for the balance forest area 807.77 ha under protest without prejudice to its right and contentions in Writ Petition WP(C) No. 5695 of 2016. • There is no change in lease area as per the existing mining lease deed executed on 24.09.2019 with validity of lease period upto 21.02.2029 over an area of 1443.756 ha.
(iii)	Need to submit a proposal for faster utilization of entire dumps of fines within a period of one year. The new condition is stated as:	• Request was made to MoEF&CC on 24.03.2014 that the proposal for faster utilization of the fines from the fines dump shall be submitted later once the Beneficiation & Pellet Plant is commissioned.

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
	"The Project Proponent informed the Committee that the Plan envisages faster utilization of the fines from the fines dump by increasing operating hours of the fines beneficiation unit gradually from 5000 hrs. to 6200 hrs. per annum within a span of 3 years, which will increase the rate of reclamation of fines from the fine dump from 2.50 MTPA to 3.1 MTPA and by reducing the mined out beneficiated ore feed to the beneficiation plant in order to increase reclaimed & beneficiated fines from the fines dump to the tune of 0.5 MTPA from 4th year onwards. The complete consumption of fines from the fine dump shall take about 9 years' time instead of 13 years envisaged earlier. The Committee accepted the Plan and recommended for utilization of fines as proposed by M/s SAIL within 9 years instead of 13-14 years. During this period, all pollution mitigation measures at the dump site shall be implemented and augmented with additional measures on the basis of any Specific Studies conducted through Reputed Institutions to prevent/ minimize environmental impacts from the Fines Dumps. Detailed Action Plans in regard to Faster Reclamation of fines after Beneficiation and Pellet are commissioned and stabilized and Revised Proposal for faster liquidation of the fines (as is proposed now) may be submitted to the Regional Office of the Ministry, as also periodic Progress Reports."	• The matter was discussed at the 25th EAC meeting held on 13.11.2014 and the EAC directed to submit the plan for faster utilization of the fines. • Accordingly, the proposal for faster utilization of fines from the fines dump at Gua Ore Mines was submitted to the MoEF&CC on 14th November, 2014. On the basis of submission of information and data by SAIL, Ministry amended the condition vide its letter No. J-11015/453/2008-IA.II (M), dt.02.02.2015. • In order to maintain the availability of iron ore in the open market after 31.03.2020, the Central Government, Ministry of Mines, GoI, in exercise of the power conferred under Section 20A of MMDR Act, 1957 (Amended in 2015), vide order dated 16.09.2019 allowed SAIL to sell low grade/sub-grade iron ore fines lying at the mine pit heads of captive mines of SAIL in open market. This provides opportunity to Gua Ore Mines to dispose dumped fines, so that environmental hazards can be removed, space is created and other users can suitably utilize the ore. Accordingly, amendment of EC was obtained from MoEF&CC vide its letter no. F.No.J-11015/453/2008-IA.II (M) dated 06.11.2020, for change in excavation and dispatch pattern increasing the excavation and dispatch of 3.1 MTPA iron ore fines keeping the total production from the mines within the approved EC capacity of 12.5 MTPA. • Presently, the dump fines is being dispatched to SAIL Steel Plants for captive use. From November, 2023 to March, 2025, 3,51,450.8 tonnes of dump fines has been dispatched from Duarguiburu Lease to SAIL's captive steel plants.
General Conditions:		
(i)	The project proponent shall obtain Consent to Establish and Consent to operate from the Jharkhand State Pollution Control Board and effectively implement all the conditions stipulated therein.	• Consent to Establish (CTE) was obtained from Jharkhand State Pollution Control Board (JSPCB), Ranchi vide letter No. G- 1299, dated 06.04.2013. CTE was for Iron Ore (ROM) capacity of 10 MTPA, Iron Ore fines from the

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
		fines dump (2.5 MTPA), Beneficiation Plant for 12.5 Million TPA & Pellet Plant of 4 Million TPA. • Thereafter, regular Consent to Operate (CTO) (Air & Water) is being obtained/renewed from JSPCB. The existing CTO has been renewed by JSPCB for the period from 17.12.2021 to 31.12.2026 vide ref. no. JSPCB/HO/RNC/CTO-10884468/2021/1533, dated 17.12.2021. • All the conditions stipulated in the CTE & CTO (Air & Water) are being effectively implemented & complied and compliance report submitted to Jharkhand State Pollution Control Board.
(ii)	Environmental clearance is subject to final order of the Hon'ble Supreme Court of India In the matter of Goa Foundation Vs. Union of India in Writ petition (Civil) No. 460 of 2004, as may be applicable to this project.	Noted.
(iii)	Environmental clearance is subject to obtaining clearance under the Wildlife (Protection) Act,1972 from the competent authority, as may be applicable to this project	• The condition is not applicable as there is no designated wildlife protected area/wildlife sanctuary within 10 km radius to the project site. • The entire mining lease area is located in Ghatkuri Reserve Forest and do not fall under the purview of Wildlife Protected Area. • All precautions are undertaken to not disturb the flora and fauna in and around the mining lease area. Necessary facilities are being extended to local forest department for their inspection and monitoring of forest area.
(iv)	Coordinated efforts shall be made along with other operating mines in the area and action plan drawn for control of pollution load in the area. The action plan so prepared shall be effectively implemented. The air and water quality shall be monitored by involving the State Pollution Control Board and results submitted within 6 months.	• Coordinated efforts are ensured in preparation of Catchment Area Treatment (CAT) Plan covering entire Saranda Forest Division to control surface runoff from the mines as well as protection of Koina and Karo River system. • For preparation of a Comprehensive Catchment Area Treatment (CAT) Plan, SAIL had taken initiatives with IIT Kharagpur, a world renowned premier mining institute of the country, for preparation of the CAT Plan. • IIT Kharagpur, by using GIS Frame work and Remote Sensing Technology, as well as field survey, has prepared the CAT Plan. The CAT Plan covers an

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES

approx. area of 11.500 Km² bounded by the west bank of river Koina in the west up to the east bank of river Karo in the east.

- The Plan has focused on the Catchment scenario of the region, river system, source of water pollution and their prevention, terrain description, soil conservation and its integration with CSR activities, mining activities in the area etc.
- CAT Plan was approved by the State Forest Department vide office order no. 06 dated 01.02.2022. Implementation of provisions made in CAT Plan will support to reduce pollution load on water bodies of Saranda Forest Area.
- Summary activities along with amount details of CAT plan w.r.t Gua Ore Mines is as under:

Sl. No.	Activities	Amount (Rs. in Crore)
1	Bio-Conservation	2.66
2	Eco-Restoration	5.66
3	Infrastructures	0.88
	Sub Total	9.20
4	CAT Structures	2.04
5	Bio-Restoration Measures	1.00
6	PIMU	0.37
	Sub Total	3.41
	Total	12.61

- To comply with the conditions of the approved CAT plan w.r.t. Gua Ore Mines, SAIL has deposited amount of Rs. 920.265 lakhs to Jharkhand State CAMPA account vide RTGS UTR No. SBINR12022033075452206 dated 30.03.2022 towards implementation of recommendations related to Bio-Conservation, Eco-restoration and Infrastructures.
- Further, Gua Ore Mines is in the process for construction of CAT structures proposed in the approved CAT plan. Gua Ore Mines has already constructed

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
		check-dams, gabion boulder retaining wall and has taken other measures like construction of roof top rainwater harvesting through recharge pit cum shaft at DB and DB Annexe buildings of Gua Ore Mines. • Also, based on study commissioned by taking the services of IIT KGP, measures have also been implemented at the mines for effective environmental management in the area. Some of these include: ➢ Series of 05 no. of earthen dams at the foothill of the Fines Heap followed by series of 04 no. trap pits have been provided for arresting eroded soil by providing enough retention time for the soil to settle down during monsoons. Regular de-siltation of earthen dams and pits prior to onset of monsoons is carried out every year. ➢ Further, the slope of the Zero Point Nalla has been planted with vetiver grass and local grass to provide stability to the slope. ➢ Environmental Management of OB dumps at Ranichua & OT Hill is given below: ○ Construction of new gabion boulder wall at the foot of Ranichua OB Dump and OT Hill OB Dump is completed. Two nos. of earthen dams with gabion boulder wall in between the earthen dams have also been constructed at the downstream side of the already constructed gabion boulder wall at Ranichua OB Dump **(Photographs enclosed as Annexure-6)**. ○ Benching/ Top terracing has been developed at both Ranichua & OT Hill OB dump ○ Gua Ore Mines has prepared an adequacy report on sediment protection measures in consultation with M/s IIT Kharagpur. The study by IIT Kharagpur, based on field verification, technical review, and visual inspection, confirmed that the existing sediment protection measures are adequate to effectively control

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
		erosion, retain silt, and meet environmental compliance for current mining operations **(Copy of adequacy report enclosed as Annexure-1).** ○ Furthermore, as part of long-term measures, additional interventions are in progress, including the construction of a Mechanically Stabilized Earth (MSE) wall at the Ranichua OB dump and an RCC retaining wall at the OT Hill OB dump. These structures will further enhance site protection in accordance with the approved mining plan. ○ Catch drains with sedimentation pit has been constructed and maintained around the OB dump areas to arrest the flow of fines during monsoon. ➢ The construction of additional concrete check dam near Zero Point Nalla was completed. Further, new concrete check dam constructed across DB nallah. ➢ Bunds along the haul roads and outer periphery of the pits are maintained to ensure that no sediment laden storm water get discharged from the mined out area. ➢ Garland drains have been provided around the mine pits, haul roads and diverted surface runoff from the mining and other areas into sedimentation cum rainwater harvesting pits constructed at various areas viz. Bai Hill, OT Hill and IInd Level etc., where water is allowed to settle and percolate into the ground water. • To control the fugitive dust emissions from the crusher, screening & loading areas, dust suppression system such as dust extractor, fogging system, water sprinklers, and fixed points for manual water sprinkling have been installed which are working effectively.

General Manager (Mines) & E&
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
		• Regular water sprinkling is being done by fixed water sprinklers and by mobile water tankers at the mines as well as railway siding area & township for dust suppression. Further, new mobile water sprinkler of capacity 28 kL has been procured for mines. This has increased the water sprinkling frequency at mines. • The air and water quality is being monitored by involving the State Pollution Control Board and results are submitted with half-yearly EC compliance report. Latest environmental quality report generated by NABL accredited lab through JSPCB is placed in **Annexure-2**.
(v)	The Forest Right Act shall be implemented.	• The Clearance required under Forest Rights Act, 2006 has already been obtained and necessary certificate has been issued by the Collector, Singhbhum (West) vide order no. 1277 A/88, dt.23.05.2011. • Copy of necessary certificate issued by the Collector, Singhbhum (West) has already been submitted with previous compliance report.
(vi)	The mining operations shall be restricted to above ground water table and it should not intersect the groundwater table. In case of working below the ground water table, prior approval of the Ministry of Environment and Forest and the Central Ground Water Authority shall be obtained, for which a detailed hydrogeological study shall be carried out.	• The Ground Water Table in the lease area is from 394 - 400 m AMSL whereas the present working depth and ultimate pit depth at the mines are 660m AMSL and 550m AMSL respectively. So there is no intersection of ground water table during mining operations at the mine. However, in case of working below the ground water table, prior approval of the Ministry of Environment and Forest and the Central Ground Water Authority will be obtained, for which a detailed hydrogeological study will be carried out.
(vii)	The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations. The first order streams and the seasonal nallahs originating from the mining lease area shall be protected.	• There is no significant natural water course originating / present in the Duarguiburu mining lease. • In case any natural flow during rainy season, Gua Ore Mines will take due precautions to ensure that no natural watercourse / water resources obstructed due to any mining operations. We have been regularly inspecting nearby areas/ water bodies ensuring the protection.

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
(viii)	The top soil shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation.	• The mining operation was started since early 30's at Gua Ore Mines over 274.691 ha. The generated valuable top soils are utilized for different soil conservation practices like nursery development & OB dump stabilization work. • At present, no top soil is encountered as we are operating the mine within the existing broken area (274.691ha) since the beginning of mining operations in the lease area of 1443.756 ha. • However, whenever top soil is encountered in future while working in virgin areas, the top soil will be removed & stacked separately as per the IBM guidelines and will be used for reclamation and rehabilitation purpose as declared in Approved Mining Plan & PMCP. • We will strictly adhere to the instructions of CPCB & SPCB, MoEF&CC and IBM guidelines for top soil management as envisaged in mining plan/scheme and EIA/EMP Report.
(ix)	The over burden generated during the mining operation shall be stacked at ear marked dump site(s) only and it should not be kept active for a long period of time and its phase-wise stabilization shall be carried out. There shall be four external overburden dumps. Proper terracing of the OB dumps shall be carried out so that the overall slope of the dump shall be maintained to 28^0. The over burden dump shall be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles shall be undertaken for stabilization of the dump. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining.	• There are two active dumps, one at Ranichua turning and another at northern sides of OT Hill area, which are being maintained by appropriate grading and benching/top terracing maintaining less than 28^0 slope. • Though, both the dumps ~~at~~ i.e. OT Hill & Ranichua waste dumps are active, concurrent vegetation & plantation being done, in the stabilised portion of the dumps to prevent erosion and surface run off. The plantations carried out in the past on OB dumps using in-house resources have matured and are now self-sustaining. Further, Gua Ore Mines is committed to increasing vegetation density by grassing 2 hectares and planting 2,000 saplings to fill gaps across 4 hectares of OB dumps, mine slopes, downstream areas of the fines heap, and barren land during the upcoming monsoon season (June to September 2025) using departmental resources. • Further, for scientific afforestation, Gua Ore Mines, SAIL, has signed an MoU with ICFRE-IFP, Ranchi on 30.04.2025 to undertake ecological restoration of approximately 16 hectares within the Duargaiburu Lease area,

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
		Gua. The restoration will cover 10 ha of waste dumps and 6 ha of barren land located within the mine area and safety zones (gap plantation). The project is to be completed within five years w.e.f. 30.04.2025. ICFRE-IFP Ranchi has already started the job as per terms and conditions of MoU **(Copy of final MoU is enclosed as Annexure-4)**. • Other old dumps are scientifically reclaimed and native species are planted to stabilize the dump as per suggestion of local forest department. The photographs are enclosed as **Annexure-5**.
(x)	Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.	• Six monthly compliance status of EC conditions are submitted regularly to the Ministry of Environment, Forest & Climate Change and Regional Office of MoEF&CC located at Ranchi. Previous, half yearly EC compliance report for the period from April' 2024 to September' 2024 was submitted vide letter dated 29.11.2024.
(xi)	Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, mineral and over burden dumps to prevent run off of water and flow of sediments directly into the Karo River, the Koina River, the Sarako River and other water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after the monsoon and maintained properly. Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed around the mine pit, mineral and over burden dumps to prevent run off of water and flow of sediment directly into the Karo River, the Koina River, the Sarako River and other water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rain fall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.	• Based on a study conducted through IIT Kharagpur for identifying places vulnerable to erosion and by checking surface runoff considering rainfall data, mitigative measures recommended have been undertaken such as provision of garland drains, settling pits, boulder retaining walls and check dams of appropriate size have been constructed. The compliance of the same has also been given at **General Condition no. (iv).** • Garland drains, catch drains and siltation ponds of appropriate size has been constructed around the working mines and over burden dumps to prevent run off of water and flow of sediments directly into the water bodies. • Water harvested through water storage pits constructed in mines is utilized for green belt development. • The settling pits / sedimentation pits and check dams are de-silted periodically prior to onset of monsoons and post monsoons to provide enough retention capacity. • The photographs are enclosed as **Annexure-6.**

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
(xii)	Dimension of the retaining wall at the toe of the over burden dumps and the OB benches within the mine to check run-off and siltation shall be based on the rain fall data.	• As per study carried out through IIT KGP, mitigative measures recommended are based on rainfall data of past 50 years. While designing the retaining walls for OB Dumps, maximum rainfall measured at the site as well as erosion potential of dumped material are taken into consideration. Further, Gua Ore Mines has prepared adequacy report on sediment protection measures in consultation with M/s IIT Kharagpur. The study by IIT Kharagpur, based on field verification, technical review, and visual inspection, confirmed that the existing sediment protection measures are adequate to effectively control erosion, retain silt, and meet environmental compliance for current mining operations **(Copy of adequacy report is enclosed as Annexure-1)**. • Boulder retention wall has been constructed at the foot of both active OB dumps i.e. OT Hill and Ranichua OB dumps. • Construction of new gabion boulder wall at the foot of Ranichua OB Dump and OT Hill OB dump is completed. Two nos. of gabion boulder walls in between both earthen dams have also been constructed at the downstream side of the already constructed gabion boulder wall at toe of Ranichua OB dump. Also, construction of one new gabion boulder wall near existing gabion boulder wall at foot of Ranichua Waste Dump is in progress. • Furthermore, as part of long-term measures, additional interventions are in progress, including the construction of a Mechanically Stabilized Earth (MSE) wall at the Ranichua OB dump and an RCC retaining wall at the OT Hill OB dump. These structures will further enhance site protection in accordance with the approved mining plan. • The construction of additional concrete check dam near Zero Point Nalla was completed. • Construction of concrete check dam across DB nallah as per approved CAT plan was completed. • The photographs are enclosed as **Annexure-6.**

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
(xiii)	The water recovery & spill way system shall be so designed that the natural water resources are not affected & that no spill water goes into the nearby Karo River, Koina River, Sarako River & other bodies.	• At present, Gua Ore Mines is being operating the plants for dry operations as there is no facility of washing/ beneficiation, hence no industrial effluent is generated and discharged. • However, measures have been taken to prevent surface runoff thereby preventing water pollution of Karo River flowing across the township. Also, based on study commissioned by taking the services of IIT KGP, measures have also been implemented at the mines for effective environmental management in the area. The compliance of the same is given at General condition no. (iv)
(xiv)	The project proponent shall carry out conditioning of the ore with the water to mitigate fugitive dust emission, without affecting flow of ore in the ore processing & handling areas.	• To minimize fugitive dust emissions water spraying on haul roads, loading and unloading and at transfer points are being done regularly. Water spraying arrangements on haul roads, loading and unloading and at transfer points are properly maintained. • Provision of water mist spraying at hopper and screening areas at the Ore Crushing Plant has been provided for dust suppression and to prevent fugitive dust emission in the downstream ore processing and handling areas. • Permanent water sprinkling arrangement has been provided at Railway siding area. • The photographs are enclosed as **Annexure-7**.
(xv)	The effluent from the ore beneficiation plant & pelletization plant shall be treated to conform to the prescribed standards & tailings slurry shall be transported through a closed pipeline to the tailing dam.	• At present, there is no additional beneficiation plant & pelletization plant in operation as proposed in EC. • Necessary provisions in respect of the same have been made in the proposed expansion project comprising of ore beneficiation plant & pelletization plant at Gua Ore Mines.
(xvi)	The tailing dam shall be lined on all the sides as well as in the bottom with thick HDPE lining.	• At present, no Tailing exist at Gua Ore Mines because only dry operation is continuing through crushing & screening. • No washing circuit exists for up-gradation of mineral through beneficiation process.
(xvii)	The project proponent shall take necessary safeguard measures to ensure that there is no leaching from the tailing pond.	

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
(xviii)	The decanted water from the tailing pond shall be re-circulated & there should be zero discharge from tailing ponds.	• Provision of tailing dams has been envisaged in the proposed expansion project comprising of ore beneficiation plant & pelletization plant. All the stipulated conditions related to the Tailing Ponds shall be complied with the upcoming expansion project.
(xix)	Appropriate technology shall be used for maximum recovery of ore in order to reduce slurry discharge & to increase the life of the tailing dam.	
(xx)	The project proponent shall constitute on emergency management team under the control of project in charge to deal with the emergency situation pertaining to the tailing dam for the timely & effective control of emergency situation. It shall be ensured that training programme & mock drill shall be organized for the employees.	
(xxi)	Plantation shall be raised in an area of 469.838 ha including a 7.5 m wide green belt in the safety zone around the mining lease, over burden dumps, around beneficiation plant, mine benches, around tailing ponds, pelletization plant, roads etc. by planting the native species in consultation with local DFO/ Agriculture Department. The density of the trees should be around 2500 trees per ha.	• The total lease area of Duarguiburu Mining Lease is 1443.756 Ha. MoEF&CC, New Delhi, has granted Stage-II FC for existing broken area of 274.691 ha on 22.08.2014 and further granted Stage-II FC for additional area of 361.295 ha vide letter dated 07.12.2020. However, presently mining operations are being carried out at the existing broken area of 274.691 ha. The process for starting phase-wise mining operations at the 361.295 ha area is under progress and same will be started after obtaining required statutory clearances. The remaining area of 807.77 Ha is a dense virgin forest. Also, out of the safety zone area of 19.61 ha all along the 7.5 m strip, about 92 % of the safety zone is virgin dense forest. • For remaining area within 274.691 Ha, Gua Ore Mines continuously carries out plantation activities over OB dumps, mine benches, berms of the haul roads, barren slopes through in-house resources. Also, the remaining 8% of the safety zone area has been afforested with the original & existing forest species as per suggestion of local Forest Department. • During 2023-24, 2100 nos. of saplings of native species like Mango, Jamun, Bamboo, Kathal, Neem, Karanj, Imli, Sal, Sagwan, Gamar, Amvla etc. have been planted in mines and townships area. Besides this approximate 1200 kg hedges and local grasses have also been planted in the mines slopes, waste dump slopes and slopes of dams.

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
		• During 2024-25, 2480 nos. of saplings of native species like Mango, Jamun, Gulmohar, Karanj, Mahua, Karam, Sheesham, Neem, Sal, Amvla, Imli, Gamar, Pipal, Guava, Bamboo, etc. have been planted in mines and townships area. Besides this approximate 2200 kg hedges and local grasses have also been planted in the mines slopes, waste dump slopes and slopes of dams. • In addition to above, plantation activity is always carried out during events such as MEMC Week, Wildlife Week, Safety Week, Earth Day and World Environment Day etc. for increasing awareness among the employees and locals. • Gua Ore Mines is committed to increasing vegetation density by grassing 2 hectares and planting 2,000 saplings to fill gaps across 4 hectares of OB dumps, mine slopes, downstream areas of the fines heap, and barren land during the upcoming monsoon season (June to September 2025) using departmental resources. • Further, for scientific afforestation, SAIL has signed an MoU with ICFRE-IFP, Ranchi on 30.04.2025 to undertake ecological restoration of approximately 16 hectares within the Duargaiburu Lease area, Gua. The restoration will cover 10 ha of waste dumps and 6 ha of barren land located within the mine area and safety zones (gap plantation). The project is to be completed within five years w. e. f. 30.05.2025. ICFRE-IFP Ranchi has already started the job as per terms and conditions of MoU. • The photographs of plantation activity carried out are given as **Annexure-8.**
(xxii)	The green belt shall be developed all around the mine lease within the initial 3 years from issue of clearance.	• The green belt has already been developed all around the mine lease area. Since plantation is a continuous activity, efforts are being made to cover all the remaining patches with native saplings. Details of plantation to be carried out during F.Y 2025-26 are as following:

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES

Sl. No.	Location	Tentative Afforestation Plan for F.Y. 2025-26
1.	Ranichua Waste Dump	• Approximately 600 kg hedges and local grass planted on the slope of Ranichua Waste Dump to minimize soil erosion during the monsoons. • Plantation of 500 saplings
2.	OT Hill Waste Dump & OT Hill Slope	• Approximately 600 kg hedges and local grass planted on the bottom slope of OT Hill Waste Dump to minimize soil erosion during the monsoons. • Plantation of 600 saplings
3.	Bai Hill (Slopes & Earthen Dams)	• Approximately 300 kg of hedges and local grass planted at Bai Hill slope & dam area. • Plantation of 200 saplings
4.	Earthen Dams (d/s side of fines heap	• Approximately 300 kg of hedges and local grass planted at Bai Hill slope & dam area. • Plantation of 200 saplings
5.	HD Buru	• Approximately 200 kg of hedges and local grass planted at HD Buru road side. • Plantation of 200 saplings
6.	Jhillingburu Lease	• Plantation of 100 saplings for gap filling
7.	Gua Township	• Plantation of 200 saplings
Tentative Afforestation Plan of plantation of local		• Plantation of Hedge and local grasses- approx. 2000 kg • Plantation of saplings – 2000 nos.

General Manager (Mines) & ES
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
		grasses, hedge and saplings for F.Y. 2025-26
(xxiii)	Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution & having high levels of particulate matter such as around crushing & screening Plant, loading, and unloading point and transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control board in this regard.	• High pressure mobile water sprinklers (28 KL) have been deployed for regular water sprinkling on Haul Roads and other dust prone areas. Further, new mobile water sprinkler of capacity 28 kL has been procured for mines. • In addition to this, permanent water pipeline sprinklers (1.75 km) have been installed along the main approach haul roads near crushing plant to OT Hill area and other critical areas. • Spray nozzles have also been provided at the hopper as well as screening & transfer points at Ore Processing Plant. • All the Drilling Machines in the mines are equipped with the dust extractors / wet drilling facility to control dust from the drilling operations. • Fogging (mist) system has been installed at critical locations. Dust extraction system has been provided covering primary crushing & screening areas. • Fixed water sprinkling system has been provided at the railway siding area for dust suppression. • As per the monitoring and analysis of Ambient Air quality, PM_{10} ranges from 43.4-91.62 $\mu g/m^3$, $PM_{2.5}$ ranges from 15.8-48.2 $\mu g/m^3$, SO_2 ranges from 5-32.11 $\mu g/m^3$ and NOx ranges from 7.4-43.53 $\mu g/m^3$, the detailed report is enclosed as **Annexure-2 & Annexure-3.** • The photographs of air pollution control measures are enclosed as **Annexure-7.**
(xxiv)	Regular monitoring of the flow rate of the springs & perennial nallahs flowing in and around the mine lease shall be carried out & records maintained.	• There are no perennial nallahs or springs in or around the mining lease area. Only seasonal nallahs flow during the monsoon, and since Gua Ore Mines operates using a dry process, these flows remain unaffected by any effluent discharge.

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
		• The flow rate of the Karo River is monitored quarterly, and records are maintained accordingly. The monitoring report of flow rate of Karo river is enclosed as **Annexure-9.**
(xxv)	The project authority should implement suitable conservation measures to augment the ground water resource in the area in consultation with Regional Director, Central Ground Water Board.	• A comprehensive Remote Sensing & GIS based survey has been carried for Environment Management at Gua Ore Mines through the expertise services of IIT Kharagpur who has prepared a Digital Elevation Model (DEM) and drainage pattern & slope information from satellite imagery. Hydrologically, area shows dendritic drainage pattern that looks like a branch of tree with dense connectivity of first and second order drainages. Study area follows first to sixth ordered streams in Gua mines region. As per drainage pattern of the mining lease area and watershed, the rain water from the mining lease drains towards western side into catchment of Koina River and accordingly to arrest flow of sediments during rainy season and to maintain zero discharge from working mines, settling pits have been developed at OT Hill Area, 2nd Level Area, Bai Hill and HD Buru Area. Storm Water is directed towards these pits by developing bunds and garland drains. The retention capacity of the pits and the nature of soil allow the water to percolate and thus help in augmenting the ground water resource. Thus, these measures help in conserving water at Gua Ore Mines. The photographs of the rain water conservation pits are enclosed as **Annexure-6**. • Additionally, rooftop rainwater harvesting system is also implemented in Gua Township. The construction of rooftop rainwater harvesting system for groundwater recharge through recharge pit cum shaft at Director Bungalow and Guest House building of Gua Township is completed. The photograph is enclosed as **Annexure-10.** Also, details of the rainwater harvesting measures adopted at Gua Ore Mines, M/s SAIL has been submitted to CGWB, Ranchi, vide letter ref. no. GUA/E&L/Duarg-CGWB/2023-24/167 dated 12.08.2023 (Copy enclosed as **Annexure-11**).

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
(xxvi)	Regular monitoring of ground water level & quality shall be carried out in & around the project area (Mine lease, beneficiation plant, pelletization plant & tailing ponds) by establishing a network of existing wells & installing new piezometers during the operation. The periodic monitoring [(At least 4 times in a year-pre monsoon (April-May), monsoon (August), post monsoon (November) & Winter (January), once in each season)] shall be carried out in consultation with State Ground Water Board/ Central Ground Water Authority & data thus collected may be sent regularly to the Ministry of Environment & Forest and its regional office, Bhubaneswar, The Central Ground Water Authority & the Regional Director, Central Ground Water Board. If at any stage, it is observed that the ground water table is getting depleted due to Mining activity, necessary corrective measures shall be carried out.	**Establishment of a Groundwater Monitoring Network:** • A structured monitoring network has been developed in and around the Gua Ore Mines (core and buffer zone), comprising a combination of existing open wells and newly installed piezometers to ensure spatial coverage and seasonal data collection. • The network includes, Four (04) existing open wells located in Buffer Zone area at: 1. Guasai – Forest Bungalow 2. Ghatkuri Village 3. Chhota Nagra / Baihatu Village 4. Baraiburu (Near Pool) • These have been selected to provide representative data from all directions around the lease boundary. • In addition to the above, three (03) piezometers with real-time groundwater level monitoring capability have been installed and commissioned at strategic locations in Core Zone area, namely: 1. Forest Bungalow, Gua 2. DB Building, Gua Ore Mines 3. DB Annexe Building, Gua Ore Mines • These locations were selected in consultation with the SPCB to ensure coverage of key operational and hydro geologically sensitive zones within the mining lease area. **Quarterly Monitoring and Reporting** • Groundwater level and quality monitoring is being carried out four times a year as per seasonal requirements (pre-monsoon, monsoon, post-monsoon, winter).

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
		• The test report of groundwater quality for the above mentioned locations for the period from October, 2024 to March, 2025 are given in the **Annexure – 12**.
(xxvii)	The ground water & surface water in & around the Mines including the tailing ponds shall be regularly monitored at strategic location for heavy metals. The monitoring station shall be established in consultation with The Regional director, Central Ground Water Board & the State Pollution control board.	• Analysis of required water quality parameters including analysis of heavy metals is being carried out through JSPCB recognized lab. Water quality analysis reports are enclosed in **Annexure-2 and Annexure-3**. • An application for setting up of monitoring stations was submitted to Regional Officer, JSPCB, Jamshedpur vide letter dated 30.03.2013 (Copy enclosed as **Annexure-13**). Consequently, the monitoring stations were established in consultation with official of Jharkhand State Pollution Control Board during their visit to Gua Ore Mines • Further, an application with latitude and longitudes of the monitoring stations has been submitted to CGWB, Ranchi and to Regional Officer, JSPCB, Jamshedpur vide letter dated 12.08.2023 to review the established monitoring stations (Copy enclosed as **Annexure-14**).
(xxviii)	Appropriate mitigative measures shall be taken to prevent pollution of the Karo River, Koina River & the Sarako River in consultation with the State Pollution Control Board.	• Detailed study has been conducted through IIT Kharagpur for identifying places vulnerable to erosion and suggesting mitigative measures to minimize soil erosion and control surface runoff from the mines. Most of the recommendations made by IIT KGP in the report like provision of silt traps, check dams, settling pits / sedimentation ponds, plantation on the slopes have been made at various strategic locations and the same are under continuous implementation at other sites as and when required. • CAT Plan for Saranda Forest Area feed by Karo & Koina River System has been approved by the State Forest Department vide letter dated 01.02.2022. Implementation of provisions of CAT Plan has been detailed in General Condition No. (iv). Protective measures taken to prevent pollution of water bodies has also been given in detail in General Condition no. (iv), (xii) and (xiii).

General Manager (Mines) & E
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
		• Further, details of pollution control measures adopted by Gua Ore Mines as and when sought by JSPCB are being submitted to State Pollution Control Board. Also, officials from JSPCB visits mines to monitors and inspect at regular intervals.
(xxix)	Vehicular emission shall be kept under control & regularly monitored. Measures shall be taken for maintenance of vehicle used in mining operation & in transportation of Minerals. The vehicle shall be covered with a tarpaulin & shall not be overloaded.	• Transport of iron ore is being carried out through dumpers from mine face to ore crushing plant using haul roads inside leasehold area. All these vehicles are being maintained in good condition to control vehicular emissions. However, after crushing & processing, the ore is brought down by covered conveyors and dispatched by railway to steel plants.
(xxx)	No Blasting shall be carried out after the sunset. Blasting operation shall, be carried out during the day time. Control Blasting shall be practiced. The mitigative measures for control of ground vibration & to arrest fly rocks & boulders should be implemented.	• Blasting operation is carried out during the day time only between 1 pm to 3 pm. • To control ground vibration, Non Electric Detonator with suitable delays is being used. Controlled blasting by using slurry explosives & NONEL technology is being followed.
(xxxi)	Drills shall either be operated with dust extractors or equipped with water injection system.	• All the Drilling Machines at the mines are equipped with the dust extractors / wet drilling facility to control dust from the drilling operations.
(xxxii)	Digital processing of entire lease area using remote sensing technique should be done regularly once in three year for monitoring land use pattern & report shall be submitted to the Ministry of Environment & Forest and its Regional Office located at Bhubaneswar.	• Digital processing of entire lease area using remote sensing technique is being done at regular interval for monitoring land use pattern. Report is also being submitted to the Ministry of Environment & Forest and its Regional Office. • LULC (Land Use Land Cover Classification) study has been carried out through IIT (ISM), Dhanbad. The copy of the report is enclosed as **Annexure-15.**
(xxxiii)	Mineral handling area shall be provided with adequate no of high efficiency Dust Extractor System. Loading & unloading areas including all the transfer points should also have efficient dust control arrangements. This should be properly maintained & operated.	• Dust Extractor system has been installed at Ore Processing Plant. • Water sprinklers are used for dust suppression at transfer points and loading areas. • Fogging System is in place at ore unloading area of Ore Processing Plant. • All these units are being maintained and operated on regular basis. • The photographs of these facilities are enclosed as **Annexure-7.**

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
(xxxiv)	Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and the generated during mining operation.	• Septic tanks followed by soaking pits have been provided for the quarters in cluster for entire Gua Township which are being cleaned periodically through mechanical mode. Also, major domestic drains of Gua Township and Market area have been streamlined and converged into a single drain followed by 02 nos. of settling pits to provide enough retention time for the domestic effluent to settle down and oxidize the water. Photographs enclosed as **Annexure-16.** • There are mainly two sources of effluent generation i.e. from HEMM and Hospital. For HEMM, a 5 KLD Effluent Treatment Plant (ETP) has been installed and commissioned at the Vehicle Washing Bay in the Mines Workshop area which is operated and maintained on regular basis. Whereas, for Gua Hospital, an ETP of 10 KLD capacity has been installed and same is in operation since 08.11.2024. **Photograph is enclosed as Annexure-17** • However, to comply with the conditions, Gua Ore Mines has engaged IIT Kharagpur for preparation of conceptual plan for setting up Sewerage Treatment facilities at Gua Ore Mines Township. ➢ The conceptual plan for setting up of Sewerage Treatment Facilities has been prepared in consultation with IIT Kharagpur. ➢ Total 04 STP [MBBR technology] with total capacity of 4.1 MLD has been proposed. ➢ To expedite the installation of STP's, proposal for all 04 STP's (0.3, 0.6, 1, 2.2 MLD) has been initiated. Out of 04 STPs, tender for 0.3 MLD STP has been floated. Tender opening date was 16.04.2025. Bids received and Techno-Commercial evaluation completed and the same is under approval for opening of price bids **(Copy of tender uploaded on website is enclosed as Annexure-18)**. TS for remaining 03 STP's is under finalization for approval of Competent Authority.

General Manager (Mines) & E&T
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
		➢ 01 STP of 0.3 MLD capacity will be installed by December' 2025 and remaining 03 STP's (0.6 MLD, 1 MLD, 2.2 MLD) will be installed by December' 2026
(xxxv)	Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.	• Pre-placement medical examination and periodical medical examination of the workers engaged in the project are carried out and records are maintained. Schedule of health examination of the workers is also drawn and followed accordingly. The details of medical examination carried out for the period from Oct-2024 to Mar-2025 is enclosed as **Annexure-19**.
(xxxvi)	The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna namely Elephant, Sloth Bear, Plan civet, Panther, Mouse deer etc. spotted in the study area. Action plan for conservation of flora and fauna prepared shall be implemented in consultation with State Forest and Wildlife Department. All the safeguard measures brought out in the Wildlife Conservation Plan prepared specific to this project site shall be effectively implemented. Necessary allocation of funds so allocated shall be included in the project cost. A copy of action plan shall be submitted to the regional office of the Ministry Of Environment and Forests, Bhubaneswar.	• The Common Composite Site-Specific Wildlife and Biodiversity Conservation Plan (SSWBCP) for Gua Ore Mines, with a financial outlay of Rs. 69.92 crores, has been approved by the Principal Chief Conservator of Forests (Wildlife), Ranchi, on 15.04.2025. A copy of the approval letter is enclosed as **Annexure-20**. The SSWBCP will be implemented in accordance with the timeline prescribed by the State Government. • Also, Integrated Wildlife Management Plan for West Singhbhum District was prepared by an Expert Committee constituted by the Govt. of Jharkhand vide notification dated 27.08.2011. As per the notification constituting the committee, SAIL was assigned responsibility for institutionalizing and funding the study. The said Plan has been prepared & completed in all respects and submitted to Jharkhand State Forest Dept., for approval. • Approval of Integrated Wildlife Management Plan (IWMP) for West Singhbhum is pending with the State Forest Department. • In cases where approval of IWMP is pending with the State Government, MoEFCC issued a guideline on 07.06.2022, directing the Project Proponent to pay 2% of total project cost towards compliance of conditions related to IWMP. Accordingly, Gua Ore Mines has deposited Rs. 10,39,08,000/- in the CAMPA Account on 10.02.2025.

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
		• SAIL will submit the approved IWLMP report to the Office of IRO, MoEFCC, Ranchi when received from Govt. of Jharkhand. • Further, necessary support for conservation and protection of wildlife and forest fire management is being extended by the SAIL to the State Forest Department as and when sought by the State Forest Department. Some of them includes: ➢ Engaged 12 nos. of fire watchers every year for 6 months for ensuring fire protection in and around the lease area of Gua Ore Mines. ➢ Three nos. of petrol operated Leaf Blower Machines were procured and provided to Range Forest Office, Gua for fire prevention in the forest area. Petrol has been provided to the Range Forest Office for the operation of the leaf blower machine. ➢ One no. of GIS expert and one no. of computer operator has been deployed at Saranda Forest Division on contract basis since December 2020, to monitor, compile and analyze data. ➢ Awareness programmes are organised every year through display of banners, knowledge sessions among the villagers and employees. Awareness programme was also done through public addressing system in nearby villages. ➢ Nukkad Natak for creating awareness regarding forest fire and conservation and protection of wildlife in the nearby villages has been organized by State Forest Department through third party with financial and other support from Gua Ore Mines. ➢ A dedicated vehicle has been provided to Gua Range Forest for effective management along with driver. HSD for the same is also being provided by the company as per requirement.

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
		➢ Public Address System along with announcer in rented vehicle has been provided by Gua Ore Mines to State Forest Department in year 2024. ➢ Payment of Rs. 14,19,716/- has been made by SAIL as per demand raised by State Forest Department towards purchasing of drone, outdoor LED Panel, video card, projector, projector screen, speakers along with other ancillaries, 02 nos. of two wheeler bikes and 02 nos. of computers for conservation and protection of wildlife and also preventing forest fire. ➢ Payment towards the work done by drone operator for Quick Response team for forest fire under Forest Fire Management Plan (FFMP) has also been made by SAIL as per demand raised by DFO, Saranda in F.Y. 2024-25. ➢ Other than above, financial assistance along with other miscellaneous items is being provided to Gua Forest Range for forest fire management and wildlife conservation & management.
(xxxvii)	The entire mining lease area to be fenced by erecting solar powered electric fencing all around it. The fencing so erected shall be maintained properly and the cost towards erection and maintenance of all solar powered electric fencing shall be borne by the project proponent out of the project cost.	• In the matter related to free movement of wild animals through reclaimed and unused area of the mining lease, especially those surrounded by forest, a FAC meeting was held during 29thto 30thApril, 2014. Based on FAC recommendations, MoEFCC issued guideline on 04.07.2014, directing project proponents to demarcate the 7.5-meter safety zone along the mining lease boundary and install fencing along habitation or roads. • The draft IWMP for West Singhbhum District prepared by GoJ through expert committee has noted the following w.r.t. Fencing – *"With a view to prevent any accidental fall of animals, cattle, humans or vehicles, fencing of opened pit shall be done. Photo voltaic fencing is not recommended as elephants never come to the quarry side and this type of fencing is no deterrent for smaller animals".*

General Manager (Mines) & E...
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
		• Due to a lack of clarity on solar-powered electric fencing around the mining lease boundary, the MoEFCC guideline dated 04.07.2014 was followed. Duargaiburu mining lease, with a boundary of 28.84 km was demarcated with 4-foot-high RCC pillars. Out of this, 8.2 km, adjacent to habitation and sharing a boundary with other leaseholders, was properly fenced. • Further, Gua Ore Mines vide letters dated 16.12.2023 and 20.01.2025 requested DFO, Saranda, for guidance on installing solar-powered electric fencing for entire mining lease area. However, no such guidance was obtained from DFO, Saranda. • In compliance to this EC condition, Gua Ore Mines has initiated a proposal for Solar Powered Electric Fencing around mining lease boundary as per MoEF&CC guideline dated 04.07.2014. Tender has been floated and bids have been received. The same are under techno-commercial evaluation. Copy of issued NIT is enclosed as **Annexure-21**. The job will be completed by September' 2025.
(xxviii)	No road transportation of ore outside the mine lease area shall be carried out after the sunset.	• Entire iron ore from the mine is being dispatched through rail to SAIL's Steel Plants. Hence, no road transportation of ore outside the mine lease area is carried at Gua Ore Mines at this juncture.
(xxxix)	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	• Most of the construction labours are engaged from the local villages. Labours when hired from outside the vicinity of the mines are provided full-fledged accommodation in the company along with necessary infrastructure at the existing colony of the mines.
(xl)	The critical parameters such as RSPM (Particulate matter with size less than 10micron i.e. PM10) and NOx in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored {(TOS, DO, PH and	• Environmental Quality Monitoring covering air, water and noise quality at Gua Ore Mines is monitored regularly through JSPCB, Environment Management Division of SAIL and through in-house facilities. The data is digitally displayed in public domain near the main gate of the administrative office.

General Manager (Mines) & E&
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
	Total Suspended Solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the company in public domain. The Circular No.- J-20012 /1 / 2006 - IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.	• Gua Ore Mines has installed a Continuous Ambient Air Quality Monitoring System (CAAQMS) for real time monitoring of Ambient Air Quality within the leasehold area. The data is digitally displayed in public domain at the Gua club site within the township. As per the monitoring and analysis of Ambient Air quality, PM_{10} ranges from 43.4-91.62 $\mu g/m^3$, $PM_{2.5}$ ranges from 15.8-48.2 $\mu g/m^3$, SO_2 ranges from 5-32.11 $\mu g/m^3$ and NOx ranges from 7.4-43.53 $\mu g/m^3$, the detailed report is enclosed as **Annexure-2 & Annexure-3.** • Similarly, water and treated waste water parameters are in the range, pH ranges from 7.05-7.63, BOD ranges from 2.1-18.5 mg/l, COD ranges from 19.2-144 mg/l. • The noise levels ranges from 35.7-72.6 dB (A). • The detailed report is enclosed as **Annexure-2 and Annexure-3**.
(xli)	A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.	• Noted for compliance. • Gua Ore Mines will submit a Final Mine Closure Plan along with details of Corpus Fund to the Ministry of Environment, Forests & Climate Change 5 years in advance of final mine closure for approval.
(xlii)	Steps to control flow of fines in to the river stream shall be taken.	• Gua Ore Mines has constructed check dams, sedimentation ponds/pits, gabion walls, garland drains Steps to control flow of fines in to the river stream has already been given discussed in the compliance of General Condition no. (iv). • Additionally, following structures have been provided between & beside dams 1,2 & 3 for preventing water pollution at the fines dump area: a) A trench of length 150 m, depth 10 m and width 40 m is constructed. b) Length 35 m of depth 5 m and width 15 m is constructed c) Length 36 m of depth 3.5 m and width 18 m, distance from the dam 5m. d) Length 70 m of depth 1.5 m and width 2 m is constructed. e) Length 120 m of depth 8 m and width 33 m is constructed.

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
		f) Length 75 m of depth 1.5 m and width 20 m is constructed. g) Length 120 m of depth 3 m and width 5 m is constructed. h) Length 70 m of depth 4 m and width 30 m is constructed.. i) De-siltation pit (200 m x100 m x6 m) has been created by removing 120000 m^3 of fines. Major part of the excavated silts was placed near dam no.5 for embankment to protect flash flood from the zero point nallah and partly dispatched to steel plant after blending with fresh blue dust from mines. • The photographs are enclosed as **Annexure-22.**
(xliii)	A time bound action plan for consumption of accumulated fines as per approved Mine Plan/ EIA /EMP report shall be executed in the beneficiation and Pelletization Plant.	• A proposal for faster utilization of fines from the fines dump at Gua Ore Mines was submitted to the MoEF&CC and EAC on 14th Nov, 2014. As per submitted plan dump fines will be consumed after commencement / operation of Beneficiation and Pelletisation Plant at Gua Ore Mines. • To meet the enhanced requirement of iron ore fines, SAIL has drawn an action plan to utilize part of the stocks of dump fines for captive use through blending with high grade ore and part through beneficiation and Pelletisation for captive use. • Presently, the dump fine is being dispatched to SAIL Steel Plants for captive use.
(xliv)	In order to strengthen the management system staggered trenches shall be provided in all the earthen dams to accommodate maximum silt flow to reduce any pressure in the downstream.	The following eleven nos. of trenches have been provided in the earthen dams to accommodate maximum silt as well as to reduce the pressure on the dams. a) A trench of length 150 m, depth 10 m and width 40 m is constructed. b) Length 35 m of depth 5 m and width 15 m is constructed c) Length 36 m of depth 3.5 m and width 18 m, distance from the dam 5m d) Length 70 m of depth 1.5 m and width 2 m is constructed. e) Length 120 m of depth 8 m and width 33 m is constructed. f) Length 75 m of depth 1.5 m and width 20 m is constructed. g) Length 120 m of depth 3 m and width 5 m is constructed.

General Manager (Mines) & EEC
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
		h) Length 70 m of depth 4 m and width 30 m is constructed. De-siltation pit (200 m x100 m x6 m) has been created by removing 120000 m^3 of fines. Major part of the excavated silts was placed near dam no.5 for embankment to protect flash flood from the zero point nallah and partly dispatched to steel plant after blending with fresh blue dust from mines. The photographs are enclosed as **Annexure-22.**
(xlv)	The silt collected along the nallas should be removed completely before the onset of next monsoon and should be a regular practice of the mine.	• Regular de-silting of all the check dams/ nallas is carried out prior to onset and post monsoon every year. • All the 5 earthen dams and 4 nos. settling pits at the foot of Fines Dump and all the sedimentation cum rainwater harvesting pits at working mines are de-silted to increase their retention capacity. • Further desiltation of all check dams & sedimentation pits has been completed **(Copy enclosed as Annexure-6)**.
(xlvi)	The slopes of the Earthen Dams should be provided with vegetative cover suitably with native species, thorny bushes and vetiver grasses as a part of biological measures of dump management.	• The slopes of earthen dams have been stabilized through plantation of vetiver and local grasses. Earlier, about 10,000 sq. m area of earthen dam/ silt traps slopes (Dam No 1, Dam No 3, Dam No 4 and at traps no. 1,2,3,4) has been covered through plantation of vetiver and local grasses. • Further, in F.Y. 2024-25, local grasses and hedges are being planted at the earthen dams. The location wise details of plantation done during F.Y. 2024-25 is provided at compliance of General Condition no. (xxii). The photographs are enclosed as **Annexure-8**. • Gua Ore Mines is further committed to increasing vegetation density by grassing 2 hectares and planting 2,000 saplings to fill gaps across 4 hectares of OB dumps, mine slopes, downstream areas of the fines heap, and barren land during the upcoming monsoon season (June to September 2025) using departmental resources.

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

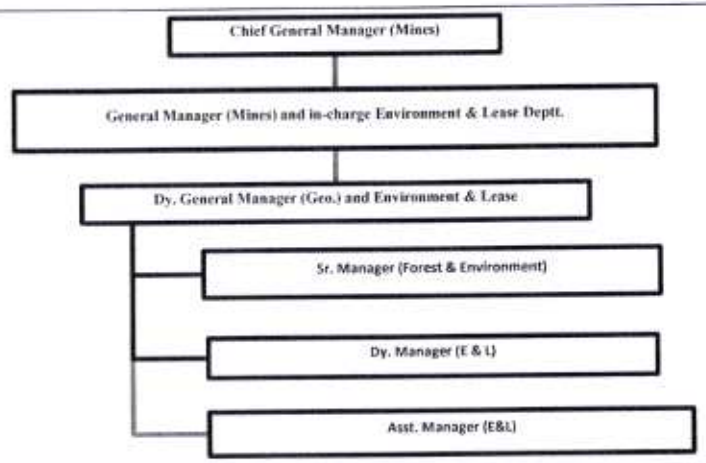
S.No.	CONDITION	COMPLIANCES
		• Further, for scientific afforestation, SAIL has signed an MoU with ICFRE-IFP, Ranchi on 30.04.2025 to undertake ecological restoration of approximately 16 hectares within the Duargaiburu Lease area, Gua. The restoration will cover 10 ha of waste dumps and 6 ha of barren land located within the mine area and safety zones (gap plantation). The project is to be completed within five years w. e. f. 30.05.2025. ICFRE-IFP Ranchi has already started the job as per terms and conditions of MoU.
(xlvii)	Monitoring of all water quality parameters as per the discharge standards shall be ensure by the project management.	• Water quality is being monitored regularly and reports are being submitted to Jharkhand State Pollution Control Board, Jamshedpur. • Water and treated waste water parameters are in the range, pH ranges from 7.05-7.63, BOD ranges from 2.1-18.5 mg/l, COD ranges from 19.2-144 mg/l. • The detailed report is enclosed as **Annexure-2 and Annexure-3.**
(xlviii)	No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forest.	• Noted for compliance.
(xlix)	No further expansion or modifications in the beneficiation and pelletization plants shall be carried out without prior approval of the Ministry of Environment and Forest.	• Noted for compliance. • No further expansion or modifications in the beneficiation and pelletization plants will be carried out without prior approval of the MoEF&CC.
(l)	No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.	• There will be no change in the calendar plan including excavation, quantum of mineral iron ore and waste. • ROM production at Duarguiburu Iron Ore Mine is maintained within permitted capacity as per the approved EC and Mining Plan.
(li)	Four ambient air quality-monitoring station should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10µm i.e. PM10 and NOx monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.	• Four ambient air quality-monitoring stations are established in the core zone as well as in the buffer zone for RSPM in consultation with JSPCB. • Ambient Air quality monitoring at four locations is being carried out regularly through accredited agency (JSPCB) and also through in house facility. • The reports are being submitted to Jharkhand State Pollution Control Board periodically.

General Manager (Mines) & E&..
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
		• Additionally, Gua Ore Mines has installed a Continuous Ambient Air Quality Monitoring System (CAAQMS) for real time monitoring of Ambient Air Quality within the leasehold area.
(lii)	Data on ambient air quality RSPM (Particulate matter with size less than 10µm i.e. PM10) &NOx should be regularly submitted to the Ministry of Environment and Forests including its Regional Office located at Bhubaneswar and the State Pollution Control Board/ Central Pollution Control Board once in six months.	• Ambient air quality monitoring data is being submitted to MoEF&CC, New Delhi and Regional Office, Ranchi along with the compliance reports. • As per the monitoring and analysis of Ambient Air quality, PM_{10} ranges from 43.4-91.62 µg/m^3, $PM_{2.5}$ ranges from 15.8-48.2 µg/m^3, SO_2 ranges from 5-32.11 µg/m^3 and NOx ranges from 7.4-43.53 µg/m^3. • Detailed Air Quality report for the period October, 2024 to March, 2025 is placed as **Annexure – 2 and Annexure-3**. • Air quality data is also being submitted to Jharkhand State Pollution Control Board and Central Pollution Control Board.
(liii)	Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement of haul roads, loading and unloading and at transfer points should be provided and properly maintained.	• Dust Extractor System & Dust Suppression System has been installed at ore processing areas including loading and unloading areas to control the fugitive dusts. • High pressure Water Sprinklers (28 KL) have been deployed for regular water sprinkling of Haul Roads and dust prone areas. • In addition to this, permanent sprinklers along the main approach haul roads at crushing plant, railway siding area and other crucial areas have been installed. • All these units are being maintained and operated.
(liv)	Measures should be taken for control of noise levels below 85 dB (A)in the work environment. Workers engaged in operations of HEMM, etc should be provided with ear plugs / muffs.	• Measures for control of noise levels are being taken regularly to maintain the noise levels below 85 dB (A). • Workers engaged in operations of HEMM, Ore Crushing & Screening areas, are provided with ear plugs / muffs and are motivated from time to time to use the safety equipments for the whole period of their engagement in work.
(lv)	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as	• Necessary provisions for treatment & recycling of effluents from the proposed beneficiation plant will be taken during the commissioning of Beneficiation Plant.

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
	amended from time to time. Oil and grease trap should be installed before discharge or workshop effluents.	• Previously, oil and grease trap along with vehicle washing ramp, maintenance bay and covered storage yard for proper handling of hazardous waste for the workshop effluents was provided. Presently, a 5 KLD Effluent Treatment Plant (ETP) has been installed and commissioned at the Vehicle Washing Bay in the Mines Workshop area which is operated and maintained on regular basis.
(lvi)	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	• Personal Protective Equipment (PPE) i.e. Dust masks, Helmet, Fluorescent Jacket, Safety Shoes, Goggles etc. are provided to all the workers engaged in the dust prone areas i.e. excavation & loading areas, ore handling plants, stacking & loading areas etc. • Suitable training on safety and health aspects and Occupational health surveillance program are conducted regularly. • A refresher training programme (MVT) fulfilling the same is carried out on monthly basis for any contractions due to exposure to dust and corrective measures are undertaken accordingly.
(lvii)	A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.	• Environmental Management Cell including laboratory has already been established at the mines. The qualified personnel have taken up the job of strengthening the Environmental Management Cell. **Hierarchy of Environment & Lease Department of Gua Ore Mines** General Manager (Mines) & E&L SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
		
(lviii)	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Bhubaneswar.	• Funds earmarked for environmental protection measures at the mine are booked separately and not being diverted for other purpose. • The average expenditure incurred towards environmental management for F.Y. 2023-24 is 824.30 lakhs (also submitted in Annual Environmental Statement) which is higher than the recurring cost of Rs. 120 lakhs as mentioned in the EIA/EMP report of Duarguiburu Mining Lease. • Further, expenditure incurred towards environmental management for F.Y. 2024-25 will be submitted by September' 2025 in the Annual Environmental Statement.
(lix)	The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	• Complied. The Duarguiburu Iron Ore Mine, under Gua Ore Mines, is an existing operational mine under Steel Authority of India Limited (SAIL), and has been in mechanised operation since 1958. Presently, the mining operations are being carried out in accordance with all requisite statutory approvals including Environmental Clearance (EC), Forest Clearance (FC), Consent to Establish (CTE), Consent to Operate (CTO), approved Mining Plan, and valid Mining Lease.

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
		With respect to the expansion project envisaged under the granted EC—comprising installation of a 12.5 MTPA Beneficiation Plant and a 4 MTPA Pellet Plant—in-principle approval from the SAIL Board was initially obtained on 14.02.2014 **(Copy enclosed as Annexure-23)**. However, implementation of the project could not be materialized at that time due to the non-availability of FC for additional forest land (361.295 ha) required for the expansion. Due to prolonged delays in grant of FC, the project could not progress as planned, and SAIL was compelled to terminate the contract with the implementing agency. The Forest Clearance for the said land was subsequently obtained on 07.12.2020. However, there was subsequent delays in the release and physical handover of the diverted forest land by the State Government. Following partial release of the forest land, and to revive the expansion project, a fresh in-principle approval has been obtained from the SAIL Board in February 2025 **(Copy enclosed as Annexure-24)**. SAIL will duly inform the Regional Office, Bhubaneswar, regarding the date of financial closure, final approval of the project, and the start of land development work w.r.t. expansion project as and when these milestones are achieved. The current status has also been recorded and maintained for compliance monitoring purposes.
(lx)	The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	• Full co-operation is being extended to the officers of the Regional Office, MoEF&CC, Ranchi, by furnishing the requisite data/ information / monitoring reports.
(lxi)	The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by email) to the Ministry of Environment and Forests, its Regional Office, Bhubaneswar, the respective Zonal Office of Central Pollution Control Board the State	• Six monthly compliance reports on the status of implementation of environmental safeguards are being submitted to MoEF&CC, New Delhi, Regional Office – MoEF&CC, Ranchi, Central Pollution Control Board and State Pollution Control Board. Previous, half yearly EC compliance report

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
	Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board.	for the period from April' 2024 to September' 2024 was submitted vide letter dated 29.11.2024. • Copy of the compliance report including environmental quality data is uploaded to the SAIL web site i.e. **www.sail.co.in**.
(lxii)	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad / Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions / representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	• Copies of the Environmental Clearance were sent to local Member of Panchayat & Zila Parishad at the time of Grant of EC. Copy of the same was already submitted. • The clearance letter is displayed on the Company website i.e. **www.sail.co.in.**
(lxiii)	The State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and the Collector's Office/Tehsildar's Office for 30days.	• Copies of the Environmental Clearance were sent to JSPCB and its regional office at Jamshedpur at the time of Grant of EC.
(lxiv)	The environmental statement for each financial year ending 31s March in Form V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e-mail.	• Environmental Statement for each financial year ending 31st March in Form V is submitted annually. Environment Statement for the financial year 2023-24 was submitted to the Jharkhand State Pollution Control Board (JSPCB) vide letter no. GUA/E&L/ES/2024-25/113 dated 26.09.2024.
(lxv)	The project authorities should advertise at least in two local newspapers of the District or State in which the project is located and widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also	• Advertisement was published in two daily newspapers on 30.03.2013. (Dainik Bhaskar Daily, Jamshedpur edition on 30.03.2013 and Dainik Jagran Daily edition on 30.03.2013). • Also Local Zila Parishad Members, Gram Panchayat Members, Manky & Mundas, etc. were intimated about the issuance of environment clearance. Copy of the same was already submitted.

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

S.No.	CONDITION	COMPLIANCES
	at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Officeof this Ministry located at Bhubaneswar.	
Compliance of additional specific conditions for amendment in EC vide order no. J-11015/453/2008-IA.II(M) dated 06.11.2020. :		
17 (I)	Fines from the fines dump shall not be excavated during the monsoon period as well as heavy rain days.	• Complied. • The fines from the fines dump will not be excavated during the monsoon period as well as heavy rain days.
17 (II)	Recommendations of IIT, Kharagpur for safe excavation of fines from the fines dump, slope condition assessment, runoff management, etc., shall be implemented and same to be intimated to Regional Office, MoEF&CC along with six monthly EC compliance reports. The project proponent shall also obtain other statutory permissions required for dump mining and adhered to.	• The recommendations of IIT, Kharagpur will be implemented for safe excavation of fines from the fines dump, slope condition assessment, run off management, etc. • Six monthly compliance reports on the status of implementation of environmental safeguards are being submitted to MoEF&CC, New Delhi, Regional Office – MoEF&CC. • All the statutory permission required for dump mining will be obtained and adhered to.
17 (III)	Mitigative measures proposed for excavation and transportation of mineral shall be complied with including moist and covered.	• All the mitigative measures proposed for excavation and transportation of mineral will be implemented
17 (IV)	The project proponent shall monitor the dust levels along the transportation route to Barajamda and shall deploy adequate mobile road water sprinklers to control dust emissions along the ore transport routes.	• Noted for compliance.

GENERAL MANAGER (MINES) AND E&L
GUA ORE MINES
STEEL AUTHORITY OF INDIA LIMITED (SAIL)
BOKARO STEEL PLANT

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Annexure - 1

Report on

STUDY FOR VERIFICATION AND CERTIFICATION OF STRUCTURES FOR SILT/SEDIMENT RETENTION AT GUA ORE MINES

On behalf of

सेल SAIL

Steel Authority of India Limited

by

Prof. Khanindra Pathak

Department of Mining Engineering

Indian Institute of Technology Kharagpur

MAY 2025

कमल भारद्वाज
मुख्य महाप्रबंधक (खान)
सेल-भिलाईस्टील, मुख्य अयस्क खान

Chief General Manager (Mines)

Table of Contents

Executive Summary 1
Background and Context 1
Purpose/Objective of the Inspection 1
Key Observations 1
Waste Dump and Fines Heap Management 1
Structural Interventions 2
Plantation and Ecological Restoration 2
Drainage and Runoff Control 2
Recommendations 2
Conclusion 3
Chapter 1: Introduction, Background and Objectives 4
Introduction 4
Background 5
Objectives 5
Methodology of Inspection 6
Chapter 2: Overview and Details of Mining Lease 8
General Mine Profile 8
Waste Dump Areas 8
Fines Heap and Tailings 9
Other Key Locations 9
Environmental Significance 10
Chapter 3: Environmental Measures – Current Status and Proposed Structures 11
Waste Dump Management 11
Details of the structures at Waste dumps and its location with status 11
Plantation and Green Belt Development 17
Stability and Drainage 19
Fines Heap Management 20
Containment Measures 21
Inventory of Check Dams for Silt Containment 21
Sedimentation Pits/ Drains 21
Inventory of Sedimentation Pits and Drains 21
Run-off Water Control 22
Vegetative Cover or Surface Treatment 23

Infrastructure and Drainage Works 23
Garland Drains and Channels 23
Toe Walls and Retaining Structures 24
Sedimentation Pits 24
Status of Proposed Works 24
Sedimentation Pits and Check Dams 24
Chapter 4: Recommendations and Corrective Measures 26
Recommendations 26
Drainage System Maintenance 26
Chapter 5: Conclusions 28
Summary of Findings 28
Conclusion on Environmental Readiness 28
Suggestions for Further Audit or Study 28

कमल खारकर
मुख्य महाप्रबंधक (खान)
सेल-बीएसएसपी, दुर्ग अयस्क खान
Kamal Kharkar
Chief General Manager (Mines)
SAIL-BSL, Durg Iron Ore Mines

List of Figures

Figure 1. 1 Systematic Site Inspection by IIT Kharagpur Team and Officers of Gua Ore Mine 7

Figure 3. 1 Dry boulder retaining wall at bottom slope of Ranichua Waste Dump 13
Figure 3. 2 Earthen Bund with Sedimentation pits at Ranichua Waste Dump 13
Figure 3. 3 Gabion Boulder Wall in between earthen bund 14
Figure 3. 4 Dry Boulder Retaining Wall with wire mesh at OT Hill Waste Dump 16
Figure 3. 5 Constructed catch drain at OT Hill Waste Dump 16
Figure 3. 6 Bench Cutting at OT Hill & Ranichua Waste Dump 16
Figure 3. 7 Plan of the proposed RCC retaining wall 17
Figure 3. 8 Site photographs (OT Hill) 18
Figure 3. 9 Site Photographs of OT Hill and Ranichua 19
Figure 3. 10 Site Photographs of Ranichua and OT Hill 19
Figure 3. 11 Drainage network with control structures 20
Figure 3. 12 Series of Sedimentation ponds 22
Figure 3. 13 Vetiver plantation in slope of Zero Point Nalla 23

List of Tables

Table 3. 1 Structures constructed at Ranichua Waste dump area 11
Table 3. 2 Structures proposed at Ranichua Waste dump area 12
Table 3. 3 Structures constructed at OT Hill Waste dump area 14
Table 3. 4 Structures proposed at OT Hill Waste dump area 15
Table 3. 5 Summary of plantation activities 17
Table 3. 6 : Check dams for Silt Containment 21
Table 3. 7 Sedimentation Pits and drains 22
Table 3. 8 Status of Garland Drain and desiltation of Sedimentation Pit across mining areas 23
Table 3. 9 Inventory of Toe Walls and Retaining Structures at Critical Locations 24
Table 3. 10 Status of Sedimentation Pits or Check Dams at Key Drainage Points 24

Kamal Bhaskar
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Structure of the Report

Chapter 1 includes introduction of mines, background and need of the study along with objective and methodology of inspection

Chapter 2 particularly includes details of mining leases along with its location, accessibility and type of operation. Also, information about location of two active waste dumps, fines heaps and other key locations has been highlighted. Besides, these environmental significance/effects of these waste dumps, fines heap and its tailings have been included along with drainage paths and its significance at Gua Ore Mines.

Chapter 3 reports out the current status and compliance of Environment measures taken for silt retention. Details of silt retention structures including check dams, sedimentation ponds, boulder retention walls, catch drains, siltation traps etc., which are constructed/ are being constructed/ proposed at Gua Ore Mines has been included in the chapter. Type of plantation, coverage, its survival rate and corresponding year of plantation has also been highlighted.

Chapter 4 Highlights recommendation and corrective measures and

Chapter 5 Summarizes the conclusions and recommendations.

Executive Summary

Background and Context

Gua Ore Mines (GOM) operated by SAIL in Jharkhand comprise four mining leases, primarily the Duarguiburu Iron Ore Mining Lease, which spans 1,443.756 ha within the Ghatkuri Reserve Forest. Environmental Clearance (EC) was granted in 2013 for extraction of 10 MTPA (ROM) iron ore and 2.5 MTPA of dumped fines. Further, as advised for faster utilisation of dumped fines, EC Amendment was obtained in 2015 for re-distribution to 9.4MTPA (ROM) iron ore and 3.1 MTPA of dumped fines. However, over 33 MT of legacy fines, primarily in Duarguiburu and Topailore leases, remain stacked and environmentally sensitive.

Following a site visit by the Regional Office (RO) of MoEF&CC in January 2022, and subsequent inspection reviews in 2023–2025, several corrective actions have been initiated in response to a Show-Cause Notice issued by the Ministry.

Purpose/Objective of the Inspection

The inspection was jointly conducted by IIT Kharagpur and GOM officials on 26thMarch, 2025 and 13thApril, 2025. The key objectives were:

- To verify the silt retention cum water harvesting structures such as check dams, sedimentation ponds, boulder retention walls, siltation traps, and catch drains at Gua Ore Mines.
- To certify the adequacy and implementation status of these structures with reference to the Environmental Clearance (EC) conditions of the Duarguiburu Mining Lease.
- To evaluate compliance with specific General Conditions (i, iv, xi, xii, xxviii, xlii, xlv) and other relevant provisions of the EC order dated 25/03/2013.
- To assess the effectiveness of the constructed, ongoing, and proposed sediment control measures in line with the observations made by MoEF &CC in the personal hearing dated 17.01.2025.
- To consider and report on allied activities such as de-siltation and plantation undertaken to enhance the silt retention capacity at Gua Ore Mines.

Key Observations

Waste Dump and Fines Heap Management

- Two active waste dumps (Ranichua and OT Hill) are protected by terracing, boulder retaining walls, gabion walls, sedimentation pits, and earthen bunds.
- Seven check dams (earthen, concrete, masonry) have been constructed downstream of the fines heap to control runoff and siltation into the Karo River.

Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

- Drainage systems like garland drains, toe walls, and sediment traps have been implemented across mining and dump areas to manage stormwater effectively.

Structural Interventions

- Mechanically Stabilized Earth Wall (MSEW) construction is underway at toe of Ranichua waste dump (100×40×20 m) and an RCC retaining wall is to be constructed at toe of OT Hill waste dump (69×2×14 m).
- Additional measures like angle-grouted boulder walls and upstream check dams are being developed to reinforce slope stability and mitigate erosion.

Plantation and Ecological Restoration

- Plantation on 1.5 ha of waste dumps (2023–2025) using native species (Neem, Sal, Jamun, etc.) shows approximately 70% survival.
- Grass seeding and hedges have been introduced to stabilize slopes. However, augmentation through mulching and hydroseeding is recommended.
- An MoU has been signed with ICFRE-IFP, Ranchi, for ecological restoration of 16 ha including dumps and barren areas.

Drainage and Runoff Control

- Desiltation of sedimentation pits and drains is carried out regularly before monsoons. Pits near DB Nallah, Gojapahar, and Kalimandir Check Dam remain effective.
- Garland drains around active pits (e.g., Bai Hill, OT Hill, HD Buru) ensure that surface runoff is directed into controlled structures.

The detailed observations, along with geo-tagged photographs, structure-wise inventories, and location maps, are provided in the relevant sections and annexures of this report for reference and verification.

Recommendations

- **Drainage System Maintenance:** Ensure regular desiltation of drains and sedimentation channels, repair damaged bunds using compacted soil or geotextile, and install diversion drains to redirect clean runoff from fines heaps and OB dumps. Identify and maintain appropriate location for placement of the desilted material. Develop design for prevention of migration of silts from the relocated sites.
- **Erosion Control Structures:** Construct sediment basins, settling ponds, and level spreaders, terrace passive dumps with toe drains, compact loose surfaces, and apply mulch or grass seeds to control erosion and silt migration. The planning inputs for design of such measures need to be maintained in a database and periodically updated.

कमल भारकर
मुख्य महाप्रबंधक (खान)
सेल-बी.एस.एल.पी., मुख्य खान कार्यालय
Kamal Bhaskar
Chief General Manager (Mines)
SAIL-BSL, MAIN MINES OFFICE

- **Vegetative Measures:** Strengthen vegetative cover using native grasses and forest species, adopt mulching and hydroseeding with organic slurry, and involve expert agencies for structured ecological restoration. Vetiverization of the slopes and introduction of Impalla grass for carbon dioxide sequestration should carbon credit should be targeted.
- **Monitoring and Rapid Response:** Conduct pre- and post-rain inspections of drains and structures, deploy temporary silt traps, rip-raps in vulnerable zones, and ensure immediate response to breaches or erosion signs.
- **Operational Adjustments:** Limit vehicular activity on exposed wet surfaces, manage mine water discharge to prevent saturation of dumps, and adjust site operations during heavy rainfall. Extreme weather preparedness to be analysed and necessary steps should be adapted with provisions of necessary inventory of instruments and facilities.
- **Sustainable Drainage Systems:** Reuse treated mine water for industrial or local needs, and ensure STP/ETP or passive treatment systems remain operational and compliant with environmental norms. The retention ponds and check dams should be periodically reviewed against possible changes in the short term mine plan depending on the production schedules.
- **Slope Redesign and Stability:** Implement reinforced soil structures and gabion walls, maintain terraced benches on OB dumps, and monitor slope movement using total stations for early risk detection. Adequate provisioning of slope drainage, measurement of pour pressures and slope movements should be maintained.

Conclusion

The inspection and assessment confirm that Gua Ore Mines (GOM) has implemented a range of structurally and ecologically sound measures—such as check dams, sedimentation pits, gabion walls, earthen bunds, and slope plantations—to manage siltation, stabilize dumps, and mitigate environmental risks in line with the Environmental Clearance (EC) conditions. Based on field verification, technical review, and visual inspection, the sediment protection measures in place are found to be adequate in addressing the objectives of erosion control, silt retention, and environmental compliance for the present mining operations. Furthermore, several additional interventions—such as construction of Mechanically Stabilized Earth Walls, RCC retaining structures, and expanded ecological restoration—are underway and are expected to further strengthen site protection measures considering the approved mine plan. These ongoing efforts are aligned with the observations made by the Regional Office (RO) in its inspection report and the directives issued by MoEF & CC in the Show-Cause Notice (SCN). Upon completion, these will comprehensively fulfil the commitments required for full compliance with EC conditions and regulatory expectations. Continued implementation of planned improvements and routine maintenance will ensure sustained effectiveness and environmental resilience at the site, especially given the region's high erosion potential and rainfall intensity. Hydrological studies for surface and underground hydrology should be scientifically documented with geo-spatial analysis for future risk assessment and post mining land use and brownfield redevelopment.

Chapter 1: Introduction, Background and Objectives

Introduction

Steel Authority of India Limited (SAIL) is having integrated steel plants at Bokaro, Durgapur, Rourkela, Bhilai & Burnpur and special steels plants at Bhadrawati, Durgapur & Salem and aFerro-alloys plant at Chandrapur. In order to supply raw materials to its steel plants, SAIL also operates Iron Ore, Limestone, Dolomite, Coal and Manganese Ore mines in the states of Jharkhand, Odisha, Chhattisgarh and Madhya Pradesh. The mines located in Jharkhand are under administrative control of SAIL-Bokaro Steel Plant (BSL), Bokaro, Jharkhand. SAIL has several captive iron ore mining leases in Jharkhand, Odisha and Chhattisgarh. Oneof SAIL's captive iron ore mine is Gua Ore Mines which is located in Village Gua, Tehsil Noamundi, District West Singhbhum of Jharkhand. Gua Ore Mines comprises of four mining leases viz. Duarguiburu Iron Ore Mining Lease (covering 1443.756 ha) – the main iron ore mining lease, Topailore Iron Ore Mining Lease (covering 14.15 ha), Jhillingburu-I Iron Ore &Manganese Ore Mining Lease (covering 210.526 ha) and Jhillingburu-II Iron Ore &Manganese Ore Mining Lease (covering 30.43 ha). Presently, active mining is being carried out only in Duarguiburu Mining Lease.

The Environmental Clearance (EC) for Duarguiburu Iron Ore Mining project was granted by MoEFCC vide letter no J-11015/453/2008-IA.II (M) dated 25.03.2013 for annual production capacity of 10 million tonnes (Mt) (ROM) of iron ore and 2.5 Mt of Dumped fines from existing fines dumps by opencast mechanized method involving 274.691 ha of broken up area for which Forest Clearance (FC) has been obtained out of the total mine lease area of1443.756 ha and setting up of a new beneficiation plant of 12.5 million tonnes per annum(MTPA) throughput capacity installing a new pellet plant of 4 MTPA capacity outside the mine lease.

There is a huge fines dump containing about 33 million tonnes (Mt) of dumped iron ore fines (26.4 Mt in Duarguiburu ML & 6.6 Mt in Topailore ML) at Gua Ore Mines, which has accumulated over the years till merger of IISCO Steel Plant (ISP), Burnpur with SAIL in2006 due to non–availability of technology to consume fines in the ISP, Burnpur and thus, was stacked at the mines.

The envisaged expansion of Duarguiburu Iron Ore Mining Project of Gua Ore Mines was delayed due to want of Stage – II FC over an area of 361.295 ha and the same was granted by MoEFCC on 07.12.2020. Further, land was released by State Government through State Forest Department on 18.02.2022.

Duarguiburu Mining Lease was first granted on 22.02.1949 for a period of 30 years. 1st Renewal of Mining Lease (RML) was also granted for another 30 years period w.e.f22.02.1979 to 21.02.2009. Second renewal application was submitted on 08.02.2008 for further 20 years w.e.f. 22.02.2009 to 21.02.2029. Subsequent to enactment of MMDR Amendment Act 2015, Govt. of Jharkhand vide order dated 25.06.2019 extended the lease period from 22.02.2009 to 21.02.2029 under the provisions of Mineral (Mining by Government Company) Rules, 2015 and mining lease deed has been executed on24.09.2019.

The entire Duarguiburu Mining Lease over 1443.756 ha is forest area under Ghatkuri Reserve Forest. Stage-II Forest Clearance for existing broken area over 274.691 ha was granted by MOEF&CC on 22.08.2014. Further, Stage-II Forest Clearance for 361.295 ha was granted by MOEF&CC on 07.12.2020. Presently, the total diverted area under Duarguiburu Mining Lease is 635.986 ha.

Review of Mining Plan for the plan period of 2024-25 to 2028-29 for Duarguiburu Mining Lease of Gua Ore Mines has been approved by IBM vide letter No. RAN/West Singhbhum/Fe/ROMP-7/2023-24 dated 06.02.2024.

Background

The Regional Office of the MoEFCC at Ranchi visited Gua Ore Mines on 18.01.2022 for certification of EC condition compliance of Duarguiburu ML and submitted monitoring report vide letter dated 25.05.2022. The monitoring report dated 25.05.2022 was examined by MoEFCC, New Delhi and based on the observed non-compliances, a Show-Cause Notice (SCN) was issued to the Duarguiburu ML vide Ministry's letter dated 20.07.2023. GOM submitted the response to the SCN vide letter dated 18.08.2023. RO, Ranchi submitted the SCN Response Review Report to MoEFCC, New Delhi vide letter dated 10.07.2024 based on site inspection conducted on 28.03.2024. The SCN Response Review Report dated 10.07.2024 was examined within the Ministry w.r.t ambiguity on the status of STP and ETP at the project site. RO Ranchi was again asked to verify the status of installation of ETP in the project vide Ministry's letter date 12.11.2024, which was clarified by RO, MoEFCC vide letter dated 16.12.2024.

In the meantime, Expert Appraisal Committee (EAC), MoEF&CC, New Delhi, in its meeting held on 21.11.2024 recommended the project for EC amendment of Duarguiburu lease for change in project configuration, excavation & dispatch pattern and inclusion of Rajaburu area vide minutes of meeting dated 04.12.2024 **[Please refer enclosed Annexure-1]**.

Consequently, Personal Hearing regarding show-cause notice issued to Duargaiburu Mining Lease of Gua Ore Mines, SAIL., conducted before the Joint Secretary, MoEFCC, on 17.01.2025 at MoEF & CC, New Delhi. Proceedings of Personal Hearing was issued to Gua Ore Mines dated 06.02.2025, wherein at condition no. 3(1), it has been instructed by MoEF &CC, New Delhi for submission of adequacy report of the sediment protection measures as per EC conditions from institute of repute along with the supporting recent geo-tagged photographs to RO and Ministry for further verification. **[Please refer enclosed Annexure-2]**.

This inspection was conducted to assess the implementation and effectiveness of environmental control measures in waste dumps, fines heaps, and other mining areas in accordance with applicable environmental guidelines and commitments.

Objectives

- To verify the silt retention cum water harvesting structures such as check dams, sedimentation ponds, boulder retention walls, siltation traps, and catch drains at Gua Ore Mines.
- To certify the adequacy and implementation status of these structures with reference to the Environmental Clearance (EC) conditions of the Duarguiburu Mining Lease.
- To evaluate compliance with specific General Conditions (i, iv, xi, xii, xxviii, xlii, xlv) and other relevant provisions of the EC order dated 25/03/2013.
- To assess the effectiveness of the constructed, ongoing, and proposed sediment control measures in line with the observations made by MoEF&CC in the personal hearing dated 17.01.2025.
- To consider and report on allied activities such as desiltation and plantation undertaken to enhance the silt retention capacity at Gua Ore Mines.

Kamal Prasad
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Methodology of Inspection

Systematic inspections covering all critical areas affecting the performance, safety, and longevity of the silt retention structures were carried out jointly with the IIT Kharagpur team and the officers of Gua Ore Mines on 26.03. 2025 and 13.04.2025 (Figure 1.1). The methodologies followed included:

1. Pre-Inspection Planning
    a) Document review: Studying available design drawing, specification, construction records
    b) Setting Objective: (Adequacy- Structural Stability, capacity & functionality)
    c) Preparation of Inspection checklist tailored to the type of silt retention structures.
2. Site Inspection/ Field Assessment
    a) Visual Inspection
        - Construction of the structures
        - Sediment Retention
    b) Measurement & Field Survey
        - Dimension of the structures
        - Topographical survey: Elevation, slopes, toe, flow channels.
        - Photographic documentation

Field visits and assessment at the proposed locations includes silt/ sediment retention structures constructed at Waste Dump areas, Fines heap and its slope area at Zero Point Nalla before joining to Karo River, DB Nallah, Gojapahar Nalla check dam, and areas around working mines pits. The field visit has been conducted along with photographic evidence, GPS tagging, and interaction with on-site personnel as part of inspection.

कमल बाखला
मुख्य महाप्रबंधक (खान)
सेल-बीएसएल, गुआ आयरन खान
Kamal Baskar
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

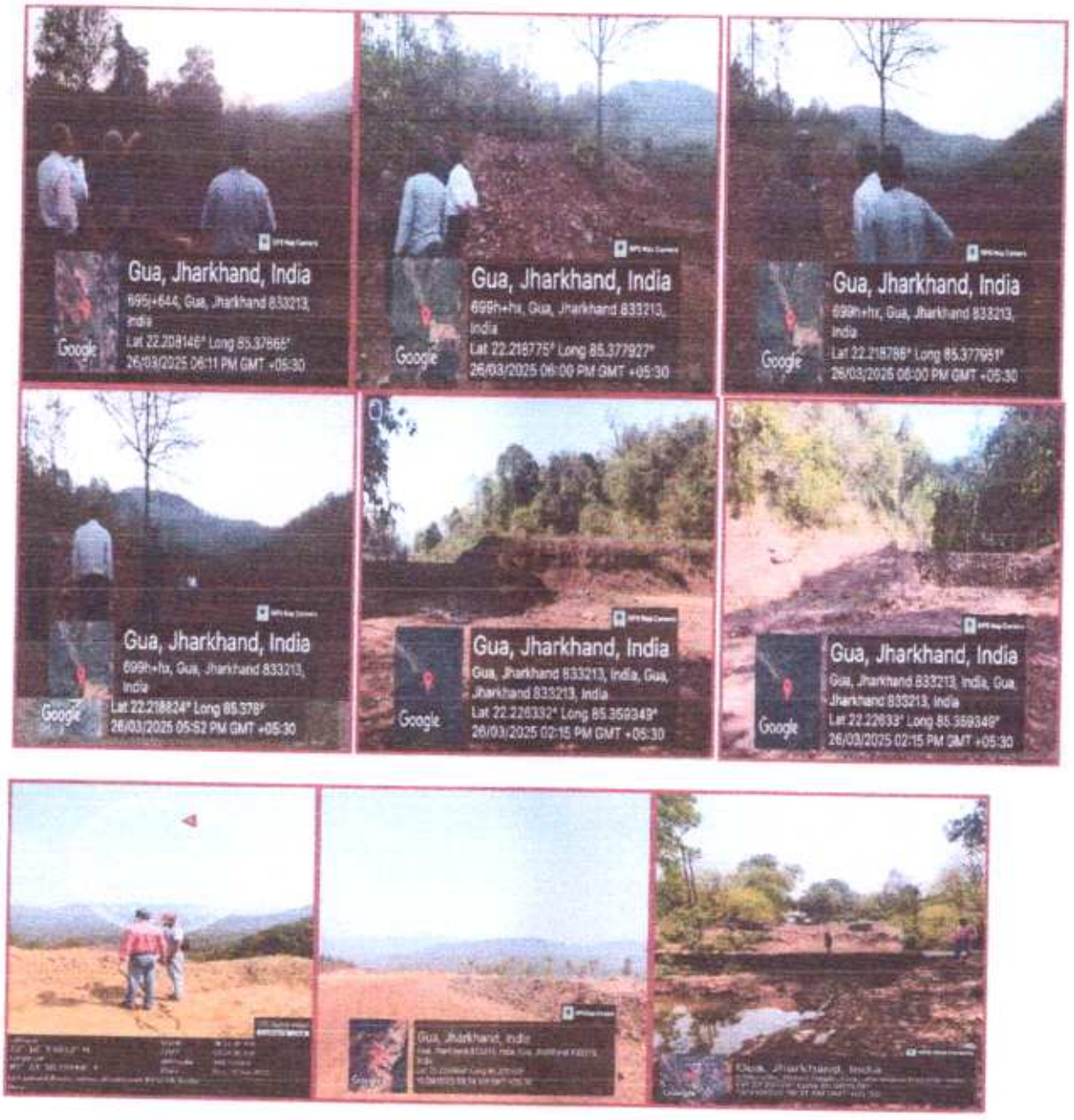


Figure 1. 1 Systematic Site Inspection by IIT Kharagpur Team and Officers of Gua Ore Mine

Kamal Bheekor
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Chapter 2: Overview and Details of Mining Lease

1. Overview of Mine and Operational Areas

General Mine Profile

One of SAIL's captive iron ore mine is Gua Ore Mines which is located in Village Gua and Ghatkuri Reserve Forest, Tehsil Noamundi, District West Singhbhum of Jharkhand. Gua Ore Mines comprises of four leases viz. Durgaiburu Iron Ore Mining Lease (covering 1443.756 ha) – the main iron ore mining lease, Topail ore Iron Ore Mining Lease (covering 14.15 ha), Jhillingburu-I Iron Ore &Manganese Ore Mining Lease (covering 210.526 ha) and Jhillingburu-II Iron Ore& Manganese Ore Mining Lease (covering 30.43 ha). Presently active mining is being carried out only in Durgaiburu Mining Lease. Gua Ore mines were originally the captive iron ore mine of Indian Iron and Steel Company Steel Plant (IISCO). IISCO has now been taken over by SAIL.

Durgaiburu M.L. one of the operating mining leases of Gua Ore Mines, spreads over an area of 1443.756 ha. It is located in Tehsil Noamundi, District West Singhbhum, is a part of Survey of India Toposheet bearing no. 73F/8 (F45H8) and is bounded by latitudes from22°11'17.511"N - 22°14'17.304"N and longitudes from 85°19.58.525"E -85°23'28.973" E. The entire mining lease area is located in Ghatkuri Reserve Forest.

The lease area can be approached by all-weather metalled roads viz. Jamda -Thalkobad road. The nearest railway station, both for passenger as well as goods trains is Gua. A broad-gauge railway branch line runs from Gua to Rajkharsawan Junction on Howrah–Mumbai main line of South-Eastern Railway. The leasehold is well connected with Tatanagar (147 km away) by metalled road as well as by rail route via Chaibasa and Noamundi and can also be approached through metalled and unmetalled roads from Manoharpur railway station on Howrah–Bombay main line. Durgaiburu Mining Lease over an area of 1443.756ha of Gua Ore Mines is located in Village Gua & Ghatkuri Reserve Forest, Tehsil Noamundi, District West Singhbhum, is a part of Survey of India Toposheet no.73F/8 (F45H8) and is bounded by latitudes from 22°11'17.511"N-22°14'17.304"N and longitudes from 85°19'58.525"E-85°23'28.973"E. The entire mining lease area is located in Ghatkuri Reserve Forest.

At present, Durgaiburu Mining Lease is a mechanized opencast mine with deep hole drilling and blasting along with deployment of shovel-dumper combination. The lease area is divided into four exploration blocks namely A, B, C& D extending from South-West to North-East. Presently three blocks namely, 'A', 'B' & C are being worked. The 'A' block consists of a part of Bai Hill & Ranichua, 'B' block consists of a part of H D Buru & part of IInd level, whereas block 'C' consists of a part of IInd level& OT Hill. 'D' block consists of part of Bai hill & Darbarburu and Gojapahar areaare virgin. Processing of ore at Durgaiburu Mining Lease is being done by dry process involving crushing & screening. The ROM ore will be crushed and screened. Sized ore will be mechanically loaded into railway wagons and dispatched to SAIL Steel Plants.

Waste Dump Areas

There are two active dumps, one at Ranichua turning and another at northern sides of OT Hill area, which are being maintained by appropriate grading and benching/top terracing maintaining less than 28°slope.Both dumps at OT Hill & Ranichua are active. Materials at both the waste dumps are mostly waste rocks of Iron ore deposit. It includes Banded Hematite Quartzite(BHQ)/Banded hematite Jasper

Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

(BHJ/ Limonite/ yellow ochre/ shale/ Kaoline / waste rock, etc. out of which aluminous kaoline and shale consists of 70% of waste dumps and it is aluminous having more than 35-40% Al2O3.

The size distribution is varies from 1200 mm to -200 Mesh size. The large size boulders have at places has facilitated instability. The fines below it got eroded by rain water leaving the boulders to get unsterilized and while it slides, it makes associated mass unstable.

Fines Heap and Tailings

One of the main concern of Gua mines is 33Mte of fines having particles of less than 10mm kept as heaps on a location that comes under feeder streams of Zero Point Nala that contributes to Karo river. The fines heap is approximately 100 m above the immediate base line and the angle of repose is 37° and it is spread over an aprox. 9.60 ha. The top of the heap is at an elevation of 670 m, in comparison to 445m being the level at which the tributary feeding the Karo river.

Though it is planned that the fines will be consumed in the upcoming pelletization plant, careful measures to avoid choking of nalas and siltation on river bed has been undertaken which includes several measures like earthen bunds, sediment trap, check dams, plantation etc for arresting the washed down fines so that the tributary does not get affected and the problems are kept under control. The major problem of these fines heap was migration of fines to the Karo river on the east of the fine heaps, however remedial measures for containing the washed fines by constructing check dams making use of the available fines as construction medium was incorporated. Total seven no. of dams (protection measures) has been constructed spanning over latitudes from 22°12'33.75"N-22°12'19.4"N and 85°21'56"E -85°22'49.39"E which includes four earthen dam, two concrete check dam and one random rubble masonry dam.

Four no. of earthen dams, named as Dam-1 to Dam-4 constructed at foot of the fines heap for arresting silt. Also, as suggested by IIT Kharagpur another dam, named Dam-5 (Concrete Check Dam) was constructed along with a sedimentation pond. Moreover, to control flow of fines, Random Rubble Masonary Check dam (Dam - 6) has been constructed at Zero Point Nallah at Gua Ore Mines and all dams are periodically desilted.

Other Key Locations

There are no perennial nallahs and springs in the vicinity or passing through the mining lease area. Only seasonal nallahs flows during the rainy season and since Gua Ore Mines operates on dry process, there is no interruption or addition of effluent in these seasonal natural flows. However, various measures have been taken to prevent surface runoff thereby preventing water pollution of Karo River flowing across the township.

Bunds along the haul roads and outer periphery of the pits are maintained to ensure that no sediment laden storm water get discharged from the mined-out area. Garland drains have been provided around the mine pits, haul roads and diverted surface runoff from the mining and other areas into sedimentation cum rainwater harvesting pits constructed at various areas viz. Bai Hill, HD Buru and IInd Level etc., where water is allowed to settle and percolate into the ground water.

Catch drains with sedimentation pit has been constructed and maintained around the OB dump areas to arrest the flow of fines during monsoon. Sedimentation pit & Concrete check dam constructed across DB Nallah and Gojapahar Nalla Check dam.

Kamal Bhaskar
Chief General Manager (Mines)
SAIL-BSL GUA ORE MINES

Environmental Significance

Hydrologically study area shows dendritic drainage pattern that looks like a branch of tree with dense connectivity of first and second order drainages. Study area follows first to sixth ordered streams in Gua mine region. Topographically study area lies in hilly region with undulating terrain with high elevation portion so that the drainage density of study area is high to moderate that is very actively worked in monsoon period and this is one of the major reasons for excessive erosion in this region. The average annual rainfall is 1422 mm, topographically high elevations, high drainage density and adjoining mining activity over the hill plateau, these conditions are more susceptible for erosion and approach to failure the present structures like check dams and retain walls or any type of conservative structures in study area.

The erosion potential zone is covering part of Ranichua waste dump location at Northern part of the mines, to restrict the erosion here, structures like retaining wall and check dam are constructed. Further, construction of Mechanically Stabilized Earth Wall having dimension of nearby fine heap and surrounding area at southern region of mines and Bai hill waste dump location at Western region of mines. North and North-west part of Gua mine is covered by high drainage density with fine drainage network. Physiographically this region has very steep slope with average elevation is 745m above MSL. These parts of mines are more susceptible for erosional activities. Also, the presence of sedimentation pits, gabion walls, and earthen bunds indicates active management of stormwater runoff and slope stability. Coordinates as per constructed structure suggest measures are near active dumps, potentially affecting local watercourses and slope integrity.

Kamal Bhaskar
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Chapter 3: Environmental Measures – Current Status and Proposed Structures

Waste Dump Management

There are two major waste dumps namely Ranichua Waste Dumps and OT Hill Waste Dumps being located on the slope of hills. These dumps are highly susceptible to silt migration under heavy rainfall conditions. They are also venerable mass flow if not adequately protected. The Planning and Design of the mine has considered the potential safety and environmental aspects and protective measures were taken. However, with the increase of volume with time more attentions are called for. The various protective measures undertaken are given below. Figure 3.1 shows the dry boulder retaining wall at bottom slope of Ranichua Waste Dump; Figure 3.2 shows the Earthen Bund with Sedimentation pits at Ranichua Waste Dump and Figure 3.3 shows the Gabion Boulder Wall in between earthen bund.

Details of the structures at Waste dumps and its location with status

Table 3. 1 Structures constructed at Ranichua Waste dump area

Sl. No.	Structure	Dimension (L × W × H in metres)	Location (Latitude-Longitude)	Structural Soundness/Adequacy /Effectiveness	Remarks
1	Gabion Boulder Wall	Length- 23 m, Width- 5 m, Height- 5 m (1 m below GL)	22°13'32.2968" N 85°21'36.864" E	Structurally sound and effective	
2	02 nos. of Gabion Boulder Wall between already constructed Earthen Dams	Length- 6m, Height- 5 m for each retaining wall	1. 22°13'35.688" N 85°21'32.6412" E 2. 22°13'34.788" N 85°13'34.788" E	Structurally sound and effective	
2	Earthen Bund		22°13'32.20"N 85°21'36.51"E	Structurally sound and effective	

मुख्य महाप्रबंधक (खान)
सेल-बीएसएल, एवं अधिक खान
Kamal Bagchee
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Sl. No.	Structure	Dimension (L × W × H in metres)	Location (Latitude-Longitude)	Structural Soundness/Adequacy /Effectiveness	Remarks
3	Sedimentation pit-1	Length- 25 m, Width- 20 m, Height- 2.5 m	22°13'32.20"N 85°21'36.51"E	Effective	
4	Sedimentation pit-2	Length- 25 m, Width- 20 m, Height- 2.5 m	22°13'32.20"N 85°21'36.51"E	Effective	
5	07 nos. of top terraces	Width 15-25 m, Height 5-7 m			

Table 3. 2 Structures proposed at Ranichua Waste dump area

Sl. No.	Structure	Dimension (L × W × H in metres)	Location (Latitude-Longitude)	Structural Soundness/Adequacy /Effectiveness	Remarks
1	Desiltation of existing catch drains and Siltation ponds	Catch drain: Length 1500 m, Width 2m, Depth 2m Each small Siltation ponds: Length 5 m, Width, 5 m, Depth 3m for 25 nos	22°13'10.88"N to 22°13'22.37"N 85°21'30.89"E to 85°21'39.03" E	As per design the proposed measures are suitable for silt retention at Ranichua Waste Dump	Desiltation will be carried out every year.
2	One no. MSE Wall (Mechanically Stabilized Earth Wall	Length 100mts, Height 20m from existing G.L. and width of 40mts	22°13'32.40"N 85°21'37.00" E		Adequate for silt retention as long-term measures
3	Additional boulder retaining wall with wire mesh & angle grouting	Length- 32 metre, Height- 5 metre (1 metre below GL), Width- 6 metre			Effective & Adequate

Kamal Sonakar
Chief General Manager (Mines)
SAIL-BSL

Instrument for warning of rate of silt volume development and online reporting of suspended particle in the outflow should be provided

Figure 3. 1 Dry boulder retaining wall at bottom slope of Ranichua Waste Dump

Figure 3. 2 Earthen Bund with Sedimentation pits at Ranichua Waste Dump

कमल भारकर
मुख्य महाप्रबंधक (खान)
सेल-दीपकुआ, पुरी अयस्क खान
Kamal Bhaskar
Chief General Manager (Mines)
SAIL-DIPC, Iron ORE MINES

Figure 3. 3 Gabion Boulder Wall in between earthen bund

Table 3. 3 Structures constructed at OT Hill Waste dump area

Sl. No.	Structure	Dimension (L × W × H in metres)	Location (Latitude-Longitude)	Structural Soundness/Adequacy /Effectiveness	Remarks
1	Gabion Boulder Wall	Length 67 m Width 5m and Height 5m	22.234213° N 85.370147° E	Structurally sound and effective	
2	Sedimentation pit	Length- 25 m, Avg. Width 20m, Height, 2.5m for each pit (Total volume of pits: 2500 cum)	22° 13' 35.688" N 85° 21' 32.6916" E	Effective	The boundary of the sedimentation pits will have to be properly vegetated with vetiver grass, lemon grass and other rapidly spreading grasses so that in case of any overflow particulate matters can be filtered.

Chief General Manager (Mines)
SAIL

Sl. No.	Structure	Dimension (L × W × H in metres)	Location (Latitude-Longitude)	Structural Soundness/Adequacy /Effectiveness	Remarks
3	07 nos. of top terraces	Width 15-25 m, Height 5-7 m		Terraced are maintained for slope stability	

Table 3. 4 Structures proposed at OT Hill Waste dump area

Sl. No.	Structure	Dimension (L × W × H in metres)	Location (Latitude-Longitude)	Structural Soundness/Adequacy /Effectiveness	Remarks
1	Desiltation of existing catch drains and Siltation ponds	Catch drain: Length 1200 m, Width 2m, Depth 2m Each small siltation ponds: Length 5 m, Width, 5 m, Depth 3m for 50nos Each big siltation ponds: Length- 120 metre, Width- 30 metre, Depth- 3 metre for 02 nos	22°13'10.88"N to 22°13'22.37"N 85°21'30.89"E to 85°21'39.03" E	As per design details, the proposed measures are suitable for silt retention at OT Hill Waste Dump	
2	Construction of RCC retaining wall	Length 69 metre, Height 13 metre from existing G.L. and width of 2 metre	22°13'32.40"N 85°21'37.00" E		Adequate for silt retention as long term measures

Considering the locational situation for the rain water drainage systems, it is suggested that the length of the Check Dam may be further increased towards the left-hand side to take upward maximum upto 15m for diverting the inflow to the pond in the northern side.

The inspection team observed that the measures taken are adequate however, during the period of remaining construction, they should observe that the final site condition resembles to as shown in the below figure 3.4 and Figure 3.7 shows the plan of the proposed RCC retaining wall. Figures 3.5 and 3.6 shows the constructed catch drain at OT Hill Waste Dump and Bench Cutting at OT Hill & Ranichua Waste Dump respectively.

Chief Consultant (Mines)
SAIL-RSP, GUA ORE MINES

Figure 3. 4 Dry Boulder Retaining Wall with wire mesh at OT Hill Waste Dump

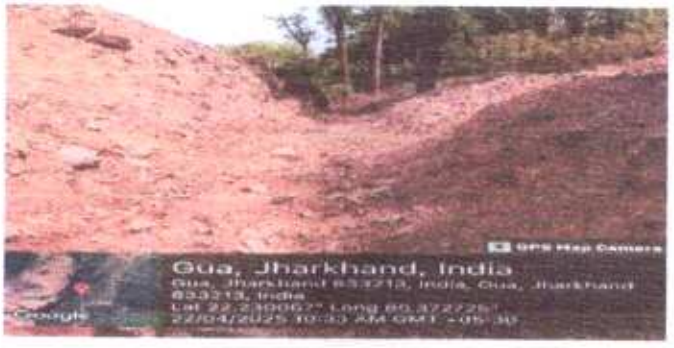


Figure 3. 5 Constructed catch drain at OT Hill Waste Dump

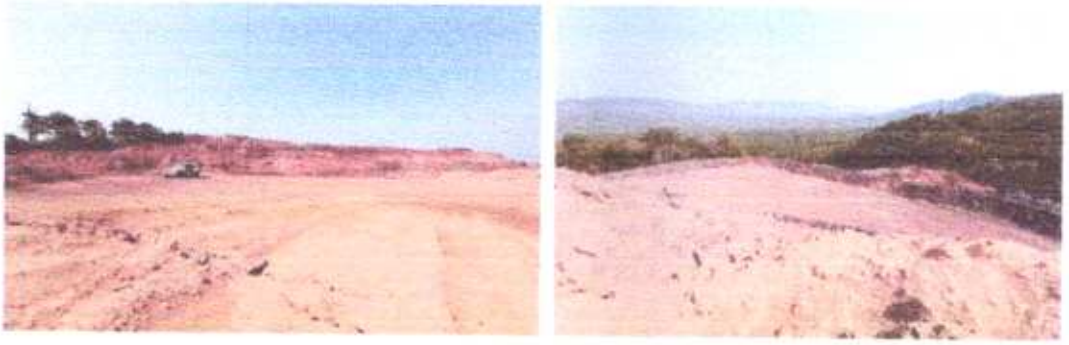


Figure 3. 6 Bench Cutting at OT Hill & Ranichua Waste Dump

कमल भोसकर
मुख्य महाप्रबंधक (खान)
सेल-बोकारोस्टील, गुवा आयरन खान
Kamal Bhaskar
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

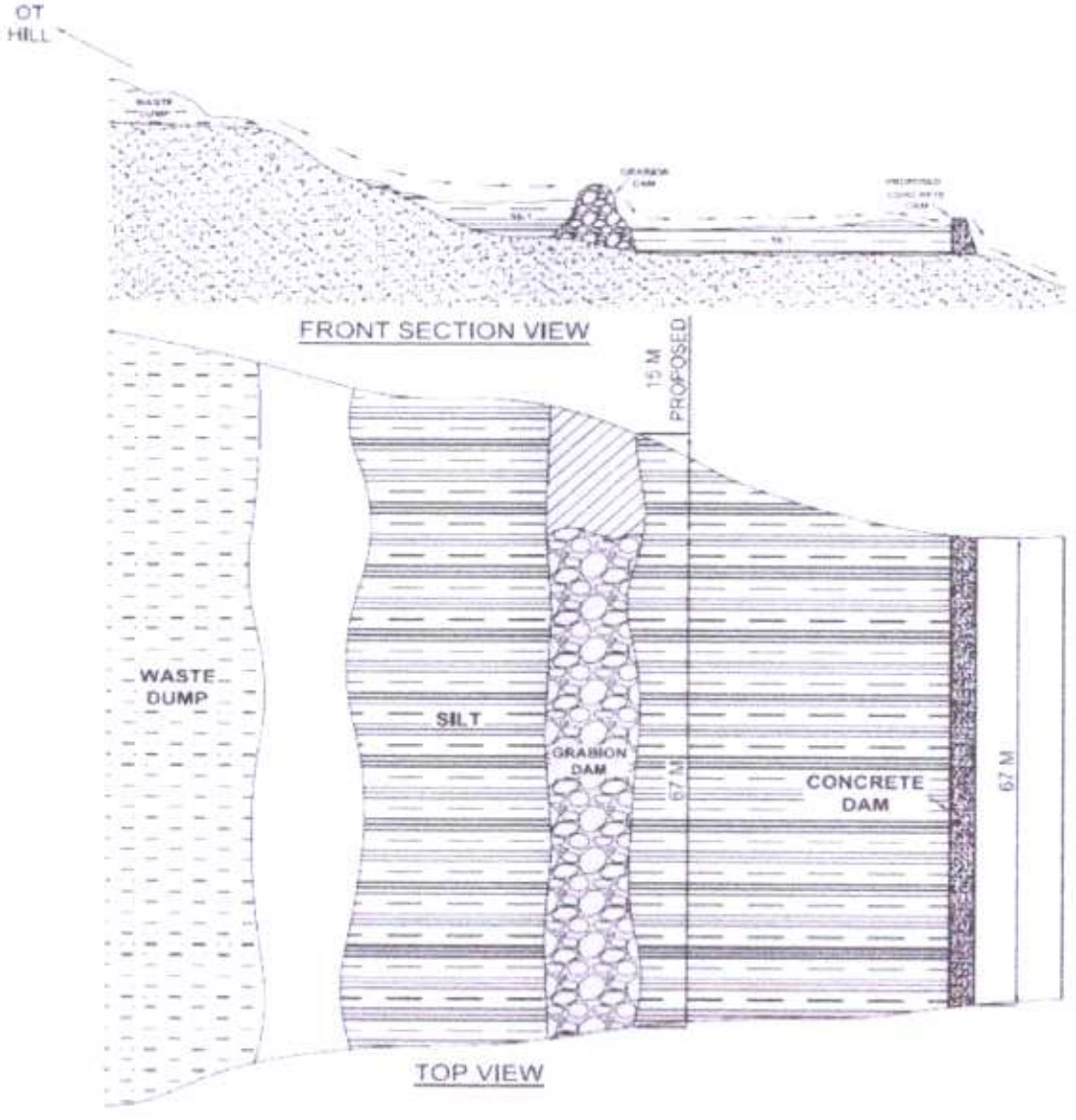


Figure 3. 7 Plan of the proposed RCC retaining wall

Plantation and Green Belt Development

Bio remediation of the waste dumps problems is indispensable for slope stabilization as well as prevention of silt migration. The mine has undertaken systematic plantation maintaining terraces on the waste dumps. The table given below provides the summary of plantation activities.

Table 3. 5 Summary of plantation activities

Sl.No.	Location	Type of Plantation	Coverage	Survival Rate	Year of Plantation
1	Ranichua Waste Dump	Plantation of 600 saplings & approx.550 kg hedges & local grass	(22.217578° N to 22.217834° N&85.358283° E to 85.358553° E)	70%	2024-25

Kamal Prasad
Chief General Manager (Mines)
SAIL-RSP, GUA ORE MINES

		Plantation of 300 saplings & approx.200 kg hedges & local grass			2023-24
2	OT Hill Waste Dump	Plantation of 400 Saplings &approx 200 kg hedges & local grass	(22.22825° N to 22.229531° N&85.36999° E to 85.37057° E)		2024-25
		Plantation of 400 Saplings &approx 200 kg hedges & local grass			2023-24

Saplings of native species like Mango, Jamun, Gulmohar, Karanj, Mahua, Karam, Sheesham, Neem, Sal, Amvla, Imli, Gamar, Pipal, Guava, Bamboo, etc. have been planted in mines. During 2024-25, 1.5 ha area on both Ranichua and OT Hill Waste dump has been developed with green belt. The plants on the waste dump has grown significantly and are presently self-sustaining. The survival rate of the planted saplings at mines is approximately 70%.

It is observed that the plantation is done keeping agro-forestry principles in mines and number of fruit bearing and useful trees have been planted.

It has also been observed though some local grass species are introduced to the overburden dumps.

Further, MoU has been signed by SAIL, Gua Ore Mines with premier & technical institute i.e. ICFRE-IFP, Ranchi for ecological restoration of waste dumps, and other barren areas at mines through forestry interventions.

As Kiriburu- Meghahatuburu Iron Ore Mines of SAIL also engaged ICFRE-IFP, Ranchi for eco-restoration of Mined Out and Waste Dump Areas with an area of approx 23.40 Ha.

Photographs of the plantation activity is given below (Figure 3.8 to Figure 3.10):

Figure 3. 8 Site photographs (OT Hill)

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-दी०एस०पी०, गुवा आयरन खान
Kamal Bhaskar
Chief General Manager (Mines)
SAIL-DSP, GUA ORE MINES

Figure 3. 9 Site Photographs of OT Hill and Ranichua

Figure 3. 10 Site Photographs of Ranichua and OT Hill

Stability and Drainage

The OB dumps are constructed based on the slope design of the approved mine plan. The dumps are provided with terracing and toe drains for proper drainage during the monsoon. There are provisions of retention pond to retain the silt laden runoff within the mines.

As a measure for drainage challenges and potential instability under extreme weather conditions, the mine has taken adequate step to reinforce the slopes by technological interventions for which the work has already been started at Ranichua Waste Dump. Figure 3.11 shows the drainage network with control structures.

Observations on slope stability, erosion, waterlogging, drain integrity.

Kamal Prasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

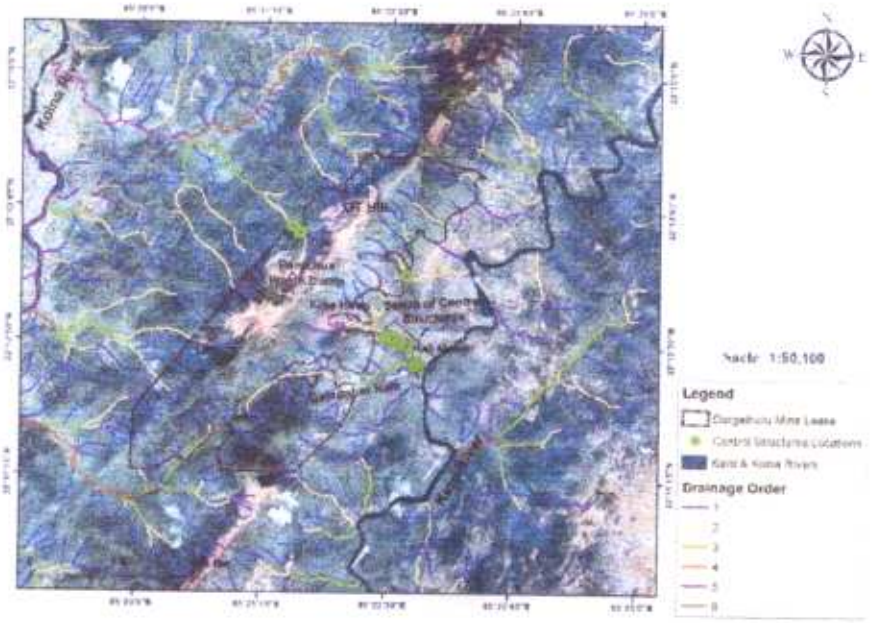


Figure 3. 11 Drainage network with control structures

The various structures maintained by the mine management for drainage and silt retention are shown in the surface layout given in the **Annexure-B**

The observations reveal that the structures provided are adequate for an annual rainfall limit of 1400 mm to 2000 mm.

- Drainage is being managed through sedimentation pits and bunding.
- Retaining structures are designed to resist toe-level failure and contain eroded material.

About 1400mm annual rainfall with maximum daily rainfall upto 200mm. The mines should maintain a close vigilance on meteorological forecast on rainfall and if daily rainfall exceeds 250mm, the gully and rill formation on the slopes may create emergency situation. For this purpose, the following preparedness measures should be maintained.

To effectively mitigate the impacts of extreme rainfall (up to 300mm/day) on overburden dumps in iron ore surface mining, a comprehensive suite of preparedness measures is essential. These include structural interventions like garland drains, subsurface drainage, and slope stabilization through gabion walls and grassing. Regular monitoring via total station to determine horizontal and vertical movement of set RL and regular inspections enhances early detection of slope instability. Vegetative control using deep-rooted species supports long-term erosion management. Operational strategies like activity suspension during heavy rain and smart grading of dumps improve resilience. Finally, staff training and regular emergency drills ensure readiness. These integrated hydrological, geotechnical, and ecological practices are critical for maintaining dump stability and operational safety, particularly in high-rainfall zones like Gua Mines in Jharkhand.

Fines Heap Management

The Gua Mines have got old fine dumps constructed and left by the erstwhile operations by IISCO before it was taken over by SAIL. The fines containing good percentage of iron were not disposed of earlier neither the proposed palletisation plant was constructed. The fines are vulnerable to become

flow able under heavy rainfall conditions. The mine has been managing the silt migration through series of retention ponds. However, the desiltation frequency of this ponds are very high. The mine is retaining the migrated silts from the fines heaps within its lease hold area through multiple means like retention ponds, check dams and check dams as shown in Annexure-A. Various measures taken are discussed below.

Containment Measures

To prevent siltation and control the flow of fines from the fines heap at Gua Ore Mines, a series of check dams have been strategically constructed and maintained. These include both earthen and masonry structures, designed based on topographical guidance and expert recommendations from premier institute i.e. IIT Kharagpur. The check dams are periodically desilted to maintain their effectiveness in protecting nearby water bodies such as the Karo River.

Inventory of Check Dams for Silt Containment

Table 3. 6 : Check dams for Silt Containment

Dam No.	Type	Location (Lat, Long)	Dimensions (L × W × H)	Remarks
Dam-1 to Dam-4	Earthen Dams	22°12'33.75"N to 22°12'32.43"N, 85°22'29.53"E to 85°22'39.75"E		Located at foot of fines heap for silt arrest
Dam-5	Concrete Check Dam	22°12'29.28"N, 85°22'42.80"E	30m × 3m × 6m	Recommended by IIT Kharagpur; periodically desilted
Dam-6	Random Rubble Masonry Check Dam	22°12'33.35"N, 85°22'32.89"E	35m × 2m × 4.5m	Located at Zero Point Nallah; periodically desilted
Kalimandir Check Dam	Concrete	22°12'19.4"N, 85°22'49.39"E	7m × Avg. 0.5m x 3.5m (from existing G.L.)	Downstream of fines heap; prevents silt entry to Karo River

Sedimentation Pits/ Drains

To effectively manage silt load and reduce sediment transport from the fines heap, several sedimentation/ trap pits have been constructed near critical containment structures such as Dam No. 5, Dam No. 6, and the Kalimandir Check Dam. Also, drains from Zero point nalla till Kalimandir Check Dam has also been desilted. The drains and sedimentation pits are periodically desilted to increase the retention capacity of the same

Inventory of Sedimentation Pits and Drains

Table 3. 7 Sedimentation Pits and drains

Location	Associated Structure	Dimensions (L × W × H in metres)	Remarks
Sedimentation Pit at Dam No. 5	Concrete Check Dam	110 × 45 × 2.5	Designed to trap silt before entering downstream areas
Sedimentation Pit at Dam No. 6	Rubble Masonry Check Dam	95 × 50 × 2.5	Assists in silt retention near Zero Point Nallah
Pit at Kalimandir Check Dam (u/s)	Kalimandir Check Dam	20 × 40 × 2.5	Positioned upstream to arrest silt before Karo River
Desilted Drain	Zero Point Nallah to Kalimandir	500 × 2 × 2.5	Channel desilted to improve flow and prevent clogging

Run-off Water Control

A series of sedimentation pond to retain the silt migration have been provided after the earthen dams for arresting eroded soil by providing enough retention time for the soil to settle down during monsoons (Figure 3.12). Regular de-siltation of pits prior to onset of monsoons is carried out every year.

Figure 3. 12 Series of Sedimentation ponds

Also, every year desiltation is carried out at upstream side of all check dams to increase the retention capacity of the same.

Kamal Bhaskar
Chief General Manager (Mines)
SAIL-RSP, GUA ORE MINES

Vegetative Cover or Surface Treatment

The slope of the Zero Point Nalla has been planted with vetiver grass to provide stability to the slope. Also, local grasses, hedges are planted on the slopes of the earthen dams & embankment to provide additional stability (Figure: 3.13).

Figure 3. 13 Vetiver plantation in slope of Zero Point Nalla

In addition to the above, SAIL, Gua Ore Mines is in the verge of signing an MoU with ICFRE-IFP, Ranchi, for ecological restoration of 16 ha area of waste dump, barren areas, & safety zone areas of Gua Ore Mines through forestry intervention. The project plan envisages the reclamation of the stress site of the mine under SAIL by adopting special measures like soil and moisture conservation, soil amendments and choice of correct species. For execution of the project, ICFRE-IFP will provide technology and services for which a project plan has been drawn up and accepted by both parties. It is observed that the demonstrated grass plantation requires proper planning.

Infrastructure and Drainage Works

Garland Drains and Channels

To manage surface runoff and control siltation in working pits, a network of garland drains and sedimentation pits has been established and is regularly maintained across key mining zones. As detailed in **Table 3.8**, desiltation activities are conducted to ensure unobstructed flow and enhance the storage capacity of runoff containment structures.

Table 3. 8 Status of Garland Drain and desiltation of Sedimentation Pit across mining areas

Sl. No.	Discharge Point	Cleanliness & Maintenance	Length and Depth

Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

1	Environmental Management of Working Pits at Mines (Bai-Hill, Ranichua, IInd Level, OT Hill & HD Buru)	Desiltation of existing garland drains around working mines pits to divert surface run-off	OT Hill: 7500 cum, Ranichua: 3600 cum, HD Buru & IInd Level: 6300 cum, Bai-Hill area 4800 cum
		Desiltation of existing Sedimentation pits at various area of Mines	OT Hill: 7500 cum, Ranichua: 13800 cum, HD Buru & IInd Level: 18900 cum, Bai-Hill area 21600 cum

Toe Walls and Retaining Structures

To stabilize dump slopes and control the movement of silt and debris, toe walls and retaining structures have been constructed at strategic discharge points. As shown in **Table 3.9**, these structures are built using durable materials such as concrete and RCC and have been assessed to be structurally sound.

Table 3. 9 Inventory of Toe Walls and Retaining Structures at Critical Locations

Sl. No.	Location	Dimension (L × W × H in metres)	Material Used	Structural Soundness
1	DB Nallah	35 × 2 × 4	Concrete Check Dam	Structurally sound
2	Gojapahar Nallah	21 × 1 × 2.5	RCC Check Dam	Structurally sound

Sedimentation Pits

Sedimentation pits are critical for trapping silt-laden runoff before it reaches natural water bodies. As presented in **Table 3.10**, these structures are maintained through regular desiltation and continue to perform effectively at key locations such as DB Nallah and the combined outfall of Gojapahar and Kalimandir Nallahs.

Table 3. 10 Status of Sedimentation Pits or Check Dams at Key Drainage Points

Sl. No.	Location	Dimension (L × W × H in metres)	Current Silt Level	Effectiveness
1	DB Nallah	77 × 30 × 3	Desilted	Effective
2	Gojapahar & Kalimandir Nallah (Combined Outfall)	40 × 40 × 2.5	Desilted	Effective

Status of Proposed Works

Sedimentation Pits and Check Dams

To effectively manage suspended solids and prevent siltation of downstream water bodies, sedimentation pits and check dams have been strategically constructed at key discharge locations within the mining lease area. These structures play a vital role in controlling erosion, settling suspended particulates, and improving overall water quality. Regular maintenance, particularly

desiltation, ensures that these facilities retain their functional capacity during high-flow events, especially in the monsoon season.

In addition to the above, for long terms measures considering the expansion of mines the following structural measures are being implemented to enhance slope stability and improve runoff management in critical waste dump & fines heap areas:

1. **Construction of Mechanically Stabilized Earth Wall (MSEW)**
   The Letter of Acceptance (LOA) for the construction of a Mechanically Stabilized Earth Wall (MSEW) was issued vide order dated 29.01.2025. The construction, measuring **100 x 40 x 20 metres**, is currently in progress at the bottom slope of the **Ranichua Waste Dump**. Completion of the work is scheduled for **June 2025**.
2. **Construction of Additional Boulder Wall with Wire Mesh and Angle Grouting**
   A work order dated **28.03.2025** has been issued for the construction of an additional **boulder wall with wire mesh and angle grouting** at the bottom slope of the **Ranichua Waste Dump**. The structure will measure **32 x 5 x 6 metres**. The work is planned for completion by **September 2025**.
3. **Construction of RCC Retaining Wall at OT Hill Waste Dump**
   Stage-I approval has been granted by the competent authority for the construction of an **RCC retaining wall** at the bottom slope of the **OT Hill Waste Dump**, with dimensions **69 x 2 x 14 metres**. The tender has been floated and is scheduled for opening on **02.05.2025**. Completion is targeted by **December 2025**.
4. **Construction of Additional Concrete Check Dam**
   An additional **concrete check dam** is planned at the **upstream side of the Kalimandir/Gojapahar Nalla Check Dam** to further enhance silt control. The proposed dimensions of the structure are **22 metres (Length), 3 metres (Average Width), and 2.5 metres (Height)**.

Chapter 4: Recommendations and Corrective Measures

Recommendations

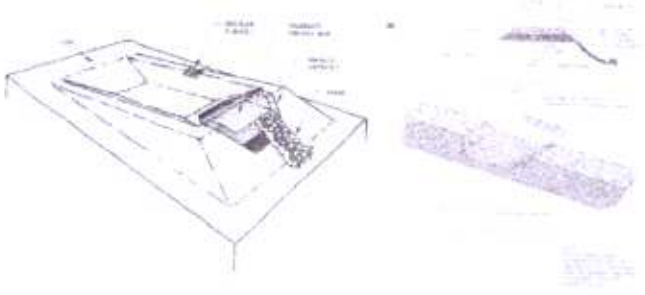
To address silt migration from fine heaps and overburden (OB) dumps at Gua Ore mines, the following short-term interventions are recommended based on industry practices and environmental management guidelines:

Drainage System Maintenance

- Clear the blocked drains and channels to ensure efficient stormwater runoff management, preventing water pooling and erosion near heaps.
- Repair damaged bunds (embankments) using compacted soil or geotextiles/coir mats/sand bags to reinforce structural integrity and contain silt.
- Install diversion drains upstream of heaps to redirect clean runoff away from exposed areas, reducing sediment transport.

Erosion Control Structures

- Construct sediment basins or settling ponds downstream of heaps to capture silt-laden runoff, allowing particles to settle before water discharge. An example of such structures are given below



- Where-ever possible use level spreaders to convert concentrated flow into sheet flow, minimizing erosion and silt mobilization. On the passive dumps the terracing with toe drain to divert the rain water to a settling pond will serve the purpose.
- Compact loose material on heap surfaces wherever applicable to limit particle detachment during rainfall.
- Spray forest litre, mulch or grass seeds on the fine heaps and OB dumps

Vegetative Measures

- Plant fast-growing, native grass species on heap slopes to stabilize soil and reduce erosion. Even short-term vegetative cover can mitigate silt migration.
- It is recommended that there should be more local forest species and other fruit bearing trees be planted to attract birds for future propagation of plantation and sustainable forest redevelopment.

Chief Manager (Mines)
SAIL-BSL, GUA ORE MINES

- The plantation site currently does not have soil retaining grasses. This may result in uprooting of trees and gully formation during heavy rains. Therefore, it is highly recommended that mulching and grass seeding should be practised. Proper grass seed mixed with coco-pit and cow dung slurry should be spread manually or mechanically by slurry pumps.
- The grass and shrub plantation in the OB dumps needs augmentation. Mulching and hydro seeding to generate grass in the plantation site has been recommended

Monitoring and Rapid Response

- Conduct daily inspections of drains, bunds, and control structures after rainfall events to identify and repair breaches immediately.
- Adaption of digital solutions for automated data acquisition is to be practised through encouraging innovation and startups amongst entrepreneurship ventures
- Use temporary silt traps (e.g., hay bales) in high-risk areas to intercept silt during ongoing operations.

Operational Adjustments

- Limit vehicle movement on wet, exposed surfaces to prevent rill and gully formation.
- Redirect mine water/storm water discharge away from heaps to avoid saturation and instability.

These measures prioritize rapid implementation using readily available materials and techniques. For sustained results, combine with long-term strategies like engineered covers or advanced drainage system

Sustainable Drainage Systems

- **Reuse of Mine Water:** Treat and repurpose drained water for local irrigation, industrial processes, or community supply.
- **Passive Treatment Systems:** If necessary, have other treatment plant along with STP ensuring compliance with environmental standards.

Slope Redesign and Stability

- **Engineered Structures:** Install reinforced soil walls or gabion baskets for high-risk slopes.
- **Bench Slope Management**: Design benched slopes with intermediate terraces to reduce erosion and enable vegetation growth.
- **Proactive Monitoring:** Mine should take initiatives to track slope through total station measuring horizontal and vertical movement enabling early intervention.

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बीएसएल, दुर्ग अंचल खान
Kamal Bhaskar
Chief General Manager (Mines)
SAIL-BSL, DGM CHC MINES

Chapter 5: Conclusions

Summary of Findings

- The inspection revealed that environmental infrastructure such as sedimentation pits, earthen bunds, and gabion walls has been implemented in critical areas like the Ranichua Waste Dump.

- These structures serve important roles in drainage management and dump slope protection.

•Also, during inspection, it has been verified that plantation efforts has been taken to increase the greenbelt around waste dumps and downstream side of fines heap. Further, after visualizng the historical imagery from google earth, the density of green-belt has enhanced at the downstream side of fines heap.

Conclusion on Environmental Readiness

The Gua Ore Mines have taken several meaningful steps toward environmental risk mitigation in key operational zones. Still, to achieve full environmental resilience, the following should be emphasized:

- Broader implementation of vegetative controls.
- Formal documentation of construction timelines and engineering drawings.
- Inclusion of all operational areas within the inspection framework, particularly fines heaps and water channels.

Suggestions for Further Audit or Study

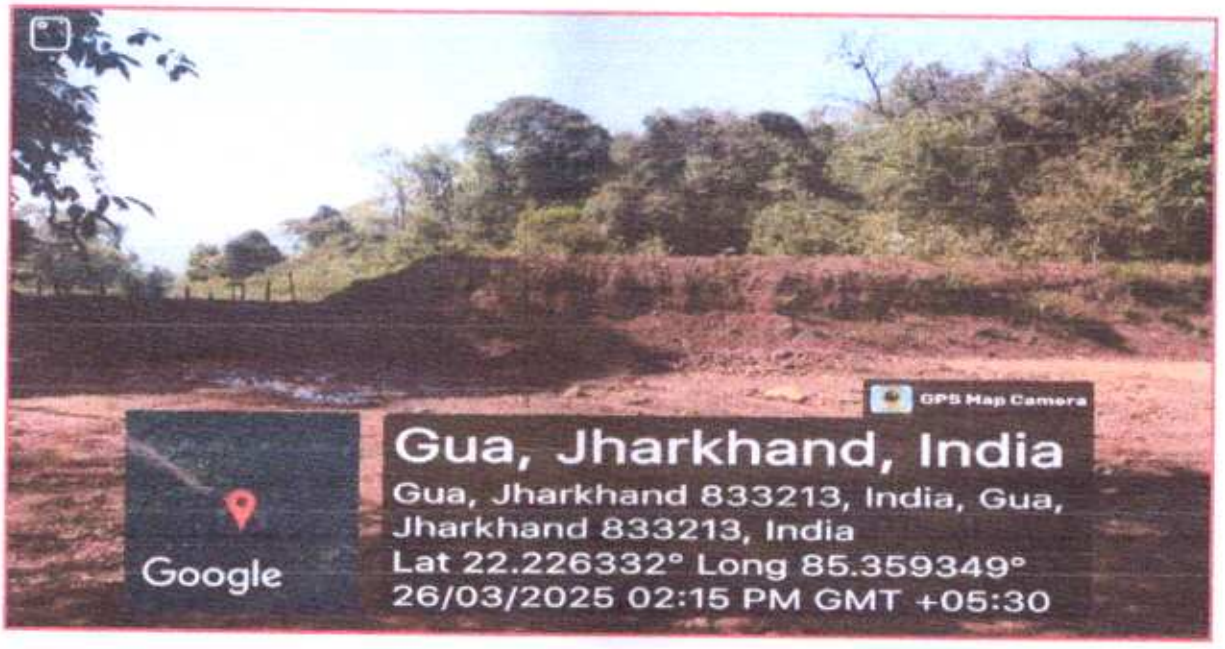
Recommendations are given in the previous chapters

- Maintaining top terraces of both waste dumps with slope of 22-28^0 slope
- **Scientific & technical afforestation through expert agency.**
- **Slope Stability Study** through survey instrument to assess the long-term integrity of retaining structures.
- **Construction of permanent measures such as Mechanically Stabilized Earth Wall or RCC wall**
- **Ecological Review** to plan future plantation drives and biodiversity support.

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बोकारोस्टील प्लांट खान
Kamal Bhaskar
Chief General Manager (Mines)
SAIL-BSL IRON ORE MINES

Annexure-A

Photographic Documentation of Inspected Sites



P-01

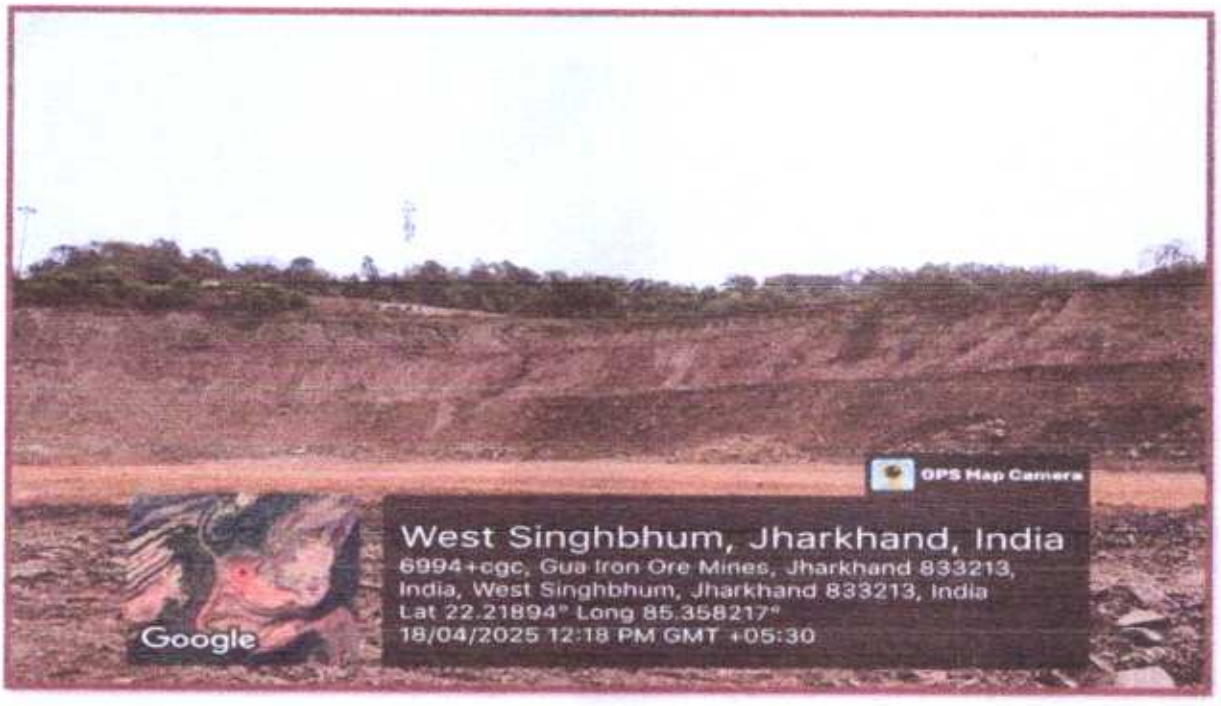
P-02

Chief General Manager (Mines)
SAIL-BSL, Gua IRE MINES

P-03

P-04

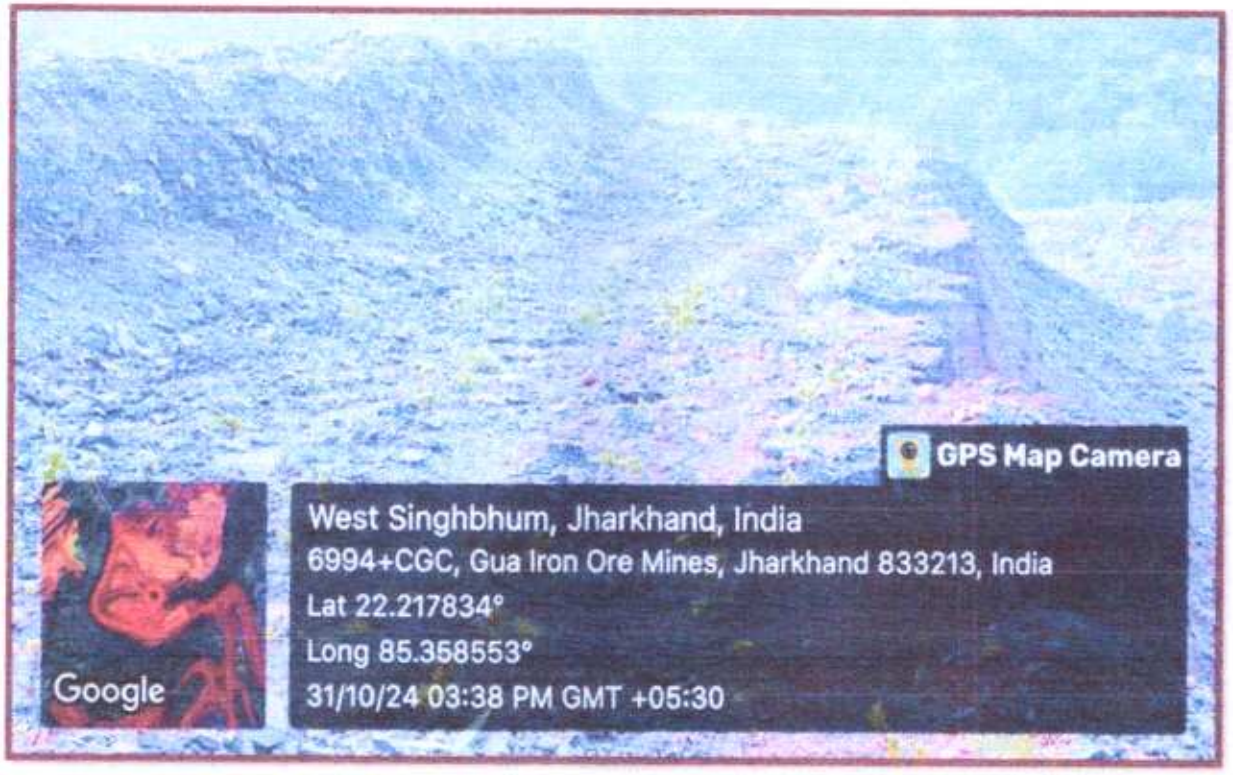
सुरेश भारद्वाज
मुख्य महाप्रबंधक (खान)
चीफ-जीएम(माइन्स), गुआ लौह खान
Kamal Bhardwaj
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES



P-05

P-06

मुख्य महाप्रबंधक (खान)
सेल-बीएसएल गुआ आयरन खान
Kamal Shankar
Chief General Manager (Mines)
SAIL-BSL GUA IRON MINES



P-07

P-08

मुख्य खनिकर्मी (खान)
सेल-बीएसएल, गुआ आयरन खान
Kamal Dhanger
Chief Geologist (Mines)
SAIL-BSL, GUA IRON MINES

P-09

P-10

मुख्य महाप्रबंधक (खान)
सेल-बीएसएल, पुरा उसका खान
Kunal Bhasker
Chief General Manager (Mines)
SAIL-BSL, Gua Group of Mines

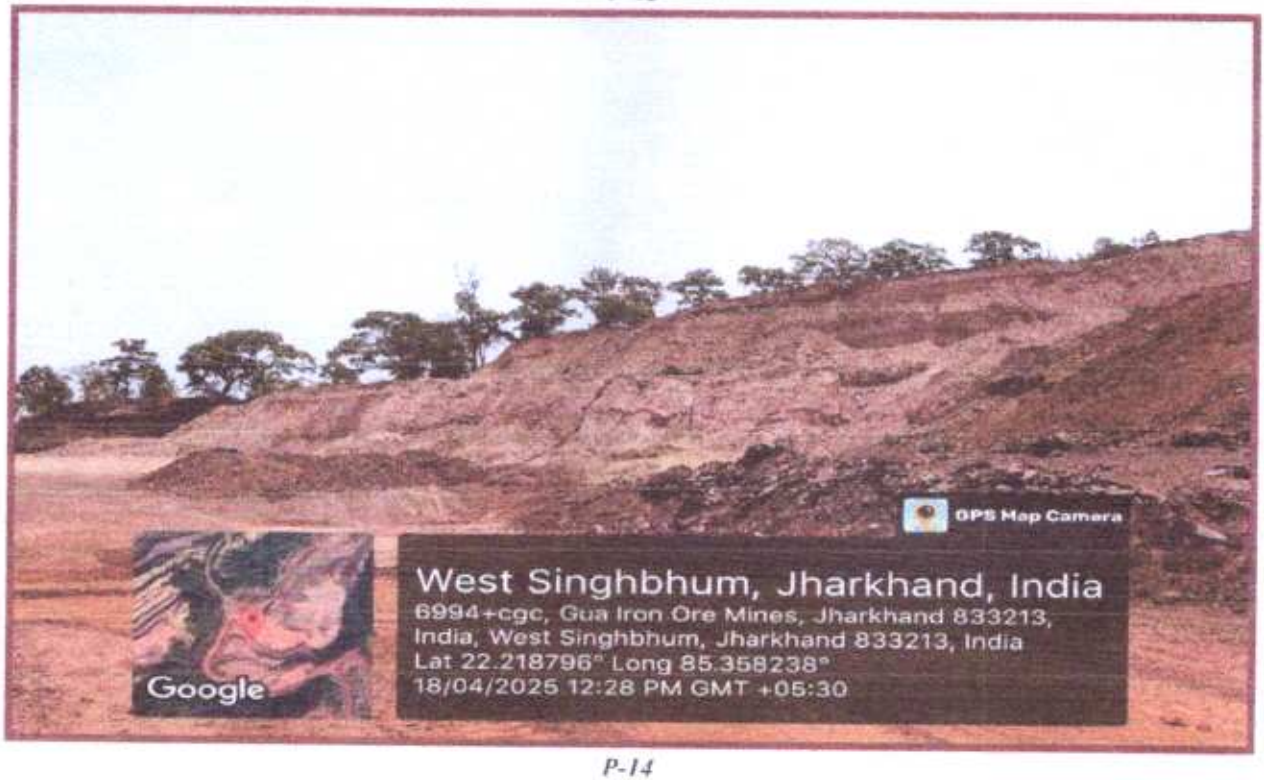
GPS Map Camera
गुआ, झारखंड, भारत
गुआ, झारखंड 833213, भारत, गुआ, झारखंड 833213, भारत
Lat 22.234194° Long 85.370023°
18/03/2025 12:14 PM GMT +05:30
Google

P-11

GPS Map Camera
पश्चिमी सिंहभूम, झारखंड, भारत
नाम-रहित सड़क, झारखंड 833106, भारत, पश्चिमी सिंहभूम, झारखंड
833106, भारत
Lat 22.455282° Long 85.506342°
18/03/2025 12:13 PM GMT +05:30
Google

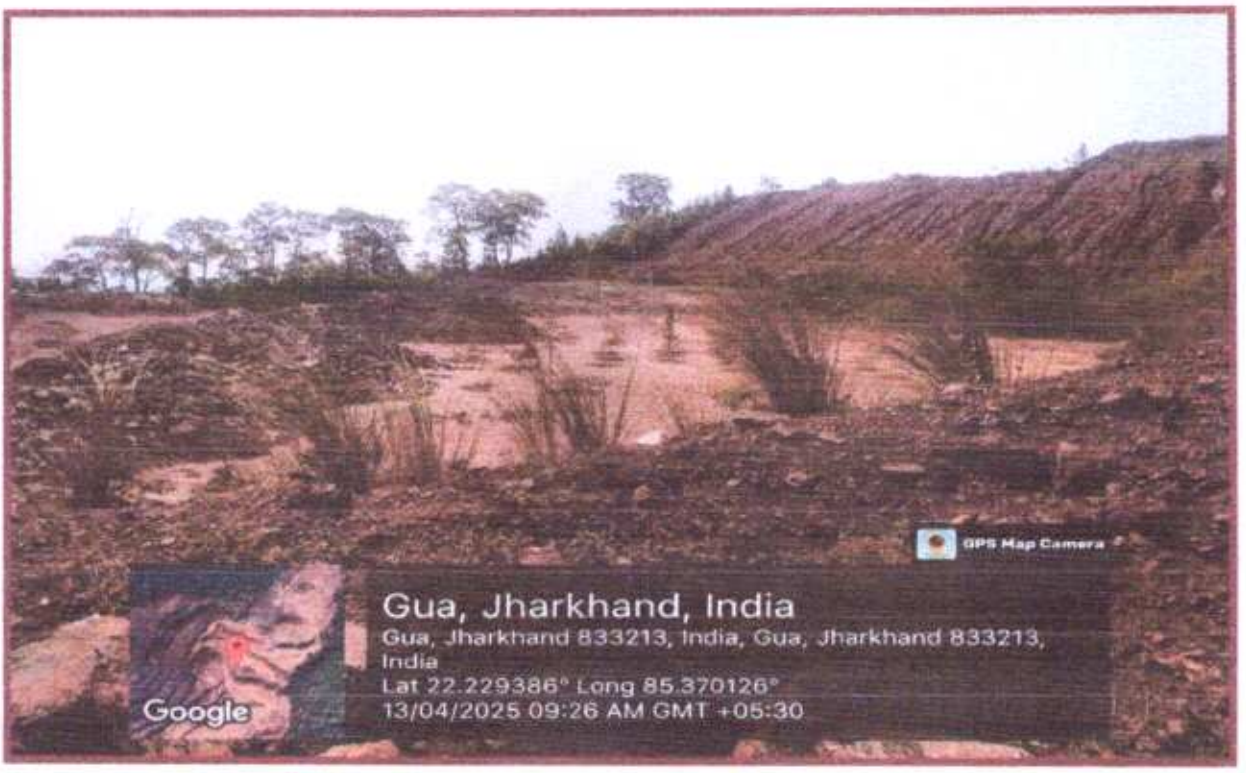
P-12

P-13



P-14

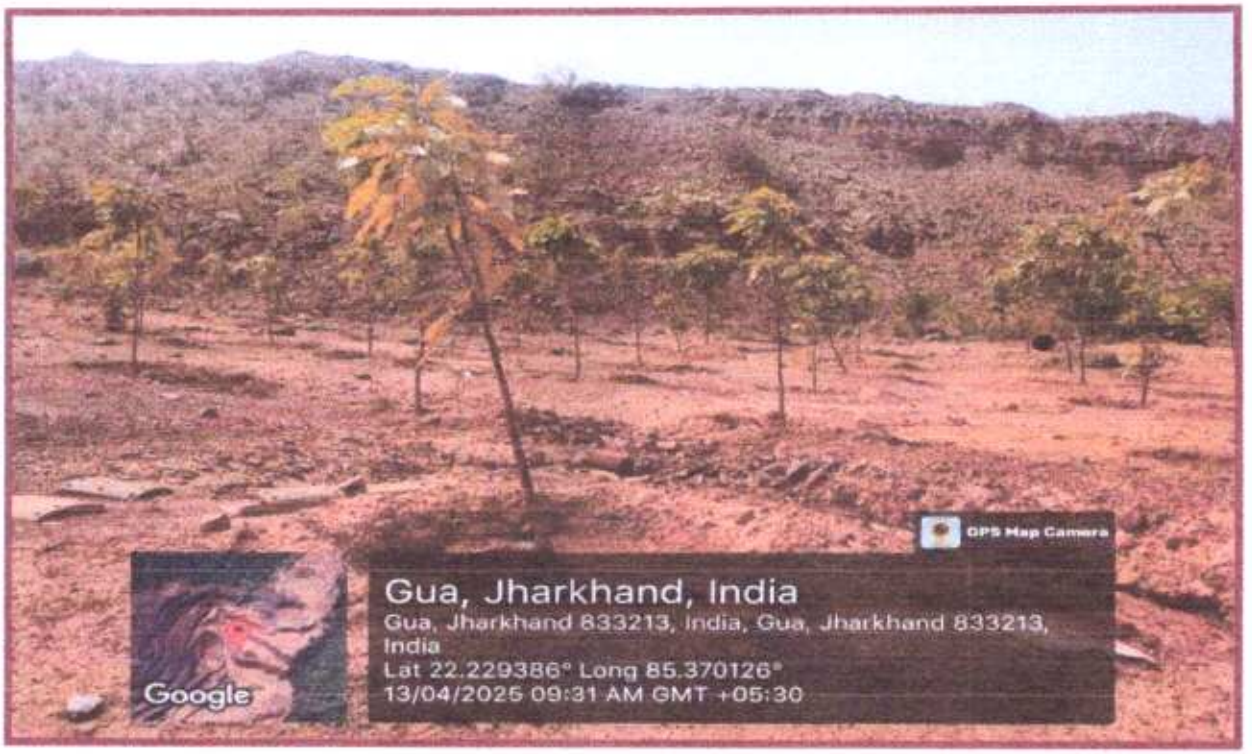
Chief Controlling Officer (Mines)


GPS Map Camera
Gua, Jharkhand, India
Gua, Jharkhand 833213, India, Gua, Jharkhand 833213, India
Lat 22.229386° Long 85.370126°
13/04/2025 09:26 AM GMT +05:30
Google

P-15

GPS Map Camera
Gua, Jharkhand, India
Gua, Jharkhand 833213, India, Gua, Jharkhand 833213, India
Lat 22.229386° Long 85.370126°
13/04/2025 09:31 AM GMT +05:30
Google

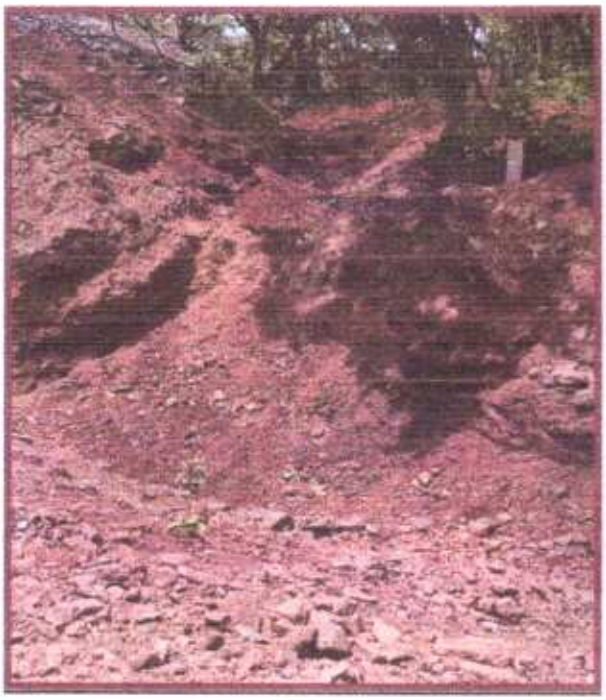
P-16

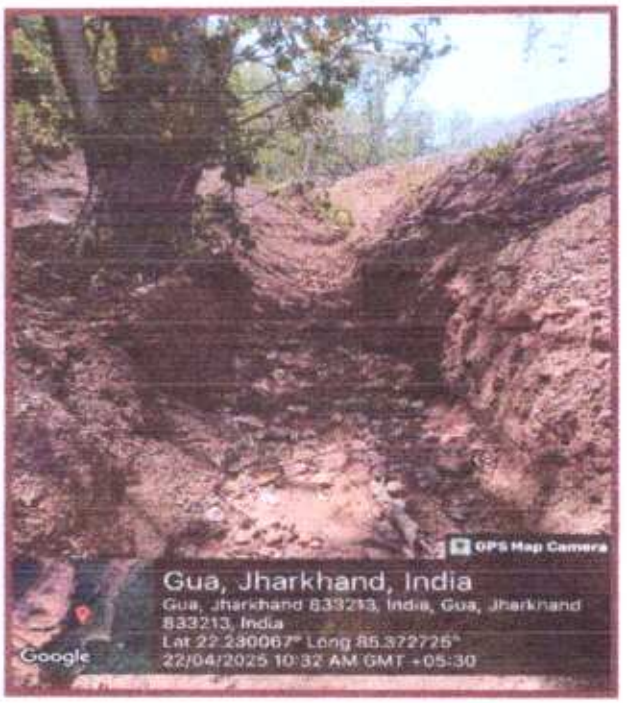


P-17

Chief General Manager (Mines)
SAIL-BSL, DALLI RAJHARA

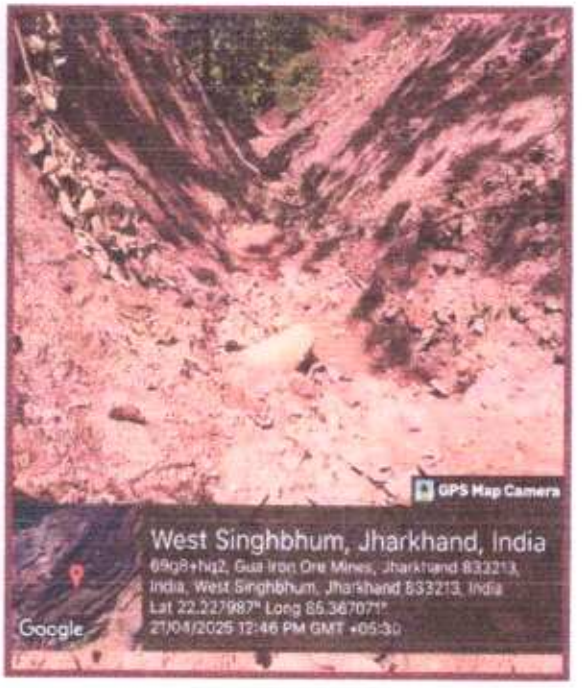
P-18



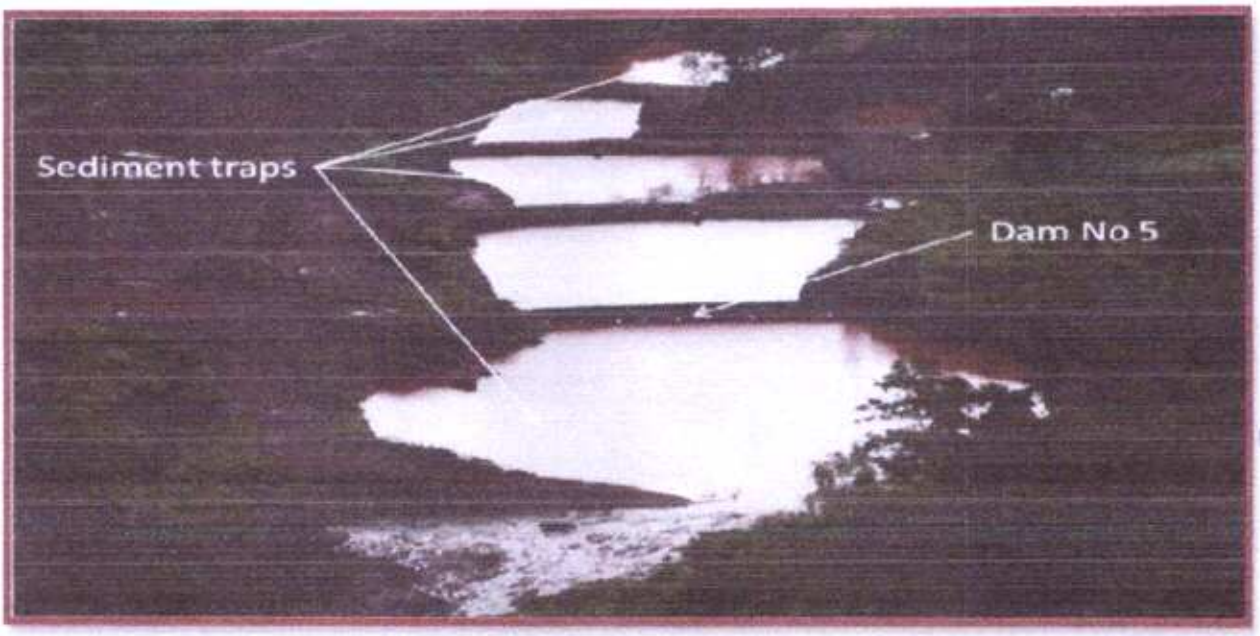

GPS Map Camera
Gua, Jharkhand, India
Gua, Jharkhand 833213, India, Gua, Jharkhand 833213, India
Lat 22.230067° Long 85.372725°
22/04/2025 10:32 AM GMT +05:30
Google

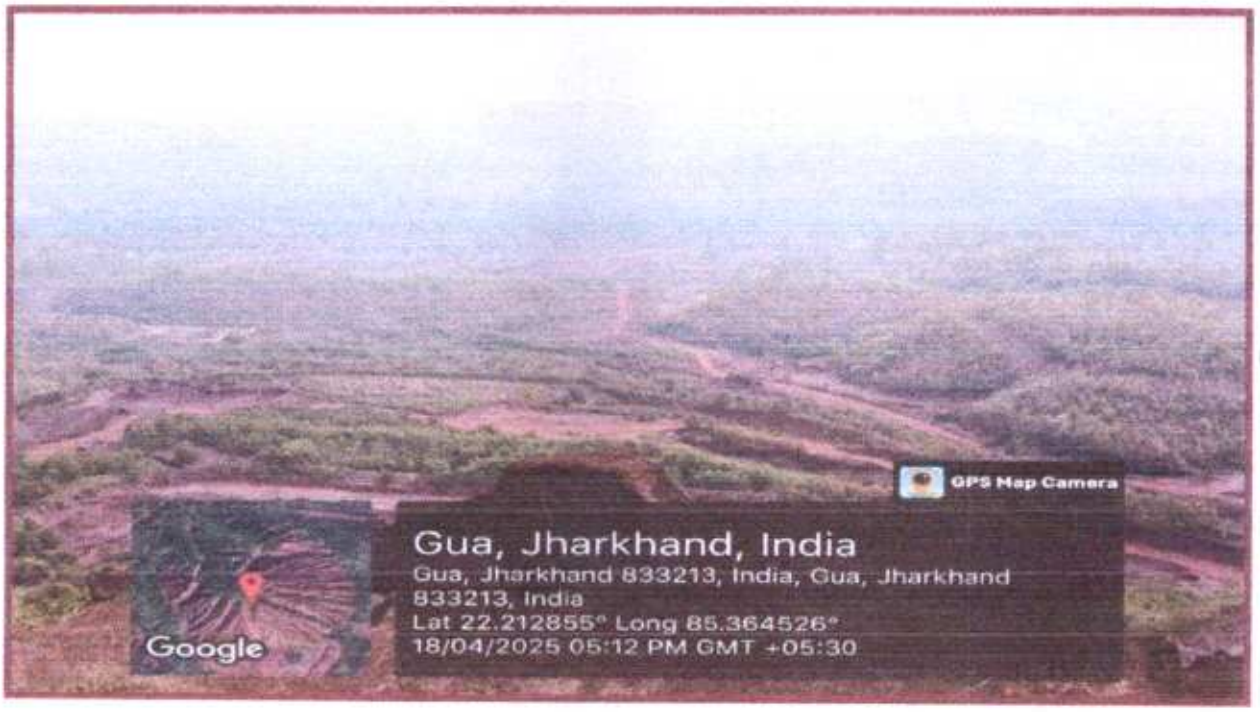
P-19

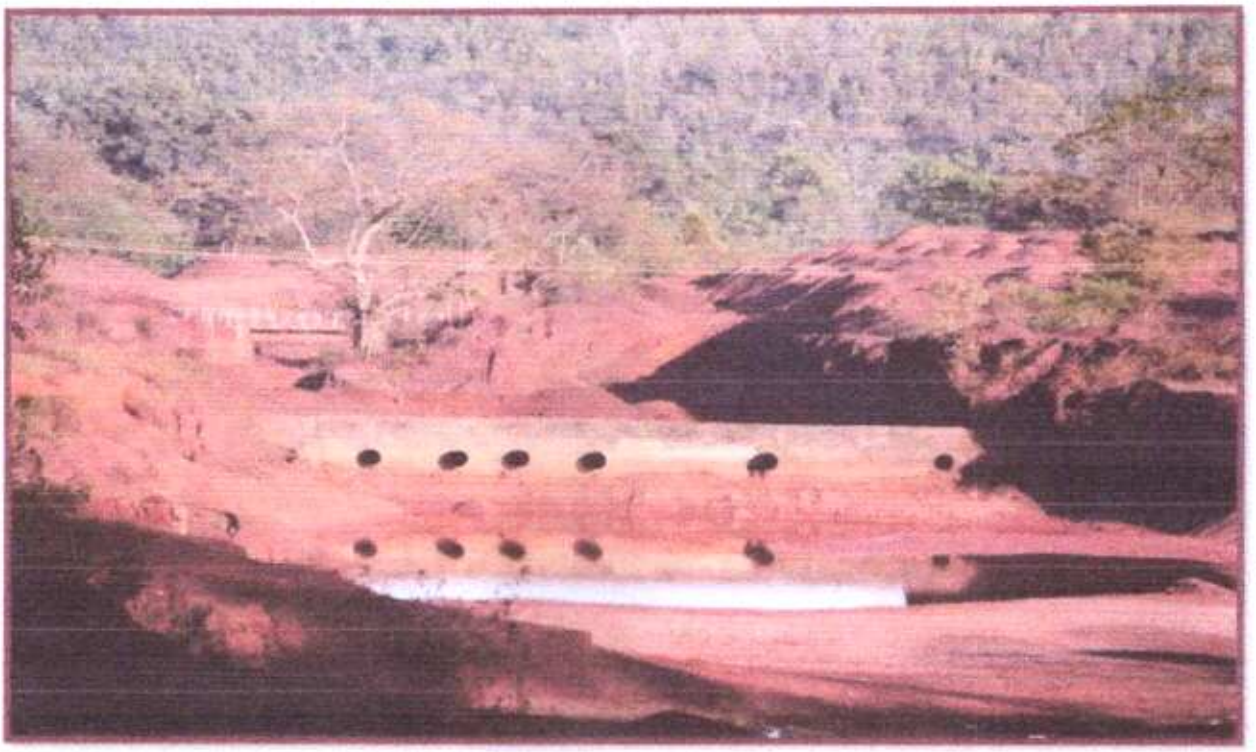
GPS Map Camera
Gua, Jharkhand, India
Gua, Jharkhand 833213, India, Gua, Jharkhand 833213, India
Lat 22.229546° Long 85.369993°
18/04/2025 11:59 AM GMT +05:30
Google


GPS Map Camera
West Singhbhum, Jharkhand, India
69g8+hq2, Gua Iron Ore Mines, Jharkhand 833213, India, West Singhbhum, Jharkhand 833213, India
Lat 22.227987° Long 85.367071°
27/04/2025 12:46 PM GMT +05:30
Google

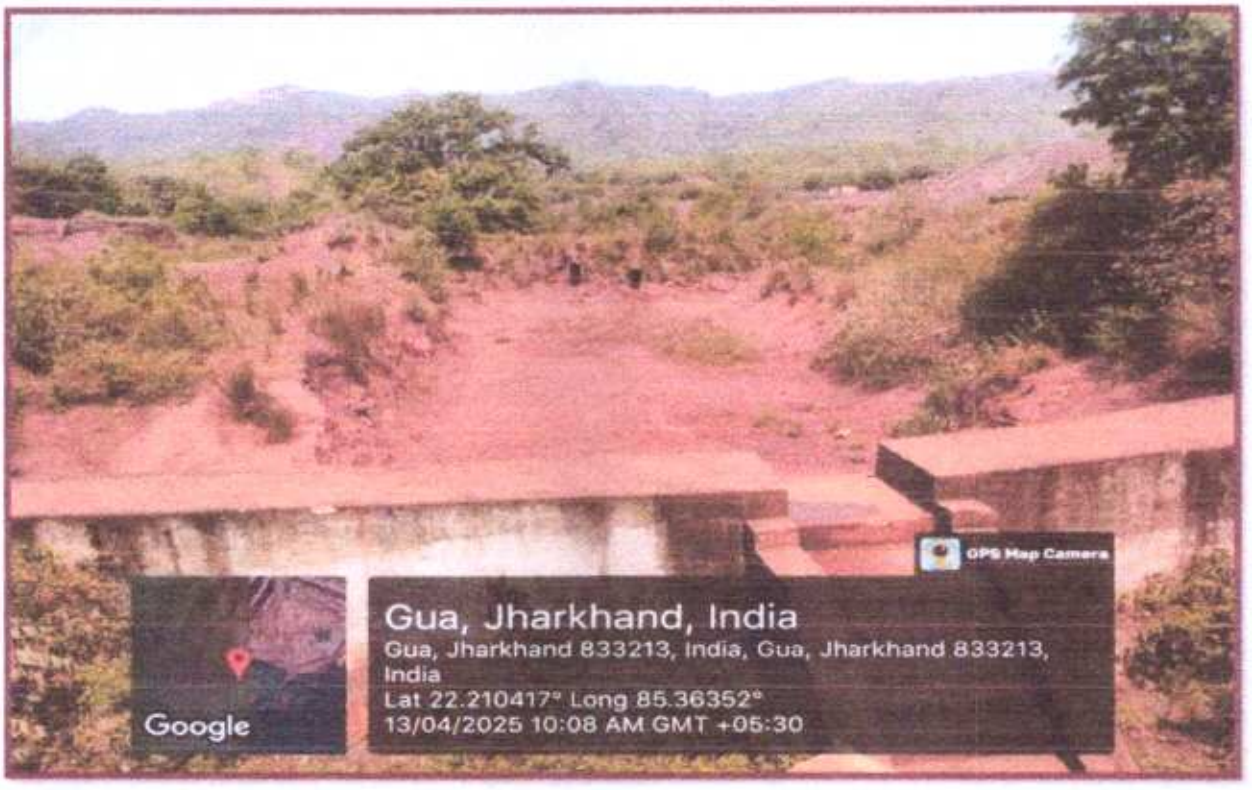
P-20


Sediment traps
Dam No 5

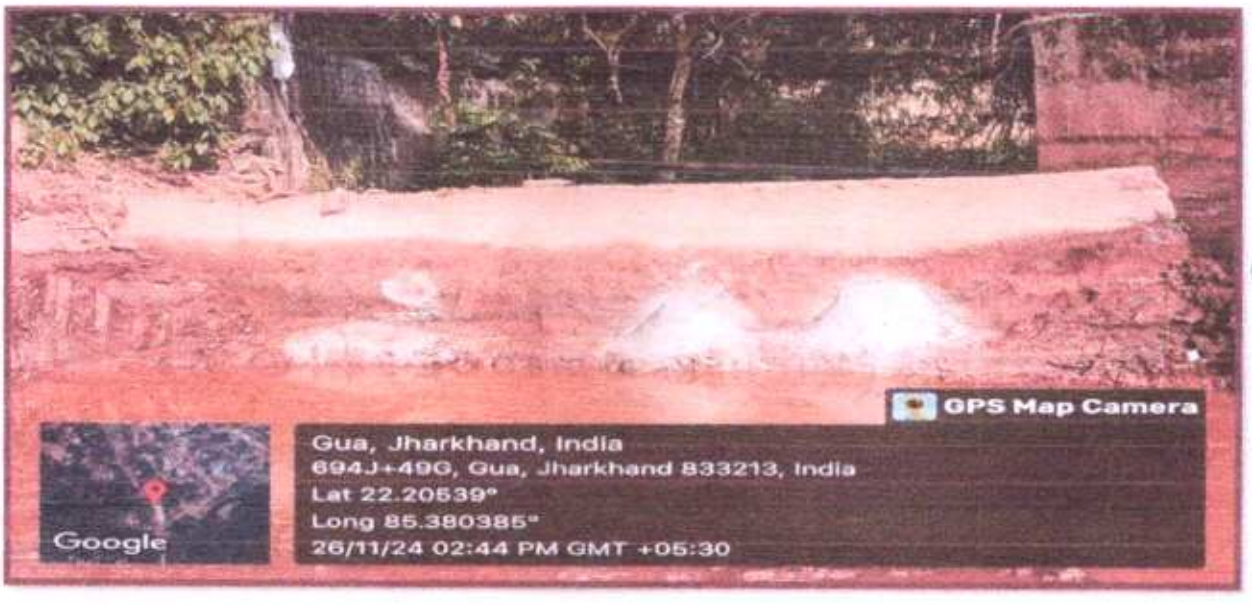

GPS Map Camera
Gua, Jharkhand, India
Gua, Jharkhand 833213, India, Gua, Jharkhand 833213, India
Lat 22.212855° Long 85.364526°
18/04/2025 05:12 PM GMT +05:30
Google



P-16

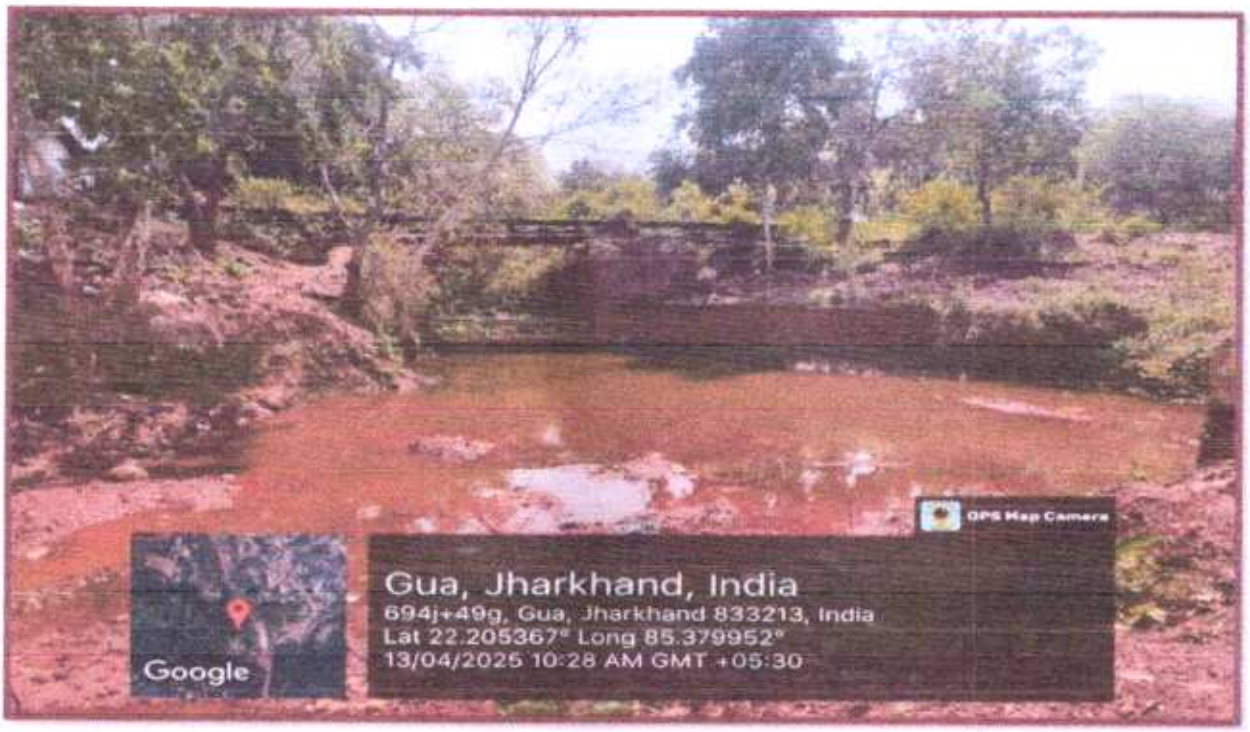


P-17



P-18

कार्यालय सरकार
मुख्य खनिकर्मी (खान)
सेल-भिलाई इस्पात संयंत्र के खान
Mines Office
Chief Controller of Mines
SAIL-BSP, DURGNE MINES


GPS Map Camera
Gua, Jharkhand, India
694j+49g, Gua, Jharkhand 833213, India
Lat 22.205367° Long 85.379952°
13/04/2025 10:28 AM GMT +05:30
Google

P-19

P-20

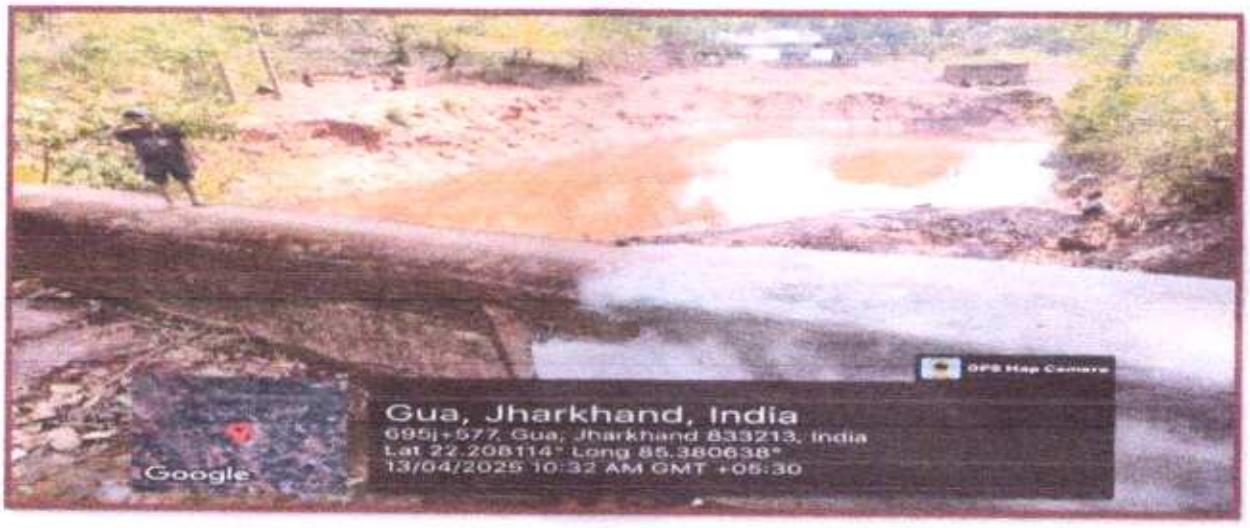
GPS Map Camera
Gua, Jharkhand, India
699h+hx, Gua, Jharkhand 833213, India
Lat 22.218822° Long 85.377997°
26/03/2025 05:52 PM GMT +05:30
Google

P-21

GPS Map Camera
Gua, Jharkhand, India
699h+hx, Gua, Jharkhand 833213, India
Lat 22.21897° Long 85.378029°
11/03/2025 10:53 AM GMT +05:30
Google

P-22

P-23



P-24

P-25

Chief Cons
SAIL-BSL, GUA

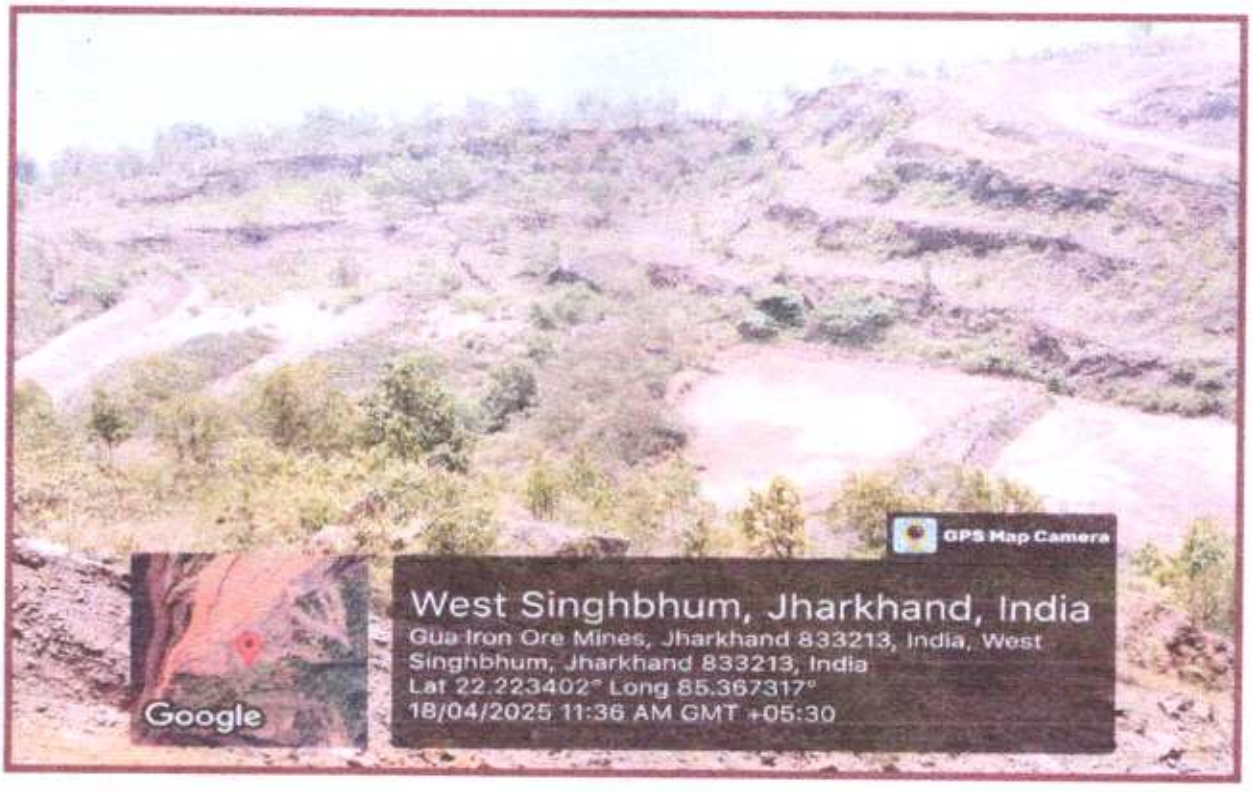
GPS Map Camera
Gua, Jharkhand, India
694j+49g, Gua, Jharkhand 833213, India
Lat 22.205424° Long 85.380102°
11/03/2025 10:35 AM GMT +05:30
Google

P-26

GPS Map Camera
Check in
West Singhbhum, Jha...
Gua Iron Ore Mines, Jharkhand
833213, India, West Singhbhum,
Jharkhand 833213, India
Lat 22.218762° Long 85.362019°
13/04/2025 09:53 AM GMT +05:30
Google

P-27

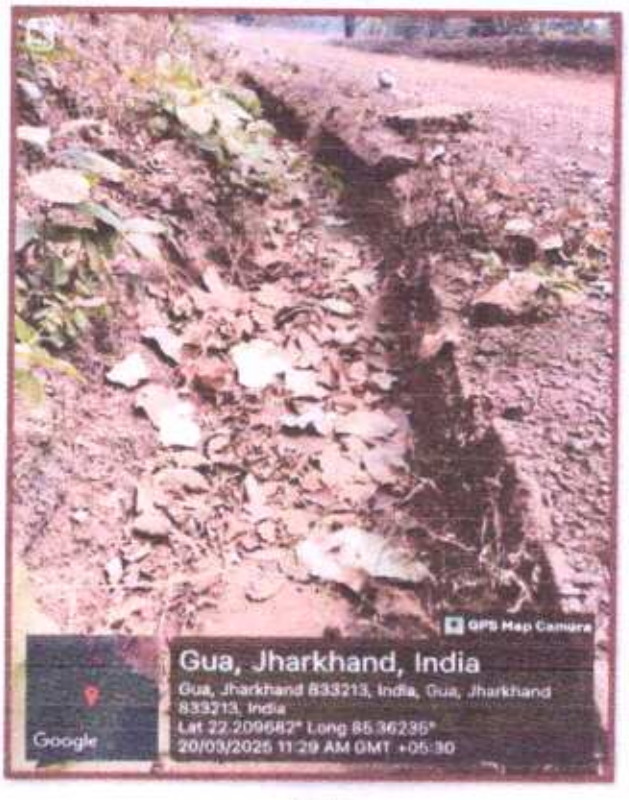
P-2



Chief Manager (Mines)
SAIL-SSL, GUA ORE MINES

GPS Map Camera
West Singhbhum, Jharkhand, India
Gua Iron Ore Mines, Jharkhand 833213, India, West Singhbhum, Jharkhand 833213, India
Lat 22.223405° Long 85.367289°
18/04/2025 11:36 AM GMT +05:30
Google

GPS Map Camera
Gua, Jharkhand, India
Gua, Jharkhand 833213, India, Gua, Jharkhand 833213, India
Lat 22.209686° Long 85.362359°
20/03/2025 11:31 AM GMT +05:30
Google


GPS Map Camera
Gua, Jharkhand, India
Gua, Jharkhand 833213, India, Gua, Jharkhand 833213, India
Lat 22.209682° Long 85.36235°
20/03/2025 11:29 AM GMT +05:30
Google

P-33

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल० एवं अन्य खान
Chief G
SAIL-BSL

TEST REPORT

Format No: 7.8F-04

AMBIENT AIR QUALITY

Unique Lab Report No : TC1203923000002966F	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004241	**Discipline :** Chemical
Field Data Sheet Code: BES/JSPCB/AAQ/20774139/01	**Group :** Atmospheric Pollution
Type of Industry / Plant : Iron Ore Mines	**Product / Material of Test :** Ambient Air
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address: **Duarguiburu Iron Ore Mining Lease,**
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).

General Information			
Protocol : Ambient Air		**Type of Sample:** Ambient Air	
Sample Collected By : Manish Kr. Singh & Team		**Sampling Plan Reference :** BES/0549	
Sampling Guidelines: IS 5182 (Part 14):Reaf. 2019 & IS 5182 (Part 5): 2020			
Sampling Date : 24/12/2024 to 25/12/2024		**Sample Receiving & Registration Date :** 26/12/2024	
Sample Condition : OK, Preserved & Sealed		**Emission Due to:** Mines Activities, Movement of Vehicles & Surrounding Activities	
Site Metrological Information	**Avg Temp:** 22 °C	**Avg R. Humidity :** 60 %	**Barometric Pressure:** 702 mmHg
Predominant Wind Direction: From ESE to WNW		**Customer Representative Name:** Kamal Bhasker	

Sample Description	
Sample Temperature at the time of receiving : 5 °C	**Temperature at the time of Analysis :** 25±2 °C
Test Start Date : 26/12/2024	**Test End Date :** 30/12/2024
Sampling Location : Near Main Canteen (Lat - 22°12'54.85"N Long - 85°21'31.49"E)	

Analysis Result

Sl No	Specific Test Performed	Unit	Time Weighted Average	Test Method No	Norms NAAQS 2009	Result
01	Sulphur Dioxide (SO_2)	$\mu g/m^3$	24 Hours	IS 5182 (Part 2 /Sec 1): 2023	80	**06.35**
02	Oxides of Nitrogen (NO_2)	$\mu g/m^3$	24 Hours	IS 5182 (Part 6) : Reaf.2017	80	**42.57**
03	Respirable Suspended Particulate Matter (PM_{10})	$\mu g/m^3$	24 Hours	IS 5182 (Part 23): Reaf.2022	100	**91.62**
04	Fine Particulate Matter ($PM_{2.5}$)	$\mu g/m^3$	24 Hours	IS 5182 (Part 24) : 2019	60	**38.63**

----END OF REPORT----

Remarks:
All parameters in this report conforms to the specific standard.

Note: -

- Sampling has been carried out as per applied test methods.
- Reported results are related only to the item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements.

Reviewed by

BIOCRAT ENVIRONMENTAL SERVICES * RANCHI

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Authorized by
Technical Manager
(Sunil Kumar Singh)

TEST REPORT

Format No: 7.8F-04

AMBIENT AIR QUALITY

Unique Lab Report No : TC1203923000002967F	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004242	**Discipline :** Chemical
Field Data Sheet Code: BES/JSPCB/AAQ/20774139/02	**Group :** Atmospheric Pollution
Type of Industry / Plant : Iron Ore Mines	**Product / Material of Test :** Ambient Air
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address: **Duarguiburu Iron Ore Mining Lease,**
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Distt: West Singhbhum (Jharkhand).

General Information			
Protocol : Ambient Air		**Type of Sample:** Ambient Air	
Sample Collected By : Manish Kr. Singh & Team		**Sampling Plan Reference :** BES/0549	
Sampling Guidelines: IS 5182 (Part 14):Reaf. 2019 & IS 5182 (Part 5): 2020			
Sampling Date : 24/12/2024 to 25/12/2024		**Sample Receiving & Registration Date :** 26/12/2024	
Sample Condition : OK, Preserved & Sealed		**Emission Due to:** Mines Activities, Movement of Vehicles & Surrounding Activities	
Site Metrological Information	**Avg Temp:** 22 °C	**Avg R. Humidity :** 60 %	**Barometric Pressure:** 702 mmHg
Predominant Wind Direction: From ESE to WNW		**Customer Representative Name:** Kamal Bhasker	

Sample Description	
Sample Temperature at the time of receiving : 5 °C	**Temperature at the time of Analysis :** 25±2 °C
Test Start Date : 26/12/2024	**Test End Date :** 30/12/2024
Sampling Location : Near Environmental Lab (Lat - 22°12'49.43"N Long - 85°22'38.00"E)	

Analysis Result

Sl No	Specific Test Performed	Unit	Time Weighted Average	Test Method No	Norms NAAQS 2009	Result
01	Sulphur Dioxide (SO_2)	$\mu g/m^3$	24 Hours	IS 5182 (Part 2 /Sec 1): 2023	80	**05.22**
02	Oxides of Nitrogen (NO_2)	$\mu g/m^3$	24 Hours	IS 5182 (Part 6) : Reaf.2017	80	**43.53**
03	Respirable Suspended Particulate Matter (PM_{10})	$\mu g/m^3$	24 Hours	IS 5182 (Part 23): Reaf.2022	100	**77.33**
04	Fine Particulate Matter ($PM_{2.5}$)	$\mu g/m^3$	24 Hours	IS 5182 (Part 24) : 2019	60	**33.75**

----END OF REPORT----

Remarks:
All parameters in this report conforms to the specific standard.

Note: -

- Sampling has been carried out as per applied test methods.
- Reported results are related only to the item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements.

Reviewed by

BIOCRAT ENVIRONMENTAL SERVICES * RANCHI *

Authorized by
Technical Manager
(Sunil Kumar Singh)

TEST REPORT

Format No: 7.8F-04

AMBIENT AIR QUALITY

Unique Lab Report No : TC1203923000002968F	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004243	**Discipline :** Chemical
Field Data Sheet Code: BES/JSPCB/AAQ/20774139/03	**Group :** Atmospheric Pollution
Type of Industry / Plant : Iron Ore Mines	**Product / Material of Test :** Ambient Air
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address: **Duarguiburu Iron Ore Mining Lease,**
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).

General Information			
Protocol : Ambient Air		**Type of Sample:** Ambient Air	
Sample Collected By : Manish Kr. Singh & Team		**Sampling Plan Reference :** BES/0549	
Sampling Guidelines: IS 5182 (Part 14):Reaf. 2019 & IS 5182 (Part 5): 2020			
Sampling Date : 24/12/2024 to 25/12/2024		**Sample Receiving & Registration Date :** 26/12/2024	
Sample Condition : OK, Preserved & Sealed		**Emission Due to:** Mines Activities, Movement of Vehicles & Surrounding Activities	
Site Metrological Information	**Avg Temp:** 22 °C	**Avg R. Humidity :** 60 %	**Barometric Pressure:** 702 mmHg
Predominant Wind Direction: From ESE to WNW		**Customer Representative Name:** Kamal Bhasker	

Sample Description	
Sample Temperature at the time of receiving : 5 °C	**Temperature at the time of Analysis :** 25±2 °C
Test Start Date : 26/12/2024	**Test End Date :** 30/12/2024
Sampling Location : Near Gua Club (Lat - 22°12'42.28"N Long - 85°22'54.07"E)	

Analysis Result

Sl No	Specific Test Performed	Unit	Time Weighted Average	Test Method No	Norms NAAQS 2009	Result
01	Sulphur Dioxide (SO_2)	µg/m³	24 Hours	IS 5182 (Part 2 /Sec 1): 2023	80	**< 5.0**
02	Oxides of Nitrogen (NO_2)	µg/m³	24 Hours	IS 5182 (Part 6) : Reaf.2017	80	**41.02**
03	Respirable Suspended Particulate Matter (PM_{10})	µg/m³	24 Hours	IS 5182 (Part 23): Reaf.2022	100	**68.50**
04	Fine Particulate Matter ($PM_{2.5}$)	µg/m³	24 Hours	IS 5182 (Part 24) : 2019	60	**27.53**

----END OF REPORT----

Remarks:
All parameters in this report conforms to the specific standard.

Note: -

- Sampling has been carried out as per applied test methods.
- Reported results are related only to the item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements.

Reviewed by

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

BIOCRAT ENVIRONMENTAL SERVICES RANCHI

Authorized by
Technical Manager
(Sunil Kumar Singh)

TEST REPORT

Format No: 7.8F-04

AMBIENT AIR QUALITY

Unique Lab Report No : TC1203923000002969F	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004244	**Discipline :** Chemical
Field Data Sheet Code: BES/JSPCB/AAQ/20774139/04	**Group :** Atmospheric Pollution
Type of Industry / Plant : Iron Ore Mines	**Product / Material of Test :** Ambient Air
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address: **Duarguiburu Iron Ore Mining Lease,**
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).

General Information			
Protocol : Ambient Air		**Type of Sample:** Ambient Air	
Sample Collected By : Manish Kr. Singh & Team		**Sampling Plan Reference :** BES/0549	
Sampling Guidelines: IS 5182 (Part 14):Reaf. 2019 & IS 5182 (Part 5): 2020			
Sampling Date : 25/12/2024 to 26/12/2024		**Sample Receiving & Registration Date :** 26/12/2024	
Sample Condition : OK, Preserved & Sealed		**Emission Due to:** Mines Activities, Movement of Vehicles & Surrounding Activities	
Site Metrological Information	**Avg Temp:** 21 °C	**Avg R. Humidity :** 63 %	**Barometric Pressure:** 704 mmHg
Predominant Wind Direction: From ESE to WNW		**Customer Representative Name:** Kamal Bhasker	

Sample Description	
Sample Temperature at the time of receiving : 5 °C	**Temperature at the time of Analysis :** 25±2 °C
Test Start Date : 26/12/2024	**Test End Date :** 30/12/2024
Sampling Location : Near WTP Area (Lat - 22°12'13.36"N Long - 85°22'39.48"E)	

Analysis Result

Sl No	Specific Test Performed	Unit	Time Weighted Average	Test Method No	Norms NAAQS 2009	Result
01	Sulphur Dioxide (SO_2)	$\mu g/m^3$	24 Hours	IS 5182 (Part 2 /Sec 1): 2023	80	< 5.0
02	Oxides of Nitrogen (NO_2)	$\mu g/m^3$	24 Hours	IS 5182 (Part 6) : Reaf.2017	80	31.51
03	Respirable Suspended Particulate Matter (PM_{10})	$\mu g/m^3$	24 Hours	IS 5182 (Part 23): Reaf.2022	100	56.71
04	Fine Particulate Matter ($PM_{2.5}$)	$\mu g/m^3$	24 Hours	IS 5182 (Part 24) : 2019	60	24.35

----END OF REPORT----

Remarks:

All parameters in this report conforms to the specific standard.

Note: -

- Sampling has been carried out as per applied test methods.
- Reported results are related only to the item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements.

Reviewed by

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

BIOCRAT ENVIRONMENTAL SERVICES • RANCHI •

Authorized by
Technical Manager
(Sunil Kumar Singh)

TEST REPORT

Format No: 7.8F-04

AMBIENT AIR QUALITY

Unique Lab Report No : TC1203923000002970F	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004245	**Discipline :** Chemical
Field Data Sheet Code: BES/JSPCB/AAQ/20774139/05	**Group :** Atmospheric Pollution
Type of Industry / Plant : Iron Ore Mines	**Product / Material of Test :** Ambient Air
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address: **Duarguiburu Iron Ore Mining Lease,**
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).

General Information			
Protocol : Ambient Air		**Type of Sample:** Ambient Air	
Sample Collected By : Manish Kr. Singh & Team		**Sampling Plan Reference :** BES/0549	
Sampling Guidelines: IS 5182 (Part 14):Reaf. 2019 & IS 5182 (Part 5): 2020			
Sampling Date : 25/12/2024 to 26/12/2024		**Sample Receiving & Registration Date :** 26/12/2024	
Sample Condition : OK, Preserved & Sealed		**Emission Due to:** Mines Activities, Movement of Vehicles & Surrounding Activities	
Site Metrological Information	**Avg Temp:** 21 °C	**Avg R. Humidity :** 63 %	**Barometric Pressure:** 704 mmHg
Predominant Wind Direction: From ESE to WNW		**Customer Representative Name:** Kamal Bhasker	

Sample Description	
Sample Temperature at the time of receiving : 5 °C	**Temperature at the time of Analysis :** 25±2 °C
Test Start Date : 26/12/2024	**Test End Date :** 30/12/2024
Sampling Location : Near DG Area (Lat - 22°12'47.11"N Long - 85°22'36.04"E)	

Analysis Result

Sl No	Specific Test Performed	Unit	Time Weighted Average	Test Method No	Norms NAAQS 2009	Result
01	Sulphur Dioxide (SO_2)	$\mu g/m^3$	24 Hours	IS 5182 (Part 2 /Sec 1): 2023	80	**05.53**
02	Oxides of Nitrogen (NO_2)	$\mu g/m^3$	24 Hours	IS 5182 (Part 6) : Reaf.2017	80	**46.29**
03	Respirable Suspended Particulate Matter (PM_{10})	$\mu g/m^3$	24 Hours	IS 5182 (Part 23): Reaf.2022	100	**79.55**
04	Fine Particulate Matter ($PM_{2.5}$)	$\mu g/m^3$	24 Hours	IS 5182 (Part 24) : 2019	60	**35.29**

----END OF REPORT----

Remarks:

All parameters in this report conforms to the specific standard.

Note: -

- Sampling has been carried out as per applied test methods.
- Reported results are related only to the item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements.

Reviewed by

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

BIOCRAT ENVIRONMENTAL SERVICES RANCHI

Authorized by
Technical Manager
(Sunil Kumar Singh)

TEST REPORT

Format No: 7.8F-04

AMBIENT AIR QUALITY

Unique Lab Report No : TC1203923000002971F	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004246	**Discipline :** Chemical
Field Data Sheet Code: BES/JSPCB/AAQ/20774139/06	**Group :** Atmospheric Pollution
Type of Industry / Plant : Iron Ore Mines	**Product / Material of Test :** Ambient Air
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address: **Duarguiburu Iron Ore Mining Lease,**
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).

General Information			
Protocol : Ambient Air		**Type of Sample:** Ambient Air	
Sample Collected By : Manish Kr. Singh & Team		**Sampling Plan Reference :** BES/0549	
Sampling Guidelines: IS 5182 (Part 14):Reaf. 2019 & IS 5182 (Part 5): 2020			
Sampling Date : 25/12/2024 to 26/12/2024		**Sample Receiving & Registration Date :** 26/12/2024	
Sample Condition : OK, Preserved & Sealed		**Emission Due to:** Mines Activities, Movement of Vehicles & Surrounding Activities	
Site Metrological Information	**Avg Temp:** 21 °C	**Avg R. Humidity :** 63 %	**Barometric Pressure:** 704 mmHg
Predominant Wind Direction: From ESE to WNW		**Customer Representative Name:** Kamal Bhasker	

Sample Description	
Sample Temperature at the time of receiving : 5 °C	**Temperature at the time of Analysis :** 25±2 °C
Test Start Date : 26/12/2024	**Test End Date :** 30/12/2024
Sampling Location : Near Hirzi Hutting (Lat - 22°11'34.57"N Long - 85°22'55.07"E)	

Analysis Result

Sl No	Specific Test Performed	Unit	Time Weighted Average	Test Method No	Norms NAAQS 2009	Result
01	Sulphur Dioxide (SO_2)	$\mu g/m^3$	24 Hours	IS 5182 (Part 2 /Sec 1): 2023	80	**<5.0**
02	Oxides of Nitrogen (NO_2)	$\mu g/m^3$	24 Hours	IS 5182 (Part 6) : Reaf.2017	80	**23.75**
03	Respirable Suspended Particulate Matter (PM_{10})	$\mu g/m^3$	24 Hours	IS 5182 (Part 23): Reaf.2022	100	**63.25**
04	Fine Particulate Matter ($PM_{2.5}$)	$\mu g/m^3$	24 Hours	IS 5182 (Part 24) : 2019	60	**26.17**

----END OF REPORT----

Remarks:
All parameters in this report conforms to the specific standard.

Note:-
- Sampling has been carried out as per applied test methods.
- Reported results are related only to the Item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements.

Reviewed by

General Manager (Mines) & E&
SAIL-BSL, Gua Ore Mines

BIOCRAT ENVIRONMENTAL SERVICES RANCHI

Authorized by
Technical Manager
(Sunil Kumar Singh)

TEST REPORT

Format No: 7.8F-05

AMBIENT NOISE LEVELS

Unique Lab Report No : TC1203923000002972F	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004247	**Discipline :** Chemical
Field Data Sheet Code: BES/JSPCB/NOISE/20774139/01	**Group :** Atmospheric Pollution
Type of Industry / Plant : Iron Ore Mines	**Product / Material of Test :** Ambient Noise Levels (Excluding Vibration)
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address: **Duarguiburu Iron Ore Mining Lease, M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).**

General Information			
Protocol : Ambient Noise		**Type of Sample:** Ambient Noise	
Sample Collected By : Manish Kr. Singh & Team		**Sampling Plan Reference :** BES/0549	
Sampling Method : IS 9989:1981 Reaf.2020		**Monitoring Data :** Appropriate	
Monitoring Date : 24/12/2024 to 25/12/2024		**Data Receiving & Registration Date :** 26/12/2024	
Noise Due to: Mines Activities, Movement of Vehicles & Nearby Activities			
Site Metrological Information	**Avg Temp:** 22 °C	**Avg R. Humidity :** 60 %	**Barometric Pressure:** 702 mmHg
Predominant Wind Direction: From ESE to WNW		**Customer Representative Name:** Kamal Bhasker	

Sample Description	
Data Analysis Start Date : 27/12/2024	**Data Analysis End Date :** 27/12/2024
Sampling Location : Near Main Canteen (Lat - 22°12'54.75"N Long - 85°21'29.58"E)	

Noise Monitoring Result

Sampling Duration	Day Time (06 AM - 10 PM)	Night Time (10 PM - 06 AM)	CPCB Limit in dB(A) Leq (As per Pollution Control Law Series: PCLS/06/2000-01)	
			Day Time	Night Time
Minimum in dB(A)	50.6	42.3		
Maximum in dB(A)	69.1	51.5	75	70
Equivalent Sound Levels (Leq in dB(A))	**57.8**	**44.3**		

----END OF REPORT----

Note: - "dB(A)Leq" denotes the time weighted average of sound in decibels on scale A which is reliable to human hearing.

Remarks:

All parameters in this report conforms to the specific standard.

Note: -

- Reported results are related only to the item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements

Reviewed By

BIOCRAT ENVIRONMENTAL SERVICES RANCHI

Authorized by
Technical Manager
(Sunil Kumar Singh)

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

TEST REPORT

Format No: 7.8F-05

AMBIENT NOISE LEVELS

Unique Lab Report No : TC1203923000002973F	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004248	**Discipline :** Chemical
Field Data Sheet Code: BES/JSPCB/NOISE/20774139/02	**Group :** Atmospheric Pollution
Type of Industry / Plant : Iron Ore Mines	**Product / Material of Test :** Ambient Noise Levels (Excluding Vibration)
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address: **Duarguiburu Iron Ore Mining Lease,**
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).

General Information			
Protocol : Ambient Noise		**Type of Sample:** Ambient Noise	
Sample Collected By : Manish Kr. Singh & Team		**Sampling Plan Reference :** BES/0549	
Sampling Method : IS 9989:1981 Reaf.2020		**Monitoring Data :** Appropriate	
Monitoring Date : 24/12/2024 to 25/12/2024		**Data Receiving & Registration Date :** 26/12/2024	
Noise Due to: Mines Activities, Movement of Vehicles & Nearby Activities			
Site Metrological Information	**Avg Temp:** 22 °C	**Avg R. Humidity :** 60 %	**Barometric Pressure:** 702 mmHg
Predominant Wind Direction: From ESE to WNW		**Customer Representative Name:** Kamal Bhasker	

Sample Description	
Data Analysis Start Date : 27/12/2024	**Data Analysis End Date :** 27/12/2024
Sampling Location : Near Environmental Lab (Lat - 22°12'49.19"N Long - 85°22'38.45"E)	

Noise Monitoring Result

Sampling Duration	Day Time (06 AM - 10 PM)	Night Time (10 PM - 06 AM)	CPCB Limit in dB(A) Leq (As per Pollution Control Law Series: PCLS/06/2000-01)	
			Day Time	Night Time
Minimum in dB(A)	52.2	44.6		
Maximum in dB(A)	71.8	57.3	75	70
Equivalent Sound Levels (Leq in dB(A))	**68.2**	**52.7**		

----END OF REPORT----

Note: - "dB(A)Leq" denotes the time weighted average of sound in decibels on scale A which is reliable to human hearing.

Remarks:

All parameters in this report conforms to the specific standard.

Note: -

- Reported results are related only to the item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements

Reviewed By

BIOCRAT ENVIRONMENTAL SERVICES * RANCHI *

Authorized by
Technical Manager
(Sunil Kumar Singh)

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

TEST REPORT

Format No: 7.8F-05

AMBIENT NOISE LEVELS

Unique Lab Report No : TC12039230000002974F	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004249	**Discipline :** Chemical
Field Data Sheet Code: BES/JSPCB/NOISE/20774139/03	**Group :** Atmospheric Pollution
Type of Industry / Plant : Iron Ore Mines	**Product / Material of Test :** Ambient Noise Levels (Excluding Vibration)
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address: **Duarguiburu Iron Ore Mining Lease,**
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).

General Information			
Protocol : Ambient Noise		**Type of Sample:** Ambient Noise	
Sample Collected By : Manish Kr. Singh & Team		**Sampling Plan Reference :** BES/0549	
Sampling Method : IS 9989:1981 Reaf.2020		**Monitoring Data :** Appropriate	
Monitoring Date : 25/12/2024 to 26/12/2024		**Data Receiving & Registration Date :** 26/12/2024	
Noise Due to: Mines Activities, Movement of Vehicles & Nearby Activities			
Site Metrological Information	**Avg Temp:** 21 °C	**Avg R. Humidity :** 63 %	**Barometric Pressure:** 704 mmHg
Predominant Wind Direction: From ESE to WNW		**Customer Representative Name:** Kamal Bhasker	

Sample Description	
Data Analysis Start Date : 27/12/2024	**Data Analysis End Date :** 27/12/2024
Sampling Location : Near Gua Club (Lat - 22°12'42.57"N Long - 85°22'53.40"E)	

Noise Monitoring Result

Sampling Duration	Day Time (06 AM - 10 PM)	Night Time (10 PM - 06 AM)	CPCB Limit in dB(A) Leq (As per Pollution Control Law Series: PCLS/06/2000-01)	
			Day Time	Night Time
Minimum in dB(A)	49.4	40.2		
Maximum in dB(A)	65.9	54.7	75	70
Equivalent Sound Levels (Leq in dB(A))	**53.6**	**42.5**		

----END OF REPORT----

Note: - "dB(A)Leq" denotes the time weighted average of sound in decibels on scale A which is reliable to human hearing.

Remarks:

All parameters in this report conforms to the specific standard

Note: -

- Reported results are related only to the Item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements

Reviewed By

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

BIOCRAT ENVIRONMENTAL SERVICES RANCHI

Authorized by
Technical Manager
(Sunil Kumar Singh)

TEST REPORT

Format No: 7.8F-05

AMBIENT NOISE LEVELS

Unique Lab Report No : TC1203923000002975F	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004250	**Discipline :** Chemical
Field Data Sheet Code: BES/JSPCB/NOISE/20774139/04	**Group :** Atmospheric Pollution
Type of Industry / Plant : Iron Ore Mines	**Product / Material of Test :** Ambient Noise Levels (Excluding Vibration)
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address: **Duarguiburu Iron Ore Mining Lease,**
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).

General Information			
Protocol : Ambient Noise		**Type of Sample:** Ambient Noise	
Sample Collected By : Manish Kr. Singh & Team		**Sampling Plan Reference :** BES/0549	
Sampling Method : IS 9989:1981 Reaf.2020		**Monitoring Data :** Appropriate	
Monitoring Date : 25/12/2024 to 26/12/2024		**Data Receiving & Registration Date :** 26/12/2024	
Noise Due to: Mines Activities, Movement of Vehicles & Nearby Activities			
Site Metrological Information	**Avg Temp:** 21 °C	**Avg R. Humidity :** 63 %	**Barometric Pressure:** 704 mmHg
Predominant Wind Direction: From ESE to WNW		**Customer Representative Name:** Kamal Bhasker	

Sample Description	
Data Analysis Start Date : 27/12/2024	**Data Analysis End Date :** 27/12/2024
Sampling Location : Near Gua Hospital (Lat - 22°12'39.66"N Long - 85°22'53.52"E)	

Noise Monitoring Result

Sampling Duration	Day Time (06 AM - 10 PM)	Night Time (10 PM - 06 AM)	CPCB Limit in dB(A) Leq (As per Pollution Control Law Series: PCLS/06/2000-01)	
			Day Time	Night Time
Minimum in dB(A)	41.5	39.7		
Maximum in dB(A)	56.2	45.4	50	40
Equivalent Sound Levels (Leq in dB(A))	**49.3**	**38.8**		

----END OF REPORT----

Note: - "dB(A)Leq" denotes the time weighted average of sound in decibels on scale A which is reliable to human hearing.

Remarks:

All parameters in this report conforms to the specific standard.

Note: -

- Reported results are related only to the item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements

Reviewed By

General Manager (Mines) & E&L
SAIL-BSL Gua Ore Mines

BIOCRAT ENVIRONMENTAL SERVICES RANCHI

Authorized by
Technical Manager
(Sunil Kumar Singh)

TEST REPORT OF
EFFLUENT WATER QUALITY

Format No: 7.8F-07

Unique Lab Report No : TC1203923000002976F	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004251	**Discipline :** Chemical
Field Data Sheet Code: BES/JSPCB/EW/20774139/01	**Group :** Pollution & Environment
Type of Industry / Plant : Iron Ore Mines	**Product / Material of Test :** Waste Water
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address: **Duarguiburu Iron Ore Mining Lease,**
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).

General Information	
Sample Temperature during Sampling : 18 °C	**Sampling Method:** IS 17614 (Part 1): 2021
Type of Sample : Effluent Water	**Sampling Plan Reference :** BES/0549
Sampling Date : 26/12/2024	**Sample Receiving & Registration Date :** 26/12/2024
Sample Collected By : Manish Kr Singh & Team	**Customer Representative Name :** Kamal Bhasker

Sample Description	
Sample Temperature at the time of receiving : 5 °C	**Avg. Temperature at the time of Analysis :**25 ±2°C
Test Start Date : 26/12/2024	**Test End Date :** 30/12/2024
Sampling Location : Gua Ore Mines	**Sampling Point :** Near Kali Mandir
Sample Condition : OK, Preserved & Sealed	

Analysis Result

Sl No	Specific Test Performed	Unit	Method No	Acceptable Limits (Inland Surface Water)	Results
01.	pH	---	IS 3025 (Part-11): 2022	5.5 – 9.0	**7.34**
02.	Total Suspended Solids	mg/l	IS 3025 (Part-17): 2022	100	**70**
03.	Total Dissolved Solids	mg/l	IS 3025 (Part-16): 2023	Not Specified	**105**
04.	COD	mg/l	IS 3025 (Part-58): Reaf.2022	250	**38.4**
05.	BOD (3 Day @ 27°C)	mg/l	IS 3025 (Part-44): 2023	30	**6.6**
06.	Oil &Grease	mg/l	IS 3025 (Part-39): 2021	10	**<4.0**
07.	Dissolved Oxygen	mg/l	IS 3025 (Part-38): Reaf.2019	Not Specified	**7.5**

- **Norms :-** Acceptable Limit = GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENTAL POLLUTANTS PART-A: EFFLUENTS, Environment (Protection) Second Amendment Rules, 1993 notified vide G.S.R. 422(E) dated 19.05.1993, published in the Gazette No. 174 dated 19.05.1993.

Remarks:
All parameters in this report conforms to the specific standard

Note:
- Reported results are related only to the item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements.

Ankita
Reviewed by

BIOCRAT ENVIRONMENTAL SERVICES * RANCHI *

Authorized by
Technical Manager
(Sunil Kumar Singh

General Manager (Mines) & ES
SAIL-BSL, Gua Ore Mines

TEST REPORT

Format No: 7.8F-07

EFFLUENT WATER QUALITY

Unique Lab Report No : LAB/REPORT/BES/23000002976-A	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004251	**Discipline :** Chemical
Field Data Sheet Code: BES/JSPCB/EW/20774139/01	**Group :** Pollution & Environment
Type of Industry / Plant : Iron Ore Mines	**Product / Material of Test :** Waste Water
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address: **Duarguiburu Iron Ore Mining Lease,**
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).

Analysis Result

Sl No	Specific Test Performed	Unit	Method No	Acceptable Limits (Inland Surface Water)	Results
08.	Temperature	°C	Not Specified	Not Specified	**18**
09.	Chloride (as Cl)	mg/l	IS 3025 (Part-32): Reaf.2019	Not Specified	**7.60**
10.	Total Solids	mg/l	IS 3025 (Part-15):	Not Specified	**187**

----END OF REPORT----

- Norms :- Acceptable Limit = GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENTAL POLLUTANTS PART-A: EFFLUENTS, Environment (Protection) Second Amendment Rules, 1993 notified vide G.S.R. 422(E) dated 19.05.1993, published in the Gazette No. 174 dated 19.05.1993.

Remarks:

All parameters in this report conforms to the specific standard

Note:

- Reported results are related only to the item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements.

Reviewed By

BIOCRAT ENVIRONMENTAL SERVICES * RANCHI *

Authorized by
Technical Manager
(Sunil Kumar Singh

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

TEST REPORT OF
EFFLUENT WATER QUALITY

Format No: 7.8F-07

Unique Lab Report No : TC1203923000002977F	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004252	**Discipline :** Chemical
Field Data Sheet Code: BES/JSPCB/EW/20774139/02	**Group :** Pollution & Environment
Type of Industry / Plant : Iron Ore Mines	**Product / Material of Test :** Waste Water
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address: Duarguiburu Iron Ore Mining Lease,
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).

General Information	
Sample Temperature during Sampling : 21 °C	**Sampling Method:** IS 17614 (Part 1): 2021
Type of Sample : Effluent Water (Domestic)	**Sampling Plan Reference :** BES/0549
Sampling Date : 26/12/2024	**Sample Receiving & Registration Date :** 26/12/2024
Sample Collected By : Manish Kr Singh & Team	**Customer Representative Name :** Kamal Bhasker

Sample Description	
Sample Temperature at the time of receiving : 5 °C	**Avg. Temperature at the time of Analysis :**25 ±2°C
Test Start Date : 26/12/2024	**Test End Date :** 30/12/2024
Sampling Location : Gua Ore Mines	**Sampling Point :** Near Railway Bridge
Sample Condition : OK, Preserved & Sealed	

Analysis Result

Sl No	Specific Test Performed	Unit	Method No	Acceptable Limits (Inland Surface Water)	Results
01.	pH	---	IS 3025 (Part-11): 2022	5.5 – 9.0	**7.05**
02.	Total Suspended Solids	mg/l	IS 3025 (Part-17): 2022	100	**78**
03.	Total Dissolved Solids	mg/l	IS 3025 (Part-16): 2023	Not Specified	**142**
04.	COD	mg/l	IS 3025 (Part-58): Reaf.2022	250	**96**
05.	BOD (3 Day @ 27°C)	mg/l	IS 3025 (Part-44): 2023	30	**18.5**
06.	Oil &Grease	mg/l	IS 3025 (Part-39): 2021	10	**<4.0**
07.	Dissolved Oxygen	mg/l	IS 3025 (Part-38): Reaf.2019	Not Specified	**3.1**

- **Norms :-** Acceptable Limit = GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENTAL POLLUTANTS PART-A: EFFLUENTS, Environment (Protection) Second Amendment Rules, 1993 notified vide G.S.R. 422(E) dated 19.05.1993, published in the Gazette No. 174 dated 19.05.1993.

Remarks:
All parameters in this report conforms to the specific standard.

Note:
- Reported results are related only to the item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements.

Reviewed by

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

BIOCRAT ENVIRONMENTAL SERVICES * RANCHI *

Authorized by
Technical Manager
(Sunil Kumar Singh

TEST REPORT

Format No: 7.8F-07

EFFLUENT WATER QUALITY

Unique Lab Report No : LAB/REPORT/BES/23000002977-A	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004252	**Discipline :** Chemical
Field Data Sheet Code: BES/JSPCB/EW/20774139/02	**Group :** Pollution & Environment
Type of Industry / Plant : Iron Ore Mines	**Product / Material of Test :** Waste Water
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address: **Duarguiburu Iron Ore Mining Lease,**
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).

Analysis Result

Sl No	Specific Test Performed	Unit	Method No	Acceptable Limits (Inland Surface Water)	Results
08.	Temperature	°C	Not Specified	Not Specified	21
09.	Chloride (as Cl)	mg/l	IS 3025 (Part-32): Reaf.2019	Not Specified	13.3
10.	Total Solids	mg/l	IS 3025 (Part-15):	Not Specified	234

----END OF REPORT----

- **Norms :-** Acceptable Limit = GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENTAL POLLUTANTS PART-A: EFFLUENTS, Environment (Protection) Second Amendment Rules, 1993 notified vide G.S.R. 422(E) dated 19.05.1993, published in the Gazette No. 174 dated 19.05.1993.

Remarks:

All parameters in this report conforms to the specific standard.

Note:

- Reported results are related only to the item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements.

Reviewed By

BIOCRAT ENVIRONMENTAL SERVICES RANCHI

Authorized by
Technical Manager
(Sunil Kumar Singh

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

TEST REPORT OF
EFFLUENT WATER QUALITY

Format No: 7.8F-07

Unique Lab Report No : TC1203923000002978F	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004253	**Discipline :** Chemical
Field Data Sheet Code: BES/JSPCB/EW/20774139/03	**Group :** Pollution & Environment
Type of Industry / Plant : Iron Ore Mines	**Product / Material of Test :** Waste Water
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address: **Duarguiburu Iron Ore Mining Lease,**
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).

General Information	
Sample Temperature during Sampling : 18 °C	**Sampling Method:** IS 17614 (Part 1): 2021
Type of Sample : Effluent Water	**Sampling Plan Reference :** BES/0549
Sampling Date : 26/12/2024	**Sample Receiving & Registration Date :** 26/12/2024
Sample Collected By : Manish Kr Singh & Team	**Customer Representative Name :** Kamal Bhasker

Sample Description	
Sample Temperature at the time of receiving : 5 °C	**Avg. Temperature at the time of Analysis :**25 ±2°C
Test Start Date : 26/12/2024	**Test End Date :** 30/12/2024
Sampling Location : Gua Ore Mines	**Sampling Point :** Hospital Outlet
Sample Condition : OK, Preserved & Sealed	

Analysis Result

Sl No	Specific Test Performed	Unit	Method No	Acceptable Limits (Inland Surface Water)	Results
01.	pH	---	IS 3025 (Part-11): 2022	5.5 – 9.0	**7.54**
02.	Total Suspended Solids	mg/l	IS 3025 (Part-17): 2022	100	**72**
03.	Total Dissolved Solids	mg/l	IS 3025 (Part-16): 2023	Not Specified	**159**
04.	COD	mg/l	IS 3025 (Part-58): Reaf.2022	250	**76.8**
05.	BOD (3 Day @ 27°C)	mg/l	IS 3025 (Part-44): 2023	30	**14.1**
06.	Oil &Grease	mg/l	IS 3025 (Part-39): 2021	10	**<4.0**
07.	Dissolved Oxygen	mg/l	IS 3025 (Part-38): Reaf.2019	Not Specified	**8.1**

- **Norms :-** Acceptable Limit = GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENTAL POLLUTANTS PART-A: EFFLUENTS, Environment (Protection) Second Amendment Rules, 1993 notified vide G.S.R. 422(E) dated 19.05.1993, published in the Gazette No. 174 dated 19.05.1993.

Remarks:
All parameters in this report conforms to the specific standard.

Note:
- Reported results are related only to the item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements.

Reviewed by

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

BIOCRAT ENVIRONMENTAL SERVICES * RANCHI *

Authorized by
Technical Manager
(Sunil Kumar Singh

TEST REPORT

Format No: 7.8F-07

EFFLUENT WATER QUALITY

Unique Lab Report No : LAB/REPORT/BES/23000002978-A	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004253	**Discipline :** Chemical
Field Data Sheet Code: BES/JSPCB/EW/20774139/03	**Group :** Pollution & Environment
Type of Industry / Plant : Iron Ore Mines	**Product / Material of Test :** Waste Water
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address: **Duarguiburu Iron Ore Mining Lease,**
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).

Analysis Result

Sl No	Specific Test Performed	Unit	Method No	Acceptable Limits (Inland Surface Water)	Results
08.	Temperature	°C	Not Specified	Not Specified	**18**
09.	Chloride (as Cl)	mg/l	IS 3025 (Part-32): Reaf.2019	Not Specified	**7.60**
10.	Total Solids	mg/l	IS 3025 (Part-15):	Not Specified	**243**

----END OF REPORT----

- **Norms :-** Acceptable Limit = GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENTAL POLLUTANTS PART-A: EFFLUENTS, Environment (Protection) Second Amendment Rules, 1993 notified vide G.S.R. 422(E) dated 19.05.1993, published in the Gazette No. 174 dated 19.05.1993.

Remarks:
All parameters in this report conforms to the specific standard

Note:
- Reported results are related only to the item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements.

Reviewed By

BIOCRAT ENVIRONMENTAL SERVICES * RANCHI *

Authorized by
Technical Manager
(Sunil Kumar Singh

General Manager (Mines) & ESL
SAIL-BSL, Gua Ore Mines

TEST REPORT
SURFACE WATER QUALITY

Format No: 7.8F-03

Unique Lab Report No : TC1203923000002979F	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004254	**Discipline :** Chemical
Field Data Sheet Code : BES/JSPCB/SW/20774139/01	**Group :** Water
Type of Industry : Iron Ore Mines	**Product / Material of Test :** Surface Water
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address: - Duarguiburu Iron Ore Mining Lease,
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).

General Information

Sample Temperature during Sampling: 20 °C	**Sampling Method:** IS 17614 (Part 1): 2021
Source of Sample : River Water	**Sampling Plan Reference :** BES/0549
Sampling Date : 26/12/2024	**Sample Receiving & Registration Date :** 26/12/2024
Sample Collected By : Manish kr. Singh & Team	**Customer Representative Name :** Kamal Bhasker

Sample Description

Sample Temperature at the time of receiving : 5 °C		**Avg. Temperature at the time of Analysis :** 25±2°C
Test Start Date : 26/12/2024	**Test End Date :** 30/12/2024	**Sample Condition :** OK, Preserved & Sealed
Sampling Location : Karo River Upstream		**Sampling Point :** Near Kali Mandir

Analysis Result

Sl No	Specific Test Performed	Unit	Method No.& Method Name	CPCB Standard Water Quality Criteria Table 1 Updated 11/10/2019					Results
				A	B	C	D	E	
01.	pH	---	IS 3025 (Part-11):2022	6.5-8.5	6.5-8.5	6.0-9.0	6.5-8.5	6.0-8.5	7.63
02.	Total Dissolved Solids	mg/l	IS 3025 (Part-16):2023	-	-	-	-	-	112
03.	Chloride (as Cl)	mg/l	IS 3025 (Part-32): Reaffirmed 2019, Argentometric Method	-	-	-	-	-	9.50
04.	Sulphate (as SO_4)	mg/l	IS 3025 (Part-24/sec 1): Reaffirmed. 2022, Turbidity Method	-	-	-	-	-	4.25
05.	Iron (as Fe)	mg/l	IS 3025 (Part-53): 2024, 1,10 Phenanthroline Method	-	-	-	-	-	0.14

Remarks:

- **All Parameters in this Report Conforms to the specific standard.**

Note:

- **Reported results are related only to the item tested.**
- **This report should not be reproduced except in full, without approval of laboratory.**
- **Items tested are as per the standard requirements.**

Reviewed by

BIOCRAT ENVIRONMENTAL SERVICES * RANCHI *

Authorized by
Technical Manager
(Sunil Kumar Singh)

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

TEST REPORT
SURFACE WATER QUALITY

Unique Lab Report No : LAB/REPORT/BES/23000002979-A	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004254	**Discipline :** Chemical
Field Data Sheet Code : BES/JSPCB/SW/20774139/01	**Group :** Water
Type of Industry : Iron Ore Mines	**Product / Material of Test :** Surface Water
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address :- **Duarguiburu Iron Ore Mining Lease,**
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).

Analysis Result

Sl No	Specific Test Performed	Unit	Method No.	CPCB Standard Water Quality Criteria Table 1 Updated 11/10/2019					Results
				A	B	C	D	E	
06.	Electrical Conductivity	µS/cm	IS 3025 (Part-14)	-	-	-	-	2250	181
07.	BOD (3Days @ 27°C)	mg/l	IS 3025 (Part-44)	-	-	-	-	-	2.1
08.	COD	mg/l	IS 3025 (Part-58)	-	-	-	-	-	19.2
09.	Dissolved Oxygen	mg/l	IS 3025 (Part-38)	-	-	-	-	-	6.9
10.	Oil &Grease	mg/l	IS 3025 (Part-39)						<4.0

----END OF REPORT----

Class A - Drinking water source without conventional treatment but after disinfection.
Class B - Out door bathing (organized).
Class C - Drinking water source with conventional treatment followed by disinfection.
Class D - Propagation of wild life, fisheries.
Class E - Irrigation, industrial cooling, controlled waste disposal

Remarks:

- All Parameters in this Report Conforms to the specific standard

Note:

- Reported results are related only to the item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements.

Ankita
Reviewed by

BIOCRAT ENVIRONMENTAL SERVICES * RANCHI *

Authorized by
Technical Manager
(Sunil Kumar Singh)

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

TEST REPORT
SURFACE WATER QUALITY

Format No: 7.8F-03

Unique Lab Report No : TC1203923000002980F	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004255	**Discipline :** Chemical
Field Data Sheet Code : BES/JSPCB/SW/20774139/02	**Group :** Water
Type of Industry : Iron Ore Mines	**Product / Material of Test :** Surface Water
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address: - Duarguiburu Iron Ore Mining Lease,
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).

General Information	
Sample Temperature during Sampling: 21 °C	**Sampling Method:** IS 17614 (Part 1): 2021
Source of Sample : River Water	**Sampling Plan Reference :** BES/0549
Sampling Date : 26/12/2024	**Sample Receiving & Registration Date :** 26/12/2024
Sample Collected By : Manish kr. Singh & Team	**Customer Representative Name :** Kamal Bhasker

Sample Description		
Sample Temperature at the time of receiving : 5 °C		**Avg. Temperature at the time of Analysis :** 25±2°C
Test Start Date : 26/12/2024	**Test End Date :** 30/12/2024	**Sample Condition :** OK, Preserved & Sealed
Sampling Location : Karo River Downstream		**Sampling Point : Near** Nuia Village

Analysis Result

Sl No	Specific Test Performed	Unit	Method No.& Method Name	CPCB Standard Water Quality Criteria Table 1 Updated 11/10/2019					Results
				A	B	C	D	E	
01.	pH	---	IS 3025 (Part-11):2022	6.5-8.5	6.5-8.5	6.0-9.0	6.5-8.5	6.0-8.5	7.42
02.	Total Dissolved Solids	mg/l	IS 3025 (Part-16):2023	-	-	-	-	-	116
03.	Chloride (as Cl)	mg/l	IS 3025 (Part-32): Reaffirmed 2019, Argentometric Method	-	-	-	-	-	11.4
04.	Sulphate (as SO_4)	mg/l	IS 3025 (Part-24/sec 1): Reaffirmed. 2022, Turbidity Method	-	-	-	-	-	4.62
05.	Iron (as Fe)	mg/l	IS 3025 (Part-53): 2024, 1,10 Phenanthroline Method	-	-	-	-	-	0.15

Remarks:
- All Parameters in this Report Conforms to the specific standard.

Note:
- Reported results are related only to the item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements.

Ankita
Reviewed by

BIOCRAT ENVIRONMENTAL SERVICES RANCHI

Authorized by
Technical Manager
(Sunil Kumar Singh)

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

TEST REPORT
SURFACE WATER QUALITY

Unique Lab Report No : LAB/REPORT/BES/23000002980-A	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004255	**Discipline :** Chemical
Field Data Sheet Code : BES/JSPCB/SW/20774139/02	**Group :** Water
Type of Industry : Iron Ore Mines	**Product / Material of Test :** Surface Water
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address : - Duarguiburu Iron Ore Mining Lease,
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).

Analysis Result

SI No	Specific Test Performed	Unit	Method No.	CPCB Standard Water Quality Criteria Table 1 Updated 11/10/2019					Results
				A	B	C	D	E	
06.	Electrical Conductivity	µS/cm	IS 3025 (Part-14)	-	-	-	-	2250	185
07.	BOD (3Days @ 27°C)	mg/l	IS 3025 (Part-44)	-	-	-	-	-	2.2
08.	COD	mg/l	IS 3025 (Part-58)	-	-	-	-	-	19.2
09.	Dissolved Oxygen	mg/l	IS 3025 (Part-38)	-	-	-	-	-	6.8
10.	Oil &Grease	mg/l	IS 3025 (Part-39)						<4.0

----END OF REPORT----

Class A - Drinking water source without conventional treatment but after disinfection
Class B - Out door bathing (organized).
Class C - Drinking water source with conventional treatment followed by disinfection.
Class D - Propagation of wild life, fisheries.
Class E - Irrigation, industrial cooling, controlled waste disposal

Remarks:

- All Parameters in this Report Conforms to the specific standard

Note:

- Reported results are related only to the item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements.

Reviewed by

BIOCRAT ENVIRONMENTAL SERVICES * RANCHI *

Authorized by
Technical Manager
(Sunil Kumar Singh)

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

Format No: 7.8F-01

TEST REPORT
DRINKING WATER

Unique Lab Report No : TC1203923000002981F	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004256	**Discipline :** Chemical
Field Data Sheet Code : BES/JSPCB/DW/20774139/01	**Group :** Water
Type of Industry : Iron Ore Mines	**Product / Material of Test :** Potable Water
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address: - **Duarguiburu Iron Ore Mining Lease,**
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).

General Information

Sample Temperature During Sampling: 17 °C	**Sampling Method:** IS 17614 (Part 1): 2021
Type of Sample : Drinking Water (RO Water)	**Sampling Plan Reference :** BES/0549
Sampling Date : 26/12/2024	**Sample Receiving & Registration Date :** 26/12/2024
Sample Collected By : Manish kr. Singh & Team	**Customer Representative Name :** Kamal Bhasker

Sample Description

Sample Temperature at the time of receiving : 5 °C		**Avg. Temperature at the time of Analysis :** 25±2°C
Test Start Date : 26/12/2024	**Test End Date :** 30/12/2024	**Sample Condition :** OK, Preserved & Sealed
Sampling Location : Guest House		**Sampling Point :** Guest House Kitchen

Analysis Result

Sl No	Specific Test Performed	Unit	Method No./ Name	Limits as per IS 10500 :2012		Results
				Acceptable	Permissible	
01.	pH	---	IS 3025 (Part-11):2022	6.5-8.5	No relaxation	7.27
02.	Turbidity	NTU	IS 3025 (Part-10):2023, Nephelometric Method	1	5	< 1
03.	Colour	Hazen	IS 3025 (Part-04): 2021, Platinum Cobalt (Visual Comparison Method)	5	15	< 5
04.	Odour	---	IS 3025 (Part-05):2018	Agreeable	Agreeable	Agreeable
05.	Total Dissolved Solids	mg/l	IS 3025 (Part-16):2023, Gravimetric Method	500	2000	71
06.	Calcium (as Ca^{2+})	mg/l	IS 3025 (Part-40): 1991, Reaffirmed 2019, EDTA Titrimetric Method	75	200	1.6
07.	Total Alkalinity (as $CaCO_3$)	mg/l	IS 3025 (Part-23):2023, Indicator Method	200	600	32
08.	Total Hardness (as $CaCO_3$)	mg/l	IS 3025 (Part-21): 2009, Reaffirmed 2019, EDTA Method	200	600	< 2
09.	Chloride (as Cl)	mg/l	IS 3025 (Part-32): 1988, Reaffirmed 2019, Argentometric Method	250	1000	17.1
10.	Sulphate (as SO_4)	mg/l	IS 3025 (Part-24/sec 1): 2022, Turbidity Method	200	400	4.35
11.	Magnesium (as Mg)	mg/l	IS 3025 (Part-46): 2023, Volumetric Method Using EDTA	30	100	< 1
12.	Iron (as Fe)	mg/l	IS 3025 (Part-53): 2024, 1,10 Phenanthroline Method	0.3	No relaxation	<0.1
13.	Total Chromium (as Cr)	mg/l	IS 3025 (Part-52): 2003, Reaffirmed 2019, Diphenylcarbazide Method	0.05	No relaxation	<0.05

Remarks:

- All Parameters in this Report Conforms to the specific standard.

Note:

- Reported results are related only to the Item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements.

Reviewed by

BIOCRAT ENVIRONMENTAL SERVICES RANCHI

Authorized by
Technical Manager
(Sunil Kumar Singh)

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Add: - Sarveshwari Nagar, Iiki Road, Bajra, P.O – Hehal, Dist – Ranchi, Jharkhand, Pin -834005
Email Id :- biocratenv@gmail.com, Mobile No – 7369019812, 8340466751, 9608708172

BIOCRAT ENVIRONMENTAL SERVICES
(BIOCRAT ENVIRONMENTAL LAB)

TEST REPORT
DRINKING WATER

Format No: 7.8F-01

Unique Lab Report No : LAB/REPORT/BES/23000002981-A	**Report Issue Date :** 31/12/2024
Job Card No : BES/0004256	**Discipline :** Chemical
Field Data Sheet Code : BES/JSPCB/DW/20774139/01	**Group :** Water
Type of Industry : Iron Ore Mines	**Product / Material of Test :** Potable Water
Application No : 20774139	**Application Date & Time :** 10/12/2024 at 06:02

Client Name & Address: - Duarguiburu Iron Ore Mining Lease,
M/s. SAIL Gua Ore Mines, SAIL, Post – Gua, Dist- West Singhbhum (Jharkhand).

Analysis Result

Sl No	Specific Test Performed	Unit	Method No./ Name	Limits as per IS 10500 :2012		Results
				Acceptable	Permissible	
14.	Electrical Conductivity	µS/cm	IS 3025 (Part-14)	Not Specified	Not Specified	111
15.	Temperature	°C	Not Specified	Not Specified	Not Specified	17
16.	Taste	---	IS 3025 (Part-07)	Agreeable	Agreeable	Agreeable
17.	Free Residual Chlorine	mg/l	IS 3025 (Part-26)	0.2	1	<0.2
18.	Phenolic Compound (as C_6H_5OH)	mg/l	IS 3025 (Part-43)	0.001	0.002	<0.001
19.	Nitrate (as NO_3)	mg/l	IS 3025 (Part-34)	45	No relaxation	2.4
20.	Fluoride (as F)	mg/l	IS 3025 (Part- 60)	1.0	1.5	0.42
21.	Manganese (as Mn)	mg/l	IS 3025 (Part-59)	0.1	0.3	< 0.1
22.	Arsenic (as As)	mg/l	IS 3025 (Part-37)	0.01	0.05	< 0.01
23.	Copper (as Cu)	mg/l	IS 3025 (Part-42)	0.05	1.5	<0.05
24.	Total coliform	MPN/100 ml	IS 1622	Shall not be detectable in any 100 ml sample		Absent
25.	Fecal Coliform	MPN/100 ml	IS 1622	Shall not be detectable in any 100 ml sample		Absent

----END OF REPORT----

Remarks:
- All Parameters in this Report Conforms to the specific standard.

Note:
- Reported results are related only to the item tested.
- This report should not be reproduced except in full, without approval of laboratory.
- Items tested are as per the standard requirements.

Reviewed by

BIOCRAT ENVIRONMENTAL SERVICES * RANCHI *

Authorized by
Technical Manager
(Sunil Kumar Singh)

General Manager (Mines) & E
SAIL-BSL, Gua Ore Mines

Add: - Sarveshwari Nagar, Bke Road, Bajra, P.O. - Hehal, Dist – Ranchi, Jharkhand, Pin -834005
Email Id :- biocrateny@gmail.com, Mobile No – 7369019812, 8340466751, 9608708172

TEST REPORT

ULR Number	TC	1	1	0	6	7	2	5	0	0	0	0	0	0	2	5	0	F			

Sample Description	Ambient Air Quality	Sampling Details	
Job Registration ID	G/JRN/250324/AR-01	Sampling Date	21st-22nd March.2025
Test Report No.	G/TRN/250328-01	Sample Collected by	Vishwajit & Team
Work Order No.	JSPCB-21807956	Sample Receiving Date	24-03-2025
Report Release Date	28-03-2025	Test Starting Date	24-03-2025
Customer Details & Address		Test Completion Date	26-03-2025
M/s Duarguiburu Iron Ore Mining Lease, M/s. Sail Gua Ore Mines, Sail , Post- Gua Dist- West Singhbhum (Jharkhand)		Sampling Protocol	IS 5182 (Part-23,24,2,6)
		Meteorological Information	
		Weather Condition	Semi-Cloudy
		Barometric Pressure	704 (in mm Hg)
		Wind Direction	(South-West)
Type of Industries	Iron Ore Mines	Average Temperature (°C)	27
Company Status	Operating	Relative Humidity (%)	63

Sampling Location	(A) Near WTP Area	(B) Near DG Area	(C) Near Hirzi Hutting
Latitude & Longitude	(22°12'13.36"N)& (85°22'39.48"E)	(22°12'47.11"N) & (85°22'36.04"E)	(22°11'34.57"N) (85°22'55.07"E)
Sampling Time	03:00 Pm - 03:00 Pm	03:30 Pm - 03:30 Pm	03:50 Pm - 03:50 Pm

Test Results

Parameters	Units	Sampling Location			Permissible Limit
		Site A	Site B	Site C	(as per NAAQ-2009)
Particulate Matter (PM 10) Test Method - IS 5182 (Part-23)	$\mu g/m^3$	69.26	88.34	68.48	100
Particulate Matter (PM 2.5) Test Method - IS 5182 (Part-24)	µg/m3	31.78	34.58	30.29	60
Sulphur Dioxide (SO_2) Test Method - IS 5182 (Part-2)	µg/m3	30.64	32.11	29.66	80
Nitrogen Dioxide (NO_2) Test Method - IS 5182 (Part-6)	µg/m3	39.25	33.18	37.33	80

Remarks

1) Test values are found within the prescribed limit of National Ambient Air Quality(NAAQ 2009)
2) Results relate only to the items sampled and tested.
3) The Test report shall not be reproduced except in full without approval of the laboratory.
4) Sample will be disposed after 30 days from the issue date of the report.
5. Any dispute is subject to Ranchi Jurisdiction Only.

Karishma 28/03/2025

Karishma Kujur
Tested By (Analyst)

GEMS PROJECTS PVT. LTD. • GEMS • Environmental Laboratory Division

28/03/2025

Kumari Sohi Mehta
Authorized Signatory
Authorized Signatory
Gems Project Pvt. Ltd.
(Environmental Laboratory Division)

******** End of Report ********

Registered Office: 1236/2 Lajpat Nagar, Near Lala Lajpat Laboratory Address: Vill-Katarpa, Piska Nagri, Jharkhand-835303
Rai School, Pundag, Argora, Ranchi, Jharkhand-834004 Contact: +91-9508707378, +91-7903208990
Contact:+91-9431115961, +91-9934307900 E-mail: gemslab17@gmail.com
E-mail:gems.projects@yahoo.in, info@gemsgroup.inWebsite: www.gemsgroup.in

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

GEMS PROJECTS PVT. LTD.

(ENVIRONMENTAL LABORATORY DIVISION)

NABL ACCREDIDATED | ISO9001 & OHSAS 18001 CERTIFIED | JSPCB RECOGNISED

Certificate No.-TC-11067

TEST REPORT

ULR Number	TC	1	1	0	6	7	2	5	0	0	0	0	0	0	2	5	0	F				
Sample Description		Ambient Air Quality						Sampling Details														
Job Registration ID		G/JRN/250324/AR-01						Sampling Date										21st-22nd March.2025				
Test Report No.		G/TRN/250328-01						Sample Collected by										Vishwajit & Team				
Work Order No.		JSPCB-21807956						Sample Receiving Date										24-03-2025				
Report Release Date		28-03-2025						Test Starting Date										24-03-2025				
Customer Details & Address								Test Completion Date										26-03-2025				
M/s Duarguiburu Iron Ore Mining Lease, M/s. Sail Gua Ore Mines, Sail , Post- Gua Dist- West Singhbhum (Jharkhand)								Sampling Protocol										IS 5182 (Part-23,24,2,6)				
								Meteorological Information														
								Weather Condition										Semi-Cloudy				
								Barometric Pressure										704 (in mm Hg)				
								Wind Direction										(South-West)				
Type of Industries		Iron Ore Mines						Average Temperature (°C)										27				
Company Status		Operating						Relative Humidity (%)										63				

Sampling Location	(D) Near Main Canteen	(E) Near Enviromental Laboratory	(f) Near Gua Club
Latitude & Longitude	(22°12'54.85"N)& (85°21'31.49"E)	(22°12'49.43"N) & (85°22'38.00"E)	(22°12'42.28"N) (85°22'54.07"E)
Sampling Time	04:10 Pm - 04:10 Pm	04:30 Pm - 04:30 Pm	04:50 Pm - 04:50 Pm

Test Results

Parameters	Units	Sampling Location			Permissible Limit
		Site D	Site E	Site F	(as per NAAQ-2009)
Particulate Matter (PM 10)	µg/m³	84.62	87.32	61.12	100
Test Method - IS 5182 (Part-23)					
Particulate Matter (PM 2.5)	µg/m3	32.78	38.38	26.75	60
Test Method - IS 5182 (Part-24)					
Sulphur Dioxide (SO_2)	µg/m3	31.62	29.90	28.18	80
Test Method - IS 5182 (Part-2)					
Nitrogen Dioxide (NO_2)	µg/m3	33.18	40.19	37.85	80
Test Method - IS 5182 (Part-6)					

Remarks

1) Test values are found within the prescribed limit of National Ambient Air Quality(NAAQ 2009).
2) Results relate only to the items sampled and tested.
3) The Test report shall not be reproduced except in full without approval of the laboratory.
4) Sample will be disposed after 30 days from the issue date of the report.
5. Any dispute is subject to Ranchi Jurisdiction Only.

Karishma 28/03/2025

Karishma Kujur
Tested By (Analyst)

GEMS PROJECTS PVT. LTD. GEMS Environmental Laboratory Division

28/03/2025

Kumari Soni Mehta
Authorized Signatory

Authorized Signatory
Gems Project Pvt. Ltd.
(Environmental Laboratory Division)

******** End of Report********

Registered Office: 1236/2 Lajpat Nagar, Near Lala Lajpat Laboratory Address: Vill-Katarpa, Piska Nagri, Jharkhand-835303
Rai School, Pundag, Argora, Ranchi, Jharkhand-834004 Contact: +91-9508707378, +91-7903208990
Contact:+91-9431115961, +91-9934307900 E-mail: gemslab17@gmail.com
E-mail:gems.projects@yahoo.in, info@gemsgroup.inWebsite: www.gemsgroup.in

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

GEMS PROJECTS PVT. LTD.

(ENVIRONMENTAL LABORATORY DIVISION)

NABL ACCREDIDATED | ISO9001 & OHSAS 18001 CERTIFIED | JSPCB RECOGNISED

Certificate No.-TC-11067

TEST REPORT

ULR Number	TC	1	1	0	6	7	2	5	0	0	0	0	0	0	2	5	1	F				

Sample Description	Noise Level Monitoring	Sampling Details	
Job Registration ID	G/JRN/250324/NOISE-01	Sampling Date	21st-22nd March.2025
Test Report No.	G/TRN/250328-01	Sample Collected by	Vishwajit & Team
Work Order No.	JSPCB-21807956	Sample Receiving Date	24-03-2025
Report Release Date	28-03-2025	Test Starting Date	24-03-2025
Customer Details & Address		Test Completion Date	24-03-2025
M/s Duarguiburu Iron Ore Mining Lease, M/s. Sail Gua Ore Mines, Sail , Post- Gua Dist- West Singhbhum (Jharkhand)		Sampling Protocol	IS 9989-1981 (RA-2001)
		Meteorological Information	
		Weather Condition	Semi- Cloudy
		Barometric Pressure	704 (in mm Hg)
		Wind Direction	(South-West)
Type of Industries	Iron Ore Mines	Average Temperature (°C)	27
Company Status	Operating	Relative Humidity (%)	63

Test Results

Sampling Time	Sampling Location	Parameters	Units	Day Time	Night Time
03:10 Pm - 03:10 Pm	(A)- Near Main Canteen	Leq	dB (A)	66.2	48.2
Latitude	(22°12'54.85"N)				
Longitude	(85°21'31.49"E)				
03:40 Pm - 03:40 Pm	(B)- Near Enviromental Lab	Leq	dB (A)	65.3	40.3
Latitude	(22°12'49.43"N)				
Longitude	(85°22'38.00"E)				
04:20 Pm - 04:20 Pm	(C)- Near Gua Club	Leq	dB (A)	58.4	35.7
Latitude	(22°12'42.28"N)				
Longitude	(85°22'54.07"E)				
04:40 Pm - 04:40 Pm	(D)- Near Gua Hospital	Leq	dB (A)	59.7	38.5
Latitude	(22°12'39.66"N)				
Longitude	(85°22'53.52"E)				

Remarks

(1) All values are observed well within the limit

(2) Leq = Level Equivalent

(3) Day Time - From 6:00 Am to 10:00Pm, Night Time - From 10:00 PM to 6:00 Am

(4) The Noise Pollution (Regulation and Control) Rules, 2000, (CPCB)

Area/Zone	Day Time/Night Time
Industrial Area	75/70 Limits in dB(A)

(5) The Test report shall not be reproduced except in full without approval of the laboratory.

(6) Sample will be disposed after 30 days from the issue date of the reports.

(7) Any dispute is subject to Ranchi Jurisdiction Only.

Karishma 28/03/2025

Karishma Kujur

Tested By (Analyst)

GEMS PROJECTS PVT. LTD. GEMS Environmental Laboratory Division

End of Report

28/03/2025

Kumari Soni Mehta

Authorized Signatory

Authorized Signatory

Gems Projects Pvt. Ltd.

(Environmental Laboratory Division)

Registered Office: 1236/2 Lajpat Nagar, Near Lala Lajpat Laboratory Address: Vill-Katarpa, Piska Nagri, Jharkhand-835303
Rai School, Pundag, Argora, Ranchi, Jharkhand-834004 Contact: +91-9508707378, +91-7903208990
Contact: +91-9431115961, +91-9934307900 E-mail: gemslab17@gmail.com
E-mail: gems.projects@yahoo.in, info@gemsgroup.in Website: www.gemsgroup.in

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

GEMS PROJECTS PVT. LTD.

(ENVIRONMENTAL LABORATORY DIVISION)

NABL ACCREDIDATED | ISO9001 & OHSAS 18001 CERTIFIED | JSPCB RECOGNISED

Certificate No.-TC-11067

TEST REPORT

ULR Number	TC 1 1 0 6 7 2 5 0 0 0 0 0 0 2 5 2 F

Customer Details & Address: **M/s Duarguiburu Iron Ore Mining Lease, M/s. Sail Gua Ore Mines, Sail , Post- Gua Dist- West Singhbhum (Jharkhand)**		Job Registration ID	G/JRN/250324/CH-01
		Sample Code	G/250324/SW-01
		Date of Issue	28-03-2025
		Type of Industries	Iron Ore Mines
		Sample Description	Surface Water
		Sampling Date	22-03-2025
Sample Quantity	2500ml	Sampling Location	Near Karo River (Upstream Karo River)
Sample receiving date	22-03-2025	Sample collected by	Vishwajit & Team
Sample pkg. condition	Sealed in PET Bottle	Sampling Protocol	IS 3025 (Part -1)
Test Start Date	24-03-2025	Test Completion Date	27-03-2025
Work Order No.	JSPCB-21807956	Test Report No.	G/TRN/250328-01

RESULT

Sl. No.	Parameter	Method	Unit	Result	Acceptable limit CPCB Standard Water Quality Criteria Table 1				
					A	B	C	D	E
1.	pH	IS:3025 Part-11 :2022 (Electrometric Method)	.....	6.78	6.5-8.5	6.5-8.5	6-9	6.5-8.5	6-8.5
2.	TDS @180°C	IS:3025 Part-16: 2017 (Gravimetric Method)	mg/l	180.0	---	---	---	---	---
3.	Iron as Fe	IS:3025 Part-53: 2003 (Phenanthroline Method	mg/l	0.23	---	---	---	---	---
4.	Total Hardness as $CaCO_3$	IS:3025 Part-21: 2019 (EDTA Method)	mg/l	102.0	---	---	---	---	---
5.	Chloride as Cl	IS:3025 Part-32: 2019 (Argentometric Method)	mg/l	3.5	---	---	---	---	---
6.	Calcium as Ca	IS:3025 Part-40: 2019 (EDTA Titrametric Method)	mg/l	31.07	---	---	---	---	---
7.	Magnesium as Mg	APHA 3500 Mg-B 23rd Edition : 2017 (Calculation Method)	mg/l	5.95	---	---	---	---	---
8.	Hexavalent Chromium as Cr^{+6}	IS:3025 Part-52: 2003 (SPANDS Method)	mg/l	BDL	---	---	---	---	---
9.	TSS @103-105°C	IS:3025 Part-17: 1984 (Total Suspended Solids dried at 103°-105°C)	mg/l	21.0	---	---	---	---	---

For Kavishyna 28/03/2025

Chameli Soren

Tested by

GEMS PROJECTS PVT LTD. GEMS Environmental Laboratory Division

28/03/2025

Kumari Soni Mehta

Issued by (Authorized Signatory)

Authorized Signatory

Gems Project Pvt. Ltd.

(Environmental Laboratory Division)

Registered Office: 1236/2 Lajpat Nagar, Near Lala Lajpat Laboratory Address: Vill-Katarpa, Piska Nagri, Jharkhand-835303
Rai School, Pundag, Argora, Ranchi, Jharkhand-834004 Contact: +91-9508707378, +91-7903208990
Contact:+91-9431115961, +91-9934307900 E-mail: gemslab17@gmail.com
E-mail:gems.projects@yahoo.in, info@gemsgroup.inWebsite: www.gemsgroup.in

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

GEMS PROJECTS PVT. LTD.

(ENVIRONMENTAL LABORATORY DIVISION)

NABL ACCREDIDATED | ISO9001 & OHSAS 18001 CERTIFIED | JSPCB RECOGNISED

Certificate No.-TC-11067

TEST REPORT

ULR Number	TC 1 1 0 6 7 2 5 0 0 0 0 0 0 2 5 2 F		
Customer Details & Address: **M/s Duarguiburu Iron Ore Mining Lease, M/s. Sail Gua Ore Mines, Sail , Post- Gua Dist- West Singhbhum (Jharkhand)**		Job Registration ID	G/JRN/250324/CH-01
		Sample Code	G/241225/SW-01
		Date of Issue	28-03-2025
		Type of Industries	Iron Ore Mines
		Sample Description	Surface Water
		Sampling Date	22-03-2025
Sample Quantity	2500ml	Sampling Location	Near Karo River (Upstream Karo River)
Sample receiving date	24-03-2025	Sample collected by	Vishwajit & Team
Sample pkg. condition	Sealed in PET Bottle	Sampling Protocol	IS 3025 (Part -1)
Test Start Date	24-03-2025	Test Completion Date	27-03-2025

RESULT

Sl. No.	Parameter	Method	Unit	Result	Acceptable limit CPCB Standard Water Quality Criteria Table 1				
					A	B	C	D	E
10.	Sulphate (as SO_4^{2-})	IS:3025 Part-24: Sec1:2002 (Turbidity Method)	mg/l	14.0	---	---	---	---	---
11.	Total Alkalinity as $CaCO_3$	IS:3025 Part-23: 1986 (Titration Method)	mg/l	72.0	---	---	---	---	---
12.	Fluoride as F^-	APHA 4500-F-D	mg/l	BDL	---	---	---	---	---
13	COD @ 150°C	IS:3025 Part-58: 2006	mg/l	20.0	---	---	---	---	---
14.	Temperature	IS:3025 Part-09: 1984	°C	26.0	---	---	---	---	---

Class A- Drinking water sources without conventional treatment but after disinfection.

Class B – Outdoor bathing (Organized).

Class C- Drinking water sources after conventional treatment but after disinfection.

Class D- Propagation of Wild life & Fisheries.

Class E- Irrigation, Industrial Cooling Controlled Waste Disposal.

Note: -

1. Results relate only to the items sampled and tested.
2. The report shall not be reproduced except in full without approval of the laboratory.
3. Any dispute is subject to Ranchi Jurisdiction Only.
4. Sample will be discarded after 15 days from the issue date of the test report.
5. BDL- Below Detectable Limit; DL- Detectable Limit.

For Karishma 28/03/2025

Chameli Soren
Tested by

GEMS PROJECTS PVT. LTD. GEMS Environmental Laboratory Division

28/03/2025

Kumari Soni Mehta
Authorized Signatory
Gems Project Pvt. Ltd.
(Environmental Laboratory Division)

***** End of Test Report *****

Registered Office: 1236/2 Lajpat Nagar, Near Lala Lajpat Laboratory Address: Plot No. 1236/2 Lajpat Nagar, Near Lala Lajpat Laboratory, Rai School, Bundag, Argora, Ranchi, Jharkhand-834004 Contact: +91-9508707378, +91-7903208990
Contact:+91-9431115961, +91-9934307900 E-mail: gemslab17@gmail.com
E-mail:gems.projects@yahoo.in, info@gemsgroup.inWebsite: www.gemsgroup.in

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

GEMS PROJECTS PVT. LTD.

(ENVIRONMENTAL LABORATORY DIVISION)

NABL ACCREDIDATED | ISO9001 & OHSAS 18001 CERTIFIED | JSPCB RECOGNISED

Certificate No.-TC-11067

TEST REPORT

ULR Number	TC	1	1	0	6	7	2	5	0	0	0	0	0	0	2	5	3	F

Customer Details & Address:		Job Registration ID	G/JRN/250324/CH-01
M/s Duarguiburu Iron Ore Mining Lease, M/s. Sail Gua Ore Mines, Sail , Post- Gua Dist- West Singhbhum (Jharkhand)		Sample Code	G/250324/SW-02
		Date of Issue	28-03-2025
		Type of Industries	Iron Ore Mines
		Sample Description	Surface Water
		Sampling Date	22-03-2025
Sample Quantity	2500ml	Sampling Location	Near Nuia Village (Downstream Karo River)
Sample receiving date	22-03-2025	Sample collected by	Vishwajit & Team
Sample pkg. condition	Sealed in PET Bottle	Sampling Protocol	IS 3025 (Part -1)
Test Start Date	24-03-2025	Test Completion Date	28-12-2024
Work Order No.	JSPCB-21807956	Test Report No.	G/TRN/250328-01

RESULT

Sl. No.	Parameter	Method	Unit	Result	Acceptable limit CPCB Standard Water Quality Criteria Table 1				
					A	B	C	D	E
1.	pH	IS:3025 Part-11 :2022 (Electrometric Method)	.....	6.86	6.5-8.5	6.5-8.5	6-9	6.5-8.5	6-8.5
2.	TDS @180°C	IS:3025 Part-16: 2017 (Gravimetric Method)	mg/l	128.0	---	---	---	---	---
3.	Iron as Fe	IS:3025 Part-53: 2003 (Phenanthroline Method	mg/l	0.21	---	---	---	---	---
4.	Total Hardness as $CaCO_3$	IS:3025 Part-21: 2019 (EDTA Method)	mg/l	81.6	---	---	---	---	---
5.	Chloride as Cl	IS:3025 Part-32: 2019 (Argentometric Method)	mg/l	5.0	---	---	---	---	---
6.	Calcium as Ca	IS:3025 Part-40: 2019 (EDTA Titrametric Method)	mg/l	29.43	---	---	---	---	---
7.	Magnesium as Mg	APHA 3500 Mg-B 23rd Edition : 2017 (Calculation Method)	mg/l	1.98	---	---	---	---	---
8.	Hexavalent Chromium as Cr^{+6}	IS:3025 Part-52: 2003 (SPANDS Method)	mg/l	BDL	---	---	---	---	---
9.	TSS @103-105°C	IS:3025 Part-17: 1984 (Total Suspended Solids dried at 103°-105°C)	mg/l	14.0	---	---	---	---	---

For Karishma 28/03/2025

Chameli Soren
Tested by

GEMS PROJECTS PVT. LTD. GEMS Environmental Laboratory Division

28/03/2025

Kumari Soni Mehta
Issued by (Authorized Signatory)

Authorized Signatory
Gems Project Pvt. Ltd.
(Environmental Laboratory Division)

Registered Office: 1236/2 Lajpat Nagar, Near Lala Lajpat Laboratory Address: Vill-Katarpa, Piska Nagri, Jharkhand-835303
Rai School, Pundag, Argora, Ranchi, Jharkhand-834004 Contact: +91-9508707378, +91-7903208905
Contact:+91-9431115961, +91-9934307900 E-mail: gemslab17@gmail.com
E-mail:gems.projects@yahoo.in, info@gemsgroup.inWebsite: www.gemsgroup.in

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

GEMS PROJECTS PVT. LTD.

(ENVIRONMENTAL LABORATORY DIVISION)

NABL ACCREDIDATED | ISO9001 & OHSAS 18001 CERTIFIED | JSPCB RECOGNISED

Certificate No.-TC-11067

TEST REPORT

ULR Number	TC	1	1	0	6	7	2	5	0	0	0	0	0	0	2	5	3	F

Customer Details & Address:		Job Registration ID	G/JRN/250324/CH-01
M/s Duarguiburu Iron Ore Mining Lease, M/s. Sail Gua Ore Mines, Sail , Post- Gua Dist- West Singhbhum (Jharkhand)		Sample Code	G/241225/SW-02
		Date of Issue	28-03-2025
		Type of Industries	Iron Ore Mines
		Sample Description	Surface Water
		Sampling Date	22-03-2025
Sample Quantity	2500ml	Sampling Location	Near Nuia Village (Downstream Karo River)
Sample receiving date	24-03-2025	Sample collected by	Vishwajit & Team
Sample pkg. condition	Sealed in PET Bottle	Sampling Protocol	IS 3025 (Part -1)
Test Start Date	24-03-2025	Test Completion Date	27-03-2025

RESULT

Sl. No.	Parameter	Method	Unit	Result	Acceptable limit CPCB Standard Water Quality Criteria Table 1				
					A	B	C	D	E
10.	Sulphate (as SO_4^{2-})	IS:3025 Part-24: Sec1:2002 (Turbidity Method)	mg/l	12.0	---	---	---	---	---
11.	Total Alkalinity as $CaCO_3$	IS:3025 Part-23: 1986 (Titration Method)	mg/l	40.0	---	---	---	---	---
12.	Fluoride as F	APHA 4500-F-D	mg/l	BDL	---	---	---	---	---
13	COD @ 150°C	IS:3025 Part-58: 2006	mg/l	20.0	---	---	---	---	---
14.	Temperature	IS:3025 Part-09: 1984	°C	24.0	---	---	---	---	---

Class A- Drinking water sources without conventional treatment but after disinfection.
Class B – Outdoor bathing (Organized).
Class C- Drinking water sources after conventional treatment but after disinfection.
Class D- Propagation of Wild life & Fisheries.
Class E- Irrigation, Industrial Cooling Controlled Waste Disposal.

Note: -

1. Results relate only to the items sampled and tested.
2. The report shall not be reproduced except in full without approval of the laboratory.
3. Any dispute is subject to Ranchi Jurisdiction Only.
4. Sample will be discarded after 15 days from the issue date of the test report.
5. BDL- Below Detectable Limit; DL- Detectable Limit;

For Kanishma 28/03/2025

Chameli Soren
Tested by

28/03/2025

Kumari Soni Mehta
Authorized Signatory

*** End of Test Report *** Gems Project Pvt. Ltd.

(Environmental Laboratary Division)

Registered Office: 1246/2 Lajpat Nagar, Near Lala Lajpat Laboratory Address: Vill-Katarpa, Piska Nagri, Jharkhand-835303
Mai School, Pundag, Argora, Ranchi, Jharkhand-834004 Contact: +91-9508707378, +91-7903208990
Contact: +91-9431115961, +91-9934307900 E-mail: gemslab17@gmail.com
E-mail:gems.projects@yahoo.in, info@gemsgroup.inWebsite: www.gemsgroup.in

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

GEMS PROJECTS PVT. LTD.

(ENVIRONMENTAL LABORATORY DIVISION)

NABL ACCREDIDATED | ISO9001 & OHSAS 18001 CERTIFIED | JSPCB RECOGNISED

Certificate No.-TC-11067

TEST REPORT

ULR Number	TC 1 1 0 6 7 2 5 0 0 0 0 0 0 2 5 4 F		
Customer Details & Address: **M/s Duarguiburu Iron Ore Mining Lease, M/s. Sail Gua Ore Mines, Sail , Post- Gua Dist- West Singhbhum (Jharkhand)**		Job Registration ID	G/JRN/250324/CH-01
		Sample receiving date	24-03-2025
		Date of Issue	28-03-2025
		Type of Industries	Iron Ore Mines
		Sample Description	Effluent Water
		Sampling Date	22-03-2025
Sample Code	G/250324/EW-01	Sampling Location	Near Kali Mandir (Industrial Effluent)
Sample Quantity	2500ml	Sample collected by	Vishwajit & Team
Sample pkg. condition	Sealed in PP Bottle	Sampling Protocol	IS :3025 (Part 1)
Test Start Date	24-03-2025	Test Completion Date	27-03-2025
Work Order No.	JSPCB-21807956	Test Report No.	G/TRN/250328-01

RESULT

Sl. No.	Parameter	Test Method	Unit	Result	Acceptable limit
1	Total Suspended Solid (TSS) @ 103-105°C	IS:3025 Part-17:2022 (Total Suspended Solid Dried at 103- 105 °C)	mg/l	58.0	100,max[m]
2	Chemical Oxygen Demand (COD) @ 150°C	IS:3025 Part-58:2023 (Open Refluxe Method)	mg/l	88.0	250 ,max[m]
3	pH @ 25°C	IS:3025 Part-11:2022 (Electrometric Method)	--	6.89	5.5-9.0
4	Temperature	IS:3025 Part-09:2023 (Laboratory & field Method)	°C	26.0	--
5	Biochemical Oxygen Demand (BOD) @ 27°C for 3 days	IS:3025 Part-44:1993,RA-2021	mg/l	10.0	30, max[m]
6	Oil & Grease @ 70°C	IS:3025 Part-39:2021	mg/l	BDL	10.0
7	DO	IS:3025 Part-38:1989 (Winkler Method)	mg/l	7.2	--
8	Total Solid @180 °C	IS:3025 Part-15:1984	mg/l	232.0	--
9	Chloride as Cl	IS:3025 Part-:1988 (Argentometric Method)	mg/l	5.5	--

Remarks: -All the results are found within prescribed limits.

Note: - On the basis of the tested parameters, sample complies with the requirement of Effluent water according to CPCB (The Environment Protection Rules, 1986, Schedule – VI)

1. Results relate only to the items sampled and tested.
2. The report shall not be reproduced except in full without approval of the laboratory.
3. Any dispute is subject to Ranchi Jurisdiction Only.
4. Sample will be discarded after 30 days from the issue date of the test report.

For Karishma 28/03/2025

Chameli Soren

Tested by

GEMS PROJECTS PVT. LTD. Environmental Laboratory Division

28/03/2025

Kumari Soni Mehta

Issued by(Authorized Signatory)

Authorized Signatory

End of Test Report **Gems Project Pvt. Ltd.**

(Environmental Laboratory Division)

Registered Office: 1236/2 Lajpat Nagar, Near Lala Lajpat Laboratory Address: [illegible] 835303
Rai School, Pundag, Argora, Ranchi, Jharkhand-834004 Contact: +91-9508707388, +91-7903208098
Contact:+91-9431115961, +91-9934307900 E-mail: gemslab17@gmail.com
E-mail:gems.projects@yahoo.in, info@gemsgroup.inWebsite: www.gemsgroup.in

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

TEST REPORT

Customer Details & Address: **M/s Duarguiburu Iron Ore Mining Lease, M/s. Sail Gua Ore Mines, Sail , Post- Gua Dist- West Singhbhum (Jharkhand)**		Job Registration ID	G/JRN/250324/CH-01
		Sample receiving date	24-03-2025
		Date of Issue	28-03-2025
		Type of Industries	Iron Ore Mines
		Sample Description	Effluent Water
		Sampling Date	22-03-2025
Sample Code	G/250324/EW-01	Sampling Location	Near Kali Mandir (Industrial Effluent)
Sample Quantity	2500ml	Sample collected by	Vishwajit & Team
Sample pkg. condition	Sealed in PP Bottle	Sampling Protocol	IS :3025 (Part 1)
Test Start Date	24-03-2025	Test Completion Date	27-03-2025

RESULT

Sl. No.	Parameter	Test Method	Unit	Result	Acceptable limit
1.	Total Dissolved Solid TDS @180 °C	IS:3025 Part-16:1984 (Total Dissolved Solid Dried at 180 °C)	mg/l	162.0	--

Remarks: - All the results are found within prescribed limits.

Note: - On the basis of the tested parameters, sample complies with the requirement of Effluent water according to CPCB (The Environment Protection Rules, 1986, Schedule – VI)

1. Results relate only to the items sampled and tested.
2. The report shall not be reproduced except in full without approval of the laboratory.
3. Any dispute is subject to Ranchi Jurisdiction Only.
4. Sample will be discarded after 30 days from the issue date of the test report.

FOR Karishma 28/03/2025	28/03/2025
Chameli Soren	**Kumari Soni Mehta**
Tested by	**Issued by (Lab In-charge)**

GEMS PROJECTS PVT. LTD. * Environmental Laboratory Division * GEMS

Lab In-Charge
Gems Projects Pvt. Ltd

*** End of Test Report***

General Manager (Mines) & E&L
SAIL-GSL, Gua Ore Mines

Registered Office: 1236/2 Lajpat Nagar, Pundag, Ranchi, Jharkhand-834004
Contact:+91-9431115961, 9934307900, 8789795091
E-mail:gems.projects@yahoo.in, info@gemsgroup.in md@gemsgroup.in

LaboratoryAddress: Harhi Road, Vil-Katarpa,Piska Nagri, Jharkhand-835303
Contact: +91-7992292098, 7257891573, 8434637382
E-mail: gemslab17@gmail.com |Web: www.gemsgroup.in

GEMS PROJECTS PVT. LTD.

(ENVIRONMENTAL LABORATORY DIVISION)

NABL ACCREDIDATED | ISO9001 & OHSAS 18001 CERTIFIED | JSPCB RECOGNISED

Certificate No.-TC-11067

TEST REPORT

ULR Number	TC 1 1 0 6 7 2 5 0 0 0 0 0 0 2 5 6 F		
Customer Details & Address: **M/s Duarguiburu Iron Ore Mining Lease, M/s. Sail Gua Ore Mines, Sail , Post- Gua Dist- West Singhbhum (Jharkhand)**		Job Registration ID	G/JRN/250324/CH-01
		Sample receiving date	24-03-2025
		Date of Issue	28-03-2025
		Type of Industries	Iron Ore Mines
		Sample Description	Effluent Water
		Sampling Date	22-03-2025
Sample Code	G/250324/EW-03	Sampling Location	Hospital ETP Outlet
Sample Quantity	2500ml	Sample collected by	Vishwajit & Team
Sample pkg. condition	Sealed in PP Bottle	Sampling Protocol	IS :3025 (Part 1)
Test Start Date	24-03-2025	Test Completion Date	27-03-2025
Work Order No.	JSPCB-21807956	Test Report No.	G/TRN/250328-01

RESULT

Sl. No.	Parameter	Test Method	Unit	Result	Acceptable limit
1	Total Suspended Solid (TSS) @ 103-105°C	IS:3025 Part-17:2022 (Total Suspended Solid Dried at 103- 105 °C)	mg/l	68.0	100,max[m]
2	Chemical Oxygen Demand (COD) @ 150°C	IS:3025 Part-58:2023 (Open Refluxe Method)	mg/l	60.0	250 ,max[m]
3	pH @ 25°C	IS:3025 Part-11:2022 (Electrometric Method)	--	6.65	5.5-9.0
4	Temperature	IS:3025 Part-09:2023 (Laboratory & field Method)	°C	25.0	--
5	Biochemical Oxygen Demand (BOD) @ 27°C for 3 days	IS:3025 Part-44:1993,RA-2021	mg/l	10.0	30, max[m]
6	Oil & Grease @ 70°C	IS:3025 Part-39:2021	mg/l	BDL	10.0
7	DO	IS:3025 Part-38:1989 (Winkler Method)	mg/l	5.6	--
8	Total Solid @180 °C	IS:3025 Part-15:1984	mg/l	247.0	--
9	Chloride as Cl	IS:3025 Part-:1988 (Argentometric Method)	mg/l	8.5	--

Remarks: -All the results are found within prescribed limits.

Note: - On the basis of the tested parameters, sample complies with the requirement of Effluent water according to CPCB (The Environment Protection Rules, 1986, Schedule – VI)

1. Results relate only to the items sampled and tested.
2. The report shall not be reproduced except in full without approval of the laboratory.
3. Any dispute is subject to Ranchi Jurisdiction Only.
4. Sample will be discarded after 30 days from the issue date of the test report.

For Karishma 28/03/2025	Kumari Soni Mehta 28/03/2025
Chameli Soren	**Kumari Soni Mehta**
Tested by	**Issued by (Authorized Signatory)**

GEMS PROJECTS PVT. LTD. GEMS Environmental Laboratory Division

Authorized Signatory

Gems Project Pvt. Ltd.

(Environmental Laboratory Division)

End of Test Report

Registered Office: 1236/2 Lajpat Nagar, Near Lala Lajpat Laboratory Address: Vill-Katarpa, Piska Nagri, Jharkhand-835303
Rai School, Pundag, Argora, Ranchi, Jharkhand-834004 Contact: +91-9508707378, +91-7903200400
Contact:+91-9431115961, +91-9934307900 E-mail: gemslab17@gmail.com
E-mail:gems.projects@yahoo.in, info@gemsgroup.inWebsite: www.gemsgroup.in

General Manager (Mines) & E&L
SAIL-BSL, Gua O-S Mines

TEST REPORT

Customer Details & Address:		Job Registration ID	G/JRN/250324/CH-01
M/s Duarguiburu Iron Ore Mining Lease, M/s. Sail Gua Ore Mines, Sail , Post- Gua Dist- West Singhbhum (Jharkhand)		Sample receiving date	24-03-2025
		Date of Issue	28-03-2025
		Type of Industries	Iron Ore Mines
		Sample Description	Effluent Water
		Sampling Date	22-03-2025
Sample Code	G/250324/EW-03	Sampling Location	Hospital ETP Outlet
Sample Quantity	2500ml	Sample collected by	Vishwajit & Team
Sample pkg. condition	Sealed in PP Bottle	Sampling Protocol	IS :3025 (Part 1)
Test Start Date	24-03-2025	Test Completion Date	27-03-2025

RESULT

Sl. No.	Parameter	Test Method	Unit	Result	Acceptable limit
1.	Total Dissolved Solid TDS @180 °C	IS:3025 Part-16:1984 (Total Dissolved Solid Dried at 180 °C)	mg/l	176.0	--

Remarks: - All the results are found within prescribed limits.

Note: - On the basis of the tested parameters, sample complies with the requirement of Effluent water according to CPCB (The Environment Protection Rules, 1986, Schedule – VI)

1. Results relate only to the items sampled and tested.
2. The report shall not be reproduced except in full without approval of the laboratory.
3. Any dispute is subject to Ranchi Jurisdiction Only.
4. Sample will be discarded after 30 days from the issue date of the test report.

FOR Karishma 28/03/2025	28/03/2025
Chameli Soren	**Kumari Soni Mehta**
Tested by	**Issued by (Lab In-charge)**

GEMS PROJECTS PVT. LTD. GEMS Environmental Laboratory Division

*** End of Test Report***

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

Registered Office: 1236/2 Lajpat Nagar, Pundag, Ranchi, Jharkhand-834004
Contact:+91-9431115961, 9934307900, 8789795091
E-mail:gems.projects@yahoo.in, info@gemsgroup.in md@gemsgroup.in

LaboratoryAddress: Harhi Road, Vil-Katarpa,Piska Nagri, Jharkhand-835303
Contact: +91-7992292098, 7257891573, 8434637382
E-mail: gemslab17@gmail.com|Web: www.gemsgroup.in

GEMS PROJECTS PVT. LTD.

(ENVIRONMENTAL LABORATORY DIVISION)

NABL ACCREDIDATED | ISO9001 & OHSAS 18001 CERTIFIED | JSPCB RECOGNISED

Certificate No.-TC-11067

TEST REPORT

ULR Number	T	C	1	1	0	6	7	2	5	0	0	0	0	0	2	5	7	F

Customer Details & Address:			
M/s Duarguiburu Iron Ore Mining Lease, M/s. Sail Gua Ore Mines, Sail , Post- Gua Dist- West Singhbhum (Jharkhand)		Job Registration ID	G/JRN/250324/CH-01
		Sample Code	G/250324/DW-01
		Date of Issue	28-03-2025
		Type of Industries	Iron Ore Mines
		Sample Description	Drinking Water
		Sampling Date	22-03-2025
Sample Quantity	2500 ml	Sampling Location	Guest House Kitchen
Sample receiving date	24-03-2025	Sample collected by	Vishwajit & Team
Sample pkg. condition	Sealed in PP Bottle	Sampling Protocol	IS :3025 (Part 1)
Test Start Date	24-03-2025	Test Completion Date	27-03-2024
Work Order No.	JSPCB-21807956	Test Report No.	G/TRN/250328-01

RESULT

Sl. No.	Parameter	Test Method	Unit	Result	Acceptable limit (As per IS 10500:2012)
1.	pH @ 25°C	IS:3025 Part-11:2022 (Electrometric Method)	--	7.76	6.5-8.5
2.	Total Hardness (as $CaCo_3$)	IS:3025 Part-21:2009,RA-2019	mg/l	69.36	200-600
3.	Total Alkalinity (as $CaCo_3$)	IS:3025 Part-23:2023	mg/l	44.0	200-600
4.	Total Dissolved Solid (TDS) @ 180°C	IS:3025 Part-16:2023 (Total Dissolved Solid Dried at 180 °C)	mg/l	108.0	500-2000
5.	Turbidity	IS:3025 Part-10:2023	NTU	0.3	1-5
6.	Iron (as Fe)	IS:3025 Part-53:2003,RA-2019	mg/l	0.12	0.3
7.	Fluoride (as F^-)	APHA 4500 F-D. 23rd Edition 2017	mg/l	BDL	1.0-1.5
8.	Temperature	IS:3025 Part-09:2023 (Laboratory & field Method)	°C	23.0	--
9.	Sulphate (as SO_4^{2-})	IS:3025 Part-24/Sec-01:2022 (Turbidity Method)	mg/l	4.0	200-400
10.	Hexavalent Chromium (as Cr^{+6})	IS:3025 Part-52:2003,RA-2019 (Diphenylcarbazide)	mg/l	BDL	--
11.	Chloride (as Cl^-)	IS:3025 Part-32:1988,RA-2019 (Argentometric Method)	mg/l	6.0	250-1000

Remarks: - All the results are found within prescribed limits.

Note: - On the basis of the tested parameters, sample complies with the requirement of Drinking Water according to IS 10500:2012

1. Results relate only to the items sampled and tested.
2. The report shall not be reproduced except in full without approval of the laboratory.
3. Any dispute is subject to Ranchi Jurisdiction Only.
4. Sample will be discarded after 30 days of the issue date of the test report.

For Karishma 28/03/2025

Chameli Soren
Tested by

GEMS PROJECTS PVT. LTD. GEMS Environmental Laboratory

End of Test Report

28/03/2025

Kumari Soni Mehta
Issued by (Authorized Signatory)

Authorized Signatory
Gems Project Pvt. Ltd.
(Environmental Laboratory Division)

Registered Office: 1236/2 Lajpat Nagar, Near Lala Lajpat Laboratory Address: Vill-Kalanpo, Piska Nagri, Jharkhand-835303
Rai School, Pundag, Argora, Ranchi, Jharkhand-834004 Contact: +91-9508707378, +91-7903208990
Contact:+91-9431115961, +91-9934307900 E-mail: gemslab17@gmail.com
E-mail:gems.projects@yahoo.in, info@gemsgroup.in, Website: www.gemsgroup.in

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

TEST REPORT

Customer Details & Address:		Job Registration ID	G/JRN/250324/CH-01
M/s Duarguiburu Iron Ore Mining Lease, M/s. Sail Gua Ore Mines, Sail , Post- Gua Dist- West Singhbhum (Jharkhand)		URL Number	----------
		Date of Issue	28-03-2025
		Type of Industries	Iron Ore Mines
		Sample Description	Drinking Water
Sample Code	G/250324/DW-01	Sampling Date	22-03-2025
Sample Quantity	2500 ml	Sampling Location	Guest House Kitchen
Sample receiving date	24-03-2025	Sample collected by	Vishwajit & Team
Sample pkg. condition	Sealed in PP Bottle	Sampling Protocol	IS :3025 (Part 1)
Test Start Date	24-03-2025	Test Completion Date	27-03-2025

RESULT

Sl. No.	Parameter	Test Method	Unit	Result	Acceptable limit (As per IS 10500:2012)
1.	Electrical Conductivity	IS:3025 Part-14:2013,RA-2019	µs/cm	180.0	--

Remarks: - All the results are found within prescribed limits.

Note: - On the basis of the tested parameters, sample complies with the requirement of Drinking Water according to IS 10500:2012

1. Results relate only to the items sampled and tested.
2. The report shall not be reproduced except in full without approval of the laboratory.
3. Any dispute is subject to Ranchi Jurisdiction Only.
4. Sample will be discarded after 30 days from the issue date of the test report.

Karishma 28/03/2025	Ku Sa Mehta 28/03/2025
Chameli Soren	**Kumari Soni Mehta**
Tested by	**Issued by (Lab In-charge)**

GEMS PROJECTS PVT. LTD. * GEMS * Environmental Laboratory Division

Lab In-Charge
Gems Projects Pvt. Ltd.

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Registered Office: 1236/2 Lajpat Nagar, Pundag, Ranchi, Jharkhand-834004
Contact:+91-9431115961, 9934307900, 8789795091
E-mail:gems.projects@yahoo.in, info@gemsgroup.in md@gemsgroup.in

LaboratoryAddress: Harhi Road, Vil-Katarpa,Piska Nagri, Jharkhand-835303
Contact: +91-7992292098, 7257891573, 8434637382
E-mail: gemslab17@gmail.com|Web: www.gemsgroup.in

Annexure-3

Gua Ore Mines
Environment Management Cell

Ambient Air Quality Monitoring Report

Period: October, 2024 to March, 2025

	PM_{10} (µg/m³)		
Location	**Min**	**Max**	**Average**
Near Hospital	43.4	52.4	47.0
Near Environment & QC Lab	56.8	63.3	59.4
Near Gua Club	43.7	49.8	46.1
Near Time Office	69.5	75.4	72.3
Standard as per NAAQS			***100***
	$PM_{2.5}$ (µg/m³)		
Location	**Min**	**Max**	**Average**
Near Hospital	16.2	20.1	18.5
Near Environment & QC Lab	24.6	33.6	29.3
Near Gua Club	18.3	20.3	19.3
Near Time Office	37.8	48.2	42.3
Standard as per NAAQS			***60***
	SO_2 (µg/m³)		
Location	**Min**	**Max**	**Average**
Near Hospital	8.4	9.7	9.1
Near Environment & QC Lab	8.5	10.2	9.7
Near Gua Club	8.9	9.8	9.4
Near Time Office	11.8	13.7	12.9
Standard as per NAAQS			***80***
	NO_x (µg/m³)		
Location	**Min**	**Max**	**Average**
Near Hospital	7.6	9.6	8.7
Near Environment & QC Lab	8.9	11.6	10.4
Near Gua Club	7.4	10.2	9.4
Near Time Office	10.6	13.8	12.6
Standard as per NAAQS			***80***

26/05/2025
(Dharmendra Sethia)
Dy. Manager (E&L)

General Manager (Mines) & E&...
SAIL-BSL, Gua Ore Mines

Krishavkumar 26/05/2025
(Krishav Kumar)
Asst. Manager (E&L)

Noise Level Monitoring Report

Period: October, 2024 to March, 2025

Location	Observed Noise Level dB(A)		
	Min	Max	Average
Near Hospital	42.5	43.9	43.2
Near Environment & QC Lab	64.8	66.8	65.7
Near General Office	49.6	51.6	50.6
Near Time Office	63.4	65.5	64.3
Near workshop	69.4	72.6	71.0
Near Mines canteen	58.7	60.3	59.5
Prescribed Day Limit dB (A)	***75***		

20/05/2025

(Dharmendra Sethia)
Dy. Manager (E&L)

Krishav Kumar 20/05/2025

(Krishav Kumar)
Asst. Manager (E&L)

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Mines Effluent Analysis Report

Period: October, 2024 to March, 2025

Sample Location: Near WTP Dam (I/E) Weather: Sunny/Cloudy

Parameters	Unit	Observed Value			Prescribed Limit
		Min	Max	Average	
pH	-	7.28	7.41	7.34	5.5-9.0
TDS	mg/l	88	98	92.33	-
TSS	mg/l	40	62	55.00	100
COD	mg/l	48	62	55.33	250

Sample Location: Oil Separator (EME)/ Treated Effluent Weather: Sunny/Cloudy

Parameters	Unit	Observed Value			Prescribed Limit
		Min	Max	Average	
pH	-	7.57	7.62	7.59	5.5-9.0
TDS	mg/l	138	146	142.00	-
TSS	mg/l	73	82	77.00	100
COD	mg/l	134	144	138.83	250

26/05/2025

(Dharmendra Sethia)
Dy. Manager (E&L)

Krishavkumar 26/05/2025

(Krishav Kumar)
Asst. Manager (E&L)

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Government of Jharkhand

Receipt of Online Payment of Stamp Duty

NON JUDICIAL

Receipt Number : 2497f170f16ce89c2962
Receipt Date : 29-Apr-2025 06:50:18 pm
Receipt Amount : 100/-
Amount In Words : One Hundred Rupees Only
Document Type : Agreement or Memorandum of an Agreement
District Name : Ranchi
Stamp Duty Paid By : ICFRE INSTITUTE OF FOREST PRODUCTIVITY RANCHI
Purpose of stamp duty paid : AGREEMENT
First Party Name : ICFRE INSTITUTE OF FOREST PRODUCTIVITY RANCHI
Second Party Name : GUA ORE MINES BOKARO STEEL LIMITED SAIL
GRN Number : 2502032903

-: This stamp paper can be verified in the jharnibandhan site through receipt number :-

This Receipt is to be used as proof of payment of stamp duty only for one document.The use of the same receipt as proof of payment of stamp duty in another document through reprint,photo copy or other means is penal offence under section-62 of Indian Stamp Act,1899

इस रसीद का उपयोग केवल एक ही दस्तावेज पर मुद्रांक शुल्क का भुगतान के प्रमाण हेतु ही किया जा सकता है। पुनः प्रिन्ट कर अथवा फोटो कॉपी आदि द्वारा इसी रसीद का दुसरे दस्तावेज पर मुद्रांक शुल्क का भुगतान के प्रमाण हेतु उपयोग भारतीय मुद्रांक अधिनियम, 1899 की धारा 62 अन्तर्गत दण्डनीय अपराध है।

Institute of Forest Productivity Ranchi

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

MEMORANDUM OF UNDERSTANDING

BETWEEN ICFRE-INSTITUTE OF FOREST PRODUCTIVITY (ICFRE-IFP), RANCHI AND GUA ORE MINES DOKARO STEEL LIMITED SAIL

FOR

Ecological Restoration Of 16-hectare Waste dump, Barren and Safety Zone Areas of Gua Ore Mine Through Forestry Interventions.

1. THIS MEMORANDUM OF UNDERSTANDING is entered into this 30th day of April, 2025 Between ICFRE-Institute of Forest Productivity, Ranchi (hereinafter referred as "ICFRE-IFP") and Gua Ore Mines Dokaro Steel Limited SAIL.. for collaborative execution of consultancy works related to ecological restoration of 16-hectare waste dump, barren and safety zone areas of Gua Ore Mines (GIOM), DSL, SAIL in Saranda Forest Division, West Singhbhum district of Jharkhand through forestry interventions. For the execution of the project ICFRE-IFP will provide technology and services for which a project plan (Annexure-I) has been drawn up and accepted by both parties for an estimated total cost amounting to Rs. 260.544 Lakh (Rupees two hundred sixty Lakhs and fifty four thousand four hundred only) inclusive of GST, detailing the operational plan on initial establishment of the vegetation and necessary site treatments over a period of five years. The project plan envisages the reclamation of the stress site of the mine under SAIL by adopting special measures Like soil and moisture conservation, soil amendments and choice of ecologically correct species. The project also envisages some operational components to be undertaken by SAIL, which have been mentioned in the project plan document.

2. Duration of MoU

Duration of MoU is Five years w.e.f. 30th day of April, 2025 and the Financial Year will be considered as a 'year'. Out of 05 years, the 1st year is for preparatory/ preliminary activities, the 02nd and 3rd year are for plantation including maintenance activities, and 4th & 5th year will be for maintenance of the plantation activities undertaken.

Page 1 of 10

3. **Scope of Work**

WHEREAS for collaborative execution of works related to "Ecological restoration of Mahuagarh waste dump, barren and safety zone area of Gua Ore Mine through forestry interventions", SAIL will provide 8-10 hectares land to ICFRE-IFP in the 2nd year and subsequently 8.6 hectares in 3rd year. For execution of the project, ICFRE-IFP will provide technology and services for which a project plan (Annexure-I) has been drawn up and accepted by both parties for an estimated total cost (Project outlay) amounting to Rs.260.544 Lakh (Rupees two hundred sixty lakhs and fifty four thousand four hundred only) inclusive of GST, detailing the operational plan on initial establishment of the vegetation and necessary site treatments over a period of five years. The project plan envisages the ecorestoration of the stress site of the mine under SAIL by adopting special measures like soil and moisture conservation, soil amendments and choice of ecologically correct species. The tree species for plantation will be selected by ICFRE-IFP in consultation with DFO Saranda Forest Division. The project also envisages some operational components to be undertaken by SAIL, which have been mentioned in the project plan document.

4. **Funding**

(i) The consultancy services to be provided by ICFRE-IFP will be through eco-rehabilitation work, for which SAIL shall release the project cost Rs.260.544 Lakh (Rupees two hundred sixty lakhs and fifty four thousand four hundred only) inclusive of GST in installments of 30% in 1st year, 25% in 2nd year, 20% in 3rd year, 15% in 4th year and 10% in the 5th year. SAIL will provide 08-10 hectares of land to ICFRE-IFP in the second year and subsequently 06-08 hectares in the third year.

(ii) 60% of the budget for the first year will be released after submitting a preliminary report on the initiation of work. The remaining 40% will be released after ICFRE-IFP, Ranchi, submits a second six-monthly progress report to SAIL and the same is accepted by the SAIL.

[illegible]
[illegible]
[illegible]

[illegible]
मुख्य महाप्रबंधक (खान)
निदेशालय, एसएसएल
Mukesh Shankar
Chief General Manager (Mines)
SAIL SSO, Delhi CAE 110003

(iii) ICFRE-IFP, Ranchi will submit the Biannual Progress Report at the end of every six month.

(iv) The budget from the 2nd up to 5th year will be released in two installments (60% and 40%) within 02 (two) weeks of receipt of the Biannual Progress Report based on tentative year-wise work plan (i.e. 60% within two weeks of the receipt/acceptance of first half yearly progress report and 40% within two weeks of the receipt/acceptance of second half yearly progress report).

Other provisions

- The ICFRE-IFP will maintain separate bank account along-with the book of accounts for the project.
- All fund disbursements shall be credited via electronic transfer in favour of the Director, ICFRE-Institute of Forest Productivity, Ranchi, with GSTIN No. 20AAAGI0018G1ZF and PAN No. AAAGI0018G.
- ICFRE-IFP is obligated to maintain a separate bank account and corresponding book of accounts specifically designated for the Project.

5. Responsibility of SAIL

(i) A Nodal Officer shall be nominated from SAIL, who will provide all help and support in implementing the project and act as a link in co-coordinating the activities like arranging harvests, poacycle, irrigation facilities, etc.

(ii) The SAIL will provide all engineering works, including machinery required for earthen bunding, pit digging, stakes structure, trench cum bunds (TCBs), small storage house at each plantation sites and the availability & spreading of top soil at the plantation site areas under the supervision of ICFRE-IFP.

(iii) Prior, Plantation site requirements: (a) Demarcated proposed areas of plantation should be properly fenced before plantation, (b) Provision of water and electricity connection (if available near the sites) to support plantation activities throughout the project period and (c) A big store house required for storing plantation equipments, soil amendment materials, etc.

Director
ICFRE-Institute of Forest Productivity, Ranchi

(iv) Accommodation support for 2-3 officials (2 staff quarters) free of cost except for water supply and electricity charges at Gua Ore Mines alongwith providing guest house facilities for the visiting officials of the Institute (No charges applicable for both boarding and lodging).

(v) The plantation site in the blocks of 8-10 hectares in the second year and subsequently 6-8 hectares in the third year should be handed over after pit digging by 15th of April of the year positively for the successful plantation during monsoon.

(vi) The existing Meghatuburu nursery will be utilized for raising of seedlings required for the plantation at Gua Ore Mines.

6. Responsibility of ICFRE-IFP

(i) The cost of top soil transportation, if required, will be borne by ICFRE-IFP, Ranchi.

(ii) After the eco-restoration of the waste dump, barren & safety zone areas, ICFRE-IFP will hand over the site to GOM-BSL-SAIL on the completion of the project.

(iii) ICFRE-IFP shall conduct all its activities according to the rules and regulations applicable to the nature of the works.

(iv) ICFRE-IFP shall follow all the Rules & Regulations of the statutory bodies like DGMS, DSM, and Forest departments applicable to the site.

(v) ICFRE-IFP shall develop the existing Nursery near Tupapi area of Gua Township and hand it over to GOM-BSL, SAIL at the end of the MoU period i.e. after the 5th year of MoU.

7. Review and Report

(i) The representatives of SAIL and ICFRE-IFP shall jointly inspect the progress of works periodically.

Director / Director
Indian Institute of Forest Productivity, Ranchi

Page 5 of 10

(ii) After inspection, representatives of SAIL and ICFRE-IFP shall jointly prepare the progress report and submit it to the Director, ICFRE-IFP & SAIL-GOM.

8. **Force Majeure**

ICFRE-IFP will not be liable for any unforeseen event affecting the performance and success of the work to be executed by ICFRE-IFP arising due to natural or other circumstances beyond the control of ICFRE-IFP, and same shall not be legal adjudication.

9. **Termination of MoU**

The MoU can be terminated at any stage of the project if both parties or either party agree to do so due to circumstances beyond their control after settling all the financial liability in the view of Termination. However, if either party desires to terminate the MoU, he shall have to give at least 30 days prior notice in writing to the other party with valid reasons for termination of the MoU.

10. This Memorandum of Understanding is executed between ICFRE-IFP and SAIL, this 30th day of the month of April in the year 2025 and will be effective from the date of receipt of funds at ICFRE-IFP, Ranchi.

Director
ICFRE-Institute of Forest Productivity,
Ranchi

Chief General Manager
Gua Ore Mines,
Gua, West Singhbum

निदेशक / Director
भा.व.उ.संस्थान, राँची
Institute of Forest Productivity, Ranchi

Year-wise Budget Details: Rs. (In Lakhs)

Sl.No.	Particular	I Yr	II Yr	III Yr	IV Yr	V Yr	Total
		30%	25%	20%	15%	10%	100%
A.	Project Implementation Cost	57.6	48	38.4	28.8	19.2	192
B.	Institutional Charges (15% of the project cost)	8.64	7.2	5.76	4.32	2.88	28.8
C.	Sub Total	66.24	55.2	44.16	33.12	22.08	220.8
D.	GST (18%)	11.92032	9.936	7.9488	5.9616	3.9744	39.744
	TOTAL (C+D)	78.1632	65.136	52.11008	39.0816	26.0544	260.544

Director
Institute of Forest Productivity, Ranchi

Chief General Manager (Mines)
Mineral Division
Chief General Manager (Mines)
Eastern Coalfields Limited

Title of the project: Ecological Restoration Of 16-hectare Waste dump, Barren Areas and Safety Zone Area of Gua Ore Mine Through Forestry Interventions

Project Duration: 5 Years

Budget Outlay: Rs. 2,60,54,400/-

Research Team of ICFRE-Institute of Forest Productivity:

Project Coordinator & Principal Investigator:
Dr. Tabbee Kumari Singh, Scientist B, Forest Silviculture

Co-Principal Investigators:
1. Ms. Ruby S Kujur, Scientist E, Extension
2. Dr. Anshuman Das, Scientist C, Soil Science
3. Dr. Veer Singh Gautam, Scientist C, Forest Pathology
4. Sh. Ravi Shanker Prasad, CTO, Silviculture & Forest Management
5. Sh. Rajeev Ranjan, STO, Forest Ecology & Climate Change
6. Sh. Arvind Kumar, STO, Extension

Project Associates:
1. Sh. Dilsad Ram, Technical Assistant, Extension
2. Sh. Jite Tirkey, Sr. Technician, Forest Ecology & Climate Change

Introduction

The mining industry is essential for both economic growth and global development. Significant volumes of overburden are produced by open-pit mining, which accounts for more than 80% of mineral production. Approximately 1 million hectares, or 0.25% of the total land mass, are covered by over 13,000 mineral deposits spread across 11,000 mining leases in 21 states (Ministry of Mines, 2023). Mineral production is worth about $10 billion in total.

An inevitable aspect of civilization is the harm that mining, mineral quarrying, and other industrial activities do to ecosystems. The production of mine waste puts social, ecological, and economic sustainability at risk. The growing human demand and desire for these different resources is speeding up the destruction of natural habitats because the majority of mining sites are on land that was once covered by forests. As a result, the loss of biological diversity is accelerated by the degradation of natural areas and climate change. Waste products from mineral processing or mining substrates that come from deep under the earth can provide serious

obstacles to plant colonization and the development of any self-sustaining ecosystem. In the absence of soil as a cover material or another appropriate alternative material for capping, amending, or diluting mining substrates, the physical and chemical characteristics of mining substrates make the establishment of vegetation a crucial foundation for restoration, extremely challenging. Some rock wastes have a very coarse texture, while sand wastes have an intermediate texture; and milled tailings have a very fine texture. Fine texture and lack of organic matter can lead to high bulk densities, excessive compaction, low water infiltration rates, and surface waterlogging.

Planting trees on the site of abandoned mines is a useful method of restoration. By maintaining and enhancing vital soil biological and physical characteristics, it enables site rehabilitation. However, successful tree-based mine site restoration requires careful tree species selection, assignment of current plant and microbial flora, soil property and nutrient analyses, forecasting future herbaceous and microbial community development. The development of plants in abandoned mined lands is hindered by a number of factors, including high temperatures, restricted soil moisture availability, compaction, unclear structure, and unstable slopes caused by steep terrain. Because of high surface temperatures and little rainfall throughout the growing season, plant establishment and growth are typically restricted in dry and semi-arid regions. Poor organic matter, low levels of organic nutrients, and high levels of metals are all associated with sparse vegetation development on soil from former mines. For instance, adding topsoil tries to enhance the quality of mine soil and repair it to encourage the growth of vegetation.

The natural flora is completely removed during mining operations, and the sequence of soil profiles are disturbed. Compared to places where the soil layer remains in the natural sequence, these abandoned sites undergo natural vegetational succession more. Therefore, it is crucial to conduct an ecological survey of significant vegetative linkages prior to beginning any eco restoration efforts. Furthermore, any afforestation strategy must include an investigation of soil overburdens because of the variability of the chemical composition of ore deposits and its impact on adjacent geological formations. In many nations, mine reclamation and ecological restoration are now crucial components of the sustainable development plan. Eco-diversity will be preserved and the negative effects of mining will be reduced with careful planning and environmental management.

The ecological system of overburden dumps in mined areas is entirely altered, and mine debris is devoid of the majority of the physical, chemical, nutritional, and biological traits of typical soils. A basic understanding of ecosystem structure and function, including the processes of primary and secondary succession, is necessary for the lengthy and intricate process of reconstruction. In places degraded by coal and iron mining, a variety of restoration techniques have been implemented, nonetheless, the focus has predominantly been on establishing vegetation of some kind, mostly ignoring the site- and region-specific perspective of restoration. Therefore, it is essential to think about restoration holistically and work toward creating site-specific and area-specific ecological restoration models that address species selection and suitability, seed source identification, propagation and plantation procedures, and soil amendments and improvement.

As mining practices continue to affect our landscapes, the role of ecological restoration is more critical than ever. The United Nations Decade on Ecosystem Restoration (2021-2030) highlights the urgent need for large-scale efforts to restore ecosystems worldwide. This initiative underscores the significance of restoring ecosystems not only to preserve lost biodiversity but also to support climate change mitigation efforts, enhance community health, and build cultural and natural capital. Effective restoration strategies will be key to balancing the economic benefits of mining with the need to protect and preserve ecosystems for future generations.

Literature Review

The ecological restoration of mining regions has progressively raised people's consciousness and generated widespread concern worldwide in the framework of sustainable development. Significant advancements have been made in theoretical system construction and technology application research for various mining sites, and humans have recently implemented a number of steps to restore the service functions of ecosystems that have been damaged by mining. Overall, the findings showed that phytoremediation and soil amendments successfully enhance the soil ecology in former mining sites. As artificial ecological engineering technique that has been widely used for the ecological rehabilitation of mine tailings sites for the past 20 years, phytoremediation is thought to be the most cost-effective, environmentally friendly, green (no secondary pollution), and aesthetically pleasing approach to cleaning up contaminated sites and preserving ecological stability in a post-mining area when compared to physical and chemical repair methods.

The regeneration of soil microbial qualities, which have received less attention, is just as important to the success of vegetative restoration as the development of plant cover and soil physicochemical features. Numerous ecosystem functions, including the cycling of nutrients, energy conservation, the creation of stable soil systems, and the establishment of healthy plant communities, depend on soil microbes. Furthermore, compared to soil physicochemical properties, which are often regarded as costly, significant, and useful biological indicators of soil fertility and nutrient resources for the assessment of the extent of reclamation in degraded soils, soil microbes are more dynamic and sensitive to even slight changes in soil or environmental stress. As a result, studying recovering soil microorganisms can quickly identify changes in the environment, providing crucial information on the functioning of a mine land ecosystem that has been restored and the accomplishment of rehabilitation objectives. Additionally, the soil bacteria are affected differently by various reclamation techniques. Following reclamation, soil microbes and nutrients undergo significant changes and diverge from reclamation levels. Therefore, choosing the right plant species is essential to the recovery of mine tailings and the rapid establishment of a self-sustaining revegetation ecosystem. This is especially true for monoculture reclamation, where early tree species selection decisions may have an impact on the creation and pace of forest reclamation later on. Furthermore, by influencing the intricate biological and ecological processes of the plant rhizosphere, soil physicochemical characteristics can control the richness and organization of microbial communities. In order to improve the long-term stability of the mining ecosystem, it is crucial to look into the link between soil fauna and soil microbes in the mining reclamation region.

Restoring a damaged site to a sustainable usable condition or to a state that is somewhat similar to its previous state is the ultimate goal of rehabilitation efforts for mining-related sites. It is acknowledged, but, that this restored state will most likely not be identical to the initial state and will not permit the damaged area to utilize its land to its full potential (Mulligan, 2002).

Plant species-substrate interactions, or revegetation, continue to represent the main ecological problems in the restoration of sites where topsoil has been lost. The restoration of natural indigenous ecosystems on mined land, the criteria for monitoring and evaluating success, especially over the long term, and the spatial and temporal factors influencing species colonization and establishment are the main focus of restoration practices where topsoil has been preserved.

A thorough selection of adapted species is typically necessary for ecological restoration without topsoil. This involves consideration of the species' appropriateness for stabilizing the ground, their importance as wildlife habitat (and as food for wild animals), and their capacity to achieve aesthetic goals. These requirements are not always met by indigenous species that are available as propagules. In these situations, native but non-native species can be sown as a supplement, typically in a manner that quickly addresses immediate issues like erosion while allowing local volunteer species to colonize and facilitating succession to eventually restore the native ecosystem. In the dry and demanding circumstances of southern Arizona, this sensible ecological approach has been used on copper tailings heaps and leaches (Bengson 1993). A 20-year-old reclamation technique for lead, zinc, and copper mining tailings is the cultivation of metal-tolerant ecotypes, specifically the temperate grasses *Agrostis capillaris* and *Festuca rubra* (Smith and Bradshaw 1979; Mulvey 1995; Tordoff et al, 2000). These ecotypes are known to partially restrict metal absorption from roots (Bergholm and Steen, 1999) and to be able to exclude that fraction that is absorbed from native mammalian prey. They also possess the genetically heritable trait of metal tolerance, and some have been bred up to cultivar status (e.g., *F. rubra* cv. "Merlin"). This strategy does, however, come with some land use limitations; for instance, extensive recreational livestock grazing are typically prohibited.

Furthermore, the initial economic appeal of direct seeding is largely offset by the greater maintenance expenses of frequent fertilizer applications and, eventually, the requirement for "patch seeding" to address areas where initial failure occurs. It's also critical to understand that different plant species have different ways for coping with metals. With a few notable exceptions, such as *Deschampsia cespitosa* (Cox and Hutchinson 1980), an ecotype is unlikely to flourish on mine waste that contains toxic amounts of metals other than those to which it is acclimated according to its place of origin because cross tolerance between metals is unknown.

Notwithstanding these drawbacks, direct sowing of tolerant cultivars remains a promising avenue for future research, excluding atypical candidate species like as *Chloridoideae*, *Eragrostis curvula*, and *Cynodon dactylon*. Inherent tolerance to specific chemical restrictions is not limited to trace metals alone. Salt-tolerant grasses, such as *Agrostis stolonifera* cv. "Seaside," were the foundation of a recent successful direct revegetation effort on lead mining tailings in the west of England, in this instance, the primary growth constraint was the high osmotic pressures brought on by magnesium sulphate due to chemical weathering within the tailings generated by the interaction of sulfuric acid, the breakdown product of iron pyrites, with magnesian limestone.

In order to find grass species that will thrive in the artificial growth medium applied to the sites and to ascertain the most appropriate medium for sustained vegetation growth, a long-term study was carried out between 1985 and 2003 on rehabilitation trials at Sishen Iron Ore Mine, South Africa. Five distinct cover materials and slopes of 18° and 24° were used to test the establishment of vegetation. Investigations after 17 years of rehabilitation revealed that the highest percentage of plant cover and the least amount of erosion were created by weathered limestone sloping at an angle of 18°. The survey found and introduced sixteen grass species, with *Cenchrus ciliaris* and *Eragrostis* sp. being the most common.

At the same time, further experiments were started in 2004 to assess the efficacy of various seeding techniques and adding organic material to the growth medium. After four years, hydro seeding was determined to be the most effective technique for uniform vegetation growth and seed distribution. The observed characteristics were not significantly affected by different engineering designs, such as altering the slope and length of the contour. In the sampling plots, a total of 28 grass species were found, with *Cenchrus ciliaris* and *Eragrostis chloromelas* being the most common. Microbial activity was measured using dehydrogenase activity as a standard, and a positive correlation between microbial activity and % organic carbon was found, highlighting the significance of soil organic matter in the soil development process.

Rehabilitating mine land with native plant species is essential to lowering the net losses of biodiversity and ecosystem services brought on by iron ore mining in Brazil. Nevertheless, there is a dearth of systematic information regarding the best plant species for rehabilitation of mine site. To order to accomplish the restoration of savanna vegetation communities, iron mining firms operating on the Quruna Massif reintroduce as many native herb and shrub species as they can in order to achieve this. Seedlings are either raised in a nearby nursery or saved from logged regions, while seeds are gathered from neighboring native ecosystems.

To evaluate the reestablished communities' longevity and degree of resemblance to natural reference circumstances, monitoring is required. Monitoring initiatives should ideally compare the recovering areas' floristic composition to that of natural reference ecosystems. Here, we contrasted native reference sites with those that had been rehabilitated for two or three years following iron ore mining in the Quruna Massif, MS, Brazil. The reference and rehabilitation sites were compared in terms of species composition and structural, taxonomic, and phylogenetic diversity indices. We discovered over 30 native species and a partial recovery of the vegetative

structure in the restoring areas, despite the species composition disparities between the reference and rehabilitating sites.

Additionally, we found that the amounts of animal-dispersed plant species at the reference and rehabilitation sites were comparable. During mine land rehabilitation, these environmental indicators show that trial and error methods can, in fact, establish a significant diversity of native species. Additionally, the progressive return of soil functions over time is suggested by the partial recovery of vegetation structure, and the presence of zoochorous species is anticipated to draw in seed-dispersing animals that facilitate gene flow and the introduction of new plant species. Effective management measures for invasive populations are necessary, nevertheless, as the high cover values of foreign exotic species, which are inversely connected with the richness of the ecological communities, jeopardize the viability of mine land rehabilitation in the Cracum Massif. In order to preserve the variety of native plant communities at the rehabilitation sites, these initiatives should be supported by continuous environmental monitoring and enrichment plantings.

A field experiment was conducted at the Gdlshc iron ore mines of Thakurani based on the Miyawaki application. When compared to the conventional reforestation methods, the results after one and three years were very outstanding, and the plant biodiversity seemed to be very high. "Survival at least" is the goal of the Miyawaki plantation approach, which is centered on the area where the plantations have their own ecology. Due to their rapid climatic adaptation and likelihood of integrating into an ecosystem, local species are preferred over other species. When compared to conventional reforestation methods, the survival percentage of native species has increased from 72% to 87%.

A study examined specific vegetation and soil characteristics on a tailings dam at the Shougun Iron Ore Mine in suburban Beijing, China, seven years following six treatments using three different approaches: (1) applying soil covering (designated as SC), (2) applying a seed mat, or "vegetation carpet," on top of sand piles that contains a perishable plant seed mix and water retaining agent (designated as VC), and (3) combining soil covering and vegetation carpet application (designated as SC_VC). The SC_VC site had twice as many plant species and more biomass as the SC and VC sites after 7 years of reclamation, while the VC site had similar plant abundance to the SC_VC site but significantly less biodiversity and plant coverage. Despite having poor soil fertility, the VC site's vegetation characteristics were identical to those of the

SD site. For the treatment of tailings dams with fine-structural mining soil substrate, the use of vegetation carpet is proposed as a potential scheme for topsoil. However, a much superior method for supporting vegetation growth on the tailings dam of strip-mining operations is to combine topsoil treatment with the application of vegetation carpet, which significantly enhances vegetation coverage and plant diversification. In the process of restoring the ecosystem in mining sites, the presence of fertile soil is essential for providing nutrients to plant development, while the application of vegetation carpet aids in stabilizing the loose surface of fine-structured mine wastes and introducing seed banks.

It can be very challenging to develop vegetation on severely disturbed mining sites, such as open pits, tailings dams, or waste rock stockpiles. Because of the exposure of bare rock or the covering of solid wastes, the natural vegetation process may include primary succession. It may take decades or perhaps centuries for natural processes to finish the succession on such abandoned land. For instance, Kimmerer's (1984) study shows that for the first 20 years, very little plant colonization takes place on calcareous feed and zinc mines in SW Wisconsin, USA.

The primary causes of plant establishment challenges on abandoned metal mine sites include a lack of organic matter, heavy metal toxicity, high soil pH, etc. The vegetation development on the abandoned area may be aided by reclamation efforts employing engineering approaches. When starting site treatment in a mining location where there may be a risk to the environment and nearby populations, stabilizing the pollutants on the ground surface using engineering approaches is particularly important. Previous studies have shown that most damaged ecosystems may recover from extremely severe disturbances on timescales of decades to half-centuries if appropriate engineering and ecological solutions are taken. Restoring productivity and biodiversity are the main goals of restoration ecology, and soil and seed pool are the two main limiting factors in the reclamation process of damaged systems.

Numerous methods for treating mining areas with various substrate types have been tested during the last 20 years. Soil amendment and substrate revegetation are popular strategies. Few research investigations have looked into how site treatment affects the long term growth of plant communities in mining regions due to natural processes. Guidance of conservation efforts in restoring biodiversity and site productivity of mined lands requires knowledge of the natural vegetation dynamics of the recovered derelict lands. It is wise to view a restored site as a long-term experiment and to adopt the idea of adaptive management. However, in reality, there

have been limited chances to advance the theory and application of ecological restoration in mining sites due to a lack of post-restoration monitoring and study.

There is no nutritional or supporting potential for biomass development in the overburden dumps produced during the mining process. In order to restore these overburden dumps, a self-sustaining soil–plant system must be established, which calls for a restoration method that speeds up the ecosystem's normal development processes. The National Environmental Engineering Research Institute created an environmentally friendly multidisciplinary method for the eco restoration of a coal mine spoil dump in order to restore the mine spoil overburden dump's fertility. In this context, an experiment was carried out in 20-hectare area at Durgapur, India, to restore the fertility of the overburden dump.

The bioremediation/ecological approach of IBA, was employed to recover the dump. Together with appropriate native trees of ecological and economic significance, the integrated bioengineering approach uses industrial waste ETP sludge (effluent treatment plant sludge) to support the nutritive capacity for vegetative establishment, inoculation, and isolation of *Azotobacter*, *Bradyrhizobium*, and VAM (vesicular arbuscular mycorrhizal) spores of *Glomus* and *Gigaspora* species. The experimental study's results showed that adding 30 tons of organic amendment to coal mine spoil enhanced its nutrient, microbiological, and physicochemical qualities while lowering the toxicity of heavy metals because the organic amendment effluent treatment plant sludge had a higher organic carbon content.

As a result, bioinoculant application and amendment of the effluent treatment plant sludge improved the supporting material for the growth of various plant species, leading to the production of significant biomass (both aboveground and belowground), which quickly increased the mine spoil dump's fertility and productivity. The ecology and biodiversity of the region were therefore preserved through the use of IBA. Additionally, it contributed to the preservation of the mine site's beautiful surroundings.

The success of eco-restoration of degraded land depends on the species and composition of plants used. The chosen species should provide society with provisioning and regulating environmental services as well as play in the process of natural succession. Ecosystem services were lost, biodiversity was eroded, and the capacity to sequester CO_2 was diminished as a result of the introduction of fast growing exotic tree species. Restored sites should have a multilayer canopy structure (3 layers), which will improve the habitat and increase ecosystem provisioning

and regulating services, increase biodiversity to a higher extent, and increase carbon sequestration capacity much above the current level.

The kind and properties of the substrate are also important factors in the selection of plant species, and they regulate the process of ecosystem development. Among a number of considerations, plants that improve the restored sites' ability to retain soil moisture should be given preference. When choosing plant species, root density and depth are also crucial factors. A plant's capacity to sequester carbon is also regarded as one of the selection criteria for species composition. Both immediate and long-term reclamation objectives must be met, and species must be native or indigenous and have ecological soundness, economic significance, or aesthetic value, or all three. The fifth canopy layer in a tropical climate should be formed by lianas or climbers. Using container growing saplings and seed ball procedures, several native tree species can be grown on the reclaimed land itself. Grass-legume (GL) mixtures working outcrops erosion, improve in situ moisture conservation, fixes atmospheric nitrogen, and supplies organic matter and encourages nutrient cycling. It is possible to restore spoil dumps by choosing native trees that provide fruit and timber.

For any mining operation, the reclamation and rehabilitation of waste dump areas employing eco-restoration technology is a very sensitive and important subject. Social responsibility and obligations to all local residents are a part of the mining business. A self-sustaining ecosystem, as well as a social asset and a sustainable source of income for the local community, should be the goals of any rehabilitation of degraded land and trash dumps.

Keeping in view these considerations, the project proposal has been formulated with the following objectives:

Objectives

Long term

- Ecological restoration of waste dump, barren areas & safety zone around Gua Ore Mines under SAIL.

Short term

- ❖Floral survey for identification of prevalent species in the adjoining regions of study area.
- ❖ Landscape management and associated forestry interventions for site amelioration.
- ❖Establishment of site-specific forestry models for site-rehabilitation.
- ❖Evaluation of growth performance of species and effect on the physicochemical characteristics of soil.
- ❖Extension, training, and sensitization programs for associated stakeholders

Detailed Methodology

Cairns (1993) provided three general success guidelines, that restored ecosystem should mimic:

(i) self-regulation for some set period of time, where self-regulation means the structural and functional attributes persist in the absence of whatever "subsidies";

(ii) the design criteria (restoration goal and objectives) established before restoration was undertaken;

(iii)no observable adverse effects in the larger ecological landscape.

In addition, the following ecosystem characteristics should be considered while setting ecological restoration objectives (adapted from Noble (1999):

1. Composition: species present and their relative abundance

2. Structure: vertical arrangement of vegetation and soil components

3. Pattern: horizontal arrangement of system components

4. Heterogeneity: a variable composed of characteristics 1–3

5. Function: performance of basic ecosystem processes (energy capture, water retention, nutrient cycling)

6. Species interactions, e.g., pollination, seed dispersal etc.

7. Dynamics and resilience: succession and state-transition processes, ability to recover from normal episodic disturbance events (e.g., floods, drought, fire)

The methodology for the present project has been designed considering the above aspects.

Plant survey for identification of prevalent species in the adjoining regions of study area

The plant species will be chosen through a field survey. The field survey will be conducted among the surrounding vegetation or forest areas. The species based on local environmental conditions (climate, rainfall, soil type), and species that can support each other symbiotically will be chosen. Native species are often preferred for ecological restoration. The following criteria will be used to choose the plants:

Tree species	Shrub species	Herbs (grass and forbs)
• Pioneer species • Survivability • Fast growing • Leguminous • Used as food, fuel and fodder. • Medicinal property	• Native species • Leguminous • Fast growing • Medicinal property	• Native species • Massive root structure • High seed production • Palatable

Seed collection:

The seeds of selected species will be collected from: -

- Nearby forest area
- Forest department nurseries
- Forest corporation
- Seed suppliers
- Local village communities

Landscape management and associated forestry interventions for site amelioration

Landscape management requires preparing a terrain map with DEM features. For this, the mining area map from the concerned authority will be acquired. Once the terrain map is prepared, the water flow channels will be identified and marked using ArcGIS software. This is essential for land management and plantation strategies.

The abandoned mine area is expected to be devoid of essential nutrients and contain an excess of potentially toxic elements. These potentially toxic elements lead to acidification of soil. Hence, the addition of acid-neutralizing chemicals is necessary. Instead of spreading it throughout the area, it will be easier to spread it through the identified water streams across the region.

Similarly, essential nutrients can also be added. Plantation of hyperaccumulator tree species across stands further enhances the efficacy of the process. The hyperaccumulators remove the potentially toxic elements mining along with the runoff water and can also be harvested to obtain timber. It is anticipated that the former mine site will be lacking in vital nutrients and overflowing with possibly hazardous substances. The soil becomes more acidic as a result of these potentially harmful substances. On the basis of soil analysis, amendments will be applied to improve the physical and chemical properties of mine soil.

Establishment of suitable three-tier plantation system for site rehabilitation and their evaluation on physicochemical properties of soil

A three-tier plantation system typically involves the planting of three distinct layers or types of vegetation; generally a combination of trees, shrubs, and ground cover plants. The aim is to recreate a more natural ecosystem, improve the physical and chemical properties of the soil, and enhance overall environmental sustainability.

The three-tier approach will be utilized in plantation. Herbs and grasses will make up the lower layer, adding nutrients to the soil and serving as a home for microbes and insects. Big trees will occupy the upper strata, while shrubs or small bushes will occupy the middle layer. As it develops into a complete forest ecosystem, this three-tier system will draw animals, birds, and other species. The establishment of the food chain and food webs will follow.

The three-tier plantation system should be designed to maximize ecological benefits and improve soil health. The typical layers in the system are:

- **Canopy Layer (Upper Layer):** This consists of tall trees that provide shelter and reduce soil erosion. These trees should be fast-growing species, nitrogen-fixing and hardy species with deep roots.
- **Understory Layer (Middle Layer):** These are shrubs or smaller trees that grow beneath the canopy. They help protect the soil from direct sunlight, enhance moisture retention, and contribute to soil organic matter. Suitable species include native shrub species.
- **Ground Cover Layer (Lower Layer):** This consists of herbaceous plants or grasses that cover the ground, helping to reduce soil erosion, enhance nutrient cycling, and improve soil structure.

The impact of the vegetation restoration on the physicochemical properties of the soil will be undertaken by conducting soil sampling before and after the restoration. Key parameters to evaluate will include:

- Soil pH
- Soil Texture and Structure(Changes in soil texture (sand, silt, clay proportions) and structure (aggregation)
- Nutrient Availability
- Cation Exchange Capacity (CEC)
- Bulk Density and Soil Porosity

Sensitization, training and extension activities

To raise awareness among SAIL's frontline employees, fringe villagers, and other stakeholders, a training session, workshop, or seminar would be organized.

Annual Work Plan

Sl. No.	Activity	I Yr	II Yr	III Yr	IV Yr	V Yr
1.	Vegetation survey of the adjoining area and selection of species					
2.	Study of physicochemical properties of soil					
3.	Landscape management and soil and moisture conservation practices					
4.	Development of existing Nursery					
5.	Production of quality seedlings					
6.	Application of soil amendments					
7.	Preparation of plantation design and skirting in the field					
8.	Plantation of seedling in appropriate design					
9.	Irrigation, maintenance and mortality replacement					
10.	Recording of growth data of planted seedlings					
11.	Standardization of the eco-restoration model for further replication					
12.	Closing Workshop					
13.	Preparation of Annual/Final report					

Year-Wise Work Plan

First Year

Sl. No.	Activity	Brief Description	I Quarter	II Quarter	III Quarter	IV Quarter
1.	Vegetation survey of the adjoining area and selection of species	To screen the local species that are useful to the local community, a survey will be conducted. Premier fast-growing species (both native and foreign) that can fix nitrogen will be chosen. Also, plantation of Bamboo Arrow (Bamboo species) in waste dump and other unutilized areas may be explored.				
2.	Study of physicochemical properties of soil	To plan the soil amendments, soil samples from all kinds of soil properties of the dumping sites will be collected, and their physical and chemical analysis will be undertaken.				
3.	Landscape management and soil and moisture conservation practices	Activities such as preparing bench cum bund (BCD), gully filling in regions prone to soil erosion.				
4.	Development of existing nursery	Existing nursery at Topaji area of Gua Ore Mines shall be developed and need fulfilled. A				

		supporting activities.				
5.	Production of quality seedlings	In the first year, seedlings of bushes, grasses, and non-demanding species (hardy species with less nutrient requirements) will be produced.				

Second Year

S. No.	Activity	Brief Description	I Quarter	II Quarter	III Quarter	IV Quarter
1.	Landscaping of Slopes (preparation of trenches and small checkpoints for stabilization)	Seedlings of trees and shrubs will be planted in the 05-10 hectare area, along with shrubs and grasses planted in the trenches.				
2.	Production of quality seedlings	Seedlings of trees and shrubs will be planted in the given area, along with shrubs and grasses planted in the trenches. For planting and mortality replacement, seedlings of economically significant, nitrogen-fixing trees, bushes, grasses, and non-demanding species-hardy plants with lower nutrient requirements will be generated.				
3.	Landscaping of Field (site)	Pit and water channel preparation, design layout, and field levelling. A 8-10 hectare plot of land will be used for the design, which will include skirting and construction of screened plants and soil additives.				

4.	Application of soil amendments	Appropriate soil amendments will be chosen and applied in the pits throughout a 8-10 hectare area based on the site's soil analysis.				
5.	Preparation of planting design and skirting in the field	The design will be established in a 8-10 hectare area, and skirting will be implemented while taking into account seasonal species and soil supplements.				
6.	Maintenance of plantations	Among other tasks, irrigation, weeding, and hoeing, basin preparation will be done.				
7.	Growth data recording of planted seedlings	Data on growth will be documented every six months.				

Third Year

S. No.	Activity	Brief Description	I Quarter	II Quarter	III Quarter	IV Quarter
1.	Landscaping of slopes (protection of trench cum bund (TCB) and small check dams for stabilization)	Re-stabilization in areas where soil erosion has occurred.				
2.	Production of quality seedlings	For eco-restoration, seedlings of commercially significant, nitrogen-fixing trees, bushes, grasses, and pioneering species. Hardy plants with lower nutrient requirements will be preferred.				
3.	Soil amendments	Depending on the quality of the soil, different soil				

		amending materials are mixed in the pits.					
4.	Preparation of planting design and staking in the field	The design will be established in a 6-8 hectare area and staking will be completed while taking into account screened species and soil supplements.					
5.	Vegetation restoration	In addition to grasses and stumps in the trenches, tree and shrub seedlings will be planted throughout the 6-8hectare area. After the soil stabilizes and the quality of the soil begins to improve, selected species will be planted along with the best soil amendment where mortality is present.					
6.	Maintenance of vegetation	Operations such as irrigation, weeding, hoeing and basin preparation will be performed.					
7.	Monitoring activities	Site monthly growth data will be gathered, and routine observation will be carried out.					

Fourth Year

N. No.	Activity	Brief Description	I Quarter	II Quarter	III Quarter	IV Quarter
1.	Production of quality seedlings	Quality planting material of commercially important, nitrogen-fixing trees, bushes, grasses, and less-demanding species (hardy species with lower nutritional requirements)				

		will be ensured.				
2.	Vegetation restoration	Plantation will be executed in remaining areas and mortality replacement will be undertaken if needed.				
3.	Maintenance of plantations	Regular tasks will include the 16-hectare plantation's basin preparation, proper watering, weeding, and hoeing, as well as mortality replacement of the previous year's plantation.				
4.	Monitoring activities	Six monthly growth data will be gathered, and routine observation will be conducted.				

Fifth Year

S. No.	Activity	Brief Description	I Quarter	II Quarter	III Quarter	IV Quarter
1.	Maintenance of plantations	On a regular basis, the 16-hectare plantation will be properly irrigated, weeded and hoed, pit basin prepared, and the mortality of the previous year's plantation will be replaced.				
2.	Monitoring activities	Growth data on six-monthly basis will be collected.				
3.	Soil Testing	To observe changes in soil quality, soil will be collected from various locations and its physical and chemical characteristics will be				

		conducted.			
4.	Standardization of the eco-restoration model for further replication	An evaluation of the performance of various species and their impact on the physicochemical characteristics of the mined soil will be conducted based on the growth data gathered and the soil analysis.			
5.	Workshop	Stakeholders will participate in an extension session regarding the eco-restoration of mined dumps.			
6.	Project completion report and hand over the site to CGM, GKM	SAIL will receive the prepared report on the project's completion as well as the site's rehabilitation.			

PROJECT BUDGET

DETAILS OF BUDGET BREAKUP (YEAR-WISE) of SAIL PROJECT
Consolidated Budget (in Lakh)

Sl.No.	Head	Rs. in Lakh
A.	Project Implementation Cost* (@Rs12.00lacs/per Ha)	192
B.	Institutional Charges (15% of the project cost)	28.8
C.	Sub Total	220.8
D.	GST (18%)	39.744
	Total(C+D)	260.544

*The project cost involves salary to contractual staffs, upgradation of the existing laboratories, procurement of office/scientific equipments, office furniture and 1 no. utility/field vehicle/1 no. Camper vehicle, plantation works & maintenance, procurement of materials for soil amendments, consultancy/hiring of experts charges etc.

Page 27 of 30

Year-wise Budget Breakup Rs. (In Lakhs)

Sl. No.	Particular	I Yr	II Yr	III Yr	IV Yr	V Yr	Total
		30%	25%	20%	15%	10%	100%
A.	Project Implementation Cost	57.6	48	38.4	28.8	19.2	192
B.	Institutional Charges (15% of the project cost)	8.64	7.2	5.76	4.32	2.88	28.8
C.	Sub Total	66.24	55.2	44.16	33.12	22.08	220.8
D.	GST (18%)	11.9232	9.936	7.9488	5.9616	3.9744	39.744
	TOTAL (C + D)	78.1632	65.136	52.1088	39.0816	26.0544	260.544

Proposal for the Project:

1. Laboratory upgradation, Laptop, Camera, Desktop, printers, office furniture, IT/Office /Laboratory equipments, etc.
2. Equipment for analysis of Soil/Water/Plant functional and molecular traits, like, PCR, etc.
3. Multi Utility Four-wheeled Field Vehicles (2 nos.)

Project Investigator
ICFRE-Institute of Forest Productivity
Ranchi

Director
ICFRE-Institute of Forest Productivity
Ranchi

निदेशक / Director
भा.व.अ.शि.सं. राँची
Indian Institute of Forest Productivity, Ranchi

References

Ali, R., Lucian, B., & Leila, B. (2021). Impacts of mining activities on soil properties: Case studies from Moroccu mine sites. *Soil Science Annual*, *72*(4), 395–407.

Alvarez-Royal, J., Peñalver-Alvarez, A., & Gonzalez-Alvarez, M. N. (2022). Spontaneous vegetation colonizing abandoned metal (loid) mine tailings consistently modulates climatic, chemical and biological soil conditions throughout seasons. *Science of the Total Environment*, *838*(1), 155945.

Ash, H.J., Gemmell, R.P., and Bradshaw, A.D. 1994. The introduction of native plant species on industrial waste heaps: a test of immigration and other factors affecting primary succession. *J. Appl. Ecol.* 31: 74–84.

Bradshaw, A.D. 1999. The importance of nitrogen in the remediation of degraded land. *In* Remediation and management of degraded lands. *Edited by* H.M. Wong, J.W.C. Wong, and A.J.M. Baker. Lewis, Boca Raton, Fla. pp. 153–162.

Bota, M., Blaga, G., Paulette, L., Păcurar, I., Roșca, S., Borsai, O., Grecu, F., Sîrbiana, P. E., & Negrușier, C. (2019). Soil reclamation of abandoned coke lands by revegetation in Northwestern part of Transylvania: A 40-year retrospective study. *Sustainability*, *11*(12), 3393.

Cairns, Jr., J. 1980. The recovery process in damaged ecosystems. *Ann Arbor Science* Publishers Inc, Michigan.

Cairns, Jr., J. 1991. The status of the theoretical and applied science of restoration ecology. Environ. Prof. 13:186–194.

Cairns, Jr., J. 1999. Biological restoration: replenishing our natural and global ecological capital. *In* Nature conservation 3: Reconstruction of fragmented ecosystems global and regional perspectives. *Edited by* D.A. Saunders. Mentz, M. H., K. W. Dixon, and R. J. Hobbs. 2013. Hurdles and opportunities for landscape-scale restoration. *Science* 339: 823–827.

Feng, Y., Wang, J., Bai, Z., & Reading, L. (2019). Effects of surface coal mining and land reclamation on soil properties: A review. *Earth-Science Reviews*, *191*, 12–25.

Ghose MK (2001) Management of topsoil for geo-environmental reclamation of coal mining areas. *Environmental Geology* 40: 1405-1410.

Ghose MK (2004) Restoration and revegetation strategies for degraded mine land for sustainable mine closure. *Land Contamination and Reclamation* 12,363-378.

Harris, J. 2009. Soil microbial communities and restoration ecology: Facilitators or followers? *Science* 325: 573–574.

Hobbs, R. J., and D. A. Norton. 1996. Towards a conceptual framework for restoration ecology. *Restoration Ecology* 4: 93–110.

Indian Bureau of Mines. (2016–17). Indian mineral industry at a glance. https://ibm.gov.in/writereaddata/files/08252020174215IMIG-2016-17_Final.pdf Controller General Indian Bureau of Mines Nagpur.

James, J. J., R. L. Sheley, T. Erickson, K. S. Rollins, M. H. Taylor, and K. W. Dixon. 2013. A systems approach to restoring degraded drylands. *Journal of Applied Ecology* 50: 730–739.

Pandey, VC, Abhilash PC and Singh N (2009) The Indian perspective of utilizing fly ash in phyto remediation, phyto management and biomass production. *Journal of Environmental Management* 90, 2943-2958.

Saini, V., Gupta, R. P. & Arora, M. K. (2016). Environmental impact studies in coalfields in India: A case study from Jharia coal-field. Renewable and Sustainable Energy Reviews, 53, 1222-1239.

SERI. 2004. *The SER International primer on ecological restoration.* Society for Ecological Restoration International, Tucson, Arizona, USA.

Singh G and Shukla AK (2008) Environmental issues with best practice examples of responsible mining in India. In „21st World Mining Congress and Expo" pp. 255-265. Krakow, Poland. 7-12 September 2008.

Walker, L.R. 1993. NItrogen fixers and species replacements in primary succession. *In* Primary succession on Land. *Edited by* J. Miles and D.W.H. Walton, Blackwell Scientific Publications, Oxford, pp. 249–272.

Young, T. P. 2000. Restoration ecology and conservation biology. *Biological Conservation* 92: 73–83.

Director
वन अनुसंधान संस्थान, राँची
Institute of Forest Research, Ranchi

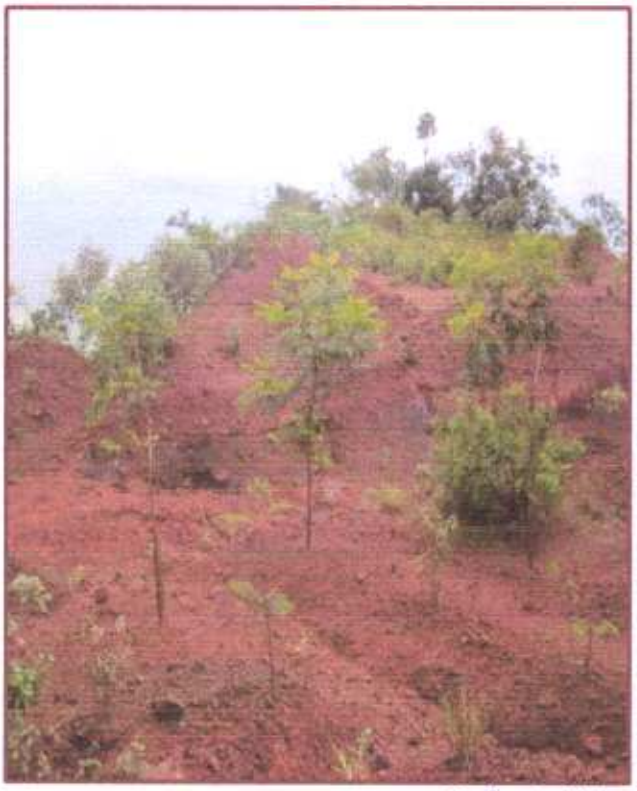
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Annexure - 5

Photographs showing measures undertaken for management of Waste Dump

Photo: Stabilized Old Waste Dump

Photo: Partially Stabilized Portion of Existing Dump



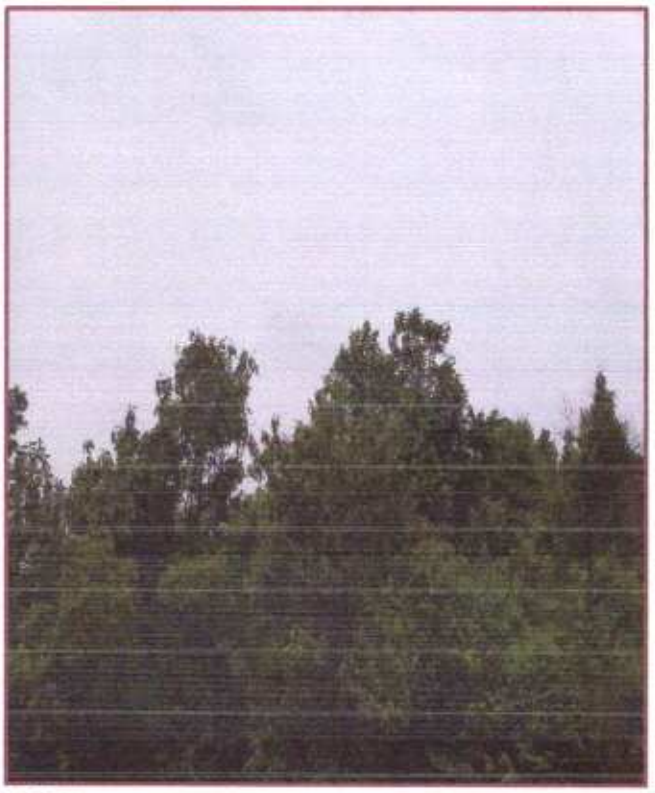


Photo: Stabilized Old Waste Dump

General Manager (Mines) & E&C
SAIL-BSL, Gua Ore Mines

Annexure-6

Photographs showing Earthen & Concrete Check Dams at Gua Ore Mines

Photo: Earthen Dams and Sedimentation Traps at the slope of Fines Heap

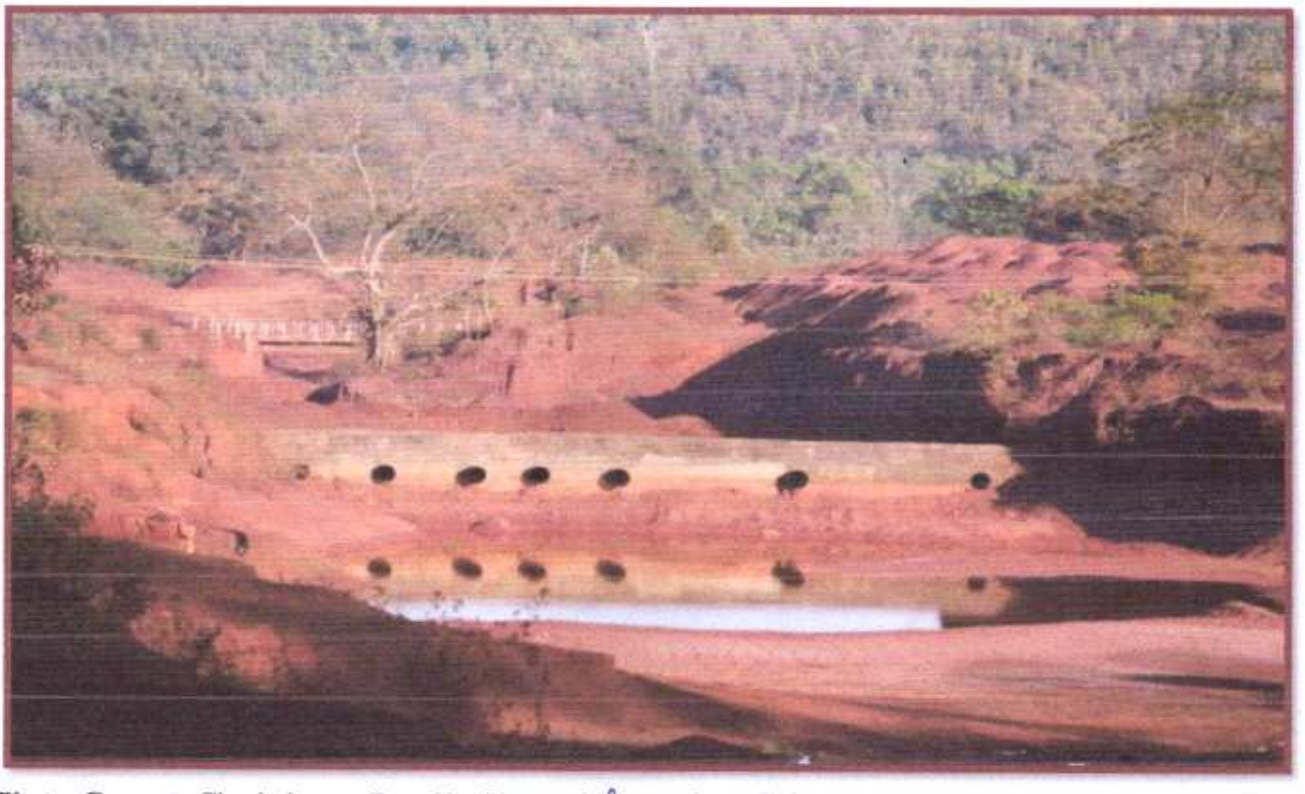
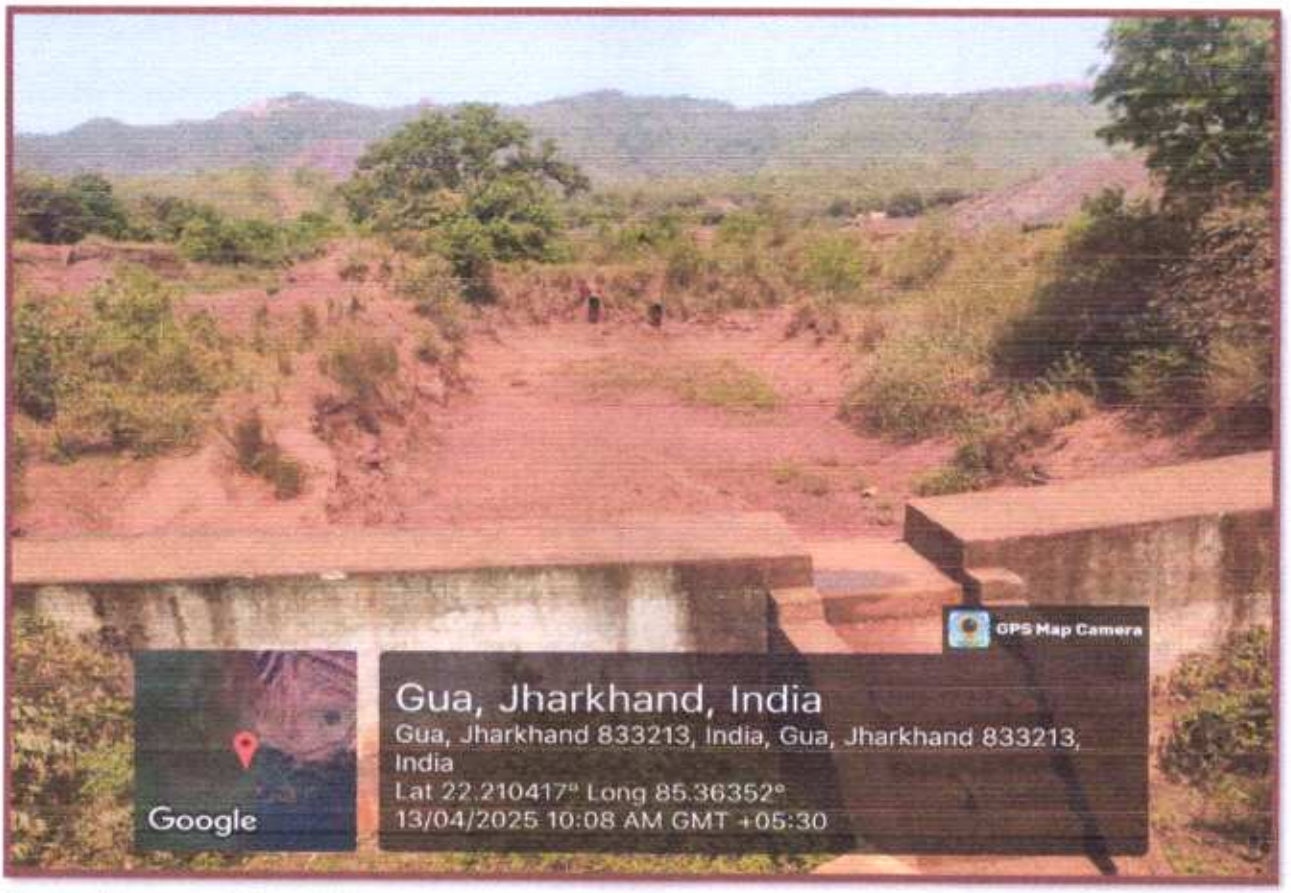


Photo: Concrete Check dam at Dam No.-5 towards zero point nallah

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

Photo: Series of 5 nos. of earthen dams followed by 4 nos. of settling ponds at the foot of Fines Heap



Photos: To control flow of fines, Random Rubble Masonary Check dam has been constructed at Zero Point Nallah and is periodically desilted.

General Manager (Mines) & Ex-
SAIL-BSL, Gua Ore Mines

Photo: Newly constructed check dam across DB nallah

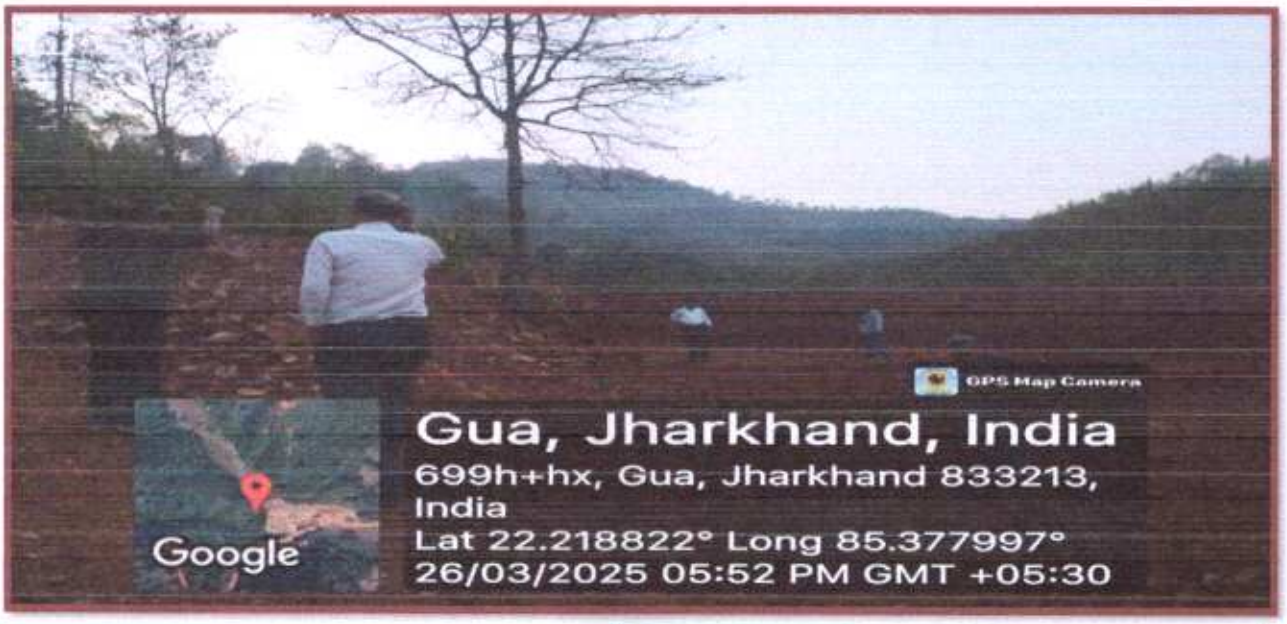


Photo: De-siltation across Newly Constructed Check Dam at DB Nalla

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Photo: Gabion Boulder walls (02 nos.) constructed between earthen dams at the toe of Ranichua waste dump area

Photo: Newly constructed Dry Boulder Retaining Wall with wire mesh & Angle Grouting constructed at bottom slope of Ranichua Waste Dump

General Manager (Mines) & ESL
SAIL-BSL, Gua Ore Mines

Photo: Newly constructed Gabion Boulder Wall constructed at bottom slope of OT Hill Waste Dump

Photo: Concrete Check Dam at GojaPahar Nalla

Photo: Settling cum Harvesting Pits along-with vetiver plantation near Zero Point Nalla

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

Photographs showing Rain Water Harvesting Cum Settling Pond at Mines

Photos: Rain Water Harvesting cum Settling Pond at IInd Level Area of Mines and desiltation of the same carried out

Photos: Desiltation of Sedimentation Pond at IInd Level Area of Mines

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Photo: Rain Water Harvesting Cum Settling Pond at HD Buru Area of Mines

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Photos: Desiltation of Bai-Hill sedimentation pit

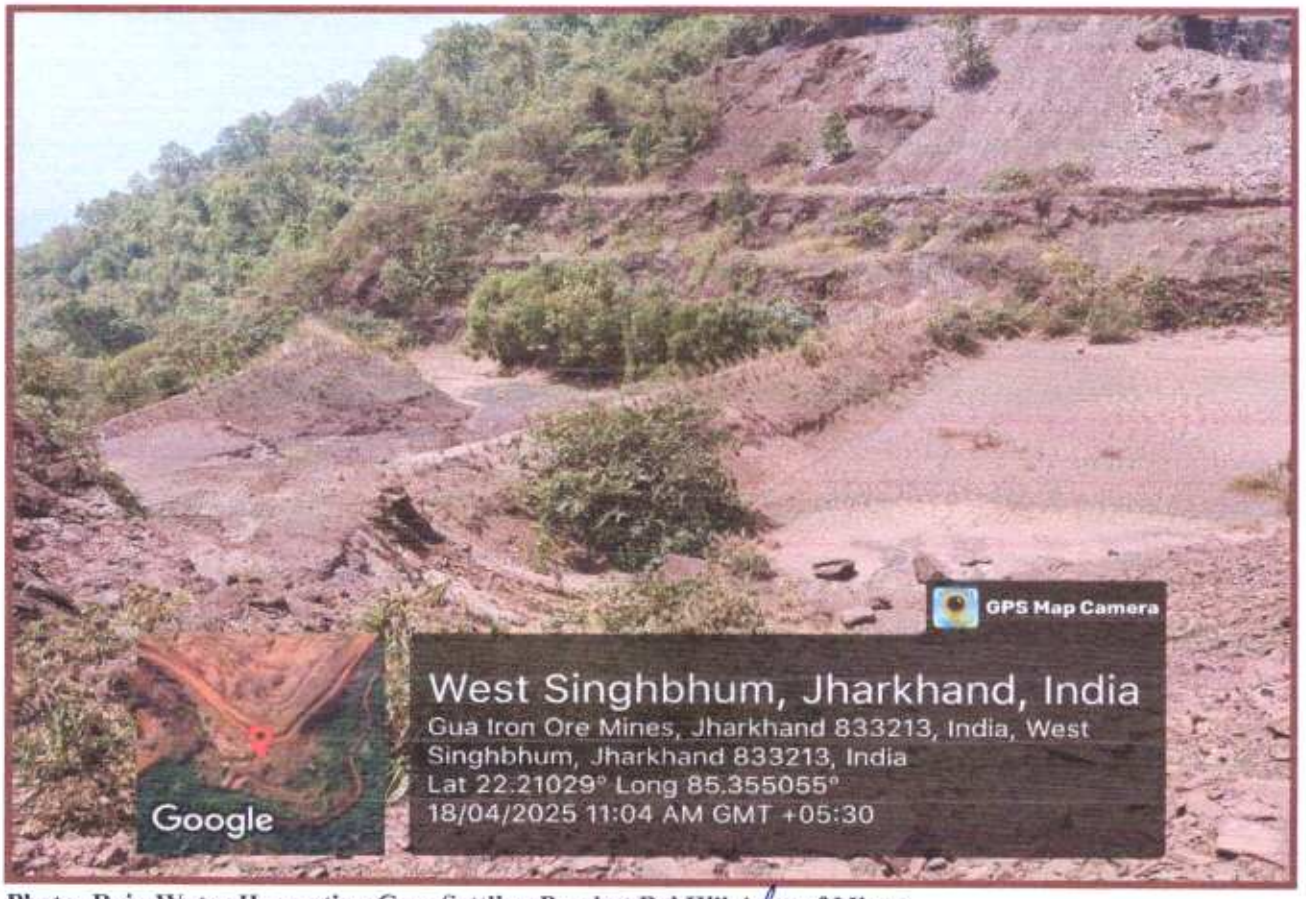


Photo: Rain Water Harvesting Cum Settling Pond at Bai Hill Area of Mines

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

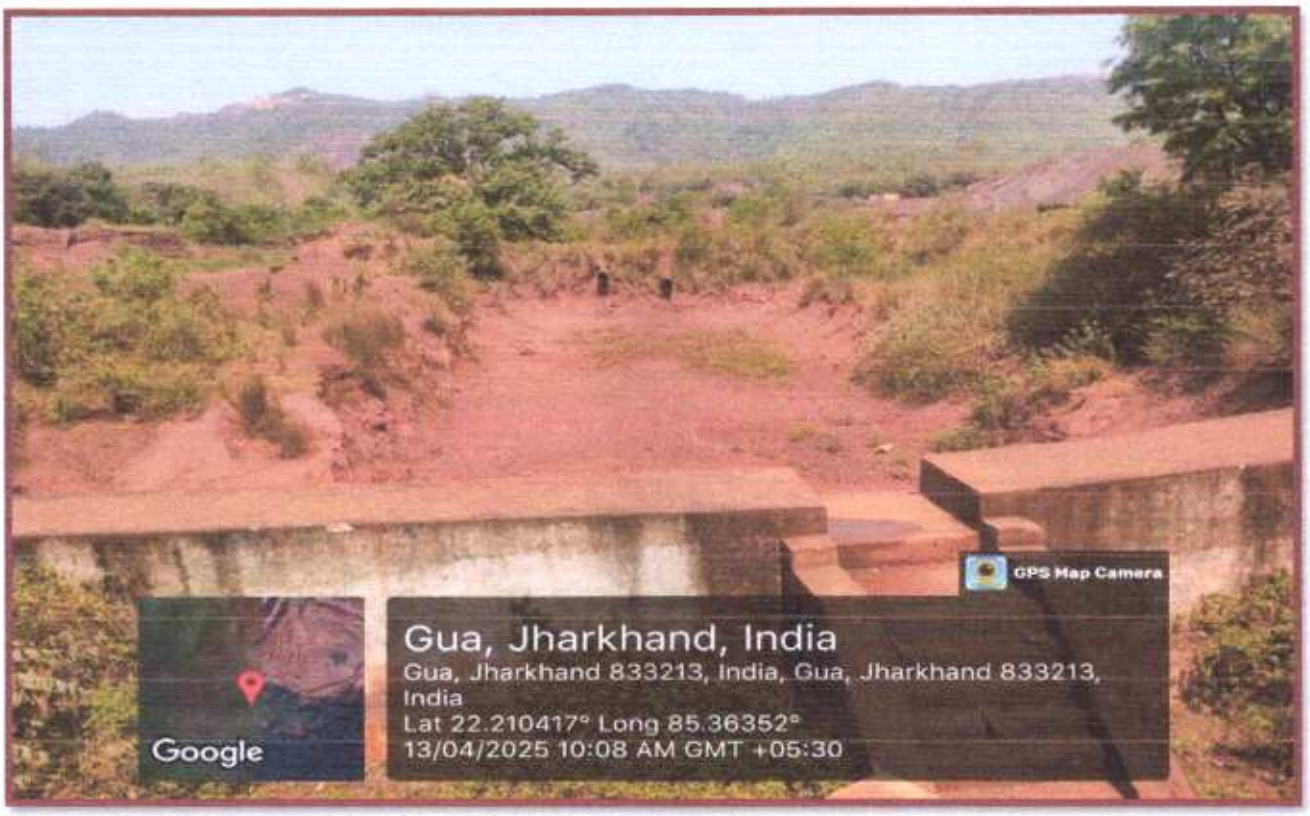


Photo: Desiltation near Zero Point check dam and earthen traps.

Photos: Constructed Sedimentation cum rainwater harvesting pond at foot of Ranichua waste dump area.

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Photos: Newly constructed Sedimentation cum rainwater harvesting pond at foot of OT Hill Wastedumparea.

Photo: Garland Drain to divert runoff water into the pits

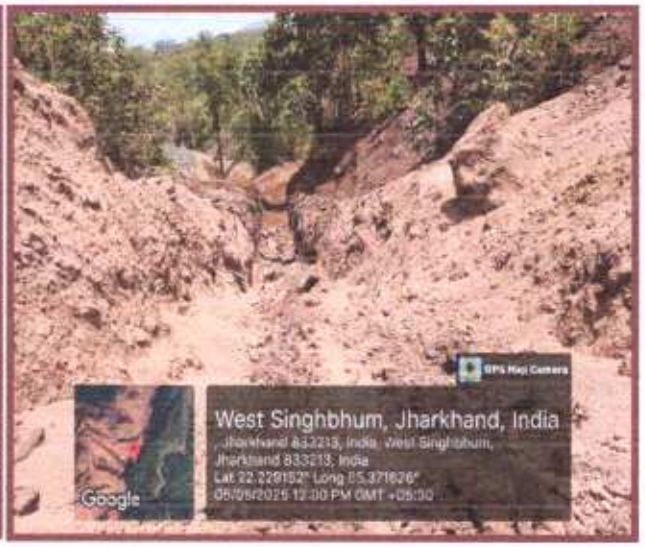
General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

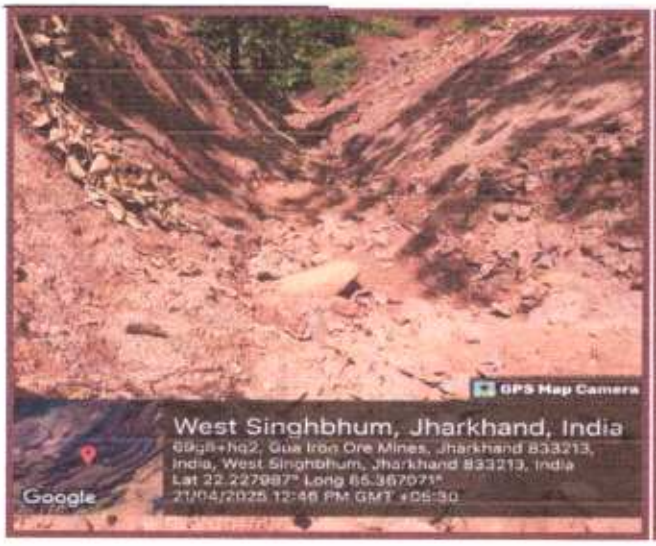
Photo: Desiltation of Kalimandir Check Dam and closing of hole completed.

Photos: Desiltation at u/s side of Check Dam near Kali Mandir & Gojapahar Nalla

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

Photographs showing Catch Drains & Siltation Pond around Ranichua and OT Hill OB dump at Gua Ore Mines



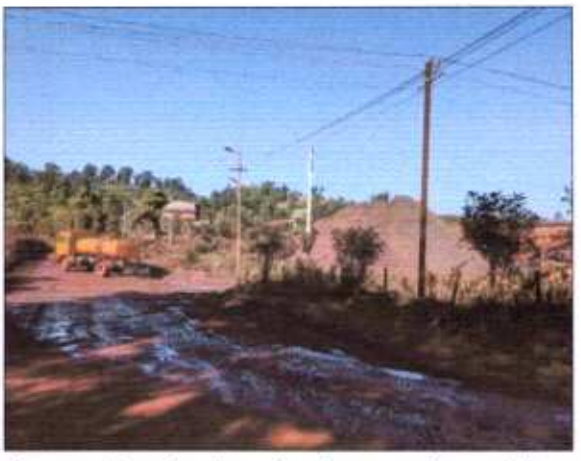


Photos: Catch drains and siltation ponds of the appropriate size has been constructed at Ranichua and OT-Hill waste dump

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

Annexure-7

Photographs showing Measures undertaken for Management of Air Pollution



Photos: Water sprinkling through mobile water tanker at mines haul road and near railway siding area.

Photos: Fixed water sprinkling arrangement at mines haul road, railway siding area, OHP area and at township.

General Manager (Mines) & E&C
SAIL-BSL, Gua Ore Mines

Photo: Dry Fog Dust Suppression System at Hopper

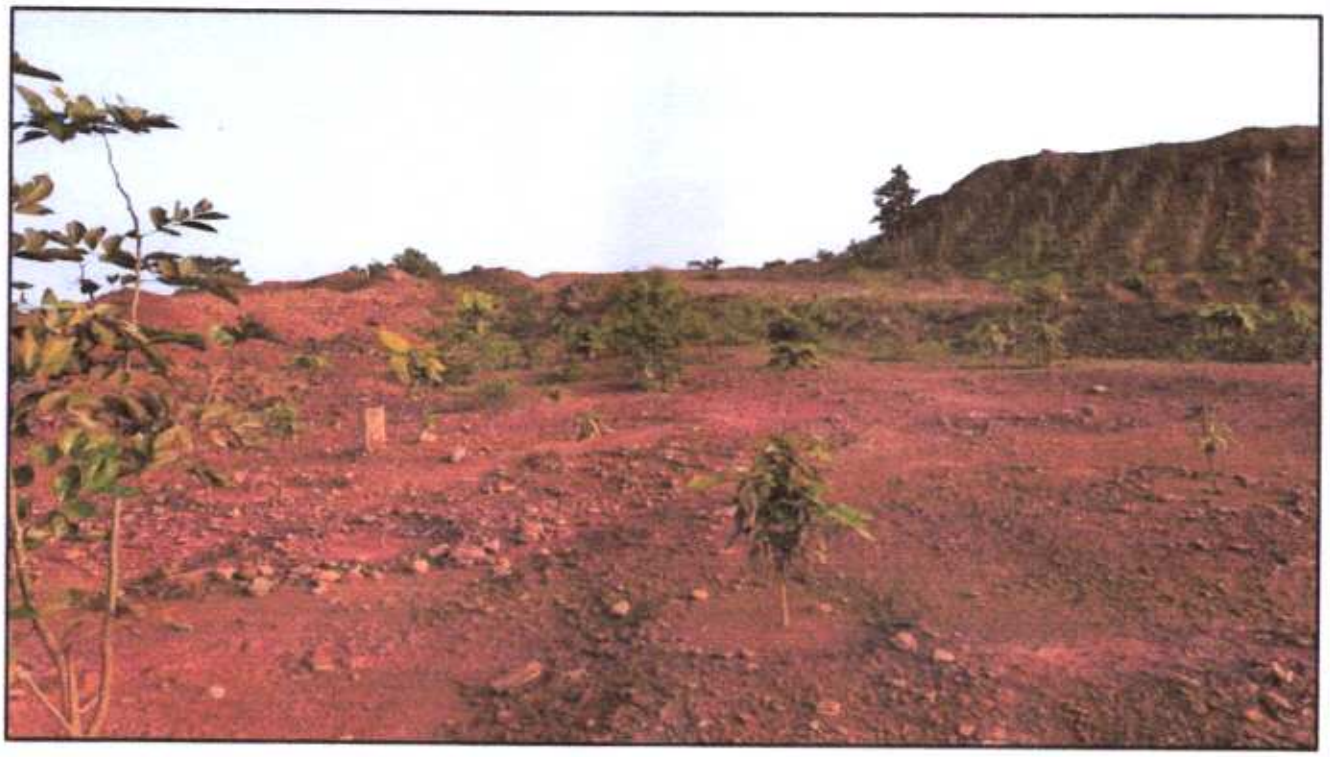
Photo: Dust extraction system at crushing plant.

Photos: Water spraying arrangement at the railway siding area

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

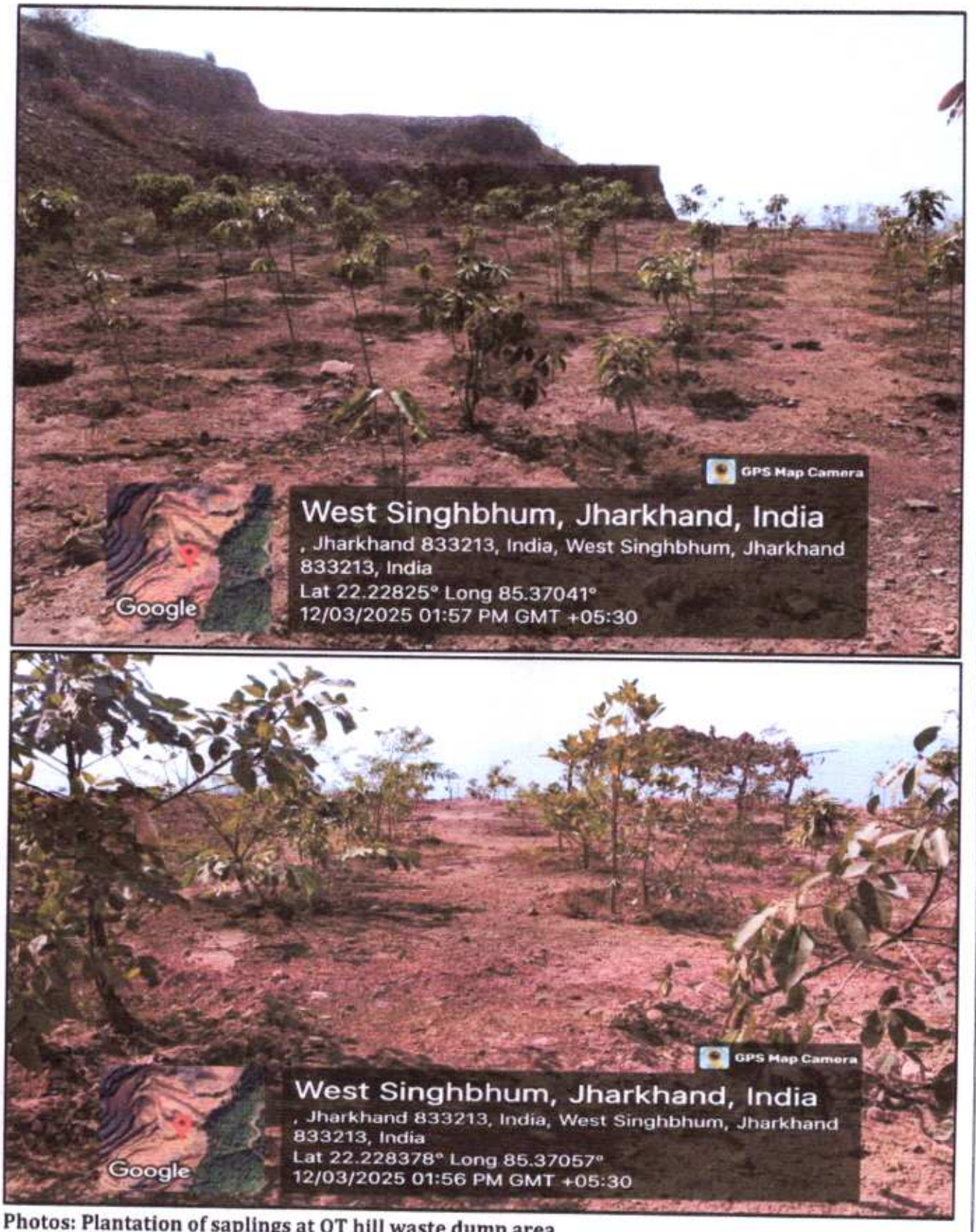
Annexure - 8

Plantation at Gua Ore Mines during F.Y.2024-25



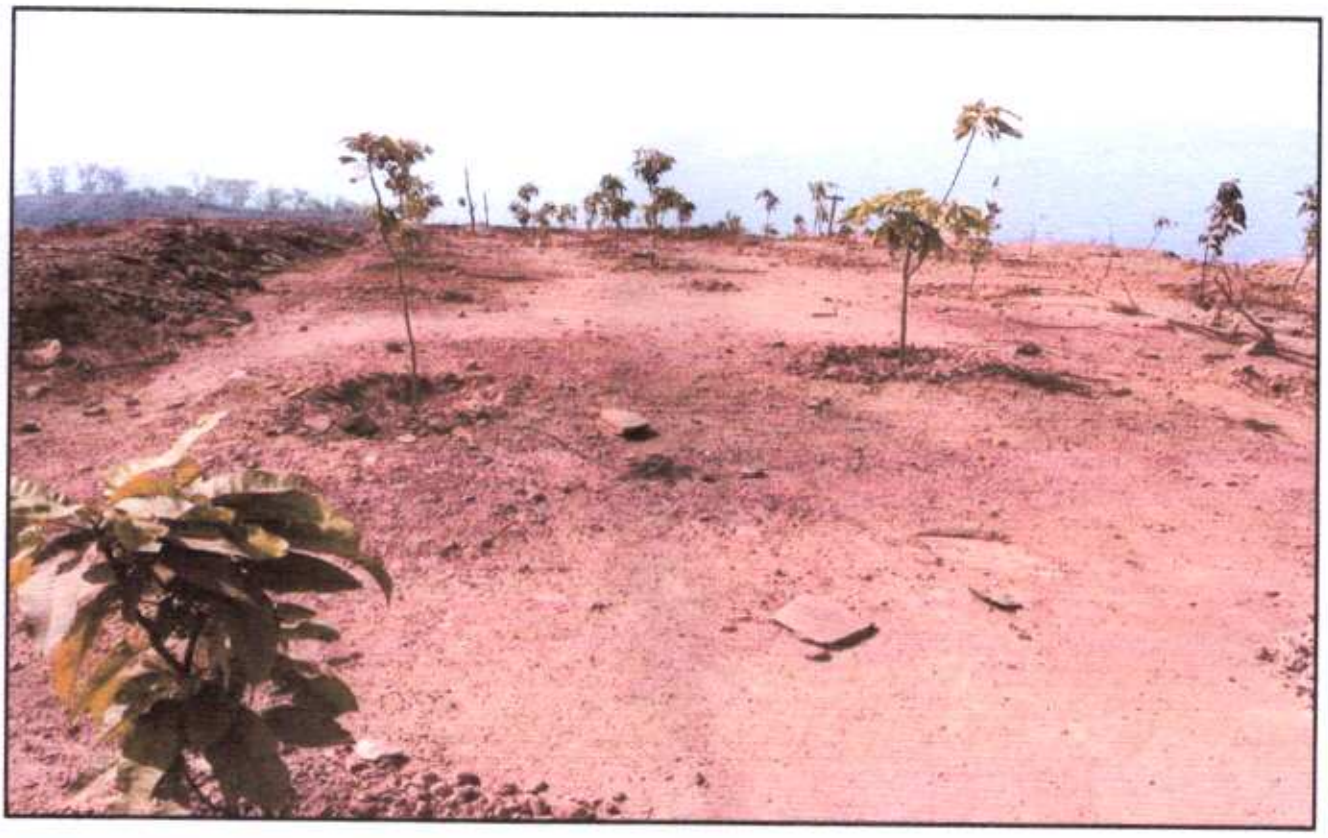
Photos: Plantation of saplings, hedge and local grass at OT hill old waste dump area

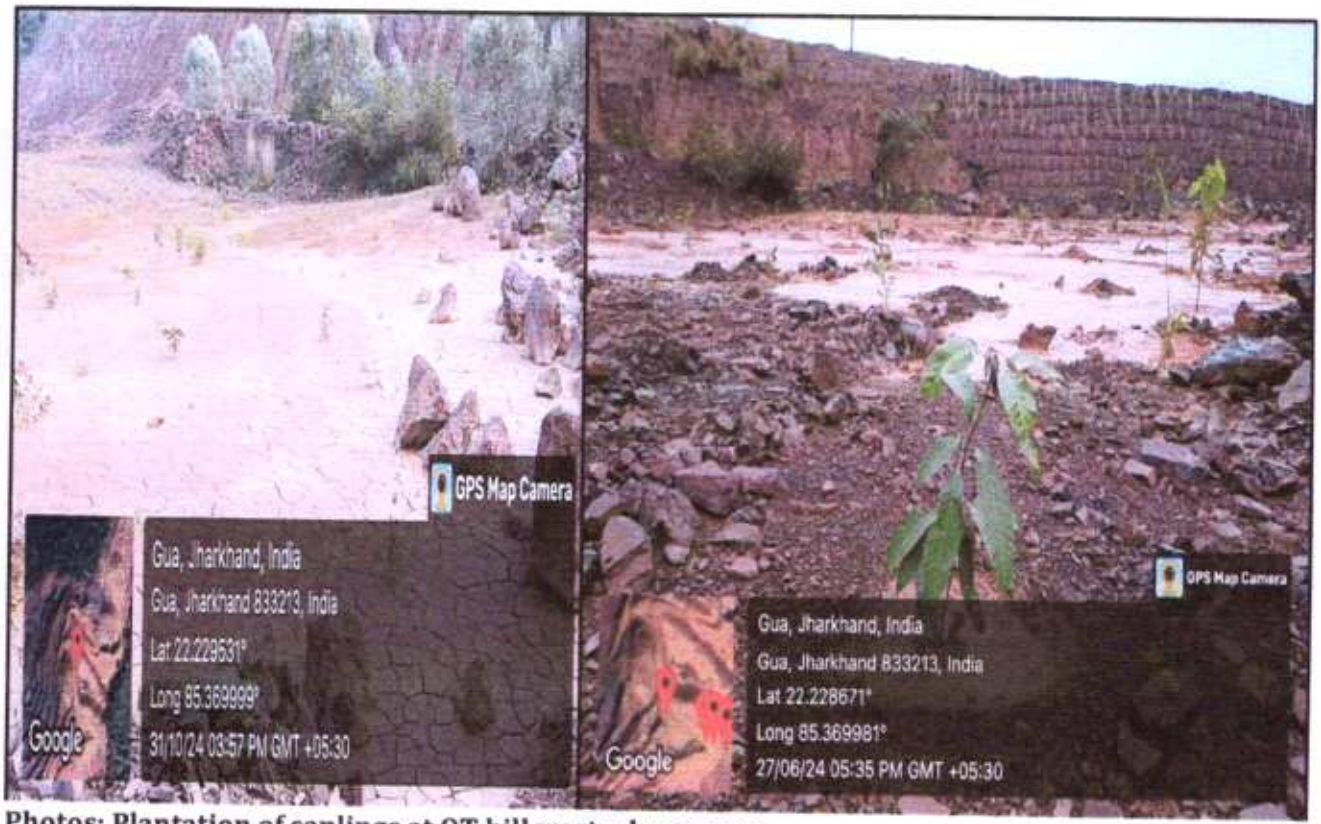
कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बीएसएल, गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES



Photos: Plantation of saplings at OT hill waste dump area

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी.एस.एल., गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES





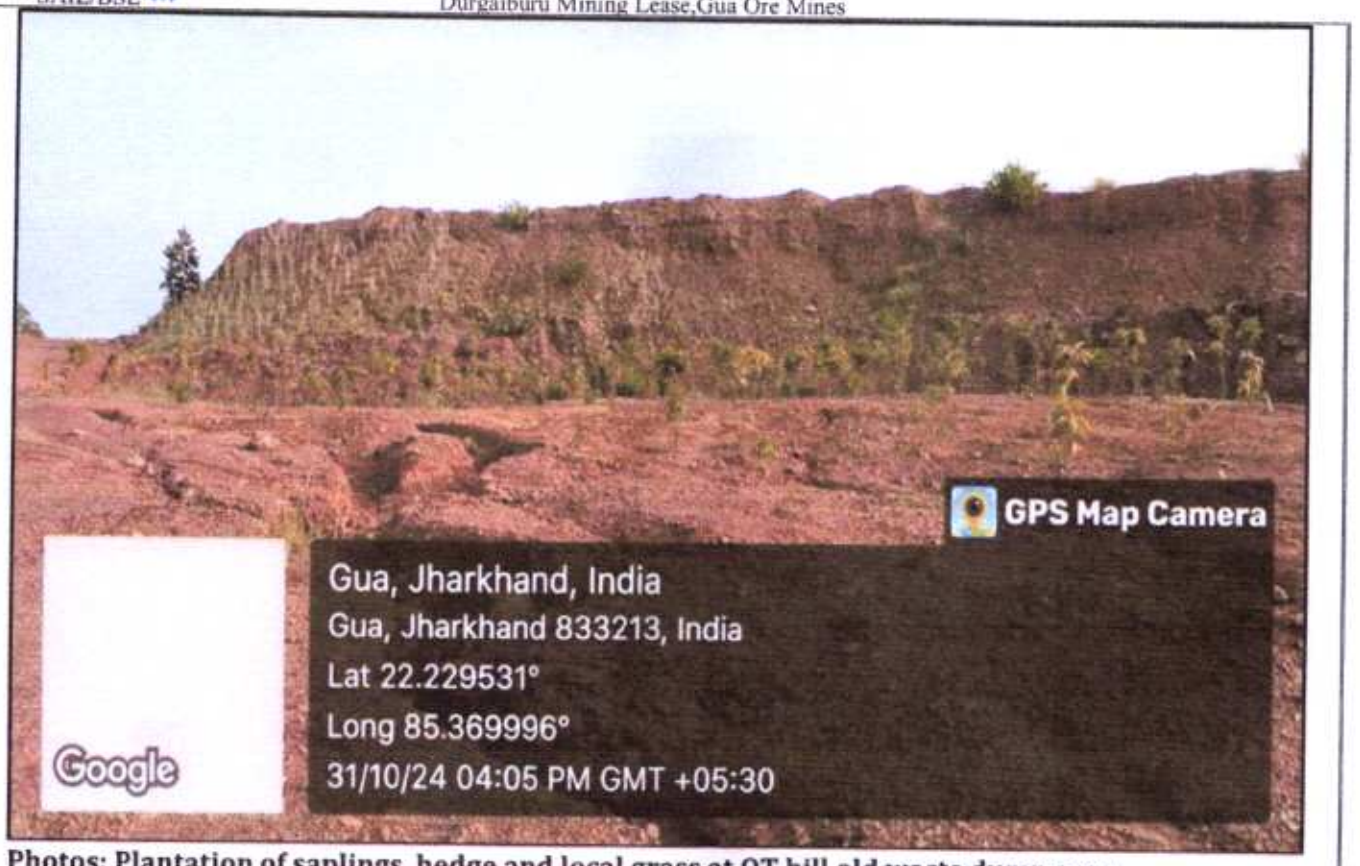
Photos: Plantation of saplings at OT hill waste dump area

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल बी०एस०एल०, गुआ अयस्क खान
Kamal Bhaskar
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Photos: Plantation of saplings, hedge and local grass at OT hill waste dump area

Photos: Plantation of saplings, hedge and local grass at OT hill old waste dump area

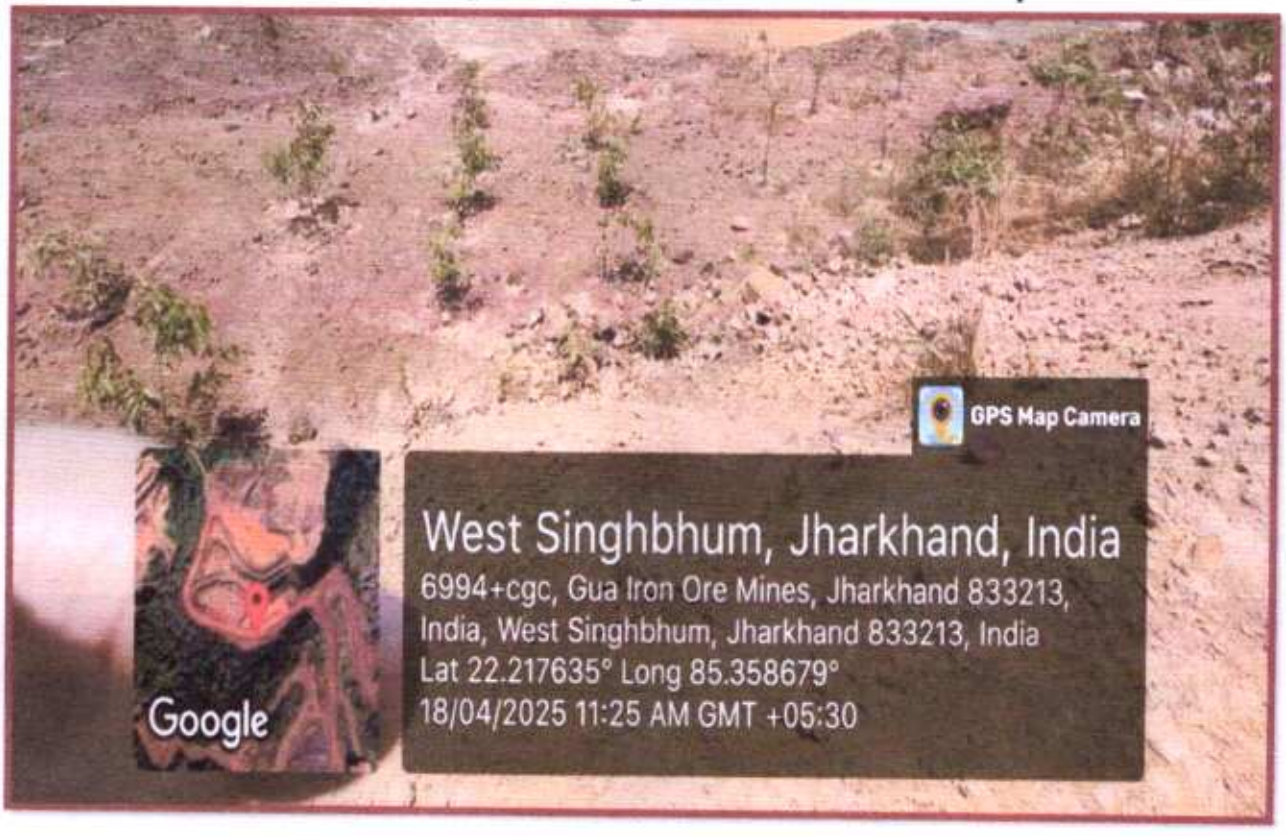
कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बीएसएल, गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES



Photos: Plantation of saplings, hedge and local grass at OT hill old waste dump area

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बीएसएल, गुवा अयस्क खान
Kamal Bhaskar
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Photos: Plantation of saplings, hedge and local grass at Ranichua waste dump area

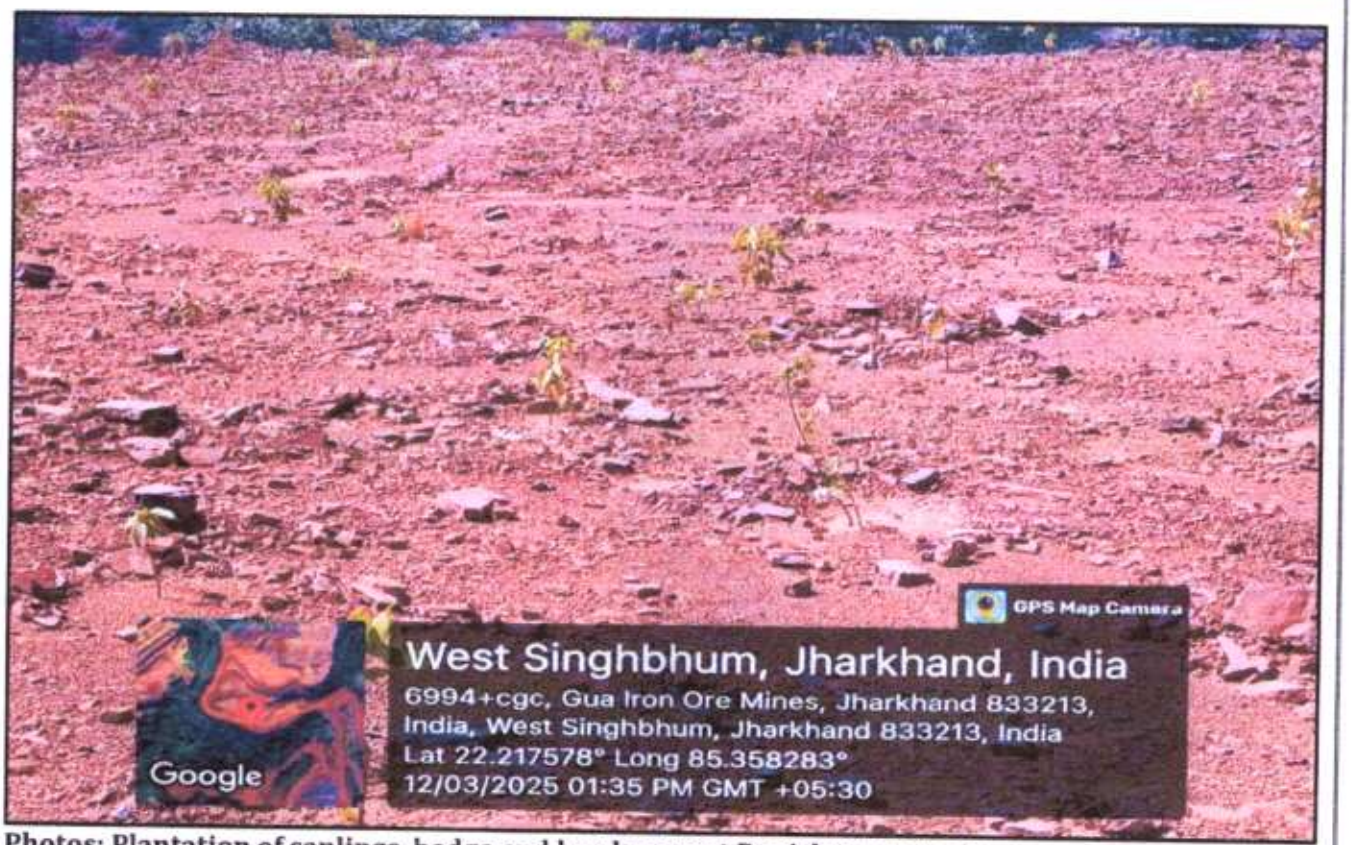


कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल बीएसएल, गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Photos: Plantation of saplings, hedge and local grass at Ranichua waste dump area

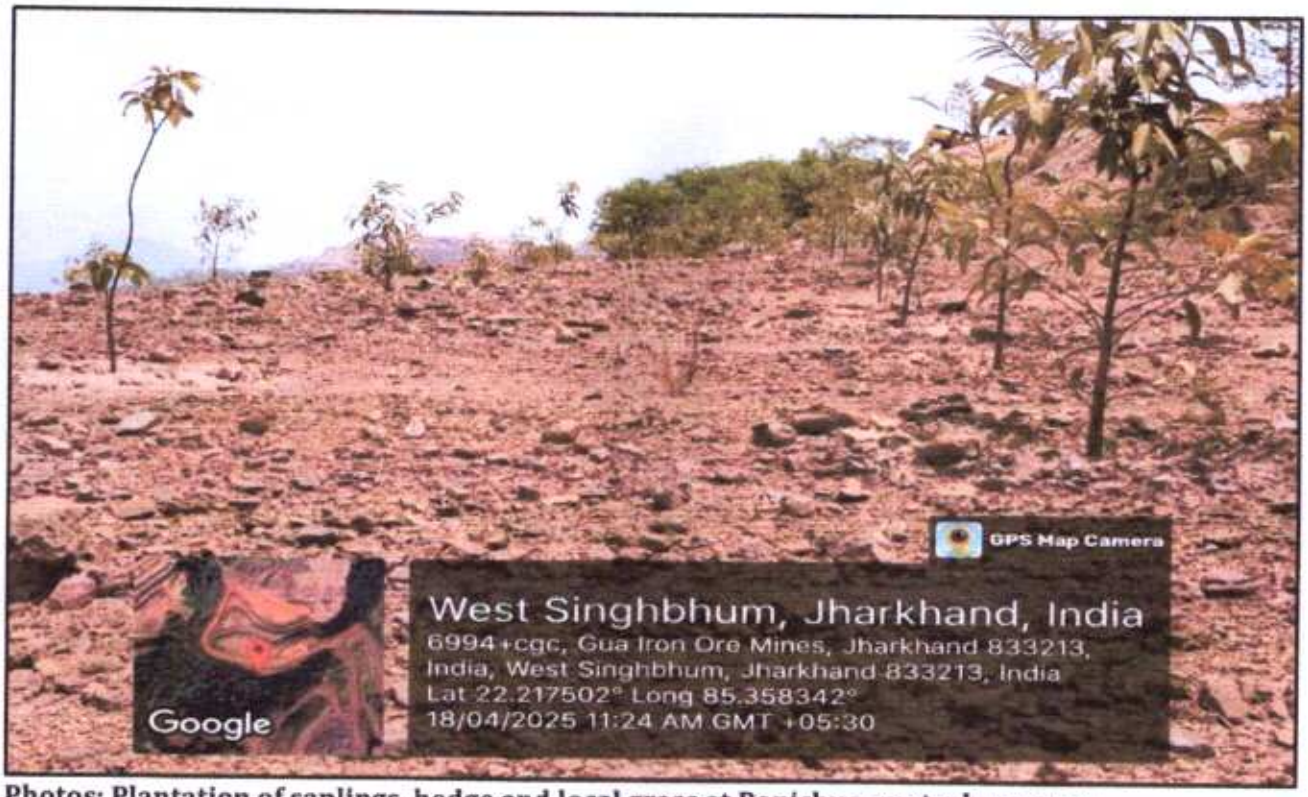
Photos: Plantation of saplings, hedge and local grass at Ranichua waste dump area

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी.एस.एल., गुआ आयरन खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

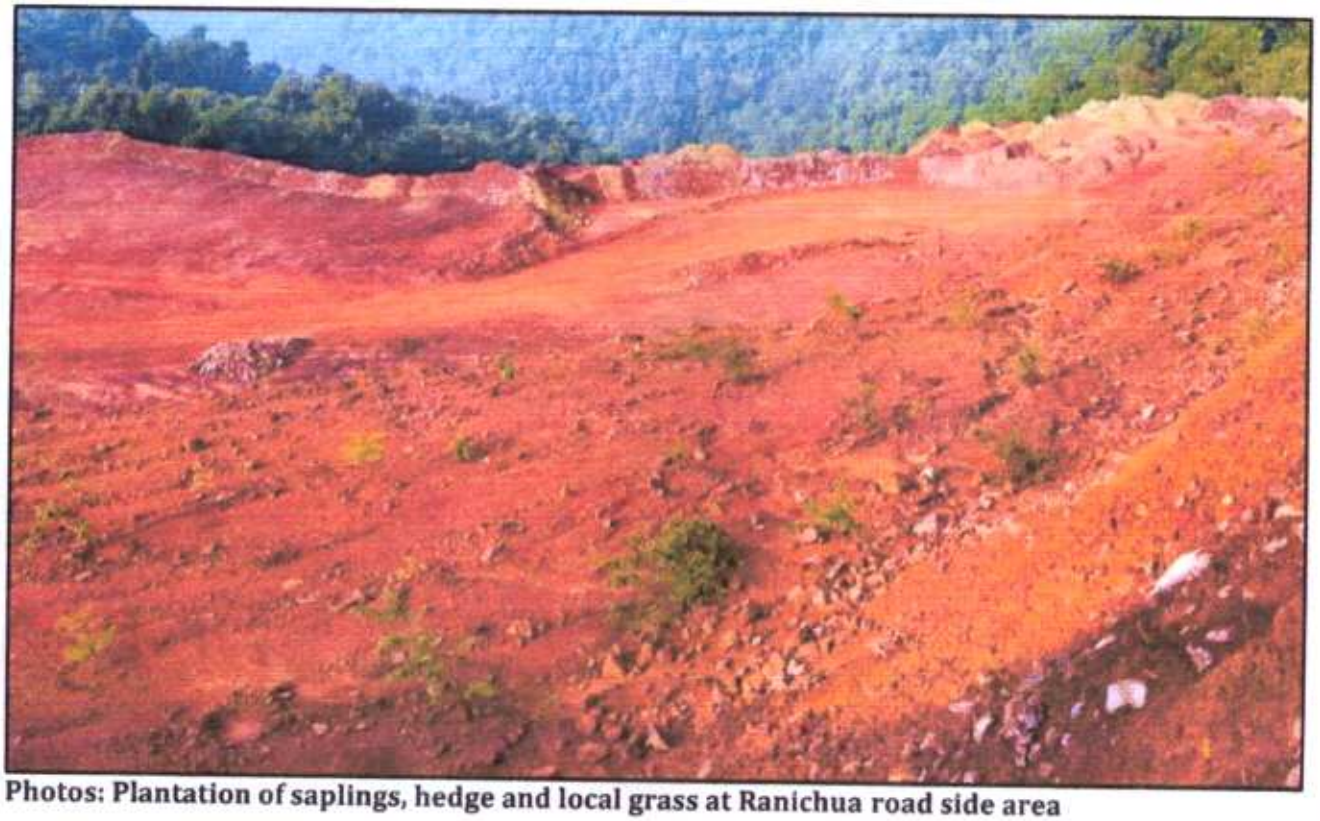


Photos: Plantation of saplings, hedge and local grass at Ranichua waste dump area

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बीएसएल, गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

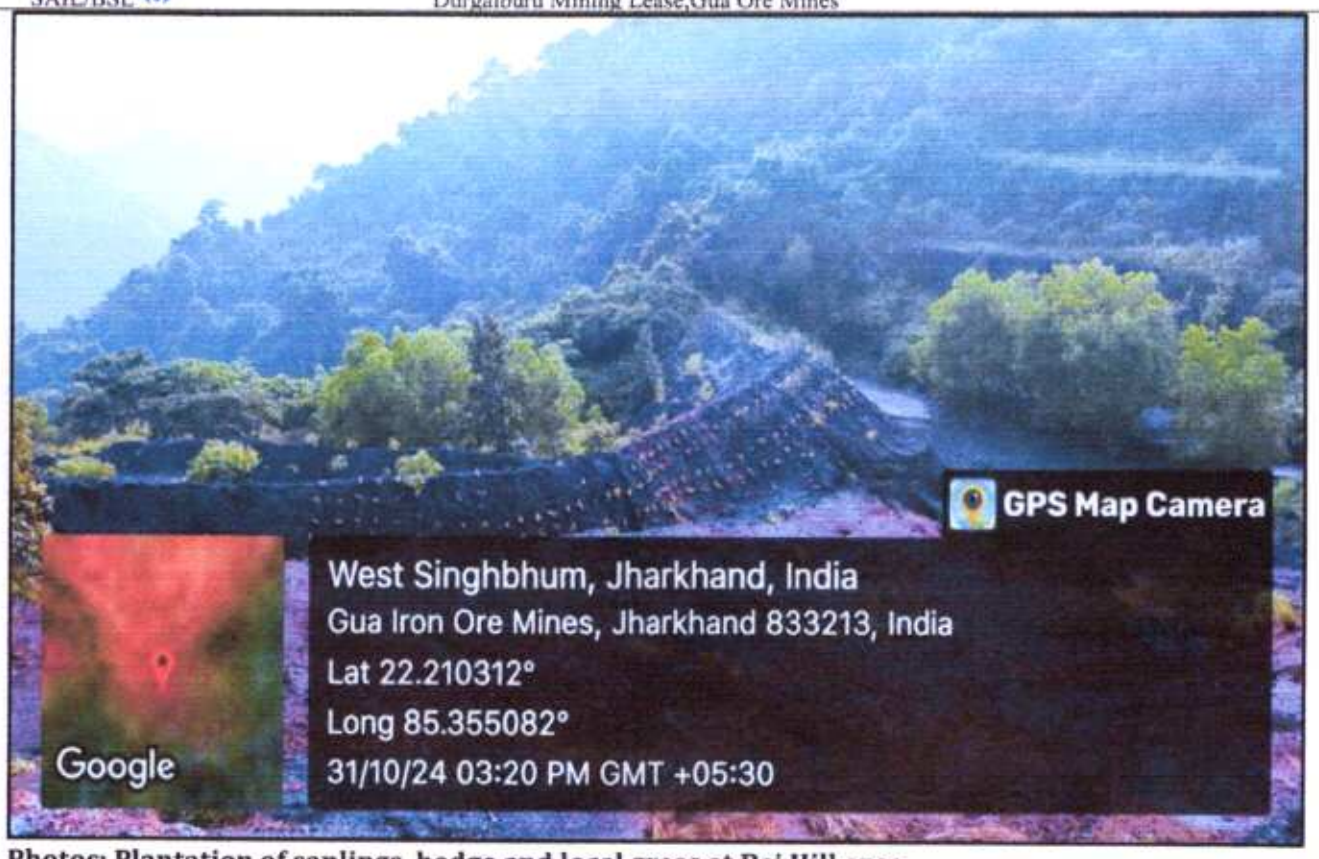


Photos: Plantation of saplings, hedge and local grass at Ranichua waste dump area

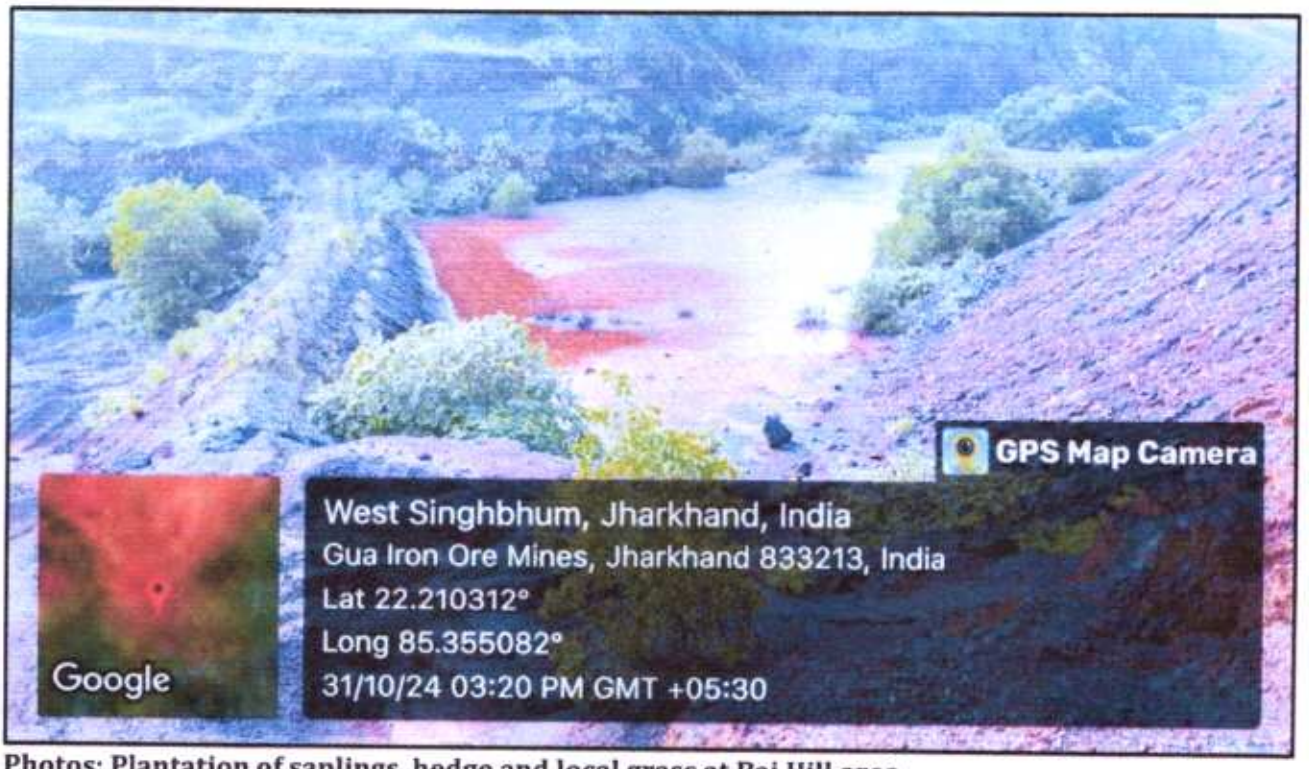


Photos: Plantation of saplings, hedge and local grass at Ranichua road side area

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल०-गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

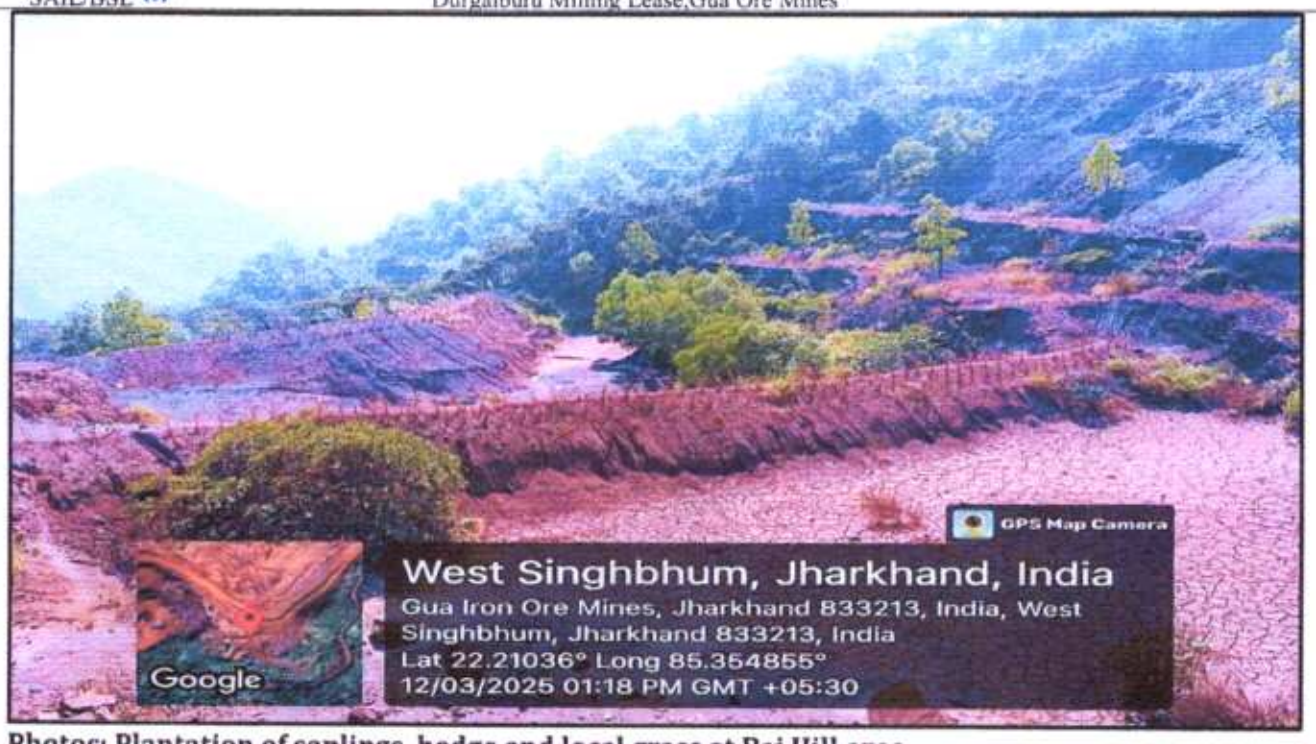


Photos: Plantation of saplings, hedge and local grass at Bai Hill area

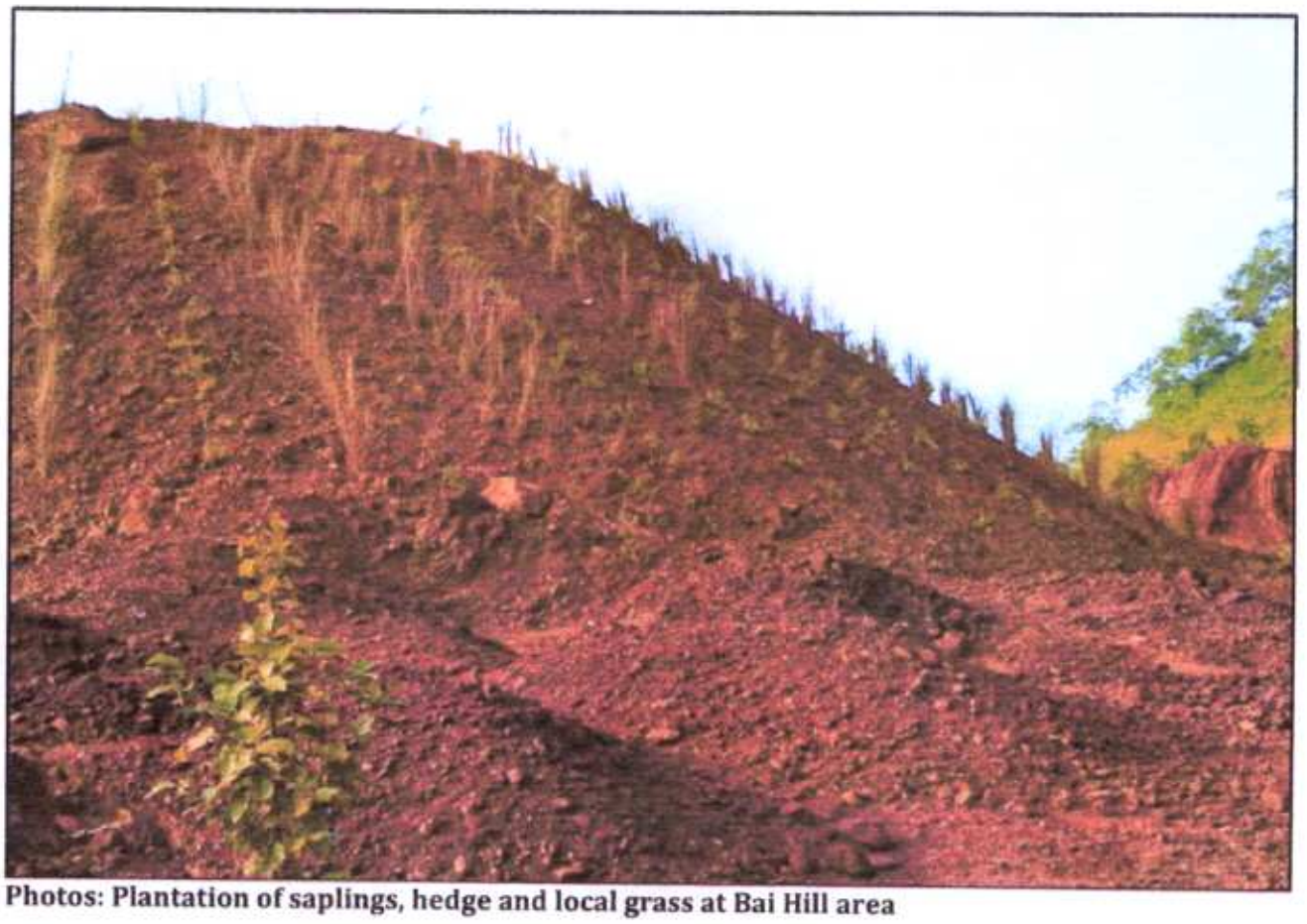


Photos: Plantation of saplings, hedge and local grass at Bai Hill area

कमल भास्कर
मुख्य महाप्रबंधक (खान)
मुख्य अधिकारी, गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

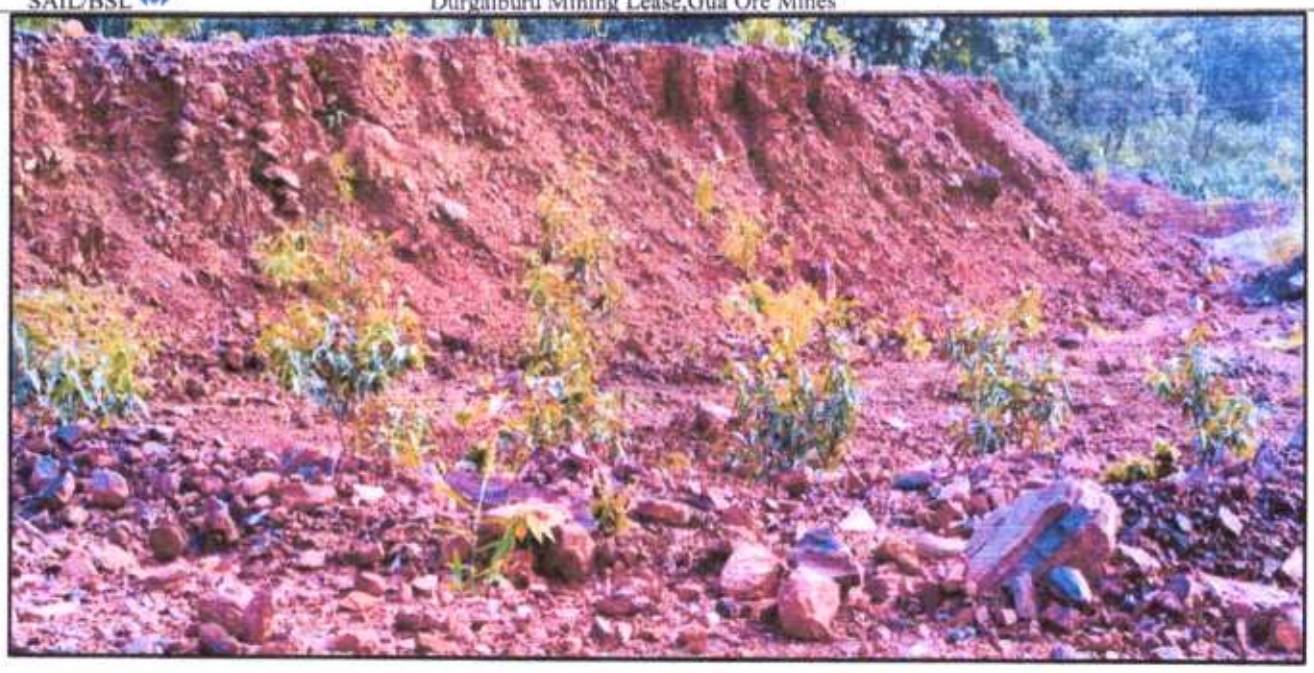


Photos: Plantation of saplings, hedge and local grass at Bai Hill area



Photos: Plantation of saplings, hedge and local grass at Bai Hill area

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल०, गुआ अयस्क
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES



Photos: Plantation of saplings, hedge and local grass at Bai Hill area

Photo: Plantation of hedge and local grass at berms of the haul road at mines

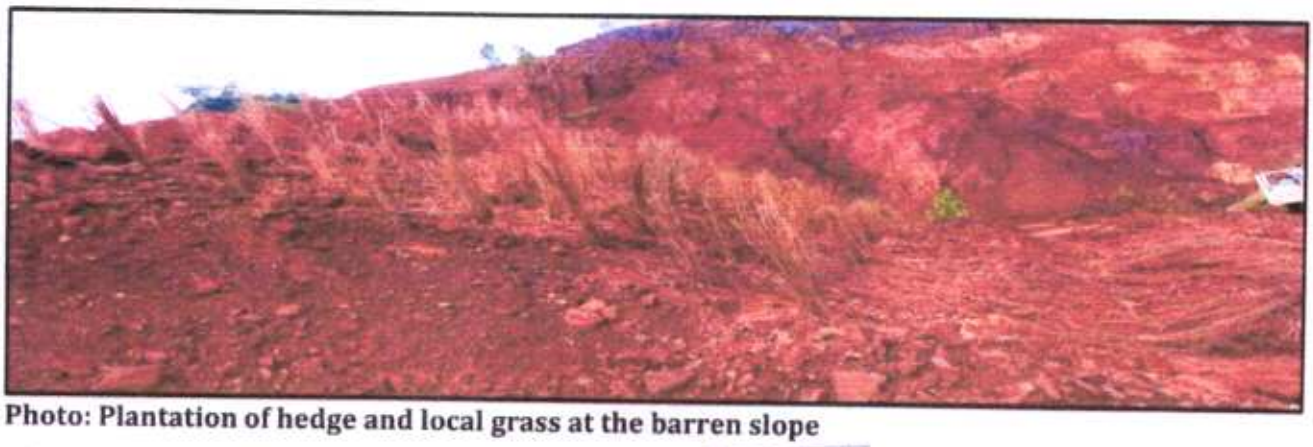


Photo: Plantation of hedge and local grass at the barren slope

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी.एस.एल, गुआ
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

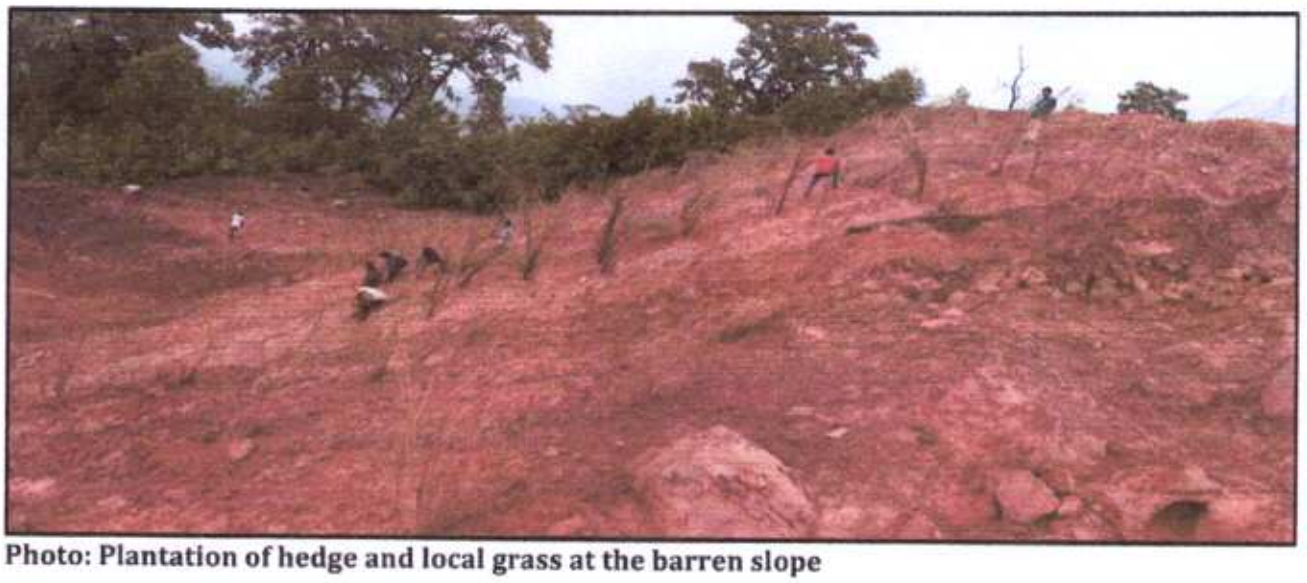
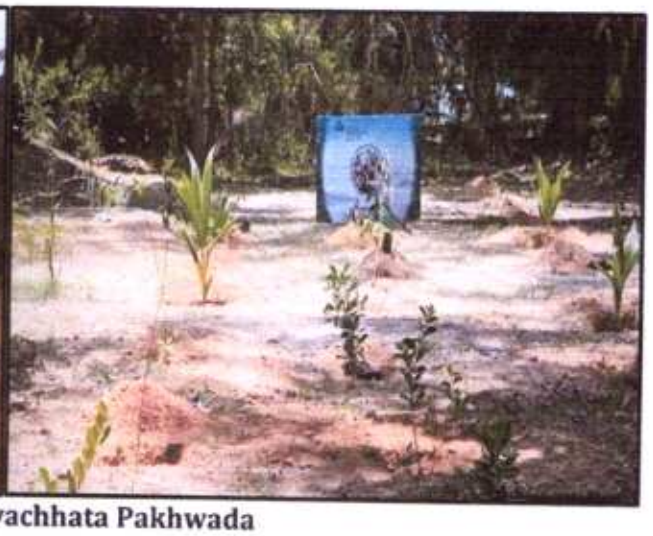


Photo: Plantation of hedge and local grass at the barren slope



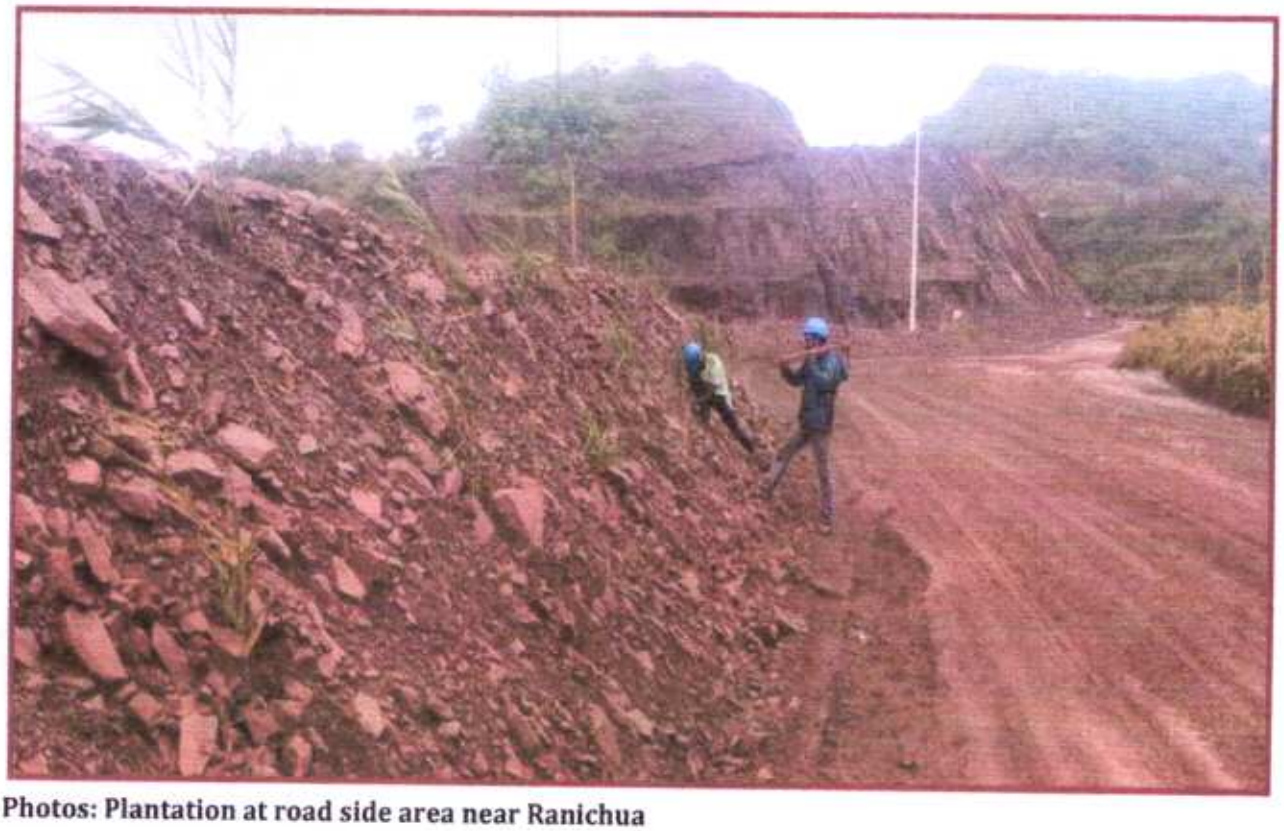
Photos: Sapling Plantation on the occasion of Swachhata Pakhwada

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल०, गुआ
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Photos: Sapling Plantation on the occasion of Swachhata Pakhwada

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल०, गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Photographs of plantation carried out during F.Y. 2023-24



Photos: Plantation at road side area near Ranichua

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल०, गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Photos:Plantationworkatslopesofearthendamatlndlevelarea

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बीएसएल, गुआ
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Photographs of Plantation carried out before F.Y. 2023-24 at Gua Ore Mines

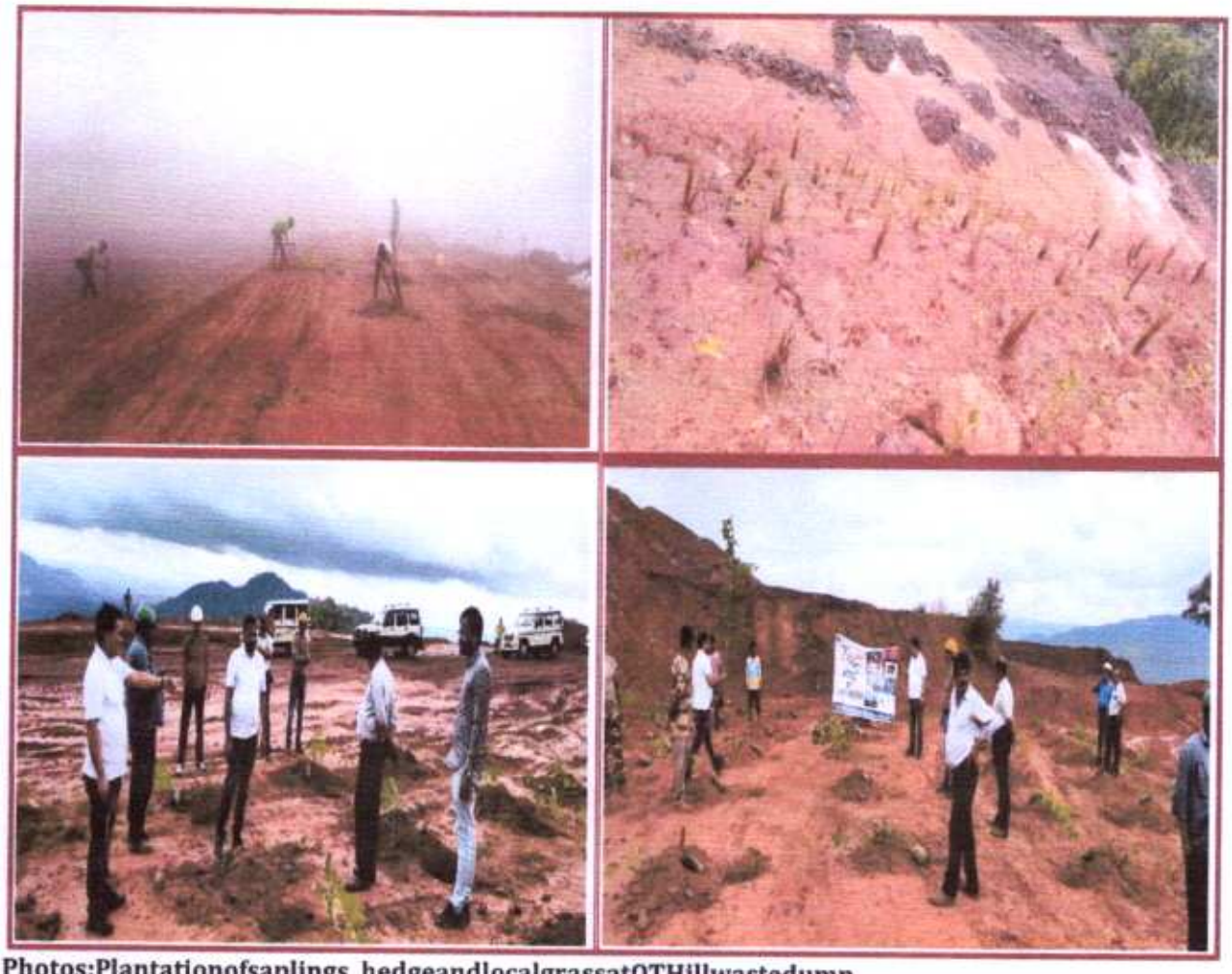
Photos:Plantation of local grass and hedge at slopes of earthen dam

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बीओएसएल, गुवा आयरन खान
Kamal Dhaskar
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Photos: Plantation of local grass and hedge at slopes of earthen dam

Photos: Plantation of saplings, hedge and local grass at OT Hill waste dump

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-डी०एस०पी०, गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES



Photos:Plantationofsaplings, hedgeandlocalgrassatOTHillwastedump

Photo: Matured saplings and Hedge planted at the slope of newly constructed DB road

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बीएसएसएल, गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

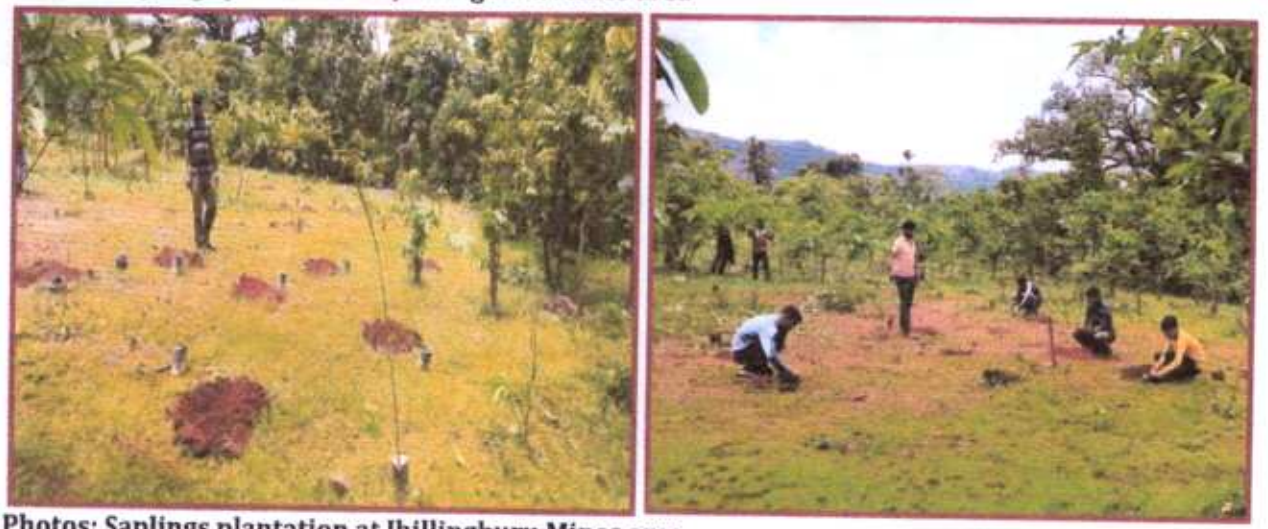
Photos: Plantation of saplings and hedge at Bai-Hill barren slope carried during F.Y. 2022-23

Photos: Hedge and sapling plantation at safety berm along mine haul road towards OT Hill area

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बीएसएलए, गुआ आयरन खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Photo: Hedge and sapling plantation at safety berm along mine haul road towards OT-Hill area

Photos: Saplings plantation at Jhillingburu Mines area



Photos: Saplings plantation at Jhillingburu Mines area

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बीएसएसएल, दुर्गा अयस्क खान
Kamal Bhaskar
Chief General Manager (Mines)
SAIL-BSL, DURGA ORE MINES

Photos: Plantation of saplings, hedge and local grass at Ranichua waste dump

Photos: Plantation of saplings, hedge and local grass at Ranichua waste dump

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल०, गुआ
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Photo:Matured saplings and hedge planted last year at Jhillingburu Mines Area

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल०, गुआ आयरन खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Photos: Plantation of saplings, hedge and local grass at Ranichua waste dump

Photo: Matured saplings and hedge planted last year at Ranichua Waste Dump Area

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल०, गुआ आयरन खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Annexure - 9

Goa Ore Mines, BSL, SAIL

Environment & Lease Department

River Water Flow Measurement

Location: Kare River U/s side near Kalleandir

Latitude: 21° 22' 18" **Longitude:** 85° 22' 55"

Sl. No.	Date	Parameters	Unit	Value
1	15.01.2024	Water Flow Rate	m³/sec	0.5491
2	19.05.2024			1.4191
3	17.07.2024			1.5709
4	19.09.2024			1.7112
5	15.11.2024			1.3224
6	17.01.2025			0.5209

Dharmendra Sethia
Dy. Manager (E&L)

Krishav Kumar
AM (E&L)

Kamal Bhaskar
Chief General Manager (Mines)

Annexure - 10

Photographs showing 03 nos. rooftop rainwater harvesting through recharge pit cum shaft installed with realtime groundwater level monitoring system at Director Bungalow and DB annexe buildings of Gua Ore Mines.

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Photos: Photos of recharge pit cum shaft during construction period

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Annexure - 11

स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
बोकारो इस्पात संयंत्र
BOKARO STEEL PLANT
गुआ अयस्क खान
GUA ORE MINES

Ref. No.: GUA/E&L/Duarg-CGWB /2023-24/ 167

Date: 12.08.2023

To,
The Executive Engineer
Central Ground Water Board (CGWB)
30 C, Park Road
1B, Main, Ashok Nagar
Ranchi-834012

Sub: Report of suitable water conservation measures implemented to augment ground water resources as per the condition stipulated in Environmental Clearance accorded by MoEF&CC to the projects: Integrated Duarguiburu Iron Ore Mining, Beneficiation and Pelletisation Plant of M/s SAIL located in Ghatkuri Reserve Forest, Tehsil Gua, West Singhbhum Dist., Jharkhand

Ref.: 1. Ministry's Environment Clearance Letter No. J-11015/453/2008-IA. II(M) dated 25.03.2013 for project Integrated Duarguiburu Iron Ore Mining, Beneficiation and Pelletisation of Gua Ore Mines, SAIL
2. Consent to Operate (CTO) granted to Duarguiburu Iron Ore Mining Lease of M/s SAIL vide letter ref. no. JSPCB/HO/RNC/CTO-10884468/2021/1533 dated 17.12.2021

Sir,

This has reference to the above mentioned subject, wherein the Ministry of Environment, Forest and Climate Change, GoI, has granted Environmental Clearance (EC) to the Duarguiburu Iron Ore Mining Lease of Gua Ore Mines vide letter dated 25.03.2013 ***(Copy enclosed as Annexure-1).*** Subsequently, CTE and then CTO has been granted by Jharkhand State Pollution Control Board to the project vide letter dated 17.12.2021 ***(Copy of latest CTO enclosed as Annexure-2).***

As per General Condition no. (xxv) of EC, suitable water conservation measures should be implemented to augment ground water resources in the area in consultation with Regional Director, Central Ground Water Board. Also, as per General Condition no. 6 of the CTO, the occupier shall install and maintain Central Ground Water Board/ State Ground Water Directorate approved system of rain water harvesting-cum-ground water recharge.

In the view of the above, we are herewith submitting details of rainwater harvesting measures ***(Copy enclosed as Annexure-3)*** adopted at Gua Ore Mines, Bokaro Steel Plant, SAIL for vetting please.

Submitted for kind information and further advise please.

With regards,

For & on behalf of
SAIL-BSL, Gua Ore Mines

(S.P. Das)
General Manager (Mines) and E&L

Encl: As stated above

Copy to:

1. Deputy Director General of Forest (C), IRO, MoEF&CC, Bungalow No A-2, Shyamali Colony, Ranchi-834002- For kind information

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल०, गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

No.J-11015/45/2008-IA.II(M)
Government of India
Ministry of Environment and Forests
IA Division

Paryavaran Bhawan
CGO Complex, Lodhi Road,
New Delhi-110 003
Dated the 7th March, 2013

To
M/s Steel Authority of India Limited
Raw Materials Division,
10 Canna Street (3rd Floor),
Kolkata-700 001

Subject: Integrated Prospecting for Iron Ore Mining, Beneficiation and Pelletization Plant Project of M/s Steel Authority of India Limited (SAIL), located in Chiriburu - Reserve Forest, Tehsil Gua, District West Singhbhum, Jharkhand - environmental clearance - regarding.

Sir,

This has reference to your letter No. RM/IOP/EC/2011-724 dated 25.11.2010 and subsequent letters dated 18.02.2011 and 26.09.2011 on the subject mentioned above, as well as your Board resolution dated 11.08.2011 stating that violation will not be repeated in the future. The State Pollution Control Board, Jharkhand vide their letter 20.12.2011 have mentioned that a petition in the court of Chief Judicial Magistrate, Chaibasa has been filed. The project was earlier prescribed Terms of Reference (TOR's) by the Ministry of Environment and Forests on 05.02.2009 for undertaking detailed EIA study for the purpose of obtaining environmental clearance. The proposal is for renewal of mine lease, which fell due in February, 2009 and enhancement of production of iron ore to 10million TPA (ROM) plus in February, 2009 and enhancement of production of iron ore to 10million TPA (ROM) and installation of a new beneficiation plant of 12.5million TPA and installation of a new pellet plant of 4million TPA capacity. Besides, 10million TPA of ROM to be produced from the mine, 2.5million TPA of fines from existing fines dumps will be utilized in the beneficiation plant.

2. The total mine lease area of the project is 1441.75Ha, which is a forest land. Stage – I forest clearance for diversion of broken up area of 214.691ha of forest land, out of the total applied area of 635.986 ha for iron ore mining has been obtained vide letter no. 8-25/1988-FC dated 14th August, 2012 subject to certain conditions. The Kani River (Nala), the Kuiun River(4.5km) and the Sanjai River (4.5km) are reported to be located at the buffer zone of the mine. A number of natural drainage channels reported to flow down of the core-zone escarpment on either side towards SE or NW. Modification/diversion in the existing natural drainage pattern, if any, has not been envisaged.

3. It has been stated that no National Park/ wildlife sanctuary/Biosphere reserve/tiger reserve etc. are reported to be located in the core and buffer zone of the mine and that the area does not report to Dam/corridor for Schedule-I fauna. However, the entire mine lease falls within the core zone of Singhbhum Elephant Reserve. The Principal Chief Conservator of Forests, Biodiversity Conservation cum Chief Wildlife Warden, Jharkhand

vide letter No. 564 dated 04.12.2019 stated that the proposed mine lease area falls within the core area of the Singhbhum Elephant Reserve. The Kuru Kunderpaila Elephant corridor touches the Southern boundary of the study area / buffer zone of the mine. Three reserve forests namely the Ullibaru RF(1.5km), the Asuna RF(2.3km) the Kuru RF(8.7km) and nine protected forests are reported to be located in the buffer zone of the mine.

4. The mine working will be opencast by mechanical method with Shovel Dumper combination and involving drilling and blasting. The proposed production capacity of the mine is 12,500,000TPA(10,000,000TPA (ROM) from mine and 2,500,000TPA of fines from existing fines dump) and the life of mine is 20years. Mineral will be transported through the rail. The capacity of the Beneficiation plant will be 12.5million TPA throughput and the capacity of the Pellet Plant will be 4million TPA. The beneficiation and pellet plant will be outside the mine lease. The beneficiation process will involve crushing, screening, washing, jigging etc. Part of the beneficiated product will be pelletized. The pelletization process involves additive mixing, balling, travelling grate operation, bentonite layer separation etc. There will be three tailing ponds. The topography of the area is hilly and located in the between 21°33'30"N - 22°14'10"N Latitude and 85°21'00"- 85°21'30" E Longitude in Survey of India map sheets No. 73 I/8, at an elevation above mean sea level ranging from 410m-860m AMSL. The ultimate working depth of mine will be 550m AGL/BGL. The groundwater table varies between 194m-400m AMSL. The mine working will not intersect the groundwater table. The peak water requirement of the project is estimated as 11,500m3 per day, which will be obtained from the Kuru River. It has been reported that there is no population in the core zone, therefore, displacement of population and R&R has not been envisaged. A total of 7.71million m3 of OB has already been accumulated and disposed of in the form of four external dumps namely dump D1, D2 and D3(28.32ha) and Dump 4(4.68ha). In the expansion phase, it is estimated that 99.5million m3 of OB will be generated, which will be utilized for back filling. It has been envisaged that an area of 98.6ha will be backfilled and reclaimed by plantation. In addition 28.75 million tonnes of tailings will be generated during the life of the mine. It is proposed that backfilling of old mineral quarried will will be carried out from 2021. Plantation will be raised in an area of 406.83ha at the end of mine life and there will be no water body left during the post mining stage.

5. The public hearing of the project was held on 16.09.2010 for enhancement of production of mine to 10,500,000TPA (ROM), from mine and 2,500,000TPA of fines, over mine lease area of 1447.756ha and establishment of 12.5million TPA beneficiation plant and 4million TPA Pellet plant. The Indian Bureau of Mines had approved the modification proposed in the mining plan of the project on 18.08.2010 for lease area of 1447.756ha. The capital cost of the project is Rs 2,87,000 Lakhs and the capital cost for the environmental protection measures is proposed as Rs.120 Lakhs. The annual recurring cost towards the environmental protection measures is proposed as Rs.250 Lakhs. It has been stated that there is no court case in the project or related activity.

6. The Ministry of Environment and Forests has examined the application in accordance with the EIA Notification, 2006 and Terms of reference granted earlier under the provisions thereof to the above mentioned Integrated Pellet Plant Project of M/s Steel Authority of India Limited (SAIL)

for an annual production capacity of 10million tonne(ROM) of iron ore and 2.5million tonnes of Sinter fines/lumps by the opencast mechanised method involving 274.691 ha of broken up area for which FC has been obtained out of the total mine lease area of 1441.736ha, for setting up of a new beneficiation plant of 12.5 million TPA throughput capacity and installation of a new pellet plant of 4 million TPA capacity, outside the mine lease, subject to implementation of the following conditions and environmental safeguards.

A. Specific Conditions

(i) No mining activities will be allowed in forest area for which the Forest Clearance is not available.

(ii) The project proponent will seek and obtain approval under the FC Act, 1980 for diversion of the entire forest land located within the mining lease within a period of two years from 05.02.2011 i.e. the date of issue of guidelines by FC vide their letter F. No. 11-362/ 2002-FC. Failing which the mining lease area will be reduced to the said forest area plus the forest area for which the project proponent has been able to obtain the FC at the end of this time period. In the case of reduction in mine lease area, the project proponent will need to get a revised mining plan approved from the competent authority for reduced area and enter into a new mining lease as per reduced lease area. The EC will be construed to be available for the mining lease area as per the revised mining lease deed.

(iii) Need to submit a proposal for faster utilization of mine dumps of fines within a period of one year.

B. General conditions

(i) The project proponent shall obtain Consent to Establish and Consent to operate from the Jharkhand State Pollution Control Board and effectively implement all the conditions stipulated therein.

(ii) Environmental clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No. 460 of 2004, as may be applicable to this project.

(iii) Environmental clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the competent authority, as may be applicable to this project.

(iv) Coordinated efforts shall be made along with other operating mines in the area and action plans drawn for control of pollution level in the area. The action plan as proposed shall be effectively implemented. The air and water quality shall be monitored by involving the State Pollution Control Board and results submitted within 6 months.

(v) The Forest Right Act shall be implemented.

(vi) The mining operations shall be restricted to above ground water table and it should not intersect the groundwater table. In case of working below the ground water table, prior approval of the Ministry of Environment and Forests and the Central Ground Water Authority shall be obtained, for which a detailed hydro-geological study shall be carried out.

(vii) The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations. The first order streams and the seasonal nallahs originating from the colony lease area shall be protected.

(viii) The top soil shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation.

(ix) The over burden generated during the mining operations shall be stacked at earmarked dump site(s) only and it should not be kept active for a long period of time and the phase-wise rehabilitation shall be carried out. There shall be four external over burden dumps. Proper stacking of the OB dumps shall be carried out so that the overall slope of the dump shall be maintained at 28°. The over burden dump shall be scientifically vegetated with suitable native species to prevent erosion and surface run off. In addition, toe of the dumps shall be undertaken for stabilization of the dump. Monitoring and management of rehabilitation areas shall continue until the vegetation becomes self-sustaining.

(x) Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.

(xi) Catch drains and siltation ponds of adequate size shall be constructed during the mine working, around mid over burden dumps to prevent run off of water and flow of sediments directly into the Kano River, the Kolna River, the Sanka River and other water bodies. The water so collected should be utilized for sprinkling the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after the monsoons and maintained properly. Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed around the mine pit, mineral and over burden dumps to prevent run off of water and flow of sediments directly into the Kano River, the Kolna River, the Sanka River and other water bodies and sump capacity should be designed keeping 50% safety margin over and above peak rainfall (based on 50 years data) and maximum discharge in the area including the mine site. Sumps especially should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.

(xii) Diversion of the meandering wall at the toe of the over burden dumps and the OB benches within the mine to check runoff and siltation shall be based on the rain fall data.

(xiii) The water recovery and spill way system shall be so designed that the natural water resources are not affected and that no spill water goes into the nearby Koro River, Koria River, Sarabia River and other water bodies.

(xiv) The project proponent shall carry out conditioning of ore ore with water to mitigate fugitive dust emissions, without affecting flow of ore in the ore processing and handling areas.

(xv) The effluent from the ore beneficiation plant and pelletization plant shall be treated to confirm to the prescribed standards and the tailings slurry shall be transported through a closed pipeline to the tailing dam.

(xvi) The tailing dam shall be lined on all the sides as well as in the bottom with HDPE LINER lining.

(xvii) The project proponent shall take necessary safeguard measures to ensure that there is no leaching from the tailing pond.

(xviii) The decanted water from the tailing pond shall be re-circulated and there should be zero discharge from the tailing pond.

(xix) Appropriate technology shall be used for maximum recovery of ore in order to reduce slurry discharge and to increase the life of the tailing dam.

(xx) The project proponent shall constitute an emergency management team under the control of project in-charge to deal with the emergency situations pertaining to the tailing dam for the timely and effective control of emergency situations. It shall be ensured that training programme & mock drills shall be conducted for the employees.

(xxi) Plantation shall be raised in an area of 190.836ha including a 7.5m wide green belt in the safety zone around the mining area, over burden dumps, topsoil handling plant, mine benches, around tailing ponds, pelletization plant, roads etc. by planting the native species in consultation with the local T&CP/Agriculture Department. The density of the trees should be around 2500 plants per ha.

(xxii) The greenbelt shall be developed all around the mine lease within the initial 3 years from the date of clearance.

(xxiii) Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.

(xxiv) Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintained.

(xxv) The project authority should implement suitable conservation measures to augment ground water resources in consultation with the Regional Director, Central Ground Water Board.

(xxvi) Regular monitoring of ground water level and quality shall be carried out in and around the project area(mine lease, beneficiation plant, pelletisation plant and tailing ponds) by establishing a network of existing wells and installing new piezometers during the operation. The periodic monitoring(at least four times in a year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January), one in each season)) shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office Bhubaneswar, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage it is observed that the groundwater table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.

(xxvii) The groundwater and surface water in and around the mine including tailing ponds shall be regularly monitored at strategic locations for heavy metals. The monitoring stations shall be established in consultation with the Regional Director, Central Ground Water Board and the State Pollution Control Board.

(xxviii) Appropriate mitigative measures shall be taken to prevent pollution of the Kaja River, the Kolab River and the Sileru River in consultation with the State Pollution Control Board.

(xxix) Vehicular emissions shall be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles shall be covered with a tarpaulin and shall not be overloaded.

(xxx) No blasting shall be carried out after the sunset. Blasting operation shall be carried out only during the daytime. Controlled blasting shall be practised. The adequate measures for control of ground vibrations and to avoid fly rocks and boulders should be implemented.

(xxxi) Drills shall either be operated with dust extractors or equipped with water injection system.

(xxxii) Digital processing of the entire lease area using acoustic sensing technique should be done regularly once in three years for monitoring land use pattern and report submitted to the Ministry of Environment and Forests and its Regional Office located at Bhubaneswar.

(xxxiii) Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Crushing and screening units including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.

(xxxiv) Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and the wastewater generated during mining operation.

(xxxv) Pre-placement medical examination and periodical medical examination of the workers employed in the project shall be carried out and records maintained. For the purpose, schedule of medical examination of the workers should be framed and followed accordingly.

(xxxvi) The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna namely Elephant, Sloth Bear, Pale Civet, Panther, Marine deer etc. spotted in the study area. Action plan for conservation of fauna proposed shall be implemented in consultation with the State Forest and Wildlife Department. All the safeguard measures brought out in the Wildlife Conservation Plan prepared specific to this project site shall be effectively implemented. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of action plan shall be submitted to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar.

(xxxvii) The entire mining lease area shall be fenced by erecting solar powered electric fencing all around it. The fencing so erected shall be maintained properly and the cost towards erection and maintenance of the solar powered electric fencing shall be borne by the project proponent and of the project cost.

(xxxviii) No road transportation of ore outside the mine lease area shall be carried out after the sunset.

(xxxix) Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking; mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

(xl) The critical parameters such as RSPM (Particulate matter with size less than 10 microns i.e., PM10) and NOx in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored (COD, BOD, pH and Total Suspended Solids (TSS)). The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The Circular No. J-11013/12/2010-IA.II(M) dated 27.05.2010 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.

(xli) A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.

(xiii) Steps to control flow of fines from the river course shall be taken.

(xiii) A time bound action plan for consumption of accumulated fines as per approved Mine Plan/EIA/EMP report shall be executed in the beneficiation and Pelletization Plant.

(xiv) In order to strengthen the management system adequate trenches shall be provided in all the earthen dams to accommodate maximum silt flow to relieve any pressure on the dam structures.

(xv) The silt entrapped along drainage should be removed completely before the onset of next monsoon and should be a regular practice of the mine.

(xvi) The slopes of the Garbage Dump should be provided with vegetative cover suitably with native species, thorny bushes and willow grasses as a part of biological measures of dump management.

(xvii) Monitoring of all water quality parameters as per the discharge standards shall be ensured by the project management.

(xviii) No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.

(xix) No further expansion or modifications in the beneficiation and pelletization plants shall be carried out without prior approval of the Ministry of Environment and Forests.

(l) No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.

(b) Four ambient air quality monitoring stations should be established in the core zone as well as in the buffer zone for RSPM (particulate matter with size less than 10μm i.e. PM_{10}) and NO$_x$ monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.

(iii) Data on ambient air quality [RSPM (Particulate matter with size less than 10μm i.e., PM_{10}) & NOx should be regularly submitted to the Ministry of Environment and Forests including its Regional Office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.

(iiii) Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.

(iv) Measures should be taken for control of noise levels below 85 dB(A) in the work environment. Workers engaged in operations of HEMM etc. should be provided with ear plugs/ muffs.

(iv) Industrial waste water (washing and waste water from the mine) should be properly collected, treated so as to confirm to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 93 or as amended from time to time. Oil and grease trap should be installed before discharge of washing effluents.

(v) Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contradictions due to exposure to dust and take corrective measures if needed.

(vi) A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.

(vii) The funds essential for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry of Environment and Forests and its Regional Office located at Bhubaneswar.

(viii) The project authorities should inform to the Regional Office located at Bhubaneswar regarding date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.

(ix) The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data/ information / monitoring reports.

(x) The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by email) to the Ministry of Environment and Forests, the Regional Office Bhubaneswar, the respective Zonal Office of Central Pollution Control Board the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board.

(xi) A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.

(xiii) The State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and the Collector's Office/ Tehsildar's Office for 30 days.

(xiv) The environmental statement for each financial year ending 31st March in Form-V is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e-mail.

(xv) The project authorities should advertise at least in two local newspapers of the District or State in which the project is located and widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at http://envfor.nic.in and a copy of the same should be forwarded to the Regional Office concerned/Monitoring located at Bhubaneswar.

7. The Ministry or any other competent authority may stipulate any additional conditions or modify the above conditions or stipulate any further conditions in the interest of environment protection.

8. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.

9. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/High Court of Jharkhand and any other Court of Law relating to the subject matter.

(Dr. Sunil Saxena)
Director

Copy to:

(i) The Secretary, Ministry of Mines, Government of India Hirakut Bhawan, New Delhi.
(ii) The Secretary, Department of Environment, Government of Jharkhand, Secretariat, Ranchi.
(iii) The Secretary, Department of Mines, Government of Jharkhand, Secretariat, Ranchi.
(iv) The Secretary, Department of Forests, Government of Jharkhand, Secretariat, Ranchi.
(v) The Principal Chief Conservator of Forests, Biodiversity Conservation cum Chief Wildlife Warden, Government of Jharkhand, Secretariat, Ranchi.
(vi) The Chief Conservator of Forests, Ministry of Environment & Forests, Regional Office (ER), A/3, Chandra Shekhar, Bhubaneshwar-751 023.
(vii) The Chairman, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, New Delhi-110 032.

(viii) The Chairman, Jharkhand State Pollution Control Board, T.A. Division Building, (Animal Farm), HEC Campus, P.O. Dhurwa, Ranchi-834004, Jharkhand.
(ix) The Member Secretary, Central Ground Water Authority, A2, W3 Curzon Road Barracks, K.G. Marg, New Delhi-110001.
(x) The Controller General, Indian Bureau of Mines, Indore Bhawan, Civil Lines, Nagpur-440001.
(xi) The District Collector, West Singhbhum District, Jharkhand.
(xii) IA Division, Ministry of Environment & Forests, IA Division, New Delhi.
(xiii) Monitoring File.
(xiv) Guard File.
(xv) Record File.

(Mr. Sarogi)
Scientist 'D'

Annexure-7 of
Annexure-7A

JHARKHAND STATE POLLUTION CONTROL BOARD

TOWNSHIP ADMINISTRATION BUILDING, HEC COMPLEX, DEURWA, RANCHI 834004
Telephone: 0651-2400820 (Fax): 2400183/2400852/2401847/2400795/2400119

Ref No. JSPCB/HO/ENV/CTO-1088446/2021/152 Dated : 2021-12-10

Consent to operate (CTO) under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981

1. Application(s) dated 2021-08-27 of(DUARGIBURU) IRON ORE MINING LEASE, M/S. SAIL, Occupier Name (BIPLAV KUMAR GIRI for consent u/s Section 25 (1)(b)/26 (1) (c)/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21(1) of the Air (Prevention & Control of Pollution) Act,1981 ,,

2. Documents Relied Upon:

1. The content of Environmental Clearance (EC) Ref.No. J-11015/453/2008-IA.II(M), Dated 25.01.2013 issued by MoEF, Govt. of India, Environmental Clearance vide Ref No. J-11015/453/2008-IA.II(M). Dated 02.02.2015 (Amendment of previous Environmental Clearance) and Environment Clearance vide Ref No. J-11015/453/2008-IA.II(M), Dated 06.11.2020 (Amendment of previous Environment Clearance);

2. The content of Consent-to-Establish (CTE) granted vide Ref. No. 01-1299 dated 06.06.2012 for Ore (ROM)-3.0 Million TPA, Iron Ore Fines-2.5 Million TPA (Concentrating fine dumps), Iron Ore Beneficiation Plant-12.5 million TPA Throughput capacity(Outside lease area), Pellet Plant-4 million TPA (Outside lease area);

3. The content of Consent-to-Operate (CTO), Ref No. JSPCB/HO/ENV/CTO-97858/2020/2015 Dated 2020-12-01 for Mining of Iron Ore (ROM)-10 MTPA, Disposal of Iron Ore Fines from Fines dump-2.5 MTPA valid till 31.12.2021

4. The content of Proposal for non forestry use of 361.798 ha of unbroken forest land, in addition to 274.691 ha of broken up forest area already granted Stage-II on 23.08.2014 in favour of M/s Steel Authority of India Limited (SAIL) for mining of iron ore in Dungariyam Iron Ore mine in Sarandia Forest Division in West Singhbhum district of Jharkhand regarding vide File No.8-251/1986FC dated 03.12.2020;

5. The content of Hazardous Waste Authorization granted Vide ref no. JSPCB/HO/ENV/HW-638/2017/2020/5 2850/2021 for 05 years;

6. The content of Extension of lease deed by Government of Jharkhand by letter NO. Kha.Ni.(Chaukasi)-1-42/2005-1035/M, Ranchi dated 25.06.2019 for the period of 20 years w.e.f. 22.02.2009 to 21.02.2029,

7. The content of Registered lease deed NO. 5215/2020/2019 dated 30.09.2019 for the period of 20 years w.e.f. 22.02.2009 to 21.02.2029,

7. The content of Inspection report, dated 05.11.2021 of Regional Office -cum-Laboratory, Jamshedpur;

3. The consent is granted under section 25 / 26 of the Water(Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981 to operate the project in Kiriburu-Kiru Forest Range , P.S. Goa , District -WEST SINGHBHUM , as follows:

Project	Site Area		Investment (Rs)	Product & Capacity	Period of CTO
	Plot Nos.	Area			Date of expn To
Before Expansion	Gaikhuri Reserve Forest, Tahsil Giri, Dist. West Singhbhum	274.69 Hect	2952 Crores	Mining of Iron Ore (ROM)- 10 MTPA, Disposal of Iron Ore Fines from fines dump - 2.5 MTPA	31/12/2036

(A) Specific Conditions:

1. That, the transportation shall be done through covered vehicle to avoid fugitive dust emission.

2. That, the occupier shall maintain garland drain, settling tanks and check dams to prevent run off water and flow of sediments into river.

3. Catch drains and siltation pond of appropriate size shall be constructed around the mine working, mineral and OB dump to prevent runoff of water and flow of sediments directly into the river and other water bodies

4. That, the over burden dump shall be made in accordance with conditions imposed in Environmental Clearance.

5. That, the occupier shall reclaim the mine out area regularly and tree plantation shall be made over it

6. That, the occupier shall take appropriate mitigative measures to prevent pollution of the Karo river, the Koen river and the Baraka river.

7. The mining operations shall be restricted to above ground water table and it should not intercept with ground water table.

8. That, the occupier shall operate the mines within the broken up lease area of 274.691 ha for which Forest Clearance has been issued by the MOEF, Govt. of India vide letter No. F.No. 8-25/1998/FC (Pt) dated 27.08.2014.

9. That, the occupier shall install STP for the colony and shall provide ETP for the workshop and waste water generated during the mining operations.

10. Plantation on the OB dump slopes has to be increased and managed properly. Housekeeping should be maintained in the specified area.

11. The top soil, if any shall temporarily be stored at earmarked site only and it should not be kept unutilized for long. The top soil shall be used for land reclamation and plantation. The overburden generated during the mining operation shall be stacked at earmarked dump site only and it should not be kept active for a long period of time. The overall slope of the dump shall be maintained at 28 degrees.

12. That, the occupier shall do sprinkling of water time to time on haul roads and dusty areas.

13. That, the occupier shall submit Ambient Noise level Monitoring report to the Board and it should conform to the prescribed standard

14. That, the occupier shall submit a copy of six monthly report regarding compliance of conditions imposed in Environmental Clearance which is presently being submitted to Regional Office, MOEF, Govt. of India, Bhubaneswar,

15. That, the occupier shall not exceed the annual production as granted by MOEF in the environmental Clearance and shall submit six monthly production figure duly certified by the Dist. Mining Officer, Chaibasa, West Singhbhum under intimation to Regional Officer,

16. That, the occupier shall maintain and operate sprayed water jets with mist water spray at dump

17. That, the occupier shall cover all dusty points such as screen, crusher and conveyor belt and free fall of iron ore within the closest period.

18. That, the occupier shall obtain prior permission in case of shifting of the screen & crushers from the present location to another place.

19. That, the occupier shall ensure the cleaning and wetting of the ground regularly to improve house keeping.

20. That, the unit shall maintain the fugitive emission up to 1200 µg/Nm³ in the predominant downwind direction at a distance of 75 ± 2 metres from the source of fugitive emission.

21. That, the occupier shall develop plantation in 496.838 ha including a 7.5 m wide green belt in the safety zone, around the mining lease, over burden dumps, mine benches, roads etc.

22. That, the unit shall make stock of minimum of 15 mts in height attached with de-dusting arrangement along with ladder, platforms and basic arrangement for emission testing

23. That, the occupier shall submit the compliance of conditions every year.

24. That, the occupier shall comply all the conditions imposed in Environmental Clearance issued vide Ref No. J-11015/158/2008-IA.II(M), Dated 25.09.2012, Amendment dated 02.02.2015 and amendment Dated 06.11.2020 by MOEF, Govt. of India within the stipulated period.

25. That, the occupier shall submit applications for renewal of consent under section 25(2) of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981 again 120 days prior to the date of expiry of this consent i.e. 31.12.2026 with requisite fee and documents showing compliance of all of the above conditions.

26. That, the occupier shall keep the Unit area fines old dump intact and shall use for captive use only.

(B) General Conditions :

(I) That, the occupier shall maintain the National Ambient Air Quality Standard given below:

S.N	Pollutant	Time Weighted Average	Concentration in Ambient Air	
			Industrial, Residential, Rural and Other Area	Ecologically Sensitive Area (notified by Central Govt.)
(1)	(2)	(3)	(4)	(5)
1.	Sulphur Dioxide (SO2), µg/m3	Annual 24 hours	50 80	20 80
2.	Nitrogen Dioxide (NO2), µg/m3	Annual 24 hours	40 80	30 80
3.	Particulate Matter (size less than 10 µm) or PM10, µg/m3	Annual 24 hours	60 100	60 100
4.	Particulate Matter (size less than 2.5 µm) or PM2.5, µg/m3	Annual 24 hours	40 60	40 60
5.	Ozone(O3), µg/m3	8 hours 1 hour	100 180	100 180
6.	Lead (Pb) µg/m3	Annual 24 hours	0.50 1.0	0.50 1.0
7.	Carbon Monoxide (CO) mg/m3	8 hours 1 hour	02 04	02 04
8.	Ammonia (NH3) µg/m3	Annual 24 hours	100 400	100 400
9.	Benzene (C6H6) µg/m3	Annual	05	05
10.	Benzo(a) Pyrene(BaP) Particulate Phase only ng/m3	Annual	01	01
11.	Arsenic (As) ng/m3	Annual	06	06
12.	Nickel (Ni) ng/m3	Annual	20	20

Note : Serial no. 1 to 4—Mandatory
Serial no. 5 to 12 As applicable for specific type of Industry.

(2) That, the occupier shall maintain the emission quality within the standard and the quantity, as follows:

S N	Parameter	Standard
1	Particulate Matter	1200 µg/ m3

(3) That, the occupier shall keep process effluent in close-circuit and the quality of effluent from other sources in conformity with the standard (s) and the discharge quantity as below;

S N	Parameter	Standard
1	Total Suspended Solids	100 mg/L
2	BOD	30 mg/L
3	COD	250 mg/L
4	Oil & Grease	10 mg/L

(4) That, the occupier shall dispose of solid wastes as follows:

S N	Waste Type	Mode of Disposal
1	Hazardous Carbonaceous Wastes	In co-processing in high temperature furnaces or kilns
2	Hazardous Non-Carbonaceous Wastes	In TSDF
3	Non-Carbonaceous Non-Hazardous solid wastes/ Mine Over Burden	As a substitute of Soil or Mineral

(5) That, the occupier shall keep (1 Set(s)) within acoustic enclosure and shall keep the height(s) of exhaust pipe(s) as per Central Pollution Control Board norm.

(6) That, the occupier shall install and maintain Central Ground Water Board/ State Ground Water Directorate approved system of rain water harvesting (rain-summit water recharge and rehabilitation of the structures within a month).

(7) That, the occupier shall grow and maintain greenery in the project in the periphery and other available spaces and shall continue enhancing its plant density and biodiversity.

(8) That, the occupier shall submit environmental statement with supporting stoichiometric calculations every year regularly, every year latest by 30th September of the next financial year.

(9) That, the occupier shall submit report(s) duly monitored and issued by an NABL accredited/ ISO 9001:2008 and OHSAS 18001:2007 certified laboratory in compliance sub-para (2), (3), (4) and (5) of paragraph 3 of this CTO yearly or required periodicity.

(10) That, this CTO is valid subjected to the validity of mining Lease/Quarry Plan/Cluster/EC/Environmental Clearance, if applicable. In case of non-renewal of Mining Lease/Mining Plan, this consent shall be treated to revoked automatically.

(11) That, this CTO is issued from the environmental angle only and does not dissolve the occupier from other statutory obligations prescribed under any other Law or any other instrument in force. The sole and complete responsibility to comply with these conditions laid down in all other laws for the time being in force, rests with the industry/unit/occupier.

(12) That, this CTO shall not in any way, adversely affect or jeopardize the legal proceedings, if any, instituted in the past or that could be instituted against you by the State Board for violation of the provisions of the Act or the Rules made there under.

(13) That, the occupier shall comply with all applicable provisions of the Water (Prevention & Control of Pollution) Act, 1974; the Water (Prevention & Control of Pollution) Cess Act, 1977; the Air (Prevention & Control of Pollution) Act, 1981; and the Environment (Protection) Act, 1986 and Rules made there under.

4. That, this CTO shall not absolve the occupier from making compliance of other statutory prescribed under any law or direction of court or any other instrument for the time being in force.

5. That, this CTO is being issued on the basis of information/documents/certificate submitted by the unit. This CTO will be cancelled if any of the information/documents/certificates/undertaking given by the occupier is found false/untrue/misleading at any time.

6. The Order shall be valid subject to compliance of all other legal requirements applicable to the unit.

7. The State Board reserves the right to revoke, withdraw or make any reasonable variation / change/ alteration in conditions of this consent.

This is issued with the approval of the Competent authority

Yatindra Kumar Das
Digitally signed by Yatindra Kumar Das
Date: 2021.12.17 16:43:20 +05'30'

(Y. K. Das)
Member Secretary

Memo No.: JSR/CON/ENRN/CTO-1888/1165/2021/1532

Dated: 2021-12-17

Copy to: M/s Dragonion Iron Ore Mining, Beneficiation & Pelletisation Plant of M/s. SAIL, Gua Ore Mines, at Kiriburu Reserve Forest, Tehsil, Gua, Dist. West Singhbhum/ D.F.O., Saranda Forest Division, Chaibasa West Singhbhum/ Deputy Commissioner, Chaibasa, West Singhbhum/ Dist. Mining Officer, Chaibasa, West Singhbhum/ Regional Officer, Regional Office Gua-Laboratory, Jamshedpur for information & necessary action. He is directed to submit the status of compliance every year.

Yatindra Kumar Das
Digitally signed by Yatindra Kumar Das
Date: 2021.12.17 16:43:37 +05'30'

(Y. K. Das)
Member Secretary

Annexure-3 of
Annexure-7A

RAIN WATER HARVESTING MEASURES ADOPTED AT GUA ORE MINES, BOKARO STEEL PLANT (BSL), SAIL

Post:Gua, Block: Noamundi District: West Singbhum Jharkhand

सेल SAIL

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल०, गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

RAIN WATER HARVESTING MEASURES

AT GUA ORE MINES,

BOKARO STEEL PLANT (BSL), SAIL

WEST SINGBHUM DISTRICT, JHARKHAND

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०पी०, गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

General Information:-

Steel Authority of India Limited (SAIL), a Maharatna public sector undertaking under Ministry of Steel, Government of India, is one of the leading steel makers in the country and is having Integrated Steel Plants at Bokaro, Durgapur, Rourkela, Bhillai & Burnpur. SAIL sources its entire requirement of iron ore and part of its requirement of limestone, dolomite and coking coal from its captive mines located in Jharkhand, Odisha, Chhattisgarh and Madhya Pradesh.

One of SAIL's captive iron ore mining leases is Duarguiburu Iron Ore Mining Lease over 1443.756 ha which is located in Village Gua and Ghatkuri Reserve Forest (R.F.) in West Singhbhum District of Jharkhand. The entire ML area is within Ghatkuri R.F. of Saranda Forest Division.The mine is part of Gua Ore Mines (which comprises of totalfour mining leases – Duarguiburu, Jhillingburu-I, Jhillingburu-II, and Topailore) and is presently under the control of Bokaro Steel Plant of SAIL. The Survey of India toposheet No. 73F/8 (RF 1:50000) covers Gua Ore Mines, which is located between latitude 22.238200° N to 22.186359° N and longitude: 85.332622° E to 85.390746° E.

Brief Description of the Project:

SAIL has applied for the diversion of a total of 635.986 hectares out of the 1443.756 hectares of forest land for the Duarguiburu mining lease. The company has obtained Stage-II of forest clearance vide letter No. F. No.- 8-251/1986FC (Pt) dated 22nd August 2014 by MoEF&CC, New Delhi.

SAIL has again applied for the diversion of 361.295 hectares of forest land for the Duarguiburu mining lease. The company has obtained Stage-I and Stage-II forest clearance as per letter No. F. No.- 8-251/1986-FC dated 04th March 2014 and F. No.- 8-251/1986FC dated 07th December 2020 respectively.

Table: Summary of Duarguiburu Iron Ore Mining Lease

Project Name	Duarguiburu Iron Ore Mining Lease
Area	1443.756 ha
Forest land	1443.756 ha
Capacity	12.5 MTPA
Method of mining	Open cast

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बीएसएल, गुआ आयरन खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Environment clearance	Granted by MoEF&CC, New Delhi, vide Letter No.- J-11015/453/2008-IA.II(M) dated 25th March, 2013
Forest Clearance (Stage-I)	Granted by MoEF&CC, New Delhi, vide F. No.- 8-251/1986-FC, dated-14th August 2012 (Stage-I) for diversion of 274.691 ha forest land Granted by MoEF&CC, New Delhi, vide F. No.- 8-251/1986-FC, dated-04th March 2014 (Stage-I) for diversion of 361.295 ha forest land
Forest clearance (Stage-II)	Granted by MoEF&CC, New Delhi, vide F. No.- 8-251/1986FC (Pt) dated- 22nd August, 2014 (Stage-II) for diversion of 274.691 ha forest land Granted by MoEF&CC, New Delhi, vide F. No.- 8-251/1986FC dated-07th December, 2020 (Stage-II) for diversion of 361.295 ha forest land
Operation Status	Operational

Mining:

At present, Mechanised opencast mining with shovel-dumper combination is being practised for exploitation of the iron ore. The lease area is divided into four exploration blocks namely D, A, B & C extending from South-West to North-East. Presently three blocks namely, 'A', 'B' & C are being worked. The 'A' block consists of a part of Bai Hill &Ranichua, 'B' block consists of a part of H D Buru & part of IInd level, where as block 'C' consists of a part of IInd level & OT Hill. 'D' block consists of part of Bai hill & Darbarburu and Gojapahar area are virgin.

Mechanized opencast mining with deep hole drilling and blasting along with deployment of shovel - dumper combination is practiced at Duarguiburu lease of Gua ore mine. The height of the benches are 10 m in overburden and/ or ore. The width of the benches will vary at places but are not less than the height of the bench in any case. Drilling will be done with 150mm dia. drills and loading carried out with diesel operated shovels / hydraulic excavators/ front end loaders of 9.5 m^3 bucket capacity. Hauling of ore/ waste is done with 100 tonne rear discharge dumpers. Blasting is done with slurry explosives and Nonel detonators. Spacing and burden in OB/ Ore will be 5m and 4.5m. The mine is worked by top slicing method.

Local Geology:

Iron ore occurring in the Gua deposit belongs to the Precambrian metasedimentary rocks. The strike of the main iron ore body in the Gua ridge is NNE – SSW and the dip of the beds is 25°

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बोकारो इस्पात संयंत्र, गुवा अयस्क खा
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA IRE MINES

- 88° towards west and north-west. However, dips due East and North East have been recorded at few places as a result of folding. The iron ore in the main ridge is exposed on the flanks while several outlying ore bodies also occur as capping of the hills. The ore body has few major and minor faults in the leasehold and invariably dips on either side indicating isoclinal folding. BHQ rocks overlying or underlying the iron ore body are exposed continuously all along the eastern flanks. The ore types vary considerably both in lateral as well as in vertical directions.

The study of geological and structural controls and its influence on the occurrence, distribution, movement and quality of ground water is invariably essential to evaluate ground water resources and to obtain data necessary for designing the site-specific Rainwater Harvesting structures.

The district of West Singhbhum is one of the main mineralized district of Jharkhand. The stratigraphic sequence of Singhbhum (Source: CGWB Brochure) is as follows-

Kolhan series

Unconformity

Newer Dolerite

Signbhum Granite

Arkansan Granophyres

Chota Nagpur gneiss

Dalma-Dhanjori Lava

Unconformity

Iron ore series

The general succession of the strata at lease area is as follows:-

Laterite, Lateritic Ore

Iron Ore (Massive, Laminated, Porous and Powdery Ores)

Banded iron formation (Shale/BHQ)

Sandstone, quartzite

Ferruginous shale

Conglomerate

Duarguiburu lease are as has an elevation range of 410 to 880 meters above mean sea level (MSL). Sources of water in the study area are surface water in streams and river and ground water. The study area has a distinct dendritic drainage pattern due to hilly terrain. The sub

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-दीआरएसपी, पूर्वा अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-DSP, PURVA ORE MINES

water shed where the project falls is drained mainly by Karo and Koina river. Karo river flows in the eastern side of the lease area travels about 0.5 km towards north side in the buffer zone and joins river South Koel beyond the study area. Koina river flows in the western side of the lease area travels about 3-4 km towards north side in the buffer zone and joins river South Koel beyond the study area.

The sustainability of the water extraction structures are controlled by their location and recharge conditions as well as the inference of pumping of borewells due to cone of influence. The top soil condition such as laterite capping and clay cover may not allow natural percolation of rainwater into the subsurface stratum. Connectivity between the surface water retention structures like ponds, rainwater harvesting structures should have connectivity to the ground water system which may gradually improve the quantity and quality ofground water. The study of fracture pattern, ground water flow lines, rechargezones, discharge zones, etc. are also essential not only to accelerate recharge activities but also to identify favorable locations to extract water from potentialaquifers.

Ultimate working depth at Durgaiburu mine lease of Gua will be at 550 m AMSL whereas ground water table in the vicinity occurs at 400m AMSL. Hence, mining excavations will not intersect ground water.

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल० गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Water demand and requirement for Duarguiburu Mining Lease:-

Water requirement for the project is shown in the table below:

Water Demand as per EIA report of Jun 2010

Purpose	Demand (m^3/day)	
	Existing	Proposed
1.Ore Processing		
a. Crushing Plant	200	400
b. Wet Beneficiation	0	6100
c. Pelletisation	0	3100
2.Dust Suppression at Mines	100	150
3. Equipment/ Vehicle Washing	100	200
4. Drinking at Work Site	40	50
5. Township	750	1000
6. Plantation	110	400
Total	1300	11400

However, at present, the ore processing at Gua Ore Mines is by dry process. There is no beneficiation plant at Gua Ore Mines. Therefore, there is no scope of generation & discharge of ore washing effluent.

Presently, the average daily domestic demand of water at Gua Township is 5532 m^3 and average daily industrial demand of water 884 m^3.

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल०, गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Statutory Clearances of Duarguiburu Mining Lease:-

Govt. of Jharkhand vide letter dated 25.06.2019, renewed the Duarguiburu lease from 22.02.2009 to 21.02.2029 (20years) as per the then MMGC Rules, 2015. Subsequently, lease deeds were executed on 24.09.2019.At present Duarguiburu Mine is in operation with capacity of 4.1 million tonnes per year (MTPA). Iron Ore from Duarguiburu mines is transported by private railway siding situated at Gua Ore Mines to integrated steel plants of SAIL.

Environmental Clearance (EC) for Duarguiburu Iron Ore Mining project was granted by MoEFCC vide letter no J-11015/453/2008-IA.II (M) dated 25th March, 2013&EC modification dated 06.11.2020 for excavation of iron ore fines from the fines dump dated at the rate of 3.1 MTPA for selling in open market keeping the total production within the approved EC limit of 12.5 MTPA.

Permission obtained from Water Resource Department, Govt. of Jharkhand and agreement has been made with Water Ways Division, Chaibasa on 28.02.2019, for drawl of water from Karo river to the tune of 4.16 MCM per annum for Gua Ore Mines, Gua (Gua Township & mining leases of Gua Ore Mines).

Out of total 1443.756 ha area, Forest Clearance was granted by MoEFCC, New Delhi, for an area of 274.691 ha of broken areavideNo. 8-251/1986FC (Pt) dated-22nd August, 2014. Further, FC has been granted by MoEF&CC, New Delhi, vide F. No.- 8-251/1986FC dated-07th December, 2020 (Stage-II) for diversion of additional 361.295 ha forest land.

IBM, Ranchi videletter ref. no. RAN/LOH/BXT/ROMP-4/2023-24 dated 11.08.2023 approved the Review of Mining Plan of Duarguiburu Lease for the period 2023-24.

Consent to Establish (NOC) was obtained from Jharkhand State Pollution Control Board (JSPCB), Ranchi vide letter No. G- 1299, dated 06.04.2013. The CTO has been renewed by JSPCB for the periods from 17.12.2021 to 31.12.2026 vide Ref. No. JSPCB/HO/RNC/CTO-10884468/2021/1533, dated 17.12.2021.While granting CTO by JSPCB and EC by MoEFCC, stipulated conditions for implementation and monitoring of Rainwater Harvesting and Conservation measures to augment ground water resources in the area which are as stated below,

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी.एस.एल, गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

CTO General Condition no: 6 states that *"The occupier shall install and maintain Central Ground Water Board/ State Ground Water Directorate approved system of rain water harvesting-cum-ground water rechargeandsubmit thephotographicviewofthestructureswithin amonth"*.

EC Specific Condition no: xv states that *"The project should implement suitable conservation measures should be implemented to augment ground water resources in the area in consultation with Regional Director, Central Ground Water Board"*.

As per the recommendation given in the study report conducted by IIT Kharagpur for Gua Ore Mines and as per the direction of Statutory bodies, various rain water harvesting measures are implemented at Duarguiburu Mines and Gua Township are as summarized as given below.

1. Series of 05 no. of earthen dams at the foothill of the Fines Heap followed by series of 04 no. Trap Pits (Siltation Ponds) have been provided for arresting eroded soil by providing enough retention time for the soil to settle down during monsoons. This also helps in the percolation of water thus augmenting groundwater level.
2. Further, the slopes of dams and trap pits are stabilized through plantation with species like Vetiver and hedges. As instructed during the visit of Forest officials, plantation of local grasses and hedges has been carried out on the slopes of waste dump in consultation with local Forest Department.
3. Four nos. of concrete check dams at strategic locations were constructed and maintained. Further, construction of additional concrete check dam across DB nallah has been completed recently.
4. Boulder retention wall has been constructed at the foot of both active waste dumps i.e. OT Hill and Ranichua waste dumps. Construction of additional gabion boulder wall at the foot of Ranichua Waste Dump is completed. Further, 02 (Two) nos. of sedimentation pond has been constructed at downstream side of already constructed gabion boulder wall at the foot of Ranichua waste dump area.
5. Proper benching of the waste dumps with plantation of native saplings, local grasses and vetiver at slopes for stabilization of the same is being carried out at regular intervals.
6. Bunds along the haul roads and outer periphery of the pits is being maintained to ensure that no sediment laden storm water get discharged from the mined out area.
7. Garland drains have been provided around the mine pits, haul roads to divert surface runoff from the mining and other areas to sedimentation cum rainwater harvesting pits, where it is allowed to settle and percolate into the ground water.

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बीएसएल गुआ अयस्क खान
Kamal Bhaskar
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

8. Catch drains with sedimentation pit has been constructed and maintained around waste dump areas to arrest the flow of fines during monsoon.

9. As per drainage pattern of the mining lease area and watershed, the rain water from the mining lease drains towards western side into catchment of Koina River and accordingly to arrest flow of sediments during rainy season and to maintain zero discharge from working mines, settling pits have been developed at OT Hill Area, IInd Level Area, Bai Hill and HD Buru Area of mines. Storm Water is directed towards these pits by developing bunds and garland drains. The retention capacity of the pits and the nature of soil allow the water to percolate and thus help in augmenting the ground water resource.

10. Regular plantation and maintenance of sapling, local grass, and hedges is carried out at waste dump areas and barren slopes of Mines to bind soil and prevents soil erosion.

11. Desiltation of sedimentation pits, catch drains, garland drains, upstream & downstream side of check dams and boulder walls is a regular activity and the same has been carried out also in the year 2023 prior to the onset of the monsoon.

12. The construction of 03 nos. for rooftop rain water harvesting system for ground water recharge through recharge pit cum shaft for two main buildings i.e. Director Bungalow & DB Annexe cum Guest House with total annual rainwater harvesting potential of 1700KL has been completed. The design calculations and structural drawing of the rooftop rainwater harvesting system for DB and DB annexe building has been done in accordance with CGWB manual on Artificial Recharge of Groundwater, CPWD Manual on Rainwater Harvesting, and CGWB Rainwater Harvesting Guide.

The photos of the of the water conservation measures implemented in Gua Ore Mines is enclosed as **Annexure-A**

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल, गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Photo: Earthen Dams and Sedimentation Traps at the slope of Fines Heap

Photo: Series of 5 nos. of earthen dams followed by 4 nos. of settling ponds at the foot of Fines Heap

Photo: Concrete Check dam at Dam No.-5 towards zero point nallah

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल०, गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Photo: Construction of additional concrete check dam at Zero point nalla

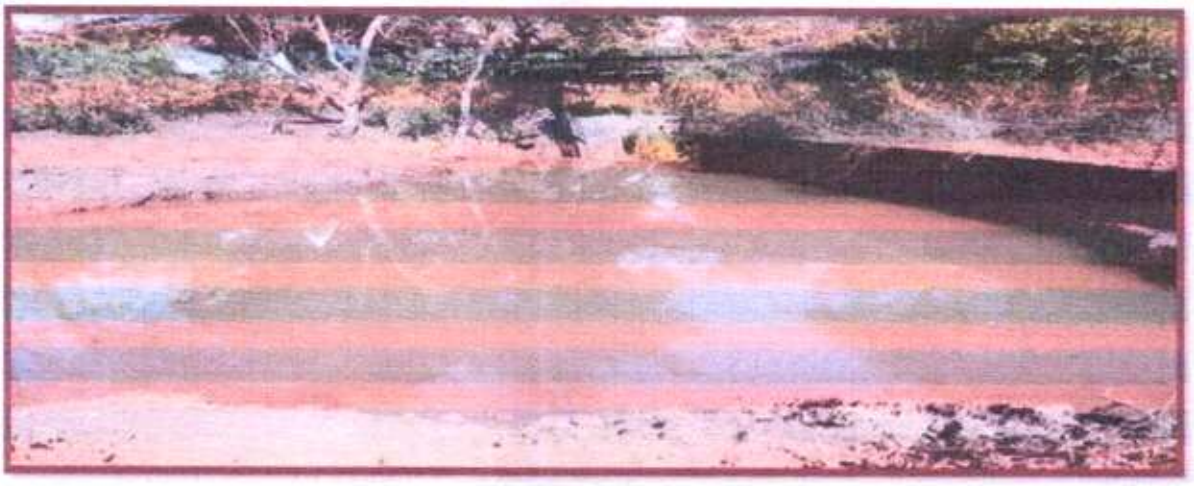


Photo: Concrete dam beside Kali Mandir before joining Karo River

Photo: Concrete Check Dam at Goja Pahar Nalla

Photo: Settling cum Harvesting Pits along-with vetiver plantation near Zero Point Nalla

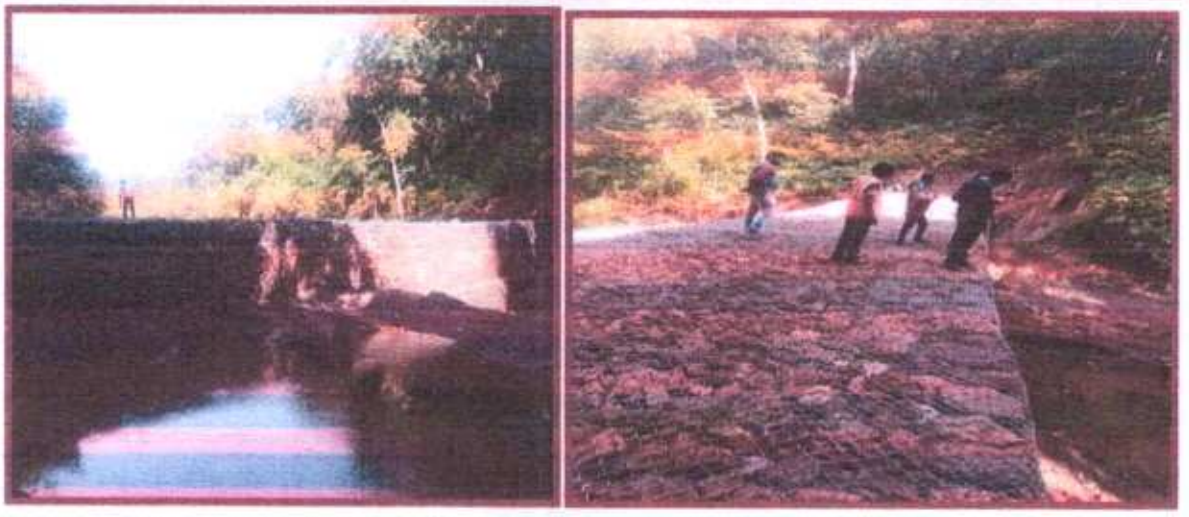


Photo: Construction of additional gabion boulder wall at the foot of Ranichua Waste Dump

केशव भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बीएसएल, मुआ आयस्क खान
K. Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Photo: Boulder wall constructed at the toe of Ranichua waste dump area

Photo: Garland Drain to divert runoff water into the pits

Photo: Catch drains and siltation ponds of the appropriate size has been constructed at Ranichua and OT Hill waste dump

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल०, गुआ अयस्क खान
Kamal Bhaskar
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

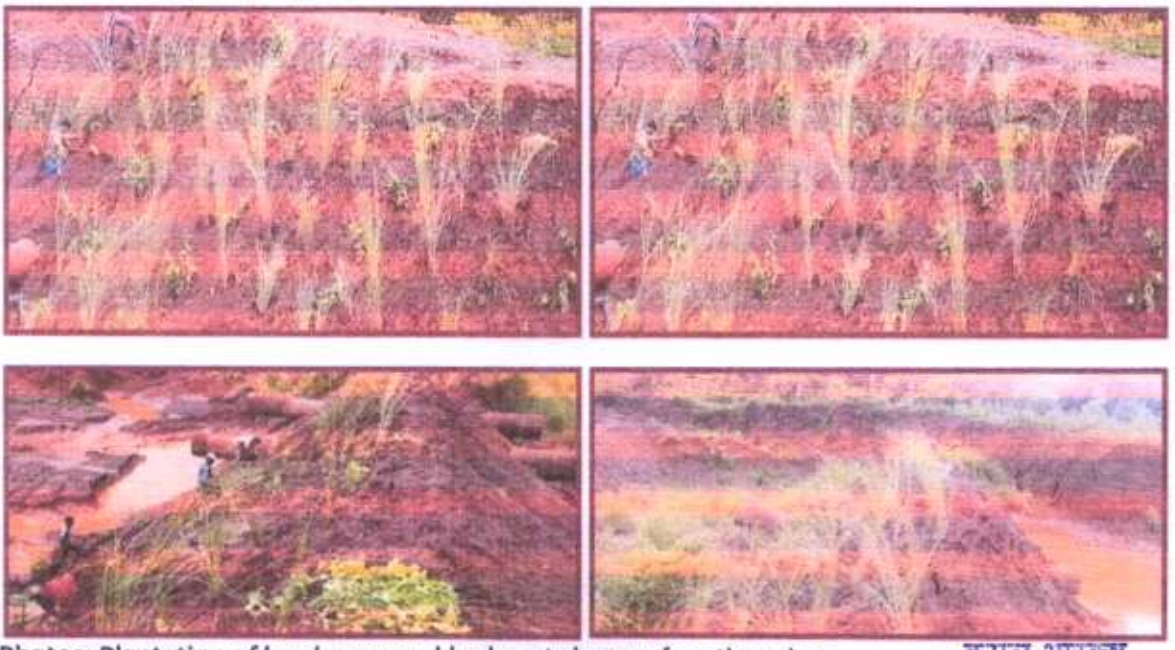
Photos: Desiltation of Bai-Hill sedimentation pit

Photo: Rain Water Harvesting cum Settling Pond at IInd Level and HD buru Area of Mines

Photos: Desiltation of Sedimentation Pond at IInd Level Area of Mines

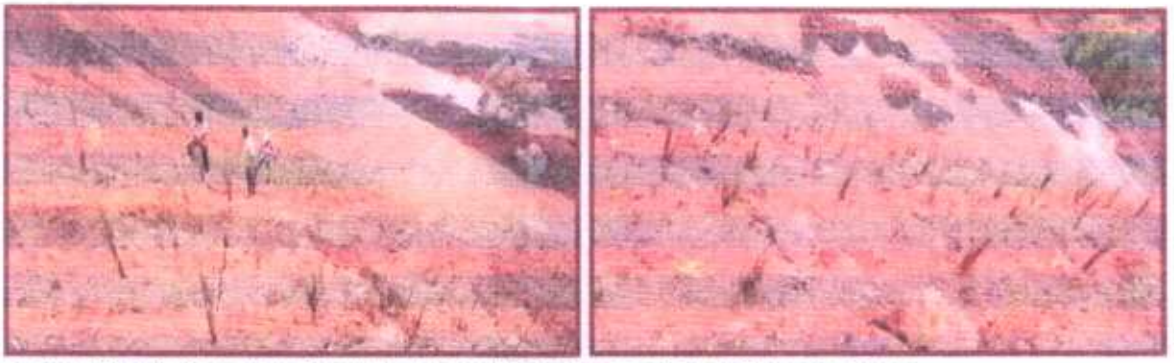
कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०पी०, पुरा अयस्क खान
Kamal Bhaskar
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

Photos: Newly constructed Sedimentation cum rainwater harvesting pond at foot of Ranichua waste dump area.

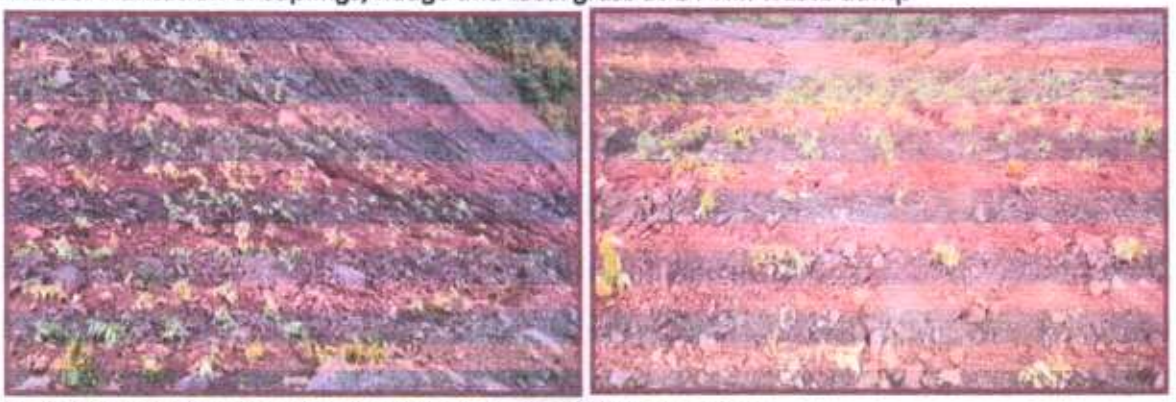


Photos: Plantation of local grass and hedge at slopes of earthen dam

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बीएसएल, गुआ लायस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES



Photos: Plantation of saplings, hedge and local grass at OT Hill waste dump



Photos: Plantation of saplings and hedge at Bai Hill barren slope

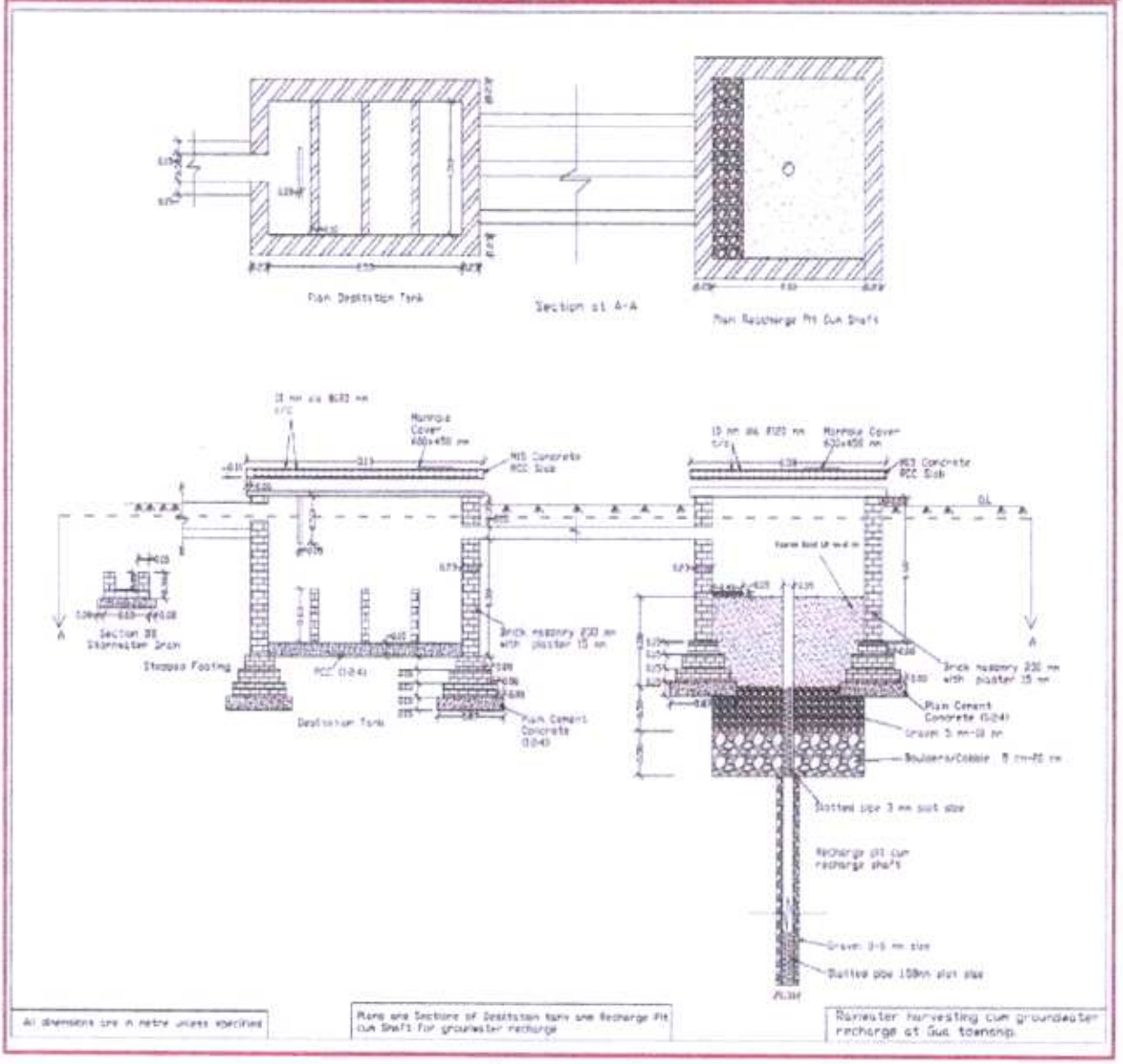
Photos: Hedge and sapling plantation at safety berm along mine haul road towards OT Hill area

Photos: Plantation of saplings, hedge and local grass at Ranichua waste dump

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल० पूना अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, COA ORE MINES

Photographs showing 03 nos. rooftop rainwater harvesting system through recharge pit cum shaft with design drawing istalled with piezometer at Director Bungalow and DB annexe buildings of Gua Ore Mines.

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल० - गुआ आयस्क खान
Kamal Bhaskar
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES



कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल०पी०, गुआ अयस्क खान
Kamal Bhaskar
Chief General Manager (Mines)
SAIL-BSP, GUA ORE MINES

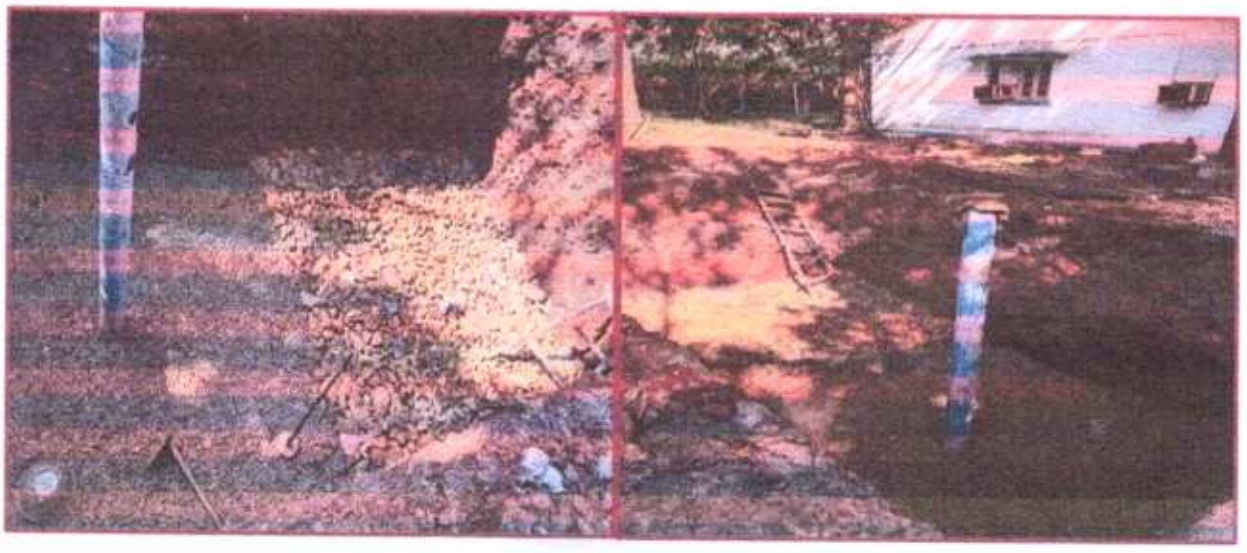


Photo: During construction of recharge pit cum shaft for roof top rainwater harvesting

कमल भास्कर
मुख्य महाप्रबंधक (खान)
सेल-बी०एस०एल०, गुआ अयस्क खान
Kamal Bhasker
Chief General Manager (Mines)
SAIL-BSL, GUA ORE MINES

GROUND WATER LEVELS
GROUND WATER LEVELS & QUALITY

LOCATION :Gutmul – Forest Bungalow (Latitude 22°12'40" N and Longitude 85°23'6" E)

Parameter	Unit	Acceptable Limit*	Permissible Limit*	Quarter – 3 (Oct, 24)	Quarter – 4 (Mar,25)
Depth of Water Table below Ground Level	m	-	-	4.4	3.1
Quality					
pH	-	6.5 – 8.5	No relaxation	7.43	7.51
Turbidity	NTU	1	5	0.39	0.55
Dissolved Solids	mg/l	500	2000	191	201
Iron (as Fe)	mg/l	0.3	No relaxation	0.05	0.07
Manganese (as Mn)	mg/l	0.1	0.3	0.05	0.08

LOCATION :Kakatpur Village (Latitude 22°17'50" N and Longitude 85°23'39" E)

Parameter	Unit	Acceptable Limit*	Permissible Limit*	Quarter – 3 (Oct, 24)	Quarter – 4 (Mar,25)
Depth of Water Table below Ground Level	m	-	-	5.6	6.9
Quality					
pH	-	6.5 - 8.5	6.5 – 8.5	7.30	7.75
Turbidity	NTU	1	5	0.39	0.61
Dissolved Solids	mg/l	500	2000	245	255
Iron (as Fe)	mg/l	0.3	0.5	0.17	0.20
Manganese (as Mn)	mg/l	0.1	0.3	0.05	0.06

LOCATION :Chotanagpur-Balharia Village (Latitude 22°14'45" N and Longitude 85°21'38" E)

Parameter	Unit	Acceptable Limit*	Permissible Limit*	Quarter – 3 (Oct, 24)	Quarter – 4 (Mar,25)
Depth of Water Table below Ground Level	m	-	-	5.2	7.5
Quality					
pH	-	6.5 - 8.5	6.5 – 8.5	7.1	7.38
Turbidity	NTU	1	5	0.48	0.54
Dissolved Solids	mg/l	500	2000	156	145
Iron (as Fe)	mg/l	0.3	0.5	0.09	0.07
Manganese (as Mn)	mg/l	0.1	0.3	0.05	0.05

LOCATION :Barabburu Near Pool (Latitude 22°16'27" N and Longitude 85°20'41" E)

Parameter	Unit	Acceptable Limit*	Permissible Limit*	Quarter – 3 (Oct, 24)	Quarter – 4 (Mar,25)
Depth of Water Table below Ground Level	m	-	-	6.2	7.2
Quality					
pH	-	6.5 – 8.5	6.5 – 8.5	7.2	7.5
Turbidity	NTU	1	5	0.5	0.6
Dissolved Solids	mg/l	500	2000	231	224
Iron (as Fe)	mg/l	0.3	0.3	0.19	0.17
Manganese (as Mn)	mg/l	0.1	0.3	0.06	0.05

*as per Drinking Water Specification IS:10500: 2012

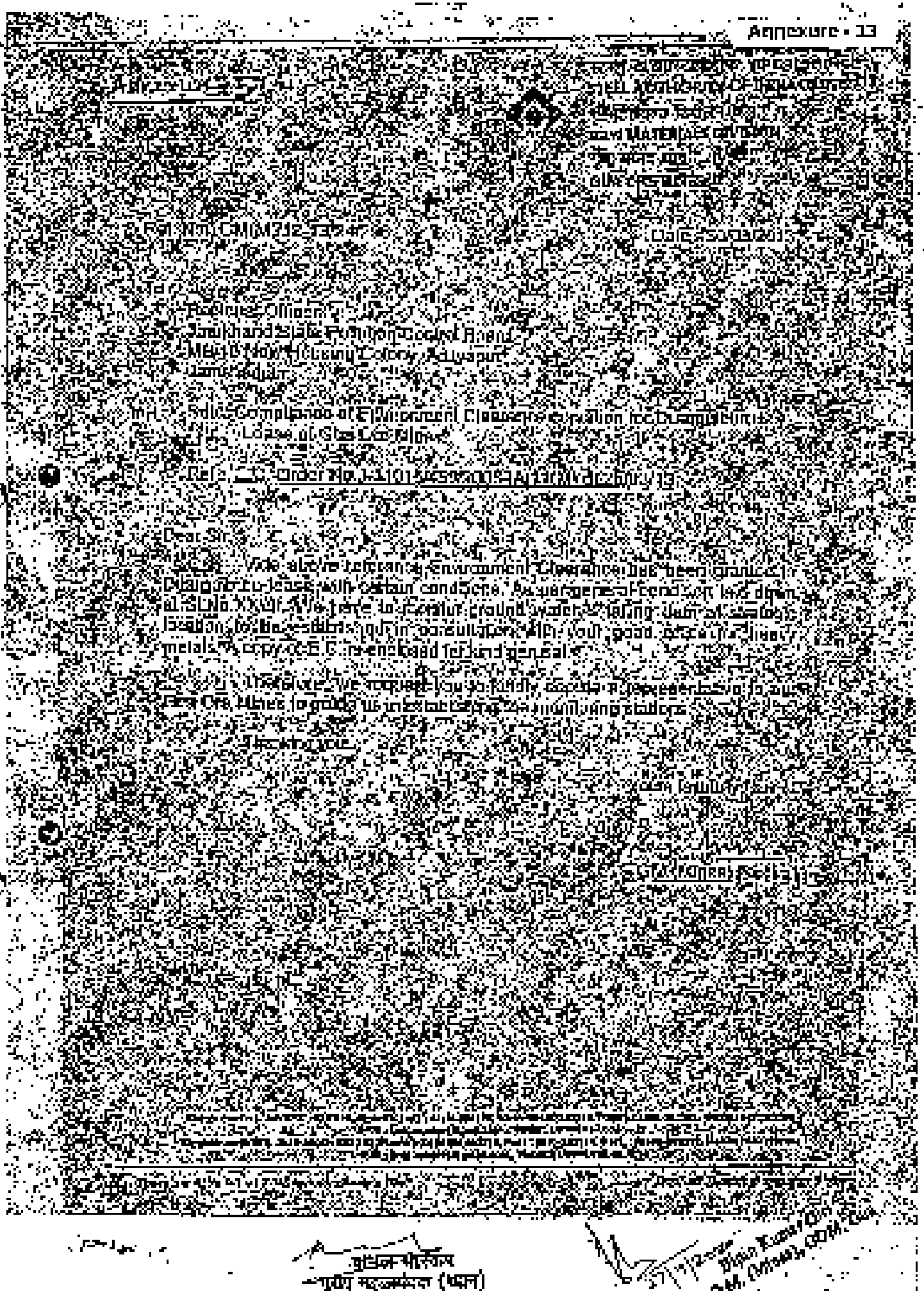
Regional Director (ER)
Central Ground Water Board
Kolkata

मुख्य भूजलविज्ञानी (प्रभारी)
केन्द्रीय भूजल बोर्ड, पूर्वी क्षेत्रीय कार्यालय
Kolkata

Monthly average ground water level from real time ground water level monitoring system

Location	Station ID	Monthly Average Ground Water Level (in Meter)					
		Oct 2024	Nov 2024	Dec 2024	Jan 2025	Feb 2025	Mar 2025
DK Annexe cum Guest House	SAIL_GWL01	5.91	5.78	5.64	6.23	6.42	6.96
Director Bungalow	SAIL_GWL02	8.6	8.8	9.0	9.2	9.4	9.9
Guest Forest Bungalow	SAIL_GWL03	5.42	6.17	8.1	5.4	9.8	9.1

Water level from groundwater monitoring station installed at Director Bungalow and also installed at other two location namely Guest Forest Bungalow and DK Annexe



कृते झारखण्ड राज्य खनिज विकास अभिकरण
(सुधीर महाजन)
परियोजना निदेशक, एवं पदेन सदस्य सचिव
Kamal Bhasker
Chief Project Manager (Mines)
Jharkhand State Mineral Development Agency

Annexure - 14

स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED
भोकारो इस्पात संयंत्र
BOKARO STEEL PLANT
गुआ खनिज खान
GUA ORE MINES

Ref. No.: Gua/E&L/JSPCB/EC-Condn/2013/ [illegible] Dated: 12/8/2013

To,
The Regional Officer
Jharkhand State Pollution Control Board
3RD/L3 New Housing Colony, Adityapur
Jamshedpur

Sub: Regd. compliance of Environmental Clearance condition for Integrated Mining Lease of Gua Ore&Fines

Ref: 1. MoEF(I) Environment Clearance Letter No. J-11015/453/2008-IA II(M) dated 25.03.2013 for proposed Integrated Mining for Ore Mining, Beneficiation and Pelletization of Gua Ore Mines, SAIL.
2. Letter in reference to Gua Mines vide letter dated 25.03.2013

Sir,

This has reference to the above mentioned subject, wherein the Ministry of Environment, Forest and Climate Change, GoI, has granted Environmental Clearance (EC) to the Integrated Mining Lease of Gua Ore Mines vide letter dated 25.03.2013.

As per General Condition no. (xxvii) of EC, the groundwater and surface water quality and quantity around the mine lease shall be regularly monitored at strategic locations like nearby nallahs. The monitoring stations shall be established in consultation with the Regional Director, Central Ground Water Board and the State Pollution Control Board.

In this regard, a letter dated 20/06/2013 had been submitted to your office. Subsequently, as advised by JSPCB officials during discussion in Gua Ore Mines, monitoring stations were established for coordination with JSPCB.

The list of pollution monitoring points for environmental parameters such as air, water and noise is enclosed as Annexure-I. This letter is requested to kindly consider the pollution monitoring stations at Integrated Mining Lease of Gua Ore Mines and provide necessary advice for any modifications if required.

Submitted for kind information and further necessary.

With regards,

For and on behalf of
SAIL-BSL, Gua Ore Mines

[illegible]
(S.P. Das)
General Manager (Mines) and Head

Encl: a/a

Copy to: Executive Engineer, Central Ground Water Board (CGWB), 3RD Park Road, 2E, Main, Ashok Nagar, Ranchi 834001

Regd. Office: Ispat Bhawan, Lodhi Road, New Delhi-110003, Phone: 011-24367481, Fax: 011-24367481

कुलदीप चक्रवर्ती
मुख्य महाप्रबंधक (खान)
खान-प्रभारी/गुआ अयस्क खान
Kuldip Chakrabarti
Chief General Manager (Mines)
SAIL-BSL GUA ORE MINES

Annexure-I to Annexure-IA

Locations of the monitoring stations established for monitoring of environmental parameters such as air, water and noise.

Stations for Air Quality Monitoring

Sl. No.	Locations	Parameters	Latitude	Longitude
1	Near Mines Canteen	PM10, PM2.5, SO2 and NOx	22° 12' 43.0" N	85° 22' 28.34" E
2	Near Environmental Lab QC Lab		22° 12' 49.45" N	85° 22' 30.06" E
3	Near Gas Club		22° 12' 43.0" N	85° 22' 26.35" E
4	Near Hospital		22° 12' 30.11" N	85° 22' 57.91" E

Stations for water and waste water monitoring

Sl. No.	Locations	Type of water	Latitude	Longitude
1	Kolo River (Downstream)	Surface water	22° 13' 16" N	85° 21' 10" E
2	Kolo River (Upstream)	Surface water	22° 12' 16" N	85° 22' 53" E
3	Near Kolo Mandir	Industrial Effluent	22° 12' 10" N	85° 22' 52" E
4	Near Railway Under	Domestic Effluent	22° 12' 38" N	85° 22' 05" E

Stations for noise monitoring

Sl. No.	Locations	Parameters	Latitude	Longitude
1	Near Gas Club	Noise	22° 12' 42.2" N	85° 22' 26.38" E
2	Near Gas Hospital		22° 12' 50.01" N	85° 22' 58.59" E
3	Near Environmental & QC Lab		22° 12' 49.39" N	85° 22' 30.42" E
4	Near Mines Canteen		22° 12' 54.19" N	85° 22' 28.08" E

Stations for ground water level monitoring

Sl. No.	Locations	Type of water	Latitude	Longitude
1	Gas Sub Guest Bungalow	Open well (Ground Water)	22° 12' 40" N	85° 23' 8" E
2	Chanked Village		22° 12' 51" N	85° 23' 59" E
3	Chhotanagpur Colony		22° 12' 45" N	85° 18' 31" E
4	Distillery- Near Pond		22° 8' 57" N	85° 20' 43" E

— कार्मिल मारस्कर
मुख्य महाप्रबंधक (खान)
खान-विभाग/खान, मुख्य कार्यालय भवन
Karmel Bhaskar
Chief General Manager (Mines)
SAIL-RSP, CUM, DRI MINES

LANDUSE AND LANDCOVER MAPS FOR DUARGUIBURU, JHILLINGBURU I, JHILLINGBURU II, TOPAILORE MINING LEASES AREA OF GUA ORE MINES

Sponsored by

Steel Authority of India Limited

Bokaro Steel Plant

Consultant-in-Charge

Dr. Vasanta Govind Kumar Villuri

Associate Professor

Department of Mining Engineering

Indian Institute of Technology (Indian School of Mines), Dhanbad

May 2025

Introduction

Land Use Land Cover Land studies are carried out to reveal how much of a region is covered by forests, wetlands, impervious surfaces, agriculture, and other land and water types. The water types include wetlands or open water. The LandUse information describes how people use the landscape. Such uses include developmental use, conservation related use, or mixed uses.

Landuse and land covermap of Gua Ore Mines, Jharkhand have been developed from Linear Imaging Self scanning Sensor (LISS) data obtained from Indian Remote Sensing satellite-Resources at-2, LISS- IV (2024) and Cartosat 2 (2024) sensor, December. The satellite images so obtained were processed applying supervised classification method have using the Erdas Imagine software. The Land Use Land Cover has been classified in six classes, which are built-up land, open forest, dense forest, agricultural land, wasted land and waterbody. The areas under each of these classes were estimated on the basis of the pixel grid cell process in Erdas Imagine software following the rules of NRSC/ISRO Land Use and Cover Monitoring. The theme of Gua Ore Mines, Jharkhand LULC is given in the following **Table1**.

Table-1. Descriptions of land use and land cover classes (Source-NRSC/ISRO)

Sl.	Description-1	Description-2	Remark
1.	Built-up Land	Urban	Residential, Mixed builtup, Public/Semi Public, Communication, Public utilities /facility, Commercial, Transportation, Reclaimed land, Vegetated Area, Recreational, Industrial, Industrial/Mine dump, Ash/ Cooling pond.
		Rural	Rural.
		Mining	Mine/Quarry, Abandoned Mine Pit, Land fill area.
2.	Agriculture Land	Crop land	Kharif, Rabi, Zaid, Two cropped, More than two cropped.
		Plantation	Plantation-Agricultural, Horticultural, Agro Horticultural.

		Fallow	Current and Long Fallow.
		Current Shifting cultivation	Current Shifting cultivation.
3.	Forest Land	Evergreen/Semi evergreen	Dense / Closed and Open category of Evergreen / Semi evergreen.
		Deciduous	Dense / Closed and Open category of Deciduous and Tree Clad Area.
		Forest Plantation	Forest Plantation.
		Scrub Forest	Scrub Forest, Forest Blank, Current &Abandoned Shifting Cultivation.
		Swamp/ Mangroves	Dense / Closed & Open Mangrove.
4.	Barren/ uncultivable/ Wastelands	Salt Affected Land	Slight, Moderate & Strong Salt Affected Land.
		Gullied/ Ravinous Land	Gullied, Shallow ravine & Deep ravine area.
		Scrub land	Dense / Closed and Open category of scrub land.
		Sandy area	Desertic, Coastal, Riverine sandy area.
		Barren rocky	Barren rocky.
		Rann	Rann.
5.	Wetlands/Water Bodies	Inland Wetland	Inland Natural and Inland Manmade wetland
		Coastal Wetland	Coastal Natural and Coastal Manmade wetland
		River / Stream / canals	Perennial & Dry River/stream and line & unlined canal/drain
		Water bodies	Perennial, Dry, Kharif, Rabi &Zaid extent of lake/pond and reservoir and tanks

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Built-up land: It is an area of human habitation developed due to non-agricultural use and that has a cover of buildings, transport and communication, utilities in association with water, vegetation and vacant land. LULC map consists of 3 classes under built-up viz., urban, rural and mining. In this region, ore mining town have emerged Gua Ore Mines.

Forest: The term forest is used to refer to land with a tree canopy cover of more than 10 percent and area of more than 0.5 ha. Forests are determined by both the presence of trees and the absence of other predominant land uses. The trees should be able to reach a minimum height of 5 m. The two categories i.e. open forest and dense forest is predominant in Gua Ore Mines.

Wasted land or Wet land: Wasted lands are those areas where the water table is at, near, or above the land surface for a significant part of most years. The hydrologic regime is such that aquatic or hydrophyte vegetation usually is established, although alluvial and tidal flats may be no vegetated. Wastelands frequently are associated and topographic lows, even in mountainous regions.

Water body: This category comprises areas with surface water in the form of ponds, river, lakes, tanks and reservoirs. Rivers/streams are natural course of water flowing on the land surface along a definite channel/slope regularly or intermittently towards a sea in most cases or in to a lake or an inland basin in desert areas or a marsh or another river. Canals are artificial watercourse constructed for irrigation, navigation or to drain out excess water from agricultural lands.

Agricultural land: These are the lands primarily used for farming and for production of food, fiber, and other commercial and horticultural crops. Agricultural Land may be defined broadly as land used primarily for production of food and fiber. These are the areas with standing crop as on the date of Satellite overpass. Cropped areas appear in bright red to red in color with varying shape and size in a contiguous to noncontiguous pattern. They are widely distributed indifferent terrains; prominently appear in the irrigated are as irrespective of the source of irrigation. It includes Kharif, Rabi and Zaid croplands along with areas under double or triple crops.

1. Duarguiburu ore mining lease area land use and land cover:

The Duarguiburu ore mining lease area (1443.756 Ha) was classified for land use and land cover by using supervised classification technique. Five classes are identified over the study area namely dense forest (825.378 Ha), open forest (308.791 Ha), mining (252.426 Ha), barren land/waste land (32.017 Ha) and built-up (25.144 Ha) shown in Figure-1.

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

PLAN SHOWING LAND USE LAND COVER MAP OF DUARGUIBURU MINING LEASE BOUNDARY SUPERIMPOSED ON SATELLITE IMAGERY (FUSION OF CARTOSAT-2 AND LISS-IV, DECEMBER 2024) COVERING AN AREA OF 2KM BUFFER ZONE
GUA ORE MINES, JHARKHAND
BOKARO STEEL PLANT, STEEL AUTHORITY OF INDIA LTD.

Figure: 1. Land use Land cover map of Duarguiburu ore mining lease area

General Manager (Mines) & Eal.
SAIL-BSL, Gua Ore Mines

2. Jhillingburu I(JH I) ore mining lease area land use and land cover:

JH I ore mining lease area (210.526 Ha) is also classified into the six classes. The distribution of areas is dense forest (96.728 Ha), open forest (78.623 Ha), mining (8.251 Ha), agricultural land and plantation (2.727 Ha), barren land/waste land (14.564 Ha) and built-up (9.633 Ha) shown in Figure-2.

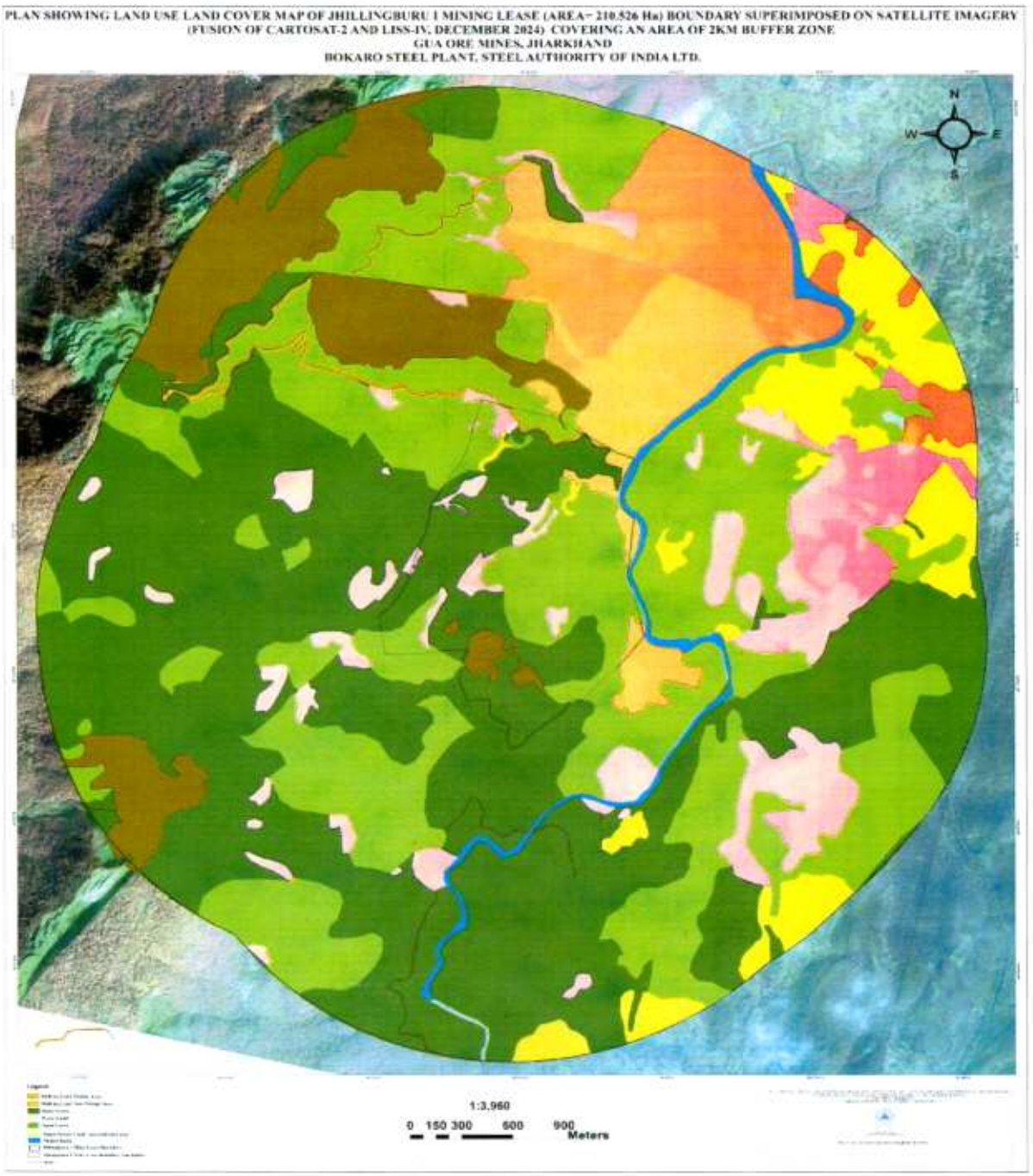


Figure: 2. Land use Land cover map of JH I ore mining lease area

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

3. Jhillingburu II (JH II) mining lease area land use and land cover:

The land use and land cover classification of JH II ore mining lease area (30.43 Ha) revealed three classes, namely dense forest (10.993 Ha), open forest (13.691 Ha) and built-up (5.746 Ha) shown in Figure-3.

Figure: 3. Land use Land cover map of JH II mining lease area

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

4. Topailore ore mining lease area land use and land cover:

The classification of Topailore ore mining lease area (14.16 Ha) revealed that there is dense forest (1.066 Ha) and mining (13.094 Ha) shown in Figure-4.

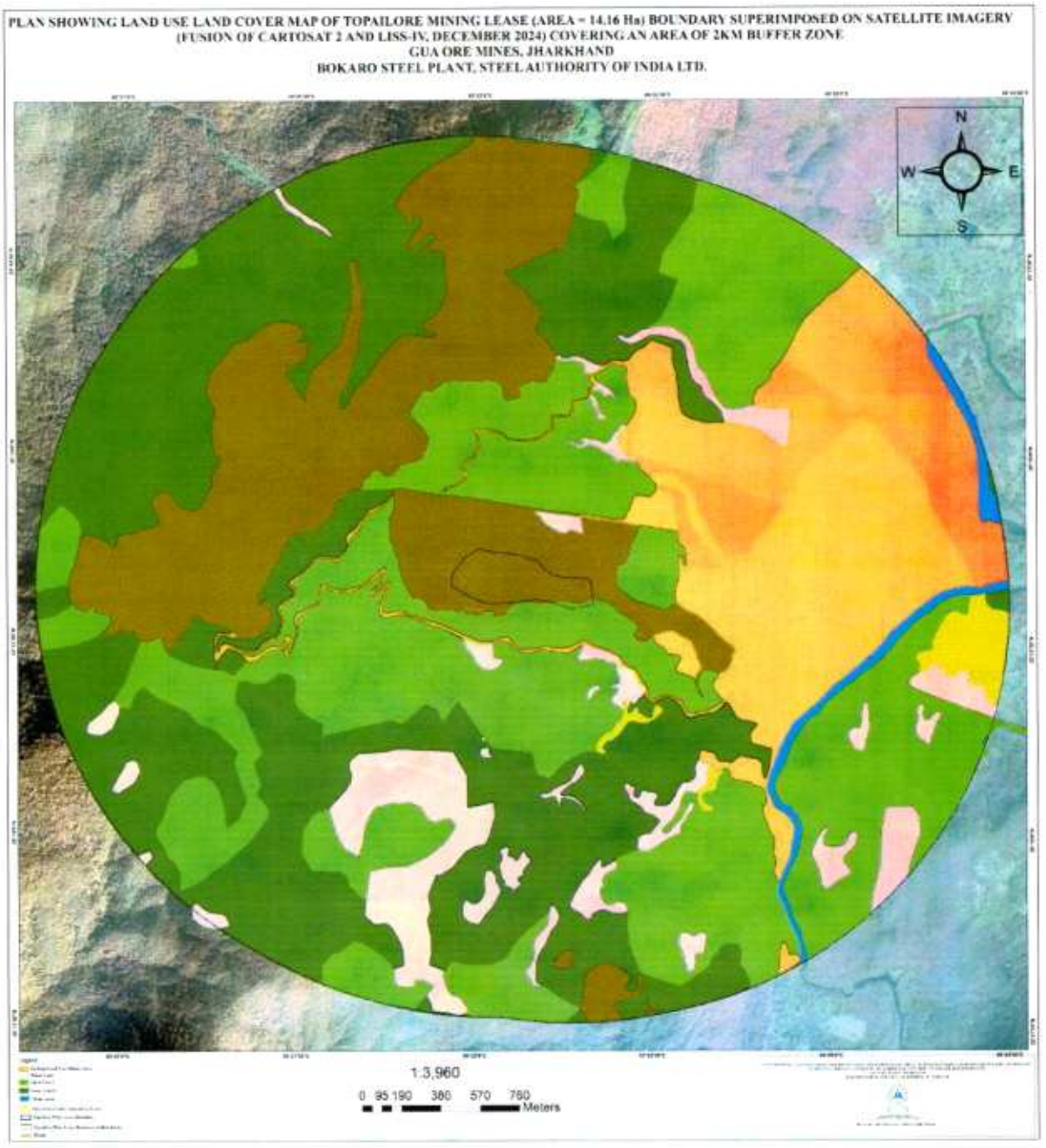


Figure: 4 Land use Land cover map of Topailore ore mining lease area

Accuracy assessment was carried out using 100 points, from field data, existing maps and land cover map of (Bhuvan ISRO). Then location of the 100 points was chosen using random stratified method to represent different land cover classes of the area. The land cover mapping of the images, ancillary data

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

and the result of visual interpretation was integrated with the classification result using GIS in order to improve the classification accuracy of the classified image.

The summary of the land use land cover classifications is shown in the Table 2. The classification distributions are shown in the Figure 5 to Figure 8.

Table 2: Land use land cover classifications of Gua Mines

LU/LC classes	Duarguiburu Ore mining lease Area (Ha)	JH I Ore mining lease Area (Ha)	JH II ore mining lease Area (Ha)	Topailore Ore mining lease Area (Ha)
Built-up Land	25.144	9.633	5.746	0
Agriculture Land	0	2.727	0	0
Dense forest	825.378	96.728	10.993	1.066
Open Forest	308.791	78.623	13.691	0
Water body	0	0	0	0
Wasted land	32.017	14.564	0	0
Mining	252.426	8.251	0	13.094
Total Area (ha)	**1443.756**	**210.526**	**30.430**	**14.160**

General Manager (Mines) & C...
SAIL-BSL, Gua Ore Mines

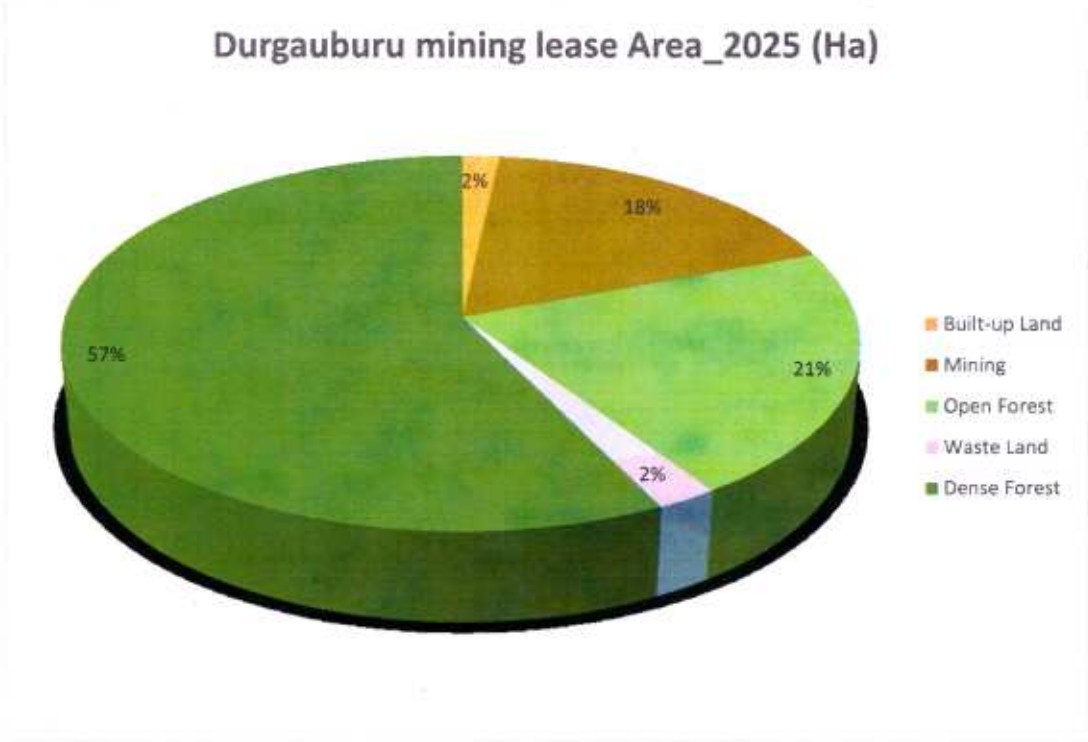


Figure 5: Land use distribution of Duarguiburu lease area

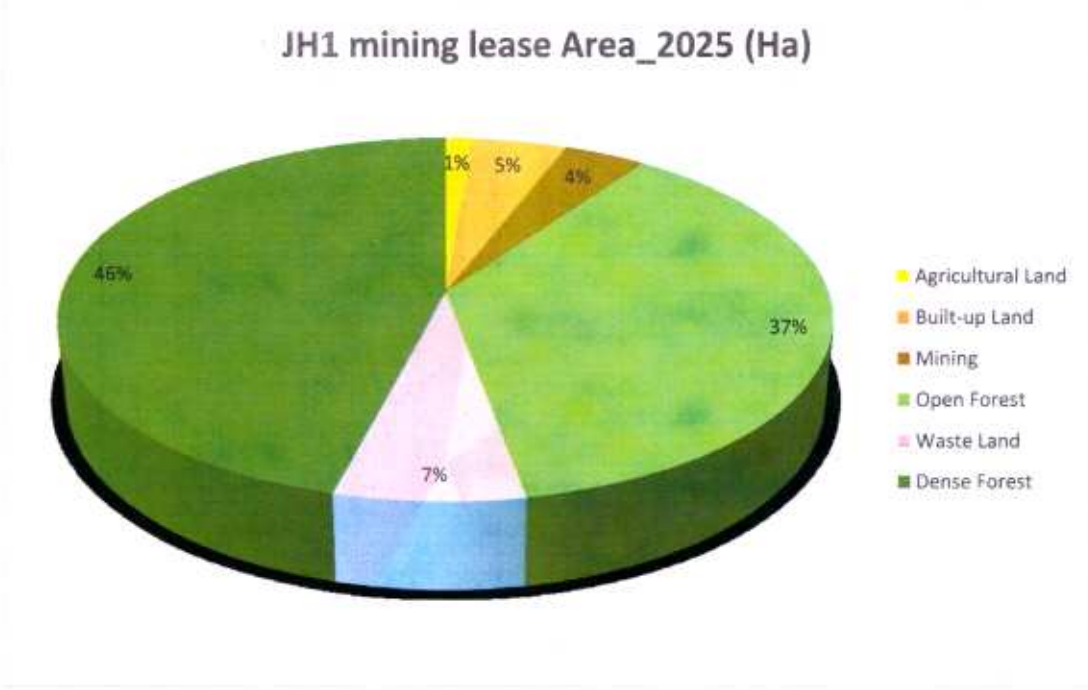


Figure 6: Land use distribution of JH I lease area

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

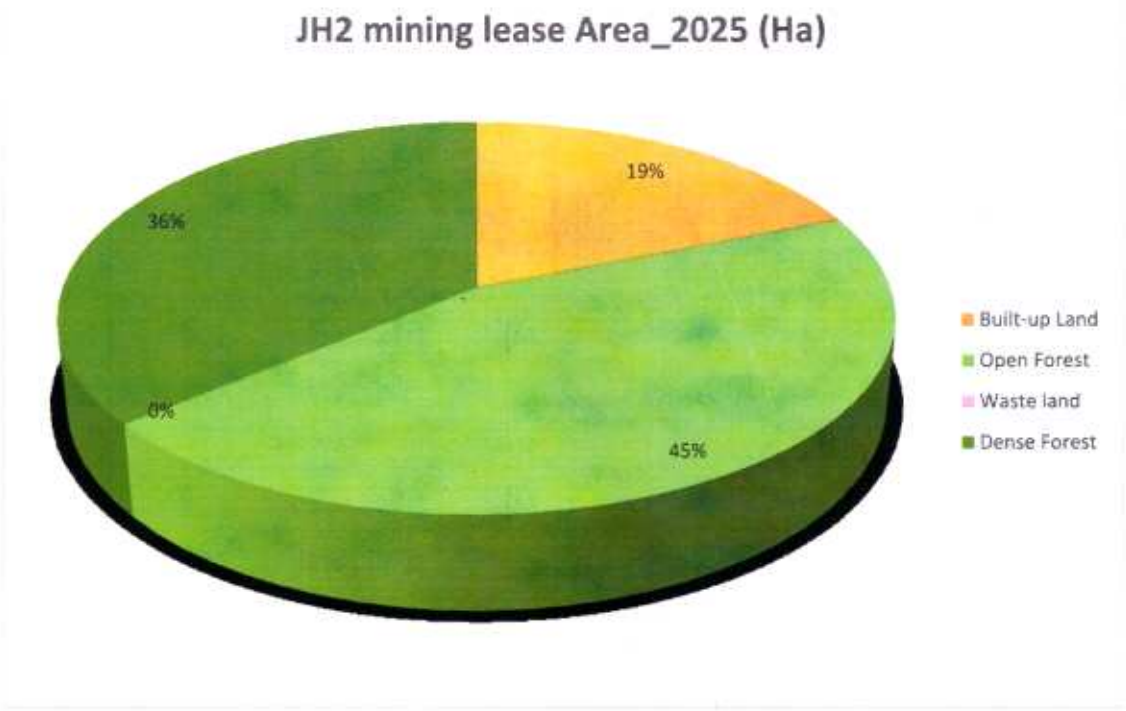


Figure 7: Land use distribution of JH II lease area

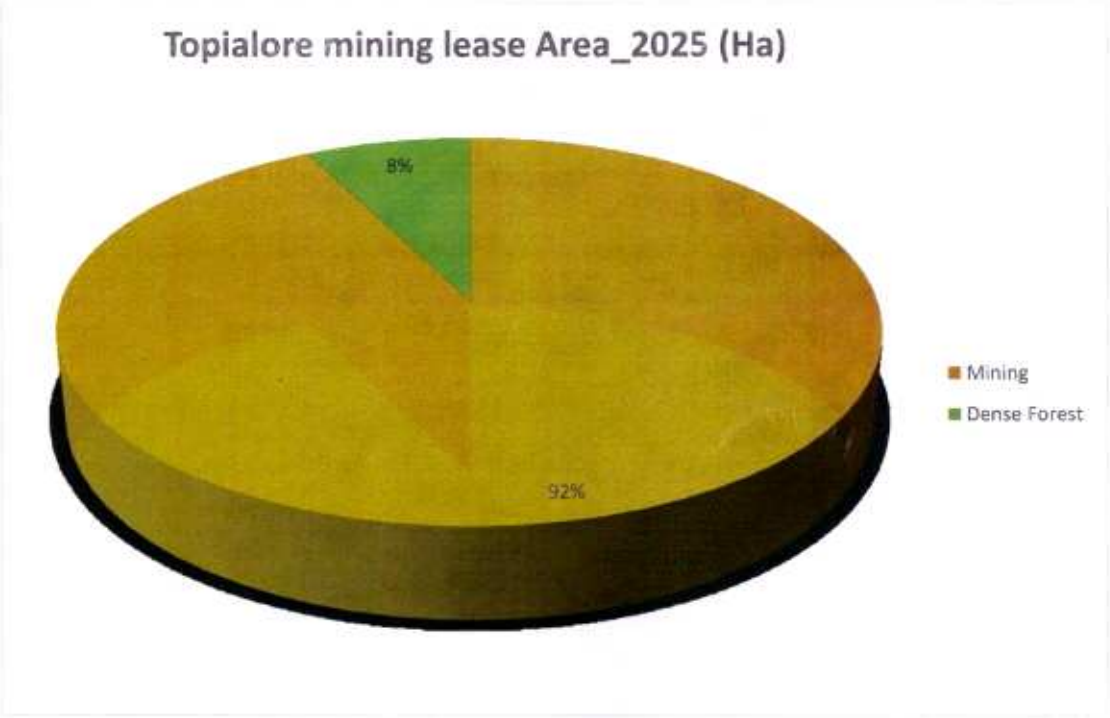
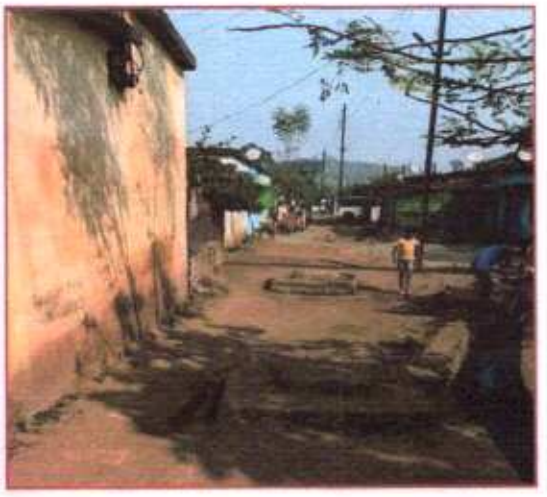


Figure 8: Land use distribution of Topailore lease area

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Annexure - 16

Photographs of Septic Tank and Soak Pit constructed at Gua Ore Mines Township



KAMAL BHASKER
CGM (Mines)
गुआ अयस्क खान / GUA ORE MINES

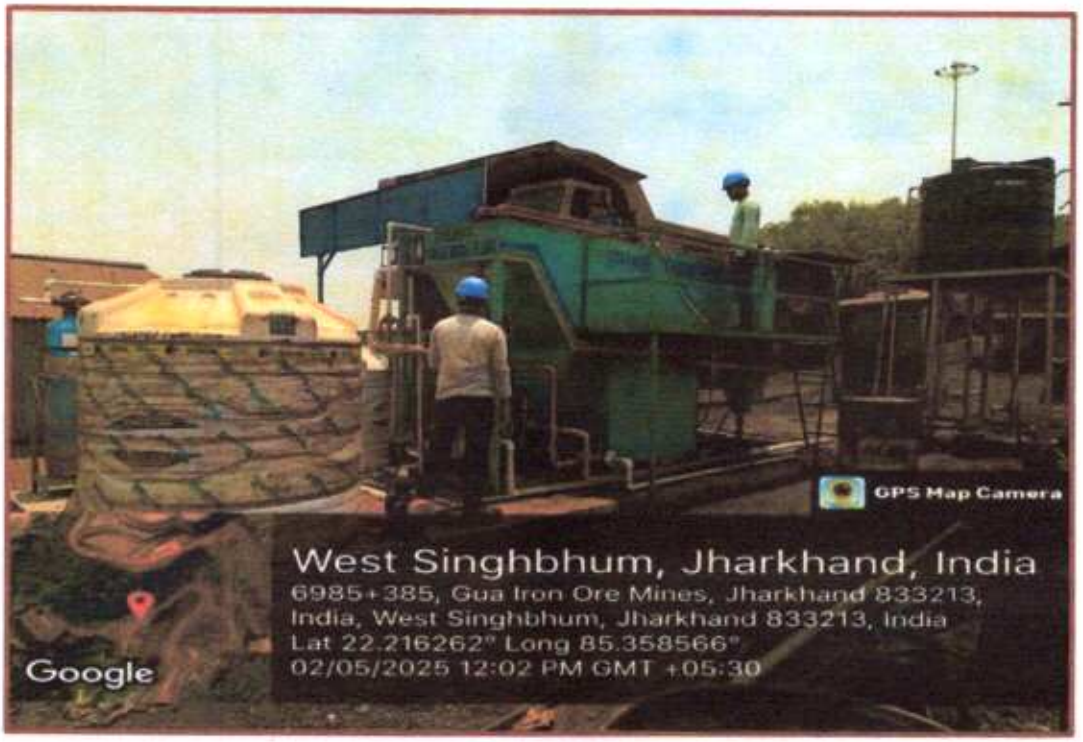
General Manager (Mines) & Ex...
SAIL-BSL, Gua Ore Mines

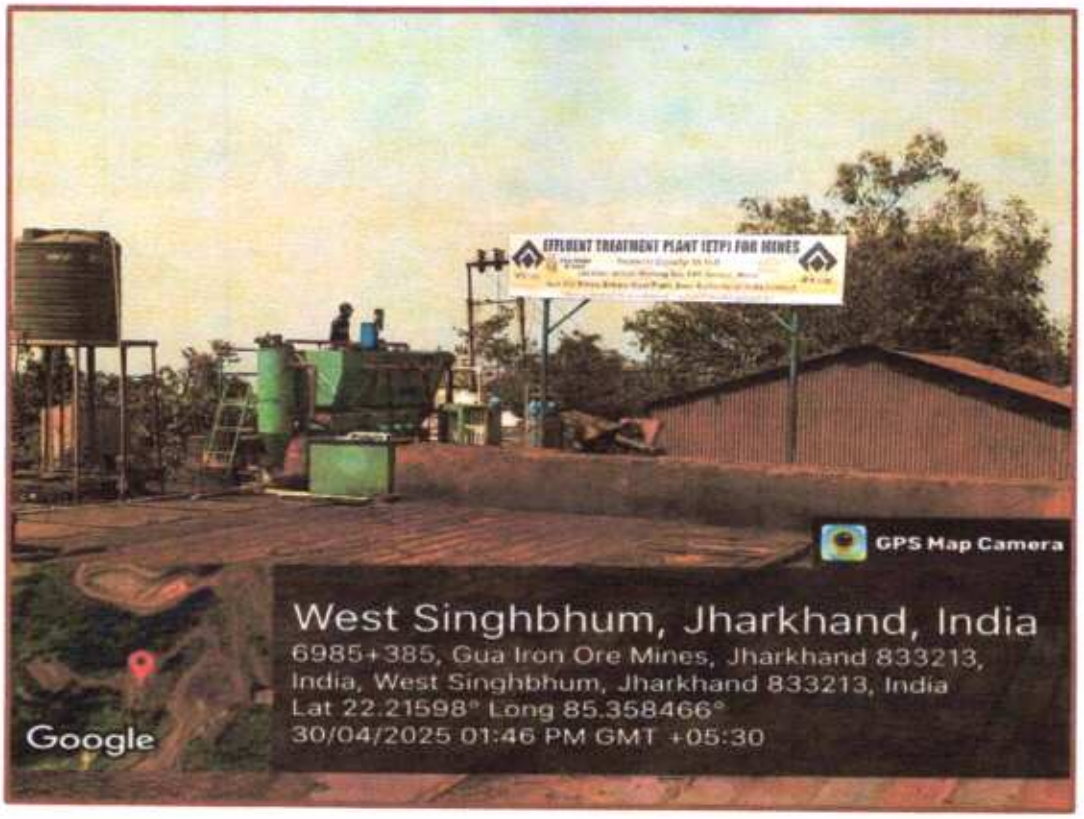
Photographs showing Septic tanks and its cleaning through mechanical mode

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Annexure - 17

Effluent Treatment Plant at Vehicle Washing Bay at Mines Workshop Area





मुख्य महाप्रबंधन (खान)
सेल, बी० एस० एल०, गुआ अयस्क खान
Chief General Manager (Mines)
SAIL, BSL, GUA ORE MINES

Photo: Installation & Commissioning of 5KLD ETP at Vehicle Washing Bay of EME Workshop area is completed

मुख्य महाप्रबंधन (खान)
सेल, बीo एसo एलo, गुआ अयस्क खान
Chief General Manager (Mines)
SAIL, BSL, GUA ORE MINES

The photographs of the installed ETP at Gua Ore Mines Hospital are given below:

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

Annexure - 18

Download new Applet-less PKI component for SAIL Users to use SAIL Tender portal on modern browsers (Chrome, Mozilla, Edge) Download

Dashboard Registration Welcome, Krishna Soren

1800 419 20001

Tender Details

TENDER DETAILS	
Organization	Steel Authority of India Limited-Bokaro Steel Plant
Plant/Unit	Bokaro Steel Plant
Tender No and Date	BSL/JGOM/CC/17 of 2024-25 Dated 28/03/2025
Tender Title	Supply, Installation, Testing, Commissioning (SITC) of 300 KLD STP and Revamping of Existing Sewage System and Operation & Maintenance of the total system of Gua Ore Mines, Jharkhand.
Short Description	Supply, Installation, Testing, Commissioning (SITC) of 300 KLD STP and Revamping of Existing Sewage System and Operation & Maintenance of the total system of Gua Ore Mines, Jharkhand.
Delivery Period	5 years 6 months
Tender Type	Open-Indigenous
Tender Category	Works
AMOUNT DETAILS	
Tender Currency	INR
Bidding Document/Processing Fee (INR)	Not Applicable
EMD Amount	500000.00

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

TENDER DETAILS

TENDER DATES

Tender Issue Date & Time (dd/mm/yyyy hh:mm:ss)	29 Mar 2025 11:30:00
Bid Document Download End Date &Time (dd/mm/yyyy hh:mm:ss)	12 Apr 2025 18:00:00
Pre Bid Meeting	No
Bid Submission Closing Date & Time (mm/dd/yyyy hh:mm:ss):	15 Apr 2025 15:30:00
Bids Opening Date And Time (mm/dd/yyyy hh:mm:ss):	15 Apr 2025 16:01:00
Bid Validity Period	90
Remarks	Tender Creation

CONTACT DETAILS

Name	K Basu
Address	Adm. Building, Block-A, Bokaro Steel City-827001
Phone/Fax	9407980318
Email Address	ccjgom.bsl@gmail.com

DOCUMENT DETAILS

To View the document details Click here	

Print

The national portal of India india.gov.in

Ministry of Steel
Government of India
steel.gov.in

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

सेल SAIL

Annexure-19

Gua Hospital

Details of IME/PME

Year	Total No. of IME/ PME for the year
2022	442
2023	718
2024	411
2025 Till March	125

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

Annexure - 2D

Office of the Principal Chief Conservator of Forests,
Wildlife & Chief Wildlife Warden, Jharkhand.
Van Bhawan, Doranda, Ranchi-834002
Email: pccfwlife@gmail.com

Office Order No. 12 Dated. 15/01/2025

Sanction Order of the Site Specific Wildlife and Biodiversity Conservation Plan for diversion of 2698.863 ha of forest land for 04 mining leases namely Dugaibura Iron Ore Mining Lease covering area of 1443.756 Ha, Jhilingburu-I Mining Lease covering area 210.526 Ha, Jhilingburu-II Manganese & Iron Ore Mining Lease covering area 30.43 Ha and Topadore Iron Ore Mining Lease covering area 14.15 Ha prepared in compliance with the condition laid by the MoEF&CC towards ToR of Environmental Clearance granted in favour of M/s SAIL, Gua Ore Mine located in West Singhbhum District of Jharkhand.

The instant Site Specific Wildlife and Biodiversity Conservation Plan (referred to as "the Plan" hereinafter) has been prepared by Lees Ecoset Private Limited, Hazaribagh, Bihar on behalf of "M/s SAIL, Gua Ore Mining" hereinafter referred to as "the Project Proponent" in pursuance of the following conditions of the "in-principle" approval order issued by the Ministry of Environment, Forest & Climate Change, Govt. of India towards granting Environmental Clearance to Gua Iron Ore Mining Project (referred to as "the Project proponent" hereinafter) in West Singhbhum district of Jharkhand.

(i) The following condition has been laid by MoEF&CC under condition no 6.B (xxvii) of environmental clearance approved vide MoEF&CC letter no J-11015/453/2000-IA.II(M) dated 25th March 2013 of Dugaibura Iron Ore mining of Gua Ore Mines of M/s SAIL (mine lease area 1443.756 Ha) reads as follows:

> *"(xxvii). The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna namely Elephant, Sloth Bear, Tiger, Wolf, Panther, Mouse deer etc. spotted in the study area. Action Plan for conservation of flora and fauna prepared shall be implemented in consultation with the State Forest and Wildlife Department. All the safeguard measures brought out in the Wildlife Conservation Plan prepared specific to the project site shall be effectively implemented. Necessary provision of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. A copy of action plan shall be submitted to the Regional Office of the Ministry of Environment and Forests, Bhubaneswar."*

(2) The following condition has been laid by MoEF&CC under condition no (iv) and (xxxi) of Stage-I Clearance/ in principle approval vide his letter no J8-75/2008-IA (Vol) Dated 25th September 2017 of Jhilingburu-I mining lease of Gua Ore mines of M/s SAIL (mine lease area 210.526 Ha) reads as follows:

"(iv). The user agency shall abide by the condition laid by the State Government regarding the safe movement of Elephants. The State Government shall ensure that various mines are worked in such a way that the regional elephant corridor/ intermittent vegetation zones are always maintained without any long gap/ disturbances. No mining operations will be carried out during the period of movement of Elephant and only working mining pits will be properly fenced instead of creating a linear barrier for wildlife movement through fencing of safety zone around the whole mining leases.

(xxxi). No damage to the flora and fauna of the adjoining area shall be caused."

(3) The following condition has been laid by MoEF&CC under condition no II (iii) of environmental clearance approved vide his letter no EC/SEIAA/2016-17/2053/DEI/297 Dated 10.12.2018 of Jhilingburu-II Iron & Manganese Ore Mining of Gua Ore mines of M/s SAIL (mine lease area 33.43 Ha) reads as follows:

"II. (iii). The project proponent shall prepare a Site Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site Specific Conservation Plan/ Wildlife Management Plan shall be furnished along with the six monthly compliance report. (In case of the presence of schedule-I species in the study area)."

(4) The following condition has been laid by MoEF&CC under condition no A. 5 of environmental clearance approved vide his letter no EC/SEIAA/2015-16/684/2015/1291 Dated 17.08.2015 of Tapelore Iron Ore mining project of Gua Ore Mines of M/s SAIL (mine lease area 30.43 Ha) reads as follows:

"A. 6. The project proponent shall prepare a Site Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site Specific Conservation Plan/ Wildlife Management Plan shall be furnished along with the six monthly compliance report. (In case of the presence of schedule-I species in the study area)."

In the above stated background, the Regional Chief Conservator of Forests, Singhbhum Region, Jamshedpur vide his letter no. 310 dated 01.01.2025 has submitted the Plan to the office of the undersigned for its due sanction.

In order to examine the plan prescriptions a communication was issued to the Regional Chief Conservator of Forests, Singhbhum Region, Jamshedpur vide this office letter no. 295 dated 17.03.2025, to arrange a Power Point Presentation of the plan on 24.03.2025 in the Office chamber of the undersigned. The presentation was made by the Project Proponent in presence of Regional Chief Conservator of Forests, Singhbhum Region, Jamshedpur, DFO, Saranda, Sri Kamal Bhasker, GGM (Mines), Sri T.P Dutta, GM, SAIL, SAIL, Sri Alok Kumar Yadav, Sr. Manager (E&I), JGCH, BSL, SAIL, Sri Ravi Ranjan Kumar, Manager, SEL, SAIL, Dr. T.C Anmole, DGM, Gua Mines, SAIL, Sri Dharmendra Sahis, Dy. Manager (Env & Forest), Gua Ore Mines, Sri Malay Kumar, Director, ECOS Offset Pvt Ltd and Sri Ansar Ansi, Technical Executive, ECOS Offset Pvt Ltd.

The break-up of the financial outlay with respect to the aforesaid implementing agencies is as under:

Designation	Implementing Agency	Budget (Rs. In lakh)
Part A	M/s. SAIL (the Project Proponent/User Agency)	1964.83
Part B	State Forest Department through DFO, Saranda	5027.93
Total		6992.76

The summary of the proposed interventions (component wise) under the Plan with the objective of conservation of forest and wildlife resources as also to mitigate the impacts of mining on forests and wildlife is as follows:

Sl. No.	Work Components	PART-A Cost estimates (Rs. In Lakh) To be implemented by the User Agency	PART-B Cost estimates (Rs. In Lakh) To be implemented by the DFO Saranda Forest Division
1	Plantations for Arid depredation and Wild Fire Protection	601.54	909.50
2	Fire prevention and Forest protection Expenditure	345.936	565.944
3	Capacity building and livelihood improvement to local people	152.00	274.00
4	Awareness promotion	250.00	452.00
5	Wildlife Habitat Protection and Development	-	135.64

6	Improvement of Water Regime and its Maintenance	-	570.90
7	Evaluation and Monitoring	150.00	300.47
8	Sub Total:-	1569.53	4121.25
9	Contingency fund 2% for operational part (As a white cement note issued by DFO, Saranda)	31.39	82.43
10	Emergency corpus fund for human elephant conflict mitigation	50	-
11	Add Escalation 20% of GTotal	313.51	824.25
	TOTAL :	1964.83	5027.93
	Grand Total	6992.76	

The plan with a total financial outlay of Rs. 6992.76 Lakh extends over a period of 10 years (Year 2024-25 to 2033-34) tentatively out of which Rs. 5027.93 lakh shall be utilized by the Forest Department through DFO, Saranda Forest Division and Rs. 1964.83 lakh shall be utilized by the Project Proponent in accordance with the Plan prescriptions.

Considering the proposals under the plan, sanction is hereby accorded to the Instant Plan subject to the following conditions.

(i) That the Project Proponent shall ensure that its officials/contractors and the work force engaged into mining and allied operations under the Project shall not commit or abet any forest/wildlife offence in the area of operation. They will also promptly report any forest/wildlife offence in the area to the nearest forest officials/Police. Further, they will extend their full cooperation to the forest officials in control/mitigation of any incident, natural or man made, detrimental to forest and wildlife in their area of operation.

(ii) That the total amount of Rs.6992.76 lakh involved in the Instant Plan consists of two parts – Part A and Part B. Part B constitutes of a sum of Rs. 5027.93 lakh which shall be deposited by SAIL, Gua Ore Mines in favour of "Divisional Forest Officer, Saranda Forest Division" in Government Treasury, Chaibasa under the Head "Van Pradesh Lok Lekha (Prapitvan) Head 8702". DFO, Saranda shall withdraw money from the Treasury for implementation of the works mentioned in the duly sanctioned Annual Plans of Operation as described in the following paras, from "8782 Remittance Head" and maintain accounts under "Lok Lekha Head 8443". DFO, Saranda shall submit monthly account to the Accountant General, Jharkhand as per prevailing norms of the Forest Department. Part A constitutes of a sum of Rs. 1964.83 lakh which shall be utilized by the User Agency towards the activities mentioned in the plan as and when and in the manner as deemed by the DFO, Saranda.

(iii) That as regards the funds earmarked against activities to be undertaken by the State Forest Department, the DFO, Saranda shall prepare detailed Annual Plan of Operations (APO) at the beginning of every Financial Year in accordance with the activities mentioned under the Plan following all the rules, regulations, Schedule of Rates etc. issued from time to time by the State Government/ Forest Department. Regional Chief Conservator of Forests, Singhbhum Region, Jamshedpur shall accord sanction to the said APO following due process and he/she will closely monitor the implementation/progress of the activities undertaken by the Implementing Agencies as per directions issued by the Forest Department from time to time.

(iv) That the Conservator of Forests, Chaibasa Circle (CF, Chaibasa) shall supervise all the activities as per directions issued by the Forest Department from time to time.

(v) That the DFO, Saranda shall carry out the activities under the Plan strictly as per the duly sanctioned APOs.

(vi) That the DFO, Saranda shall ensure that no violation of duly sanctioned Working Plan of Saranda Forest Division takes place during implementation of any of the activities involved in this plan over notified and demarcated forest land.

(vii) That at least one year before the expiry of the instant Plan, the Project Proponent shall formulate and submit to the Forest Department another plan in continuation of the instant Plan. The impact of implementation of this Plan shall be evaluated by the competent authority.

(viii) That the instant Plan is dynamic and may be revisited after every 2 years and a revised plan may be formulated as per need of the impact (buffer) area and compliance of the implementing agencies. The revised plan, if any, shall be put up before the Principal Chief Conservator of Forests, Wildlife & Chief Wildlife Warden, Jharkhand for its approval.

(ix) That though provision have been made towards cost escalation in the plan, yet the Project Proponent shall submit an Undertaking to the DFO, Saranda to the effect that they will deposit extra cost of the Plan beyond the cost escalation provision owing to increase in wage rate, cost of materials etc. in the course of time as well as consequent upon revision of the plan, if any, as and when given effect to by the competent authority.

Sd/-

Principal Chief Conservator of Forests
Wildlife and Chief Wildlife Warden, Jharkhand

Memo No. Dated:

Copy forwarded to Deputy Director General of Forests (Central), Ministry of Environment, Forests and Climate Change, Integrated Regional Office, Sharma Lunkary Colony, Ranchi [E-mail: roranchi-mef@gov.in] for information and necessary action.

Sd/-
Principal Chief Conservator of Forests
Wildlife and Chief Wildlife Warden, Jharkhand

Memo No. Dated:

Copy forwarded to Secretary, Department of Forests, Environment and Climate Change, Govt. of Jharkhand Ranchi/ Principal Chief Conservator of Forests, Jharkhand, Ranchi/ Principal Chief Conservator of Forests-cum-Executive Director, Wasteland Development Board, Jharkhand, Ranchi for information.

Sd/-
Principal Chief Conservator of Forests
Wildlife and Chief Wildlife Warden, Jharkhand

Memo No. Dated:

Copy forwarded to Additional Principal Chief Conservator of Forests, CAMPA, Jharkhand, Ranchi with a copy of plan for information and necessary action.

Sd/-
Principal Chief Conservator of Forests
Wildlife and Chief Wildlife Warden, Jharkhand

Memo No. Dated:

Copy forwarded to Regional Chief Conservator of Forests, Singhbhum Region, Jamshedpur/ Conservator of Forests, Territorial Circle, Kolhan/ Divisional Forest Officer, Saranda Forest Division for information and necessary action.

Sd/-
Principal Chief Conservator of Forests
Wildlife and Chief Wildlife Warden, Jharkhand

Memo No. 361 Dated: 15/04/2025

Copy forwarded to GM (Mines) SAIL-BSL, Gua for Mines [E-mail: kamalchakkan@sail.in] for information and necessary action.

Principal Chief Conservator of Forests
Wildlife and Chief Wildlife Warden, Jharkhand

सेल SAIL

Annexure - 21

(NIT)

TENDER DOCUMENTS

TENDER NOTICE NO: GOM/CC/24-25/OTE/157 DATE 24/03/2025

FOR THE JOB OF

Installation of Solar Powered Electric Fencing for the length of 5.27 km around the lease boundary of Duarguiburu Mining Lease At

Gua Ore Mines

STEEL AUTHORITY OF INDIA LIMITED

(A Govt. of IndiaEnterprise)

Bokaro Steel Plant

Jharkhand Group of Mines

Gua Ore Mines, Gua-833213

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

24/3/25

सेल SAIL

(Regd. Office: Ispat Bhawan, Lodi Road, New Delhi)

STEEL AUTHORITY OF INDIA LIMITED
(A Govt. of IndiaEnterprise)
Bokaro Steel Plant
Jharkhand Group of Mines
Gua Ore Mines, Gua-833213
(Regd. Office: Ispat Bhawan, Lodi Road, New Delhi)

DETAILS OF TENDER DOCUMENTS

TENDER NOTICE NO: GOM/CC/24-25/OTE/157 DATE 24/03/2025

1. **NAME OF WORK** Installation of Solar Powered Electric Fencing for the length of 5.27 km around the lease boundary of Duarguiburu Mining Lease of Gua Ore Mines.

2. **PERIOD OF CONTRACT:** The contract shall be for a maximum period of 4 (four) months from the effective date of Contract, which will be 10 days from the date of issue of work order or actual date of commencement of work, which ever is earlier. Work Order shall be issued within seven days of receipt of Initial Security Deposit (ISD).

NAME OF THE TENDERER	M/s
ADDRESS	
EMAIL ID	
CONTACT PERSON	
CONTACT NO	Ph No ..... Mob No.....

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

सेल SAIL

CHECK LIST
(All tenderers should fill up this list)

Before submitting the tender, the tenderer is required to ensure the following instructions are compiled with/ documents submitted as per tender terms.

	Earnest money Rs. 15000/- indicating Cash receipt no. (if deposited in cash office) or Demand Draft/Bankers Cheque No. with date of issue

Instructions to Tenderers (ITT):-

	Clause Reference	Page No.
	Each page of the Tender Document to be signed as per Clause-5	
	Duly filled in & signed Form of Tender as per Clause-7(Annexure-I)	
	Category of tenderer as per Clause-10.1	
	Document related to authorized signatory of the tender as per Clause-10.2	
	Declaration as per Clause-10.3(Refer Annexure VII a Non–Collusive Tendering Certificate)	
	Declaration as per Clause-10.4.1	
	Declaration as per Clause-10.4.3	
	Declaration as per Clause-10.5	
	PF/RPFC Registration Code Number, if any as per Clause-10.6	
	Registration with ESI, if applicable as per Clause-10.7	
	Details of Bank Account as per Mandate form along with cancelled cheque as per Clause-10.8	
	Permanent Account Number as per Clause-10.9	
	GST Registration Number and copy of Certificate of GST Registration, as per Clause-10.10	
	A declaration as per format given at Annexure–VIII along with attached documents with respect to applicability of Provision of GST laws for e-invoicing with effect from 1st October 2020 in his / their caseas per Clause-10.11	
	Form -1, Form-2 & Form-3 as per Annexure-III	
	Tender to be properly bound and submitted as per Clause-21	

Special Conditions of Contract (SCC):

	Clause Reference	Page No.
	Copies (Self-attested) of Work Order, Job completion / Experience certificate	
	Copies (Self-attested) of Audited turn over certificate for any 3 consecutive FYs FY 2021-22, 2022-23 & 2023-24	
	Name of existing Directors with DIN/ Partners/ Proprietor/ Authorised representative as on date of tender duly signed by tenderer	

24/3/25

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

सेल SAIL

	N.B. Apart from above, the tenderer should submit any other documents if required as per tender terms & conditions of the tender.	

STEEL AUTHORITY OF INDIA LIMITED
(A Govt. of IndiaEnterprise)
Bokaro Steel Plant
Jharkhand Group of Mines
Gua Ore Mines, Gua-833213
(Regd. Office: Ispat Bhawan, Lodi Road, New Delhi)

INVITATION TO TENDER

Techno-Commercial (Part-II)

TENDER NOTICE NO: GOM/CC/24-25/OTE/ DATE **/**/2025

Sealed tenders are invited from bonafide, resourceful & competent parties having experience in Installation of Solar Powered Electric Fencing, as per eligibility criteria for the scope of work to be executed in Gua lease area at Gua Ore Mines, JGOM, SAIL-BSL, P.O.: Gua, District: West Singhbhum, State: Jharkhand, Pin Code: 833213.

1. Tender Document with necessary details will be available for downloading from SAIL website https://sailtenders.co.in as per following schedule.

Sl. No.	Schedule	Date & Time
01	Schedule of downloading of tender document	From 11.30 A.M on 25/03/2025 to 09/04/2025 upto 2.00 P.M.
02	Last date and time for submission of Tender Document	09/04/2025 upto 4.00 P.M.
03	Schedule date and time of Opening of Tender	09/04/2025 at 5.00 P.M.

In the event they fail to download, soft copy shall be mailed to them on request.

2. Submission of documents /Certification in Lieu of Earnest Money of Rs. 15,000/-.
Tenderers shall submit the following documents/certification for availing exemption from submission of Earnest Money Deposit (EMD)
   i) Earnest Money Deposit (EMD) amount of Rs. 15000/- (Rupees Fifteen thousand only). The amount of Earnest money shall be deposited in the following forms:-
      - **TT remittance transfer –NEFT/RTGS/SWIFT**
        For TT remittances/online transfer –NEFT/RTGS/SWIFT,
        The Bank details of SAIL, Gua Ore Mines is as given below :-
        Account Holder Name: SAIL, Gua Ore Mines
        Bank & Branch : State Bank of India, Gua
        Account No. : 11723508228
        IFSC Code : SBIN0016004
      - The proof of such transfer /transaction needs to be submitted as NEFT Fund Transfer Format with the offer in Part –I of the tender in the envelop titled Earnest Money

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

OR/ AND

ii) Micro & Small Enterprises (MSEs) / PSUs / Govt. Undertakings and Co-operative Societies / Start-ups as recognised by Department of Industrial policy & Promotion (DIPP) etc., may be exempted from submission of Earnest Money as per extant Government policy. For MSEs, the exemption will be extended on the basis of self – certified copy of Valid Udyam Registration Certificate provided the concerned MSE is also registered in the MSME data bank and MSE is registered for given scope of job/procurement. SSI/NSIC certificate holders are also exempted from submitting EMD and should submit a copy of valid Entrepreneurs Memorandum, if available. In case if it is found that the certification submitted for MSME is not applicable for the scope of job/procurement of this NIT, the offer of such MSME shall be rejected.

3. The tenderer shall submit the tender in **three parts** consisting of **Part-I (Earnest Money Deposit/ Valid Udyam Registration Certificate (MSEs)/ Entrepreneurs Memorandum (SSI/NSIC)), Part-II (Techno-Commercial) and Part-III containing the Price bid**, each in separate envelope duly sealed and superscribed with respective Part Number. Envelopes containing Part-I (EMD), Part-II(Techno Commercial) and Part- III (Price Bid) shall be put in a fourth envelope duly sealed, superscribed with Tender Notice No., Name of the job, date of opening and addressed to the General Manager(CC), SAIL-BSL, JGOM, Gua-833213. Tenders not submitted with Part-I (Earnest Money), Part-II and Part-III in separate covers properly sealed as prescribed above shall be considered as invalid and rejected.
4. The completed tenders will be received in the tender box kept at office of GM(CC) Gua Ore Mines, Gua -833213 on or before **09/04/2025** on 4.00 P.M. and opened at 5.00 P.M. on the same day in presence of the tenderers or their authorized representatives as may be present. The Techno-Commercial part (Part-II) of those tenderers whose "Earnest Money Deposit" as per option 2(i) / 2(ii) will be found in order & submitted as prescribed in Clause-3 above will be opened immediately thereafter, or otherwise the Tender will be considered as invalid and the Part-II of the same shall not be opened.
5. The price bid of the eligible tenderer shall be opened at the office of GM(CC) Gua Ore Mines, Gua -833213 at a latter date with intimation to the parties.
6. The Company reserves the right to accept or reject any or all tenders without assigning any reason whatsoever.

27/3/25

GM (CC), GOM

General Manager (Mines) & EE
SAIL-BSL, Gua Ore Mines

सेल SAIL

FORM OF AGREEMENT

A G R E E M E N T Number: .....of 2025

This agreement made the ..... day of ..... between the Steel Authority of India Limited (a Company Registered under the Companies Act having its Registered Office at Ispat Bhawan, Lodi Road, New Delhi-110 003) and having one of its mine at Gua Ore Mines, PO. Gua, Dist. Singhbhum(W) Jharkhand, PIN-833213. (here in after called the Employer) which expression unless repugnant to the context shall include it's successors, legal representative & administrators on one part and M/s.....(hereinafter called 'Contractor') which expression unless repugnant to the context includes its heirs, successor and permitted assigns on the other part.

Whereas the employer desires that certain works should be executed and completed i.e.

"Installation of Solar Powered Electric Fencing for the length of 5.27 km around the lease boundary of Duarguiburu Mining Lease of GOM"

The aforesaid quantity is to be executed within 4 (four) months)as per period of contract defined in SCC) from the date of commencement of work (i.e. from / /). The employer has floated a Tender Notice No. **GOM/CC/24-25/OTE/157 Dated 24/03/2025** ,and has accepted the tender submitted by the Contractor for such works .The contract period considered to be over if the contracted quantity is exhausted even before 01) one(year.

NOW THIS AGREEMENT WITNESSES AS FOLLOWS :

1. In this agreement words & expressions shall have the same meanings as are respectively assigned to them in the Terms and Conditions of the tender hereinafter referred to.

2. The following documents shall be deemed to form and be read and construed as integral part of the agreement viz.
   a) TENDER NOTICE NO: ..... Date .....
      i) Invitation to Tender
      ii) Instructions to Tenderers
      iii) Special Conditions of Contract(SCC)
      iv) General Conditions of Contract(GCC)
      v) Techno-Commercial Part of the tender
      vi) The filled in tender documents submitted by the contractor
   b) Online sealed Bid including accepted rates and the amounts. .....
   c) Employers Letter of Acceptance LOA No. .....
   d) Contractor's acknowledgment of the receipt of LOA .....
   e) Employers Work Order No. .....
   f) Contractor's acknowledgement for Work Order. .....
   g) Amendment to the Contract, if any. .....

These documents shall supplement each other and be read together. However, in case of any conflict between the provisions of GCC and SCC, the latter shall prevail.

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

3. In consideration of the payments to be made by the employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the employer to execute, complete and maintain the works in conformity with the provisions of the contract in all respect for 04 months w.e.f. _____ (date of commencement).

4. The employer hereby covenant to pay to the Contractor in consideration of the execution of the works, the contract price at the time and in the manner prescribed in the contract.

In witness where of the parties have hereinto set their respective hands and seals the day, month and year first above written through their authorised representatives.

Signature of the Contractor
For and on behalf of:-

M/s.....

Date: .....
Place: .....

For and on behalf of:-
STEEL AUTHORITY OF INDIA LIMITED
JGOM-Bokaro Steel Limited
Gua Ore Mines, Gua – 833213
Dist: (West) Singhbhum (Jharkhand)

Signature: .....

Name: .....
Designation: .....
Place: .....

In the presence of:-

Witness:

Name.....
Date.....
Address.....

Name.....
Date.....
Address.....

Witness:

Name.....
Date.....
Address.....

Name.....
Date.....
Address.....

24/9/25

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

सेल SAIL

STEEL AUTHORITY OF INDIA LIMITED
(A Govt. of India Enterprise)
Bokaro Steel Plant
Jharkhand Group of Mines
Gua Ore Mines, Gua-833213
(Regd. Office: Ispat Bhawan, Lodi Road, New Delhi)

TECHNO-COMMERCIAL (PART-II)

INSTRUCTIONS TO TENDERERS

TENDER NOTICE NO: GOM/CC/24-25/OTE/157 DATE 24/03/2025

1. The tenderer shall submit the tender in three parts consisting of Part-I [Earnest Money Deposit(EMD)], Part-II(Techno-Commercial) and Part-III (Price Bid) each in separate envelope duly sealed and superscribed with respective Part Number. The tenderer shall deposit Earnest Money of **Rs.15,000/- (Rupees Fifteen Thousand only)**
2. The amount of Earnest Money shall be deposited in the following forms:
   i) Earnest Money Deposit (EMD) amount of Rs. 15000/- (Rupees Fifteen thousand only). The amount of Earnest money shall be deposited in the following forms:-
      - By way of Bankers cheque/Demand Draft /Pay Order from any schedule Commercial Bank except Co-operative and Gramin Bank payable to SAIL, Gua Ore Mines.
      - **TT remittance transfer –NEFT/RTGS/SWIFT**
        For TT remittances/online transfer –NEFT/RTGS/SWIFT,
        The Bank details of SAIL, Gua Ore Mines is as given below :-
        Account Holder Name: SAIL, Gua Ore Mines
        Bank & Branch : State Bank of India, Gua
        Account No. : 11723508228
        IFSC Code : SBIN0016004
      - The proof of such transfer /transaction needs to be submitted as NEFT Fund Transfer Format with the offer in Part –I of the tender in the envelope titled Earnest Money.

   AND/OR

   i) Micro & Small Enterprises (MSEs) / PSUs / Govt. Undertakings and Co-operative Societies / Start-ups as recognised by Department of Industrial policy & Promotion (DIPP) etc., may be exempted from submission of Earnest Money as per extant Government policy. For MSEs, the exemption will be extended on the basis of self – certified copy of Valid Udyam Registration Certificate provided the concerned MSE is also registered in the MSME data bank and MSE is registered for given scope of job/procurement. SSI/NSIC certificate holders are also exempted from submitting EMD and should submit a copy of valid Entrepreneurs Memorandum, if available. In case if it is found that the certification submitted for MSME is not applicable for the scope of job/procurement of this NIT, the offer of such MSME shall be rejected.

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

EMD is to be put in a separate envelope duly sealed and superscribed with the word "Part-I Earnest Money Deposit". All the three envelopes containing Part-I (EMD), Part-II(Techno Commercial) and Part-III (Price Bid) shall be put in a fourth envelope duly sealed, superscribed with Tender Notice No., Name of the job, date of opening and addressed to GM (CC), SAIL-BSL-JGOM, Gua-833213. Tenders not submitted with Part-I (EMD), Part-II and Part-III in a separate covers properly sealed as prescribed above shall be considered as invalid and rejected.

3. Duly filled in tenders are to be deposited in the Tender Box kept at Contract Cell, SAIL-BSL, JGOM, Gua Ore Mines, Gua-833213 on or **before 09/04/2025 by 4:00 P.M**. The tender can be sent by Post or courier, but delayed delivery of tenders will not be entertained.

   The main sealed envelope containing all the sealed envelopes Part-I (Earnest Money Deposit (EMD), Part-II (Techno-Commercial) and Part-III (Price Bid) will be opened at **5:00 PM on 09/04/2025** in the presence of the Tenderers or their authorised representatives who may wish to be present. Immediately thereafter, on the same day, the Part-I envelope containing "Earnest Money Deposit" will be opened. The Part-II offer of those tenderers, whose Part-I (Earnest Money Deposit) will be found in order and submitted as prescribed at (2), will be opened immediately thereafter. Otherwise the offer will be considered as invalid and Part -II will not be opened.

4. The tender shall be **valid for 120 days** for acceptance from the date of opening of tender and prior withdrawal or submission of any fake/false documents/clarifications thereof shall debar the tenderer for participating in any tender by SAIL- BSL JGOM for 12 months followed by banning action as per SAIL Rules & Guidelines.
5. The tenderer shall sign each and every page of the tender documents and submit in the appropriate part of the bid.
6. Tenders not received in the prescribed forms as specified in the Invitation to tender will be liable for rejection.
7. The Tenderer(s) shall duly fill in the "**Form of Tender**" enclosed as Annexure-I in the tender documents and submit along with Techno-Commercial Bid (Part-II) of the Tender. Non-submission of duly filled in & signed form of tender shall make the tender liable for rejection.
8. The Invitation to Tender, Instructions to Tenderers, Special Conditions of Contract, General Conditions of Contract, Form of Tender and Form of Agreement along with the rates quoted in the "Schedule of Rates" together with the Letter of Acceptance and Work Order for awarding of the work and Tenderer's Letter of acknowledgement shall form the contract.
9. In case of any conflict between the terms mentioned in General Conditions of Contract and Special Conditions of Contract, the latter shall prevail.
10. The tenderers shall also furnish the following documents/ details:
    - 10.1 Category of tenderer, whether Proprietary firm, Registered Partnership firm, Private Limited Company, Public Limited company, Co-operative society etc. along with following documents
        - i) In case of Proprietary firm, self-attested copy of affidavit of Sole Proprietary.
        - ii) In case of Partnership firm, self-attested copy of Partnership deed along with amendment if any and proof of registration if any.
        - iii) In case of Limited Companies, Memorandum & Articles of Association, Certificate of Incorporation, authorized, subscribed and paid up capital.
        - iv) In case of Co-operative society, self-attested copy of the certificate of registration from the Registrar of Co-operative societies.

      If required the original documents will have to be produced for verification.

    - 10.2 **Each page of the tender shall be signed by the tenderer**. Tender by a partnership firm shall be signed in the firm's name by one of the partners duly authorised by other partners. Tender by Company shall be signed in the name of the company, by a person duly authorized on its behalf. A power of attorney or other satisfactory proof showing that the person signing the tender document on behalf of the company, is duly

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

authorized to do so, shall accompany the tender. Tender submitted by the Tenderer without furnishing the full particulars and/or documents as asked in tender documents or furnishing particulars or submitting tender documents without strictly adhering to the directions given herein shall be rejected.

10.3 All tenderers/bidders shall submit in the prescribed format placed at Annexure-VII, a Non –Collusive Tendering Certificate to declare whether

a) The proprietor / partner / Director of the tenderer/firm/ company has any relationship within the meaning of section 6 of the companies Act 2013 with any of the employee working in the SAIL-BSL or Director of SAIL including its subsidiaries and if so, give the details.

b) The person or team representing the firm is also representing any other firm participating against the tender and if so, give the details thereon.
Non-disclosure/ Incorrect disclosure of the above details factually by a firm either on its own while submitting its offer or upon enquiry at the option of SAIL during the scrutiny of its offer may invite penal action against the firm, which may include rejection of the offer, suspension of business dealings or both.

10.4.1 Whether the tenderer or any of the Proprietor, Partner, Director, Shareholders or their spouse working as tenderer in SAIL or any Government Department/Public Undertaking has been

a) Black listed
b) Removed from the approved list of Tenderers
c) Demoted to lower class of job
d) Under Orders for banning or suspending business with him/them
If yes, give the details indicating the period

10.4.2 **Banning of Business dealings**

a) If it is found during processing of the Tender, that the Tenderer or his representative has resorted to corrupt, fraudulent practices including misrepresentation of facts and/or fudging/forging/tampering of documents, the bid submitted by the Tenderer shall be disqualified and a ban on any further business dealings shall be imposed for a specified period under the laid down procedure of the Company.

b) If it is found during the validity of the Contract that the Tenderer or his agent/representative or any other person claiming interest under him, indulges in any malpractice/activity prejudicial in the interest of the Plant/Unit or detrimental to the Plant/Unit, equipment and property, the said Contract may be terminated at once and a ban on any further business dealings shall be imposed for a specified period under the laid down procedure of the Company.

10.4.3 **Tenderer's Background and Banning of Business Dealings**

If any Director, Proprietor, Partner and /or Officials of the participating tenderer/Agency is convicted by a Court of Law for offences involving moral turpitude in relation to its business dealings with the Government or any other Public Sector Enterprises or SAIL, during the last five years preceding date of tender opening or during execution of contract, provided such information is known to SAIL, the tenderer would not be eligible for allotment of Contract and if such a tenderer is allotted the Contract by suppression of information, the contract may be terminated at once and a suspension and ban on any further business dealings shall be imposed for a specified period under the laid down procedure of the Company.

The tenderer has to submit a declaration in this respect.

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

10.5 Whether already registered with SAIL/BSL or any other Govt. Department/Public Undertaking? If yes, furnish the following information and submit the documentary evidence.

Sl. No.	Name of the organization registered with	Category of work	Qualified to tender upto Rs.	Date of Registration	Validity of Registration

10.6 Copy of PF/RPFC Registration Code Number, if any

10.7 Registration with ESI, if applicable.

10.8 Details of the Bank Account indicating the name of bank branch & account number to which payment is to be made in the Mandate Form enclosing a with cancelled cheque as per Annexure-II.

10.9 Permanent Account Number.

10.10 GST Registration Number and Certificate of GST Registration. (Preferably tenderer to submit the GST Registration number of Jharkhand State if available).

10.11 A declaration as per format given at Annexure –VIII along with attached documents with respect to applicability of Provision of GST laws for e-invoicing with effect from 1st October 2020 in his / their case.

10.12 TDS Certificate in Form 26AS or 16A for the corresponding period of job execution against the work order (s) under Eligibility Criteria.

10.13 Tenderer has to submit undertaking as per format provided at **Annexure-VI** in their Company's Letter Head

11. The tenderer shall quote for the entire tendered quantity as per scope of work. The tenderer shall be ranked L-1, L-2, ... etc. on the basis of quoted rate (composite amount of derived value for all the tendered items) i.e. lowest rate shall be ranked as L-1 and so on.
The tenderer(s) shall quote prices for all activities detailed in the scope of work given in Special conditions of contract and as per the format given thereupon in "Schedule of Rates"

12. The tenderer is suggested to inspect and examine the mine site, the transport condition including roads and their surroundings as applicable and shall satisfy himself before submitting his tender as to the nature of work, the form and the nature of the mine, siding and road conditions and materials, equipment and labour necessary for the completion of the works and the means of access to site, the accommodation he may require and in general shall himself obtain all necessary information as to risk, contingencies and other circumstances which may influence or affect his tender. No complaints on these accounts shall be entertained after submission of the tender.

13. **Schedule of Price**:
    a) The tenderer(s) shall submit the price bid (Part-III) as per the format given herein as "Annexure-IX".
    b) Duly filled up price bid shall be put in a separate envelope. The envelope containing price bid shall be super scribed with the word "**Part III – Price Bid**" along with Tender Notice no, Name of the job etc.
    c) Tenders containing overwriting or erasing, without authentication with full signature on the page(s) of: "Annexure-IX" (Price Bid) and amount/ quantity not shown in figures and words will be liable for rejection.
    d) The tenderer shall quote the price as percentage of the estimate ***(weather above or below or at par)*** as mentioned in the Price schedule. The percentage shall be equally applicable to all the items of the items of the "Scope of work cum Price schedule". In

General Manager (Mines) & ESL
SAIL-BSL, Gua Ore Mines

case, tendered quote more than one percentage their tender shall be summarily rejected. Any overwriting/correction must be authenticated.

e) The rate in the bid shall cover all statutory duties/taxes/levies as on date of tender except GST. Regarding GST the tenderer need not include the same while submitting their offers.

f) Tender(s) with rates in units different from those prescribed in "Annexure-IX PRICE-BID" will be liable for rejection. Tenders not received in the prescribed format of "Schedule of Rates" specified herein shall be liable for rejection.

g) Conditional tenders either in Part-I or Part-II of the tender shall be liable to be rejected. Tenderer must go through all the terms and conditions provided in the set of tender document and submit bonafide offer.

14. Any request from the tenderer in respect of additions, alterations, modifications, corrections etc. Of either terms and condition or rates of his tenders after opening of the tenders, shall not be entertained under any circumstances. If the tenderer withdraws his tender after opening of the tender, but before the expiry of the validity period of the tender, the Earnest Money shall be forfeited.

15. The successful tenderer shall make his own arrangement for all materials and machines with tools & tackles required for carrying out the job as specified, if any, in the contract and consider the cost, labour cost & other charges to be incurred in proper execution of work within specified time.

16. By submitting a tender for the work, the tenderer will be deemed to have satisfied himself that the rates quoted by him in the tender will be adequate to complete such work according to the specifications and conditions attached hereto and he has taken into account all conditions and difficulties that may be encountered during its progress/execution. Any complaint in this regard after submission of offer shall not be entertained.

17. **SIGNING OF AGREEMENT**

i) Acceptance of the tender will be intimated to the successful tenderer by a Letter of Acceptance (LOA) to be followed by issue of Work Order subject to the tenderer depositing the required Initial Security Deposit (ISD) as mentioned in LOA and submitting attested photocopy of valid documents of the bus within 30 days after receipt of LOA.

ii) In case of failure by the party to deposit the ISD and submit valid documents as stated above within the stipulated date, the EMD is liable to be forfeited. The contractor shall be required to execute an agreement on a Non-Judicial stamp paper of Rs.50/- (Stamp paper to be arranged by the party) within 30 days from the date of issue of work order. In the event of failure on part of the contractor to sign the Agreement within the specified time, no payments shall be made to the party against the said contract till signing of agreement. (Annexure-II)

18. The date of commencement of the contract shall be as stipulated in the Work Order or actual date of starting the job whichever is earlier

19. Canvassing in any form is strictly prohibited and tenders submitted by the tenderer who resort to canvassing, will be liable for rejection.

20. The company reserves the right to accept/ reject any or all tenders without assigning any reason thereof.

21. Tender shall be properly bound and submitted.

22. Tender documents are not transferable.(If issued by Contract Cell,Gua.)

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

23. It shall be the responsibility of the persons submitting the tender to ensure that the tenders have been submitted in the formats and as per the terms and conditions prescribed in the SAIL Website and no change is made therein before submission of their tender. In the event of any doubt regarding the terms and conditions/ formats, the person concerned may seek clarifications from the authorized officer of SAIL. In case any tampering/unauthorized alteration is noticed in the tender submitted from the Tender Document available on the SAIL Website the said tender shall be summarily rejected and the company shall have no liability whatsoever on the matter. However, deviation if any proposed by the tenderer may be separately indicated for acceptance or otherwise of SAIL. Such proposed deviation will not be treated as tampering for the purpose of application of this clause

24. **Evaluation of Price Bids:**

a) The tenderer shall quote **a single percentage above or below or at par** with the rates mentioned in the Price schedule **(Price bid format)** which is equally applicable to all the items of work mentioned in the schedule. In case a tenderer quote more than one percentage for any or more items then their tender shall be rejected.

b) The parties are required to submit offer for all the items of work and for full tenderer quantity. Based on percentage quoted the lowest tender (L-1 tender) shall be evaluated. If two or more parties quote the same percentage and become L-1 in the order ranking based on lowest offer received then in such cases L-1 ranked will be asked to submit revised Price Bid within a stipulated date and time. Based on revised Price Bids received and the lowest offer, the L-1 tender will be decided. However in this case parties will not have the option to quote higher percentage in comparison to their original offer and if any party quotes higher percentage in the revised Price Bid, then his original offer will only be consider for the purpose of ranking along with revised offer of other parties that may be received as mentioned above. In case even after receiving revised Price Bids. It is found that two or more parties have quoted the same percentage and become L-1 then the lowest offer will be finally decided by draw of lots.

c) Order shall be placed on **one party** on the basis of L-1 offer rate and, if required negotiation will be held with L-1 tenderer only. All the tenderes may be required to explain /justify the basis of their quoted price as and when asked for.

25. **REFUND OF EMD TO UNSUCCESSFUL TENDERERS**

The Earnest Money deposited by the tenderer along with the tender shall be returned to the unsuccessful tenderer within 30 days from the placement of work order. In the event the tender of any party is rejected during the course of techno-commercial scrutiny and evaluation, the earnest money shall be returned to such tenderer within 7 days from the date of rejection of its offer. If the tenderer withdraws his tender during validity period of the tender or fails to submit Security Deposit within time specified date as per the clause of Special Conditions of Contract, his Earnest Money Deposit shall be forfeited.

26. **EXEMPTION FROM SUBMISSION OF EMD:**

Small Scale Units/Ancillary Units & Public Sector Units/Govt. Undertakings and Co-operative Societies are exempted from submission of Earnest Money. However they have to submit valid documents for proof in this context along with the tender. For SSI Units, the exemption from submission of Earnest Money will be granted if they have valid registration under the same category of Work. Attested Valid documents for proof in this context will have to be submitted.

27. **PERFORMANCE GUARANTEE BOND**

In case, L-1 tenderer quotes unworkable rates i.e. if the quoted price is less than the lower limit of the estimated price, the tenderer will be asked to justify the quoted rate. On non-acceptance of justification given by Tenderer/ refusal of submitting the justification of quoted rate, the tenderer

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

will be asked to submit Performance Guarantee Bond (PGB) in addition to the Security Deposit and the same is to be submitted along with Security Deposit (SD) within 10 days from issuance of LOA in the form of Bank Draft/ Bank Guarantee as per Annexure-XV. The amount of Performance Guarantee Bond will be equal to the amount which will be the difference between lower limit of estimated price and the quoted price of tenderers and the amount will be communicated in due course. Earnest money, if any, of the tenderers who refuse to give Performance Guarantee Bond, as required, will be forfeited and they will not be considered in re-tendering, if any, within next one (01) year if order/ contract is not finalized from the present tender.

The performance guarantee bond should be in the form of Bank Draft/ Bank Guarantee from any Scheduled Commercial Bank except Co-Operative and Gramin Bank only. In case the tenderer has any outstanding amount with the company against different tender, the same will not be adjusted for this purpose.

28. **FORECLOSE OF CONTRACT:**

The management of SAIL, Gua Ore Mines has the right to foreclose the contract with seven days time without giving any reason and what so ever on the contractor without attending any claim.

29. **BACKING OUT OF L-1 BIDDER:** In case L-1 backs out, re-tendering should be resorted to in a transparent and fair manner without considering the backed out tenderer. Besides forfeiting the EMD (if any) submitted by the said tenderer, the tenderer shall be kept under hold without issue of tender enquiries upto next six month including barring participation in open tenders.

30. **RISK AND COST CLAUSE OF CONTRACT:**

The management of SAIL-BSL, JGOM may invoke the Risk & Cost clause against this tender under the following situation

a) If the L-1 tenderer not deposit the requisite Security Amount (SD) & Performance Guarantee Bond if applicable as per the provision of NIT.
b) If the contractor fails to start the job within stipulated time as specified in Work Order.
c) If the contractor fails to execute the targeted quantity of job as per terms conditions & quantity of Work Order within the stipulated period of contract.
d) If the contractor breaches any of the tender conditions of NIT or contract agreement.
e) If the progress of the job is not satisfactory.

Under this clause the existing contractor will not be allowed to work further and a separate contract will be finalized for the rest of the job and the differential amount, if any, between new rate and the rate discovered through the instant tender, will be deducted from the defaulting party and the party shall not be allowed to participate in the Risk & Cost Tender. However, prior to invoking the said clause, the contractor will be given seven days prior intimation to rectify the default.

31. **SCHEME FOR SETTLEMENT OF CONTRACTUAL/ COMMERCIAL DISPUTES THROUGH MECHANISM OF OUTSIDE EXPERT COMMITTEE**

In case of any contractual/ commercial dispute, tenderer/ SAIL may voluntarily go for resolution of dispute through Outside Expert Committee consisting of experts held senior positions in the Government, Public Sectors or Judiciary and have a robust understanding of the technical, financial, commercial and legal aspects of issues which need resolution. The details of the scheme may be obtained from the SAIL tenders website.

32. MSEs are required to submit a self- certified copy of Valid Udyam Registration Certificate provided the concerned MSE is also registered in the MSME data bank and MSE is registered for given scope of job/procurement. This is required to get proposed benefit under the clause related to payment Terms.

33. Before submitting the tender, the tenderer should ensure that the details/documents submitted as per the Check List at Page-3

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

सेल SAIL

GM (CC), GOM

Annexure-I

TECHNO – COMMERCIAL (PART –II)

FORM OF TENDER

(Tenderer are required to fill up all the blank spaces in this tender form)

To,
The G.M. (CC)
Steel Authority of India Limited

Scope of Work: - Installation of Solar Powered Electric Fencing for the length of 5.27 km around the lease boundary of Duarguiburu Mining Lease of Gua Ore Mines.

Period of Contract:
The contract shall be for a period of 4 **(four) months** from the date of commencement of work as mentioned in the work order or actual date of commencement of work, whichever is earlier.

Sir,

1. I/We having examined the Tender documents for your Tender No.....dated ..... for the the proposed work, we the undersigned offer to execute whole of the said work in conformity with the said tender document containing the Invitation to Tender, Instructions to Tenderers, EMD (Part-I), Special & General Conditions of Contract including Scope of work, Techno-Commercial Part (Part-II) asstated therein.
2. I/We, undertake, if our tender is accepted to commence the work from the date as mentioned in the Work Order and complete the whole of the work within a 4 **(four) months** from the date of commencement. We also agree that the contract shall be signed within the period as mentioned in the Letter of Acceptance.
3. I/We, undertake to deposit Earnest Money as per Clause-1 and Clause- 2 of Instructions to Tenderers (ITT).
4. I/We, undertake to submit the undertaking as per **Annexure-VI** in the Company's Letter Head.
5. I/We agree to abide by this Tender for the period of 120 days from the date of opening of the tender and it shall remain binding on me/us and may be accepted by you at any time before the expiry of the period. I/We also agree that we shall not withdraw the tender during the aforesaid validity period of 120 (One Hundred Twenty) days. However, if I / we withdraw it or vary the tender without the written permission of CGM (Mines), GOM, Gua, he shall have the right to forfeit the Earnest Money Deposit.
6. Should this tender be accepted by you, I / we hereby agree to abide by and fulfill all terms & conditions of contract and in default thereof to pay Gua Ore Mines or their successor or their authorized nominees such sum of money as are stipulated in the terms and conditions contained in the contract.
7. SAIL-Gua Ore Mines has the right to reject all tenders, in part or in full without assigning any reason whatsoever.
8. Till a formal agreement is prepared and executed, this tender along with other documents as stipulated in Clause-9 of Instructions to Tenderers together with your written acceptance thereof shall constitute a binding contract between us.

Dated this _____ day of _____2025

TENDERER:
SIGN----------
NAME----------
DATE ----------

WITNESSES:

General Manager (Mines) & ES
SAIL-BSL, Gua Ore Mines

सेल SAIL

In the capacity of ----------
Signature ---------- Duly authorized to sign tender form and
Name---------- On behalf of----------

Techno-Commercial Part-II)

QUALIFICATION REQUIREMENT (ELIGIBILITY CRITERIA) FOR BIDDERS

1. **The bidders should meet the following Eligibility Criteria:**

(Bidder who meet the below mentioned criteria are only eligible to participate on this tender)

Experience of having successfully completed **installation of Solar Power fencing/ Solar Panel installation (Off grid/ On grid)** or similar work by the bidder during last seven (07)years ending last day of month previous to the one in which tender isissued should be either of the following:

a) **One similar** completed works of value not less than the amount of **Rs 23.56 lakh (excluding GST)**

OR

b) **Two similar** completed works of value not less than the amount of **Rs14.72 lakh (excluding GST) for each order**

OR

c) **Three** completed works of value not less than the amount of **Rs 11.78 lakh (excluding GST) for each order**

d) Self-attested copy of Work Order(s)/ Contract Agreement(s) should be issued from Central/State Govt. Organizations/PSUs/ Public Limited Companies/Joint Venture Company where at least one of the partners shall be Central or State Government Organization or PSU in the name of the tenderer for the relevant period.

e) Self-Attested copies of Work orders, Job Completion Certificate (clearly mentioning the work order number/reference, name of the job, execution period, quantity executed and value) issued in the name of the tenderer by the concerned the Employer.

Or

Self-attested copies of Work orders / Job Completion Certificate (clearly mentioning the work order number/reference, name of the job, execution period, quantity executed and value) issued in the name of the tenderer by the concerned Employer for completion of at least one year of the period of work and at least 50% of the work as per the work order for the work having duration of contract for more than one year.

f) In case job completion certificate is issued without value of completed work, RA bills paid evidencing quantity of completed portion of job and its payment may be considered. However, RA bills must be duly certified by the finance authority of the employer and should clearly indicate work order number/reference, name of the work, period of work, quantity executed and bill paid.

2. **Financial Eligibility**

a) Average annual financial turnover of the bidder for the last three (03) financial years (FYs 2021-22, 2022- 23 & 2023-24) **ending 31st March of 2024** should be at least **Rs.8.84 Lakh excluding GST.**

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

b) In support of turnover, Turnover Certificate from a practicing Chartered Accountant with official seal, UDIN and membership number duly certified by a practicing Chartered Accountant containing annual financial turnover values for the last three financial years, ending 31st March 2024 is to be submitted by the bidder.

Note-

a) The Turnover certificate certified by CA shall contain the Unique Document Identification Number (UDIN) and membership no. of the CA.

BSL reserves the right to call for original documents for verification at any time during tendering, evaluation and /or the execution of the contract. In case of any documents/information submitted by bidder(s) found to be false or containing any misrepresentation of having any fraudulent declaration in it, then in such eventuality, legal action (including cancellation of contract, banning of business dealing, damages, criminal proceedings etc.) as deemed fit may be initiated by BSL against the bidder.

24/3/25
GM (CC), GOM

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

सेल SAIL

SPECIAL CONDITION OF THE CONTRACT

1. **NAME OF WORK**: Installation of Solar Powered Electric Fencing for the length of 5.27 km around the lease boundary of Duarguiburu Mining Lease

2. **SCOPE OF WORK:**

a. The installation of solar fencing shall be done at 06 (Six) different sites along lease boundary and site-wise length is given below:

Sites	Length (In KM)
1	2.08
2	1.10
3	0.94
4	0.60
5	0.30
6	0.25
Total	5.27

The site-wise length of the solar fence given above may vary as per field conditions, however, the total length of the solar fence is 5.27 km

b. The contractor shall supply following items for successful execution of the job.

Sl. No.	Items	Unit	Quantity
1.	Solar Operated Fencing Machine (10 kV to 20 kV or equivalent) with Siren & Cable for operating range upto 2 km fencing length or equivalent.	Nos	6
2.	Battery Connection Cable & Solar Panel Connection Cable	Nos	12
3.	Multi Strand Fencing Wire including wastage (Fencing Boundary Wire 18 SWG/20 SWG or as per requirement)	Meter	26500
4.	Fence Wire Tightener with Spring	Nos	300
5.	Plastic Insulator	Nos	10000
6.	Plastic Corner Insulator	Nos	800
7.	HDPE Pipe of 3 inch Dia (each of length 8 ft) with hollow cross section filled with Cement Concrete	Nos	2000

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

7.	HDPE Pipe of 3 inch Dia (each of length 8 ft) with hollow cross section filled with Cement Concrete & extra supporting pole	Nos	2000
8.	Solar Panel (330- 340 Watt or equivalent)	Nos	6
9.	Lithium Ion Battery 45AH (12V) or equivalent	Nos	6
10.	Solar Panel & Battery Stand & Water Proof Hard Metal Box with stand & Locking System for encasing Fencing Machine, Batteries (GI Pole of size 14 ft& dia 3 inch or equivalent)	Nos	6
11.	Solar Battery MPPT Charger Controller 20 AMP-12V/24V or equivalent	Nos	6

Any other items not listed above, however required for successful installation of Solar Powered Electric Fencing for the length of 5.27 km shall be provided by the contractor at his own cost.

c. HDPE pipe with hollow cross section shall be filled with cement concrete to increase its robustness and strength.

d. Grouting of HDPE pipe upto 2ft height shall be done with cement concrete (Grout Size: 1ft X 1ft by 2ft depth)

e. Clearing of installation site including cutting of bushes shall be done by the contractor at his own cost.

f. Transportation of materials and manpower to the site shall be done by contractor at his own cost.

g. Height of the fencing pillar will be 6ft above ground (2ft below ground) consisting of total 05 nos. of fencing wire in interval of 1 ft and ground clearance of 1ft.

h. Any other ancillaries activities/ items required for successful completion of the job shall be done by the contractor at his own cost.

3. **OTHER CONDITIONS**

a) In case of engagement of machinery, HSD/ fuel/ oil/ lubricant shall be provided by the contractor at his own cost.

b) The rates considered in the "Schedule of Work/Rates" are composite and comprise of labour, equipment, materials, tools and tackles and workmanship including all leads, lifts, handling, conveyance etc. and any other requirement needed to complete the job in totality. The contractor shall on the completion of the work, clear the site and hand over the area in a neat and clean condition. Nothing extra will be paid towards these.

c) The Contractor shall deploy required number of supervisory, skilled, unskilled and auxiliary labour as required for the work and comply with instruction of the Executing Authority / Inspecting Authority.

d) All work shall be executed according to drawings / instructions/figured dimensions provided by Executing/Inspecting authority. Measurements shall be taken on the actual work done; in any case, it shall not exceed the authorized quantities as per the drawings/ instructions/figured dimensions provided by the Executing/Inspecting authority.

General Manager (Mines) & ES
SAIL-BSL, Gua Ore Mines

e) All the materials supplied by the contractor for the work will be as per ISI/BIS specifications/code and /or "Specifications of Civil Engineering Works".
f) The articles, tools and tackles, and workmanship offered for use in the works, shall be of best quality and to the satisfaction of Engineer for the work.
g) The employer reserve the right to terminate the contract without any compensation on whatsoever account, after giving one month's notice in writing.
h) The contractor shall not allow any visitors on the work site without the permission of the Employer / Executing authority.
i) All persons employed by the contractor are to be exclusively under his direct employment and the rule of master and servant will apply as between the contractor and his employees. In addition, the contractor shall directly be responsible for statutory obligation of any or all kind passed from time to time under the Law.
j) In addition to the Special Conditions of Contract, the General Conditions of Contract shall also apply.
k) All other allied jobs shall be done by the contractor as per the instruction of executing/ inspecting authority.
l) Local conveyance for execution of the job will have to be arranged by the Contractor. Necessary permission / gate passes (if required) and site clearance required for executing the job will be arranged by the Company.
m) Demarcation of boundary of length 5.27 km around Duarguiburu lease shall be done by the Survey Department of Gua Ore Mines.

Contractor shall provide a certificate mentioning that the solar powered electric fencing will not cause any physical harm to the intruders/animals who attempts to come in contact with solar fence.

4. **PERIOD OF CONTRACT**

The contract period shall be 04(four) months from the date of commencement of work. The date of commencement of the work shall be reckoned within 10 (Ten) days from the date of issue of work order or actual commencement of work whichever is earlier.

5. **COMPLETION TIME**

The contractor shall start work within 10 days after issue of work order. The work shall be completed in all respects during the contract period from the date of commencement of work at site. Company shall have the right to take possession of or use any completed or partially completed part of work at any time. Such possession or use shall not be deemed to be completion and acceptance of any work not done in accordance with terms of contract.

6. **MATERIALS, TOOLS & TACKLES**

All materials, labour of every description, tools, tackles, services, plant, storage or any equipments and its transport necessary for proper execution and completion of the work shall be arranged and provided by the contractor at his own cost and risk.

7. **Sanitary/ Hygienic conditions**

The contractor has to maintain sanitary and hygienic conditions of work site at his own cost. The contractor shall ensure that supply water is not wasted. The contractor shall ensure closing of all water valves when not in use. The company shall not entertain any complaints regarding bad working conditions such as roads, rains, inundation due to water etc.

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

8. **PREVISIT OF SITE:**

The contractor shall ascertain local condition and all other factors likely to affect the rate to be quoted by him. He will be deemed to have quoted for the incidence of extra cost, if any due to such conditions and other factors. Employer is not liable for any damages whatsoever if conditions differ/varies during the operation of the Contract and no complaint shall be entertained in this regard. If required, tenderers may visit the site between 3.00 PM to 5.00 PM on any working day to assess the quantum of work at site condition before submission of tender. No complaint with regard to site condition will be entertained later. Tenderer may be assisted by Engineer-In-Charge to visit the site.

9. **Defect Liabilty/Maintenance Period:**

i. The Defect Liability/ Maintenance Period shall be 12 (Twelve) months from the date of completion for complete scope of job. During the Defect Liability Period if any defect is found in the work executed by the contractor, the contractor shall rectify the same at its own cost. On successful completion of Defect Liability Period, a certificate will be issued by Executing authority / Inspecting authority towards successful completion of Defect Liability/ Maintenance Period. Successful completion of Defect Liability Period will be considered when:

   a) The amount of LD if recoverable has been recovered from the contractor.
   b) The contractor has fulfilled all other obligations liable to him.

10. **QUANTITY VARIATION**

The quantities indicated in the schedule of quantity are to be considered for submission of the offer for Tender purpose. Actual amount payable shall be based on actual site measurement approved by the Employer or their authorized representative. The unit rate quoted by the tenderer shall be firm for the amount irrespective of the quantity variation. **The quantity may vary to the extent of ±10% as per the requirement to be decided by the Engineer-in-charge.** The payment for increased quantities of items will be paid as per work order rate.

11. **METHOD OF MEASUREMENT**

There may be variation in the quantities indicated. Payment will be made on the actual quantities executed. Log book/Measurement book must be signed by the contractor, Inspecting/Executing Authority after measurement.

12. **SUBMISSION OF BILL**

The Contractor shall submit the bill(s) neatly prepared or typed, each page of bill must contain work order no. against which bill is being claimed, numbered (indicating total number of pages) and signed by the contractor with date in 05(Five) copies along with measurement book (M.B.) to the Engineer In-Charge (EIC) or his authorized representative. After checking and certifying the bill and MB, the same must be sent to finance within 30 days for release of payment if found in order. Incase of any delay in submission of bill to (F/A) within 30 days approval of C.A will be required to clear the RA bill.

The following documents will be required for releasing the RA bill:

i. Certified by Inspecting, Executing /operating authority
ii. Labour Clearance certificate issued by Labour Contract Cell by HR deptt.
iii. Copy of measurement/Log book duly certifed by Inspecting / Executing officer

The following additional documents will be required for releasing the final bill:

i. Completion report for whole work duly certified by Inspecting/Executing authority.
ii. No demand Certificate from employer.

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

iii. No claim certificate against the contractor.

Contractor shall submit bill on monthly basis depending on the actual progress of executed.

13. **PAYMENT TERMS**

The payment to the contractor will be released on the basis of total quantity of work done for the respective items of work as per schedule of work cum Price Bid format. The contractor shall submit monthly running Account bill duly signed, against work done as per contract. These will be verified by the Operating Authority through the quality and volume of the work executed and recorded in the measurement book. The Operating Authority or his authorized representative certify the bills if found in order for the work executed for the release of payment to the contractor.

a) Release of payment against R.A Bill and Final Bill will be subject to clearance by the CLC/P&A Dep't that the contractor has paid the above statutory benefits when due for which the contractor shall be required to produce the documentary evidence.
b) There is provision for payment of monthly Running Account (R/A) Bills against Completed Quantities. Monthly RA Bills will be duly certified by the Executing/ Inspecting authority. Payment against R.A. Bill shall be made to the contractor on submission of R.A. bill with requisite documents.
c) 93% payment against the RA bill shall be made to the contractor on submission of RA/Final bills along with requisite documents within 60 days on certification of the Inspecting/Executing Authority. 7% of the bill shall be kept as Security Deposit in addition to 3% ISD.
d) 3% ISD amount along with 7% retention amount (SD) shall be released after completion of defect liability period duly certify by Inspecting/Executing Authority.
e) All taxes & other statuary deduction, if any will be made as per rules.
f) The bills in triplicate are to be submitted to Engineer-In-charge & after certification if found in order, will be forwarded to F&A for release against work done.
g) Payment against final bill shall be made after satisfactory completion of the work and submission of job completion certificate subject to payment of all statutory dues by the contractor to his workmen.

14. **FINAL BILL**

The final bill of the contract will be released only after furnishing clearance certificate from the Head of the executing department, SAIL-JGOM, Gua Ore Mines, Gua.

15. **ESCALATION**

The rate shall be firm during the tenure of the Contract. No escalation will be paid.

16. **LAND**

The employer may allot land near the job location, if available free of charge on which the Contractor shall build temporary accommodation for his office, stores, labourers, watchman, staff and himself. He must maintain the area allotted to him, in a neat and clean condition as required by the employer.

On completion of the work all such temporary structures must be removed by the contractor and brought back to it original condition at his own cost. The Employer reserves the right on completion of the work to takeover of all the structures put up by the Contractor at terms and conditions to be mutually agreed upon.

17. **ACCOMODATION/CONVEYANCE:**

The Contractor shall make own arrangement for accommodation of their personnel. However on request, Gua Ore Mine may provide accommodation on chargeable basis, as per Company's Rules, depending on the availability of the same. Fooding charges shall be borne by contractor. Transportation and conveyance charges to visit Gua Ore Mines shall be borne by contractor.

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

18. **INSURANCE**

The successful tenderer shall have to insure his workmen against workmen compensation Act 1923 & also obtain insurance to cover for the full contract period and produce the same to the Executing Authority before commencement of work. The work should not be commenced before the contractor obtains insurance as mentioned above. In case of extension of contract, insurance mentioned above shall have to be obtained for the extended period also

19. **SECURITY DEPOSIT**

a) The Security Deposit shall be equivalent to the 10 % of the work order value out of which 3% will be deposited by contractor within 10 (ten) days the issuance of LOA as ISD. The Security Deposit shall bear no interest and refund will be as per provision. During operation of deviation quantity if any, Security Deposit @ 3 % shall be recovered from the progressive bills of the contractor.

b) The company shall be at liberty to deduct and appropriate from the Security deposit such penalties and dues as may be payable by the Contractor under the contract and the amount by which the Security Deposit shall get diminished will be made good by further deduction from the Contractor's subsequent bills in the same manner as aforesaid until the security deposit is restored to its full limit mentioned above. On due and satisfactory performance and completion of the contract in all respect and settlement of final bills and completion of defect liability period the Security Deposit will be returned to the Contractor without any interest on presentation of an absolute No Demand Certificate in the form as may be prescribed by the company. No claim shall lie against the company on any account whatsoever in respect of this contract after the receipt of No Demand Certificate from the Contractor.

c) The company shall have the full right to forfeit and appropriate the security deposit on breach of any of the terms and conditions laid down herein or will be applicable in future, without prejudice to the rights of the company or otherwise available under the law.

d) Any dues of the company against the Contractor under the contract resulting from award of work to some other agency at the risk and cost of the Contractor shall be adjustable against the security deposit and if SD is insufficient, the same could be recovered from the Contractor.

a) In case of the termination of the contract by the contractor, the company shall have right to forfeit the Security Deposit.

20. Statutory taxes (i.e. Income tax, sales tax etc.) will be deducted at source as per rule.
21. Certification from the User/Indenting department for satisfactory completion of the job will be taken before closer of contract and releasing of Security Deposit.

22. **REFUND OF SECURITY DEPOSIT**

The refund of Security Deposit shall be made on successful completion of the maintenance period in terms of this contract. For this the contractor shall obtain a certificate from Head of the executing dep't about satisfactory completion of the Guarantee period. If any time during the course of work, the quality or progress of work found is not satisfactory, the contract will be terminated and Security deposit against the work will be forfeited and job will be got done by other agency at the risk, cost & responsibility of the original contractor.

23. **EXECUTING AUTHORITY:** Sri. Dharmendra Sethia, Dy. Mgr. (E&L) and Shri. Ritesh Raj Jr.Mgr. (Elec.) or his authorized representative will be the Executing authority for this contract.

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

24. **INSPECTING AUTHORITY:** Sri. Dr. T.C. Ananda, DGM (Geo.) and E&L or his authorized representative will be the Inspecting authority for this contract.

25. **PAYING AUTHORITY:** Head of Finance or his authorized representative shall be the paying authority for all the related bills of the work.

26. **LIQUIDATED DAMAGE FOR DELAY IN COMPLETION**
The job against the job order(s) have to be completed within the schedule completion period. Any delay in completion of the work reasons attributable to the contractor, shall attract the panel provision of the contract which is as follows:
If the contractor fails to complete the work within the prescribed completion period, the company shall be entailed to recover by way of liquidated Damage charges not by way of penalty, a sum equivalent to 0.5% of the total contract value per week subject to maximum of 5 % of the work order value.

27. **SAFETY NORMS:** All necessary safety precautionary measures are to be adopted by the successful contractor. The contractor will be solely responsible to ensure safety of the workmen and equipment under them.
    a) Except in special circumstances (to be recorded in writing and with due approval) the contractor will not be allowed to employ/petty contractors.
    b) At each work site, contractor will employ a supervisor with specifically assigned duties for ensuring safe working and will inform the local management in writing. No work can be started by the contractor at any site without such employment.
    c) Such supervisors will constantly be in touch with the Engineer-in-Charge and will conduct work as per his guidelines. The suitability to the supervisor for the purpose of ensuring safety will be assessed by Engineer-in-Charge and if needed, he shall be given suitable training.
    d) The contractor employing more than 400 persons has to appoint Safety Officer to look after the Safety aspects.
    e) Safety Officer/Supervisors must ensure that the Contractor's employees use safety appliance/PPE's at the worksite.
    f) Safety Officer/Supervisors must ensure that the Contractor's concerned must visit the entire area of worksite every day and take immediate action to remove hazards whenever noticed.
    g) All hazardous and serious jobs must be performed after safety protocol is signed by all the concerned agencies and taking all safety measures.
    h) Every contractor must ensure that all the working areas are as per provisions of Mines Act. Regulations & Rules and By-Laws made there under.
    i) Every contractor must maintain statutory registers as per relevant Rules, Regulations etc.
    j) "Permit to work" system is to be implemented on the site and a register shall be maintained.
    k) The contractor shall maintain good housekeeping at the worksite for safe working.
    l) Contractor shall follow DGMS safety guidelines, rules and regulations prevailing in the area.

28. **SUB-CONTRACTING:** The Contractor shall not assign the contract, or any other part thereof, or any benefit or interest therein or there under, without the prior written consent of the Employer. The Contractor shall not sub-contract the Works, except where otherwise provided by the contract, without the written consent of the Employer, and such consent if given shall not absolve the Contractor from responsibility, liability or obligation under the contract and he shall be responsible for the acts, defaults or neglects of any Sub-Contractor, his agents, servants or workman as fully as if they were the acts, defaults or neglects of the contractor, his agents, servants or workmen. Provided

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

always that the provision of labour on a piece-work basis shall not be deemed to be subletting under this clause.

29. **PENALTY FOR ACCIDENTS**

In case any accident involving any Contract work person or any violation reported by any authorized person during the contractual operation in the Mines while performing the Contract a penalty shall be charged on the Contractor as indicated below over and above the Statutory responsibility of the Contractors for payment of Compensation

Sl. No.	Type of Accident / Violation of Safety Regulation	Penalty for each Case		
		% of contract value	Minimum in Rupees	Maximum in Rupees
1	Fatal Accident	2.0 %	10,000/-	50,000/-
2	Serious Accident (as defined in section 2(1) q Mines Act, 1952).	0.5 %	10,000/-	50,000/-
3	Reportable Accident (as defined in section 2(1) pp Mines Act, 1952).	0.1 %	1,000/-	5,000/-
4	Any repeated violation of the Safety instruction by the Authorized Person.	0.05 %	100/-	500/-

The amount of Penalty as above will be deducted from his running on account bill (in a max. of 2 subsequent installments) and if not possible, from the Security Deposit.

However, in the subsequent Investigation / Enquiry report made by the Committee duly approved by Competent Authority, it is proved that the Contractor has taken all reasonable steps to ensure the Safety of his workmen and the causes contributing to the accidents is beyond the control of the Contractor, then the amount deducted may be refunded to the Contractor with the approval of the Competent Authority without any interest.

30. **Tax Deduction at Source (TDS) under section 194(O) income Tax Act 1961 at applicable rate where the contractor is selected through RA**

Tax Deduction at Source (TDS) under newly introduced Section 194(O) income Tax Act 1961 at applicable rate will be made from the monthly bill or RA Bills and/or Final Bills where the L-1 Tenderer (the Contractor) has been finalized based on price discovery through Reverse Auction (RA).

The amount of TDS so deducted will be sent at month end by the Deductor to the concerned Govt. authority and their subsequent issuance of TDS certificate in favour of the Deductee (the Contractor). On a transaction/bill where TDS u/s 194(O) is applicable, no other Tax Deduction at Source under Income Tax Act shall be made for same transaction/bill. In other words the existing practice of TDS deduction under Section 194C or any other Section of Income Tax Act shall be discontinued once TDS u/s 194(O) becomes due.

Further in case price discovery is done through opening of Physical Price Bid i.e. without discovery of L-1 price through successful RA, NO TDS u/s 194(O) shall be deducted and existing practice of TDS Deduction under Income Tax shall continue.

31. **STATUTORY AND OTHER OBLIGATION ON THE PART OF THE CONTRACTOR**

a) Registers under the Mines Act shall be maintained by the Company but maintenance of such records shall not make the Company liable for meeting any obligations towards the Contractor's labour who shall be deemed to be under his direct employment. The relationship of "Master and Servant", shall prevail between the contractor and his workers and not between the Company and the Contractor's workers at any time.

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

b) The Company shall not accept any liability for giving employment to the Contractor's workers at any time. The Contractor shall make this amply clear to their Workers.

c) The tenderer while quoting the rates in the "Schedule of Rates" given in the Price Bid (Part-III) should take into account the fringe benefits & other facilities relating to labour at the mines considering indicated contract period.

d) Continuous use of safety appliances by the labourers engaged in the tendered work will have to be ensured by the Contractors. Non-use of such appliances will make the Contractor liable for penal action, as deemed fit by the Management.

e) Prior to commencement of the job, the party has to send their laborer for PME/IME and VT training as per rules.

f) Persons reporting to the site must possess a valid gate pass. Contractor shall arrange gate pass for the person to be engaged in work before commencement of work in consultation with I/c HRD.

g) For PME/IME, party has to meet with I/c HRD, the Nodal Agency for PME/IME and VT training.

h) Photo Identity Card: The Contractor shall provide Photo Identity Card to all his workmen duly certified by Competent Authority and their workmen shall produce the same as and when asked by the Mines Management.

i) In the event of failing to discharge obligations required to be complied by the contractor by or under any statute, the mine management shall be entitled to rescind the contract at the sole risk and cost of the contractor and / or recover from him the amount of loss sustained by Boakro Steel Plant, Jharkhand Group of Mines, on this account.

j) The contractor shall maintain the records and registers in respect of workers employed by him as required under various statutes and/or as instructed by the management of Bokaro Steel Plant, Jharkhand Group of Mines, Gua Ore Mines from time to time and shall produce the same for verification on demand from the statutory authorities concerned and the authorised representative of the management of Head of Gua Ore Mines, Jharkhand Group of Mines, Bokaro Steel Plant.

k) The contractor shall be legally bound to fulfill all the obligations developing on the Company in the capacity of Owner / Occupier / Agent under the various Acts and Rules in force from time to time and applicable to such works as are awarded to them as per provisions made therein.

l) The contractor from his side shall intimate the Employer as to who will be the person in-charge from his /their side for operation at the Surface Lease of Gua Ore Mines. The person incharge or authorized representative of contractor should always be available at the site of work during working hours. The contractor should indicate as to who is the Director/partner responsible for the implementation of the Mines Act and such other provisions as has been enumerated in this contract from his /their side.

m) The contractor has to provide necessary safety appliance to the workers depending upon the type of work free of cost. In case the contractor fails to provide these protective equipments as per statutes, employer may supply these protective equipment as per statutes to the workers of the contractors and cost of these equipment as fixed by the employer will be recovered from the contractor.

n) In case of any dispute regarding entitlement of safety appliances to a particular class of workers, Employer/ Engineer's decision will be final and binding on the contractor.

o) Before start of work, the contractor has to get his/their firm registered under the Contract Labour (Regulation and Abolition) Act, 1970 and Contract Labour (Central) Rules, 1971 and submit the labour licence to the Engineer or his authorised representative within the time stipulated in the LOA and keep the same valid during the period of contract.

p) The contractor has to submit true copy of the monthly labour payments made by him/them to the Engineer/Executing Authority immediately after such payments are

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

made. All monthly payments are to be made to the workers as per the payment of wages Act.

q) The contactor shall submit to the Executing Authority/Engineer, daily and weekly return of labour employed for the work in prescribed Performa.

r) The contactor shall maintain registers / forms required to be maintained under the Mines Rules, 1955, in the forms specified in schedule to the "Ease of compliance to maintain registers under various labour laws rules 2017" which is summarized below:

- Form A: Format of Employee Register
- Form B: Format for wage Register.
- Form C: Format of Register of Loan /Recoveries.
- Form D: Format of Attendance Register.
- Form E: Format of Register of Rest / Leave / Leave Wages.
- Any other form/register/record as required and directed by the Engineer or his authorised representative

The registers / forms can be maintained either in electronic form or otherwise and shall be provided to the concerned inspector when required. If any register is maintained in electronic form, then, lay out and presentation of such register may be adjusted without changing the integrity, serial number and contents of the columns of the register, but not otherwise. All the above registers are to be kept in the site office during the working hours and should be readily available for inspection by the Employer/other representative or the Statutory Authorities

s) The contractor shall be solely responsible and liable for contravention of Environmental or Forest Laws arising out of his acts or commissions. The contractor will indemnify the management against any legal action taken by the State/Central Government.

t) All statutory rules and regulations prevailing in the area shall be observed by the contractor as may be applicable to him from time to time.

u) During the period of contract, if any government dues or other dues under whatsoever Act / Attachment / Notice related to the contractor may be received by the company, the same shall be realize from the contractors.

v) The contractor shall carry out such instructions of the company relating to the provisions of various Acts, applicable to mines as may be issued to him from time to time.

w) The successful tenderers shall also make all arrangements at his own cost for obtaining clearance/permission from the Forest Deptt., Jharkhand State Pollution Control Board and other statutory bodies for establishment and operation of equipment, plant and machineries etc.

x) The contactor shall not allow any visitors on the work site without the Permission of the employer /Executing Authority.

y) The contractor shall visit the site(s) and ascertain local condition, traffic restriction, facilities for drainage on the site during the work, obstruction in the area and all other factors likely to affect the rate to be quoted by him. He will be deemed to have quoted for the incidence of extra cost, if any due to such site conditions and other factors.

z) Contractor has to follow Recommendations of 12th conference on Safety in Mines held on 28th &29th January, 2020 at New Delhi

32. **COMPENSATION AND LIABILITY CLAUSE**

In the event of accidents resulting into death or permanent disability of a member of general public caused solely and directly from any unintended and unforeseen injurious occurrence due to negligence on the part of the contractor in any premises owned/under the jurisdiction of Plant/Unit of SAIL where any official activity is being carried out / public service is being carried out, such contractor shall be liable to pay compensation as follows:

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

i) Rs. 10,00,000/- (Rupees Ten Lakhs) : In the event of death or permanent disability resulting from loss of both limbs

ii) Rs. 7, 00,000/- (Rupees Seven Lakhs) : In the event of other permanent disability."

33. **Payment of Royalty & other Taxes**

The Royalty and Cess shall be paid by the employer. All other taxes, duties, levies etc. (except GST) including local taxes if imposed by panchayat /Municipality/local government bodies on or before the date of tender shall be borne by and paid by the tenderer and these should be included in his rates. Any statutory taxes/duties/levies which are levied after the date of the tender shall be reimbursed to the tenderer if the same is applicable to mines on production of such documentary evidence as required and /or applicable under the relevant laws. The rates quoted shall be inclusive of all statutory expenses

a) TAXES AND DUTY CLAUSE- FOR TENDER TDS FOR INCOME TAX

Tax deduction at source (TDS) shall be made towards income tax from all the bills of the contractor at applicable rates as per Income Tax Act and Rules

Other Taxes

For the purposes of levy and imposition of GST, the expressions shall have the following meanings

- GST - means any tax imposed on the supply of goods and/or services under GST Law.
- Cess - means any applicable cess, existing or future on the supply of Goods and Services as per Goods and Services Tax (Compensation to States) Act, 2017.
- GST Law - means IGST Act 2017, CGST Act 2017, UTGST Act, 2017 and SGST Act, 2017 and all related ancillary Rules and Notifications issued in this regard from time to time.

b) The rates quoted by the Vendor/Supplier/Tenderer shall be inclusive of all taxes, duties, levies and Cess except GST. Vendor/Supplier/Tenderer has to clearly show the amount of GST separately in the Tax Invoices raised by them. Further, it is the responsibility of the Vendor/Supplier/Tenderer to make all possible efforts to make their accounting and IT system GST compliant in order to ensure timely availability of Input Tax Credit (ITC) to SAIL-BSL-GOM.

c) SAIL-BSL shall declare in the Tender about value / estimated value of free issue of material and services, if any, involved in the execution of the contract. The Tenderer should consider the same while working out the GST liability, if any. Further in cases where GST is leviable on any facilities provided by SAIL and used by Vendor/Supplier/ Tenderers and the consideration for which is recovered by SAIL- BSL-GOM in the form of reduction in the value of invoice raised by Vendor/Supplier/Tenderer, then SAIL- BSL-GOM will raise GST invoices on such transactions and the same will be borne by Vendor/Supplier/Tenderer.

d) Evaluation of L-1 prices shall be done based on landed cost net of Input Tax Credit of GST, if available to SAIL- BSL-GOM. SAIL- BSL-GOM shall evaluate the offers on the basis of the quoted rates only and any claim subsequently by the Vendor/Supplier/Tenderer for additional payment/liability shall not be admitted and has to be borne by the Vendor/Supplier/Tenderer.

e) In case the Vendor/Supplier/Tenderer is covered under Composition Scheme under the GST law, then the Vendor/Supplier/Tenderer should quote the price inclusive of GST. Further, such Vendor/Supplier/Tenderer should mention "Cover under composition system" in column for GST of the price schedule. The Vendor/Supplier/Tenderer should also carefully understand the implication of Input Tax Credit (ITC) before quoting the rates.

f) For the purpose of this contract, it is agreed between the parties that if any new taxes, duties or levies other than GST is introduced subsequent to the final date of submission of tender or

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

reverse auction by the Central/State Government & Local Authorities and such new taxes, duties or levies become payable, then an equitable adjustment on account of new taxes, duties or levies in the contracted price shall be made which shall be subject to the production of documentary evidence by the Vendor/ Supplier/ Tenderer. This provision shall be applicable only during the original period of contract. However, during the extended period of contract, if any, this provision shall be applicable as follows:

- If input tax credit (ITC) is available, the adjustment in contract price for such new tax shall be made.
- In other cases (i.e. where tax credit is not available), adjustment in contract price shall be made only if the new tax is enacted during the period of extension arising out of reasons attributable to SAIL- BSL-GOM.

g) In case of variation (increase/decrease) in the rate of GST after the final date of submission of tender or reverse auction, the said revised rate shall be reimbursed or recovered on production of relevant statutory documentary evidence. This provision shall be applicable only during the original period of contract. However, during the extended period of contract, if any, this provision shall be applicable as follows:

   i) If input tax credit (ITC) is available, the said revised rate shall be reimbursed or recovered.
   ii) In other cases (i.e. where input tax credit is not available), the said revised rate shall be reimbursed only if the reasons for extension of the contract is attributable to SAIL-BSL. In any case, recovery shall be made in case of a downward variation in the rate of tax

h) Vendor/Supplier/Tenderer agrees to do all things not limited to providing GST complaint Tax Invoices or other documentation as per GST law relating to the supply of goods and/or services covered in the instant contract like raising of and/or acceptance or rejection of credit notes/debit notes as the case may be, payment of taxes, timely filing of valid statutory Returns for the tax period on the Goods and Service Tax Network (GSTN), submission of general information as and when called for by SAIL- BSL-GOM in the customized format shared by SAIL-BSL-GOM in order to enable SAIL- BSL-GOM to update its database, etc. that may be necessary to match the invoices on GSTN common portal and enable SAIL- BSL-GOM to claim input tax credit in relation to any GST payable under this Contract or in respect of any supply under this Contract.

i) In case Input Tax Credit of GST is denied or demand is made on SAIL- BSL-GOM by the Central/State Authorities on account of any non-compliance by Vendor/Supplier/Tenderer, including non-payment of GST charged and recovered, the Vendor/Supplier/Tenderer shall indemnify SAIL- BSL-GOM in respect of all claims of tax, penalty and/or interest, loss, damages, costs, expenses and liability that may arise due to such non-compliance. SAIL- BSL-GOM, at its discretion, may also withhold/recover such disputed amount from the pending payments of the Vendor/Supplier/Tenderer and /or also from any sum payable to the tenderer by any other SAIL Plant or Unit.

j) Vendor/Supplier/Tenderer shall maintain high GST compliance rating track record at any given point of time.

k) Vendor/Supplier/Tenderer is required to pass on the benefit arising out of introduction of GST, including seamless flow of Input Tax Credit, reduction in Tax Rate on inputs as well as final goods by way of reduction of price as contemplated in Section 171 of the CGST Act relating to Anti-Profiteering Measure and the relevant provisions of GST Law.

l) Vendor/Supplier/Tenderer shall avail the most beneficial Notifications, abatements, exemptions etc., if any, as applicable for the supplies under the Goods and Service Tax Act.

m) In case e-Invoicing is applicable to the contractor at any time during the currency of the contract, the Contractor shall be bound to submit GST Law complaint e-Invoice having a valid IRN (Invoice Registration Number) and QR code on such e-Invoice to be issued from 1st October 2020 onwards. Failing to issue/submit such e-Invoice where ever due shall lead to stoppage of

General Manager (Mines) & ESL
SAIL-BSL, Gua Ore Mines

any payment under the contract (refers Declaration submitted by the contractor as per Annexure-VIII along with his offer while participated in subject tender as bidder).

34. **TDS (Tax Deducted at Source) under GST laws**

a) TDS under GST laws is to be deducted by the purchaser (SAIL- BSL-GOM) at the specified rate under the GST Laws as applicable on each and every payment to be made under the contract when the contract value (excluding any taxes including GST) exceeds Rs.2.50 lakh under both the situation of inter-state and intra-state supplies of goods and / or services under the subject contract.

b) Any further requirement for compliance as arisen under GST laws in this regard during the currency of the subject contract shall also be applicable for the subject contract

35. **Basis of Rates & Impact of Taxes etc.**

35.1. The rates for the work will be composite and comprising of labour, equipment, all tool & tackles, materials and workmanship including all leads, lifts, handling, conveyance, enabling work, diversion etc. The contractor shall include in his rates, cost for all the items including contingencies as envisaged in the tender documents.

35.2. The rates quoted shall be inclusive of all statutory expenses. The contractor shall pay all taxes (except GST) which may be levied and no compensation on this account shall be allowed. However, Income Tax shall be deducted from every running bills as per rules and deposited to the statutory authority for which a TDS certificate will be issued by the company at the appropriate time.

36. **Performance Guarantee Bond (PGB)**

In case, L-1 tenderer quotes unworkable rates i.e. if the quote price is less than the lower limit of the estimated price, the tenderer will be asked to justify the quoted rate. On non-acceptance of justification given by Tenderer / refusal of submitting the justification of quoted rate, the tenderer will be asked to submit Performance Guarantee Bond (PGB) (in addition to the Security Deposit) and the same is to be submitted along with Initial Security Deposit (ISD) after issuance of LOA in prescribed format in the form of Bank Draft/ Bank Guarantee. The amount of Performance Guarantee Bond will be decided by SAIL-BSL, JGOM GOM and will be communicated in due course. In case the tenderer refuse to give Performance Guarantee Bond as indicated above, actions as per Bid Securing declaration shall be taken, Contract will be cancelled and they will not be considered in re-tendering under risk and cost basis within next twelve months. The performance guarantee bond should be in the form of Bank Draft / Bank Guarantee from any Scheduled Commercial Bank except Co-Operative and Gramin Bank only. In case the tenderer has any outstanding amount with the company against different tender, the same will not be adjusted for this purpose.

37. **Action against Poor Performance**

If, at any time the performance of the tenderer shall be so poor as to make it probable in the judgement of the company that the tenderer will fail to keep up the target at some period during execution of the contract, or if the tenderer fails or neglects to observe, perform or comply with any of the terms, conditions and stipulations contained in the tender documents and the Agreement, the company shall have full power to adopt any of the following courses, as deemed fit, notwithstanding that any previous default on the part of the tenderer has been waived or overlooked

37.1. To rescind the contract of which rescission notice in writing to the tenderer under the hand of the Head of Gua Ore Mines, BSL JGOM shall be conclusive evidence and in which case the security deposit of the tenderer shall stand forfeited and be absolutely at the disposal of the Company.

37.2. To engage Labour/Equipments and to supply materials to carry out the work, or any part of the work, debiting the tenderer with the cost of the labour and the price of the

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

materials (of the amount of which cost and price certificate of the Executing Authority of the contract shall be final and conclusive against the tenderer) and crediting him with the value of the work done in all respects in the same manner and at the same rates, as if it had been carried out by the tenderer under the terms of his contract. The certificate of the Executing Authority, as to the value of the work done shall be final and conclusive against the tenderer

37.3. To measure up the work of the tenderer, and to take such part thereof, as shall be unexecuted, out of his hands and to give it to another tenderer/Agency to complete, in which case any expenses which may be incurred in excess of the sum which would have been paid to the original tenderer if the whole work had been executed by him (of the amount of which excess the certificate in writing of Executing Authority, shall be final and conclusive) shall be borne and paid by the original tenderer and may be deducted from any money due to him by the company under the contract or otherwise, or from his Security Deposit, or otherwise.

37.4. In the event of any of the above courses being adopted by the Executing Authority, the tenderer shall have no claim for compensation of any loss sustained by him by reason of his having purchased or procured any materials or entered into any agreements or made any advances on account of or with a view to the executing of the work or the performance of the tenderer and in case the contract shall be rescinded under the provision aforesaid, the tenderer shall not be entitled to recover or be paid any sum for any work thereto or actually performed under this contract unless and until the Executing Authority will have certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified.

38. **Foreclosure of Contract**

The contract can be foreclosed by the employer by giving 7 days prior notice without assigning any reason whatsoever. No claim for any loss or damage incurred by the Contractor due to such foreclosure of contract shall be entertained.

39. All the regulatory terms & conditions, guidelines etc. as applicable in SAIL shall be followed while processing the tender and executing the contract.

GM (CC), GOM

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

सेल SAIL

Annexure-II

DECLARATION FORM

(To be given in letter head of the Bidder having name and complete address of the Bidder)

Place: .....
Date: .....

To,
GM (CC)
SAIL-BSL
Gua Ore Mines
PO-Gua, Dist.: West Singhbhum
Jharkhand-833213.

Subject: Declaration with respect to clause no 10.3, 10.4.1, 10.4.2, 10.4.3, 10.5 of Instruction to Tenderer.

Dear Sir,

10.3 With reference to the above referred tender of SAIL, Gua Ore Mines, I ..... (Name), Proprietor of the firm/ on behalf of the firm/ on behalf of (strikeout whichever is not applicable) M/s ....., hereby declare that I/ the partners of the said firm/ Director(s) of the company (Strikeout whichever is not applicable) have no relationship with any employee in SAIL.
Further it is declared that I/ the partners of the firm/ the Director(s) of the Company (strikeout whichever is not applicable) have no relationship with any of the Director(s) of SAIL including its subsidiaries.

10.4.1 I ..... (Name), Proprietor of the firm/ on behalf of the firm/ on behalf of the company (strikeout whichever is not applicable) M/s ....., hereby declare that myself or spouse/ the partner of the firm or his/ her spouse/ Director(s) of the company or his/ her spouse (strikeout whichever is not applicable) working as contractor in SAIL or any Government Department/ Public Undertaking has not been:

a) Black Listed
b) Removed from the approved list of Contractors
c) Demoted to lower class of job
d) Under orders for banning or suspending business with him/ her/ them

10.4.2 I ..... (Name), Proprietor of the firm/ on behalf of the firm/ on behalf of the company (strikeout whichever is not applicable) M/s ....., hereby declare that myself or spouse/ the partner of the firm or his/ her spouse/ Director(s) of the company or his/ her spouse (strikeout whichever is not applicable) doesn't indulges in any mal practice/ activity prejudicial in the interest of the Plant/ Unit or detrimental to the Plant/ Unit, equipment and property.

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

10.4.3 I ..... (Name), Proprietor of the firm/ on behalf of the firm/ on behalf of the company (strikeout whichever is not applicable) M/s ....., hereby declare that myself or spouse/ the partner of the firm or his/ her spouse/ Director(s) of the company or his/ her spouse (strikeout whichever is not applicable) doesn't convicted for any criminal offence involving moral turpitude/economic offences within the last preceding seven years w.e.f. date of tender.

10.5 I ..... (Name), Proprietor of the firm/ on behalf of the firm/ on behalf of the company (strikeout whichever is not applicable) M/s ....., hereby declare that we are already registered/ not registered (strikeout whichever is not applicable) with SAIL Plants/ Units or any Govt. Department/ Public Undertaking

Name of the organization	Category of work	Qualified to tender upto Rs.	Date of Registration	Validity of Registration

Yours faithfully,

.....

(Name and Designation of the authorized signatory)

General Manager (Mines) & E.C.
SAIL-BSL, Gua Ore Mines

GENERAL CONDITIONS OF CONTRACT

1. **DEFINITIONS:**

In the contract (as hereinafter defined) the following words, definitions and expressions shall have the meanings hereby assigned to them. Except where the context otherwise requires.

1.1 Approved means approved in writing, including subsequent written confirmation of previous verbal approval, and "approval" means approval in writing including as aforesaid.

1.2 Company means Steel Authority of India Ltd., having its Registered Office at "Ispat Bhawan", Lodi Road, New Delhi - 110003.

1.3 Competent Authority means Head of the Department of the employer and any other Executive empowered under its Delegation of Powers and also includes his nominee.

1.4 Contract means the Invitation to Tender, Instructions to Tenderers, General Conditions of Contract, Special Conditions of Contract, drawing specifications, Scope of Work showing approximate quantities, tender submitted by the Tenderer, including his price offer, Performance Guarantee Bond and other Bonds, Letter of Acceptance, Work Order and the Contract and any communication having the effect of amendment of the contract, and the contract agreement.

1.5 Contract Rate/price means the sum named in the tender that has been accepted, subject to such additions thereto or deductions there from as may be made under the provisions of the contract.

1.6 Contractor means "the Tenderer" whose tender has been accepted and includes the Contractor's authorized representative, successors or permitted assignees, legal heirs.

1.7 Director means and includes the Director holding the Charge of Raw Materials Division or the Director's designated representative, or other empowered contract awarding authority. The director shall make all determinations of the Employer/Company with respect to the contract, except those specifically reserved to the Engineer.

1.8 Duration of Contract means the period stipulated in the contract or work order and includes any extended period thereof, if any made by a written communication.

1.9 Employer means the Raw Materials Division of Steel Authority of India Ltd., a company registered under the Indian Companies Act.,1956 & includes its legal successors and assigns. Wherever in this contract instructions / directions are to be issued by the „employer", the Chief Executive of Raw Materials Division, the Head of the concerned mine, or their duly authorized representative shall issue such instructions / directions.

1.10 Engineer means Mine Manager or any other person appointed from time to time by the Employer and notified in Writing to the Contractor to act as Engineer for the purpose of the contract. Where Work must be "Approved", or be performed "As Directed", or "As Required" (or words of like import), the approval, direction or requirement will be made by the Engineer.

1.11 Engineer's Representative means any assistant of the Engineer/Mine Manager appointed from time to time by the Engineer/Mine Manager to perform the duties set forth in Clause-2 "Duties of engineer"s representative" hereof whose authority shall be notified in writing to the Contractor by the Engineer/Mine Manager.

1.12 Equipment means all tools, instruments, trucks, dumpers, drills, dozers, excavators, appliances or things of whatsoever nature required in course of the execution, of the works or temporary works.

1.13 Notice in Writing or written notice means a notice in written, typed or printed characters sent (unless delivered personally or otherwise proved to have been received) by registered post with Acknowledgement Due (AD) by servicing of Notice by registered Post / courier (with POD)) to the

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

notified address, or the Registered Office of the addressee, or the Contractor"s site office, and shall be deemed to be sufficient service if so sent or left at that address.

1.14 Private Siding shall mean the Rly. siding as defined in the agreement with the Railways and where the Railway wagons are placed for unloading / or booking of the materials / goods of the Employer.

1.15 Site means the lands and other places under in or through which the works are to be executed or carried out and any other lands or places provided by the Employer for the purpose of the contract.

1.16 Terms & Conditions means the Special Conditions of Contract and General Conditions of Contract herein mentioned and other stipulations incorporated in any part of Tender Document and /or Draft Agreement.

1.17 Tender means offer against Tender Enquiry / Advertisement submitted by Tenderer.

1.18 Tenderer means and includes the person or firm or Company who have submitted valid tender and also includes its authorized representatives, heirs, executors, administrators, successors and assignees as approved by the employer.

1.19 Work means all work as given in the Scope of Work in the Tender Document and includes any associated work required for fulfillment of the Scope of Work and as set forth and required by the specifications, drawings & schedules hereto annexed, and also such additional instructions and drawings as shall from time to time during the progress of work be supplied by the employer.

1.20 Words importing the singular only shall include the plural and vice versa. Where the context requires, words importing person only shall include firms and corporations and vice versa.

2 **DUTIES OF ENGINEER'S REPRESENTATIVE**:

2.1 The duties of Engineer"s Representative are to watch and oversee the work. He shall have no authority to relieve the Contractor of any of his duties or obligations under the contract except as expressly provided hereunder or elsewhere under the contract, nor, except as expressly provided thereunder or elsewhere in the Contract, to order any work involving delay or any extra payment by the Company nor to make any variation of or in the Works.

2.2 The Engineer may from time to time in writing delegate to the Engineer"s Representative any of the power and authorities vested in the Engineer and shall furnish to the Contractor a copy of all such written delegation of power or authorities. Any written instruction or written approval given by Engineer"s Representative to the Contractor within the terms of such delegation (but not otherwise) shall bind the Contractor and the Employer provided however:-

a) Failure of the Engineer"s Representative to disapprove any work or materials shall not prejudice the powers of the Engineer thereafter to disapprove such work or materials.

b) If the Contractor is dissatisfied by any decision of the Engineer"s Representative he may refer the matter to the Engineer who shall thereupon confirm, reverse or vary such decision and the same shall be final and binding on the Contractor.

3 **ASSIGNMENT / SUB-CONTRACTING**:

3.1 The Contractor shall not assign the contract, or any other part thereof, or any benefit or interest therein or there under, without the prior written consent of the Employer.

3.2 The Contractor shall not sub-contract the Works, except where otherwise provided by the contract, without the written consent of the Employer, and such consent if given shall not absolve the Contractor from responsibility, liability or obligation under the contract and he shall be responsible for the acts, defaults or neglects of any Sub-Contractor, his agents, servants or workman as fully as if they were the acts, defaults or neglects of the contractor, his agents, servants or workmen.

Provided alwaysthat the provision of labour on a piece-work basis shall not be deemed to be subletting under this clause.

4 **CONTRACT DOCUMENTS**:

4.1 Documents mutually explanatory: The several documents forming the contract are to be taken as mutually explanatory of one another, and interpreted harmoniously, and in case of ambiguities or discrepancies, the same shall be clarified by the employer who shall thereupon issue to the Contractor instructions/directions indicating the manner in which the work is to be carried out.

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

However, if there is any conflict regarding any term or expression or instruction used in more than one document, the term or expression or instruction in the later document as arranged seriatim in Article: 1.4/1.19, shall take precedence and have overriding effect, and modify or replace any such term or expression occurring in an earlier document.

4.2 Further Instruction: The Engineer shall have full power and authority as delegated to him by the Employer, to issue to the Contractor, from time to time during the progress of the work, such further instructions as shall be necessary for the purpose of proper and adequate execution of the work and the Contractor(s) shall carry out and be bound by such further instructions.

4.3 Statutory obligation/liability of the Contractor under the prevailing Income Tax Act and GST Laws:

TDS FOR INCOME TAX

Tax deduction at source (TDS) shall be made towards income tax from all the bills of the contractor at applicable rates as per Income Tax Act and Rules.

OTHER TAXES

4.3.1 For the purposes of levy and imposition of GST, the expressions shall have the following meanings:

(a) GST - means any tax imposed on the supply of goods and/or services under GST Law.

(b) Cess - means any applicable cess, existing or future on the supply of Goods and Services as per Goods and Services Tax (Compensation to States) Act, 2017.

(c) GST Law - means IGST Act 2017, CGST Act 2017, UTGST Act, 2017 and SGST Act, 2017 and all related ancillary Rules and Notifications issued in this regard from time to time.

4.3.2 The rates quoted by the Vendor/Supplier/Contractor shall be inclusive of all taxes, duties, levies and Cess except GST. Vendor/Supplier/Contractor has to clearly show the amount of GST separately in the Tax Invoices raised by them.

Further, it is the responsibility of the Vendor/Supplier/Contractor to make all possible efforts to make their accounting and IT system GST compliant in order to ensure timely availability of Input Tax Credit (ITC) to SAIL-RMD.

4.3.3 SAIL-RMD shall declare in the Tender about value / estimated value of free issue of material and services, if any, involved in the execution of the contract. The Contractor should consider the same while working out the GST liability, if any. Further in cases where GST is leviable on any facilities provided by SAIL and used by Vendor/Supplier/ Contractors and the consideration for which is recovered by SAIL-RMD in the form of reduction in the value of invoice raised by Vendor/Supplier/Contractor, then SAIL-RMD will raise GST invoices on such transactions and the same will be borne by Vendor/Supplier/Contractor.

4.3.4 Evaluation of L-1 tenderer shall be done based on the quoted rate only. SAIL-RMD shall evaluate the offers on the basis of the quoted rates only and any claim subsequently by the Vendor/Supplier/Contractor for additional payment/liability shall not be admitted and has to be borne by the Vendor/Supplier/Contractor.

4.3.5 For the purpose of this contract, it is agreed between the parties that if any new taxes, duties or levies other than GST is introduced subsequent to the final date of submission of tender or reverse auction by the Central/State Government & Local Authorities and such new taxes, duties or levies become payable, then an equitable adjustment on account of new taxes, duties or levies in the contracted price shall be made which shall be subject to the production of documentary evidence by the Vendor/Supplier/Contractor. This provision shall be applicable only during the original period of contract. However, during the extended period of contract, if any, this provision shall be applicable as follows:

a. If input tax credit (ITC) is available, the adjustment in contract price for such new tax shall be made.

b. In other cases (i.e. where tax credit is not available), adjustment in contract price shall be made only if the new tax is enacted during the period of extension arising out of reasons attributable to RMD.

4.3.6 In case of variation (increase/decrease) in the rate of GST after the final date of submission of tender or reverse auction, the said revised rate shall be reimbursed or recovered on production of relevant statutory documentary evidence. This provision shall be applicable only during the

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

original period of contract. However, during the extended period of contract, if any, this provision shall be applicable as follows:

a. If input tax credit (ITC) is available, the said revised rate shall be reimbursed or recovered.
b. In other cases (i.e. where input tax credit is not available), the said revised rate shall be reimbursed only if the reasons for extension of the contract is attributable to SAIL-RMD. In any case, recovery shall be made in case of a downward variation in the rate of tax.

4.3.7 Vendor/Supplier/Contractor agrees to do all things not limited to providing GST compliant Tax Invoices or other documentation as per GST law relating to the supply of goods and/or services covered in the instant contract like raising of and/or acceptance or rejection of credit notes/debit notes as the case may be, payment of taxes, timely filing of valid statutory Returns for the tax period on the Goods and Service Tax Network (GSTN), submission of general information as and when called for by SAIL-RMD in the customized format shared by SAIL-RMD in order to enable SAIL-RMD to update its database, etc. that may be necessary to match the invoices on GSTN common portal and enable SAIL-RMD to claim input tax credit in relation to any GST payable under this Contract or in respect of any supply under this Contract.

4.3.8 In case Input Tax Credit of GST is denied or demand is recovered from SAIL-RMD by the Central/State Authorities on account of any non-compliance by Vendor/Supplier/Contractor, including non-payment of GST charged and recovered, the Vendor/Supplier/Contractor shall indemnify SAIL-RMD in respect of all claims of tax, penalty and/or interest, loss, damages, costs, expenses and liability that may arise due to such non-compliance. SAIL-RMD, at its discretion, may also withhold/recover such disputed amount from the pending payments of the Vendor/Supplier/Contractor and /or also from any sum payable to the contractor by any other SAIL Plant or Unit.

4.3.9 Vendor/Supplier/Contractor shall maintain high GST compliance rating track record at any given point of time.

4.3.10 Vendor/Supplier/Contractor is required to pass on the benefit arising out of introduction of GST, including seamless flow of Input Tax Credit, reduction in Tax Rate on inputs as well as final goods by way of reduction of price as contemplated in the provision relating to Anti-Profiteering Measure as per CGST Act, 2017.

4.3.11 Vendor/Supplier/Contractor shall avail the most beneficial Notifications, abatements, exemptions etc., if any, as applicable for the supplies under the Goods and Service Tax Act.

5.0 **GENERAL OBLIGATION OF CONTRACTOR:**

5.1 Contract Agreement: The Contractor shall enter into and execute a contract agreement in the form as prescribed by the Employer within the time specified in the letter of acceptance and in default thereof the payment to be made to the contractor under the contract shall not be made till the agreement is signed. The cost of the stamp duty for the agreement is to be borne and paid by the Contractor.

5.2 Site Conditions and Requirements of Work: By making the Offer / submitting the Tender, it will be deemed that the Tenderer / Contactor had studied the Tender papers carefully. It will be presumed that the Drawings for the Work, that were available in the office of the Engineer, have been inspected. It will also be presumed that the Contractor had inspected the site of the work to acquaint himself with the site and local conditions, means of access to the site of work, nature of work and all other matters pertaining thereto. The Contractor has thus made himself aware of the conditions and the requirements under the Contract, and the facts on the ground, before consenting to the Contract. The Company therefore, will not accept any subsequent claim of misunderstanding or misrepresentation of essential information / fact relating to the Work or Contract.

5.3 Sufficiency of tender: The Contractor shall be deemed to have satisfied himself before submitting tender as to the correctness and sufficiency of his tender for the works and of the rates stated in the tender schedule which shall cover all his obligations under the contract and all matters and things necessary for the proper completion and maintenance of the work.

General Manager (Mines) & ESL
SAIL-BSL, Gua Ore Mines

5.4 Employment of Labour: Employment of labour and fixing of their wages and other benefits will be done by the Contractor as per the provisions of the Contract Labour (R&A) Act 1970 and Rules framed thereunder. The Contractor shall also comply with all Acts and Rule framed thereunder by the appropriate Government from time to time including those governing the protection of health, sanitary arrangements, wages, welfare & safety of contract labour employed. The rules and other statutory obligations with regard to fair wages and all terminal benefits, welfare & safety measures, maternity leave and maintenance of necessary registers etc. will be deemed to be part of the Contract and shall be the sole responsibility of the Contractor. The Contractor will get himself registered with concerned statutory authority as provided in the Act and shall be directly responsible to the authorities thereunder for compliance with the provisions thereunder. The Contractor shall keep engaged such number of labourers as shall be necessary for the timely execution of the job. The Contractor shall not increase the number of workers without prior permission of the Employer. The retrenchment compensation and other benefits will be paid by the Contractor to the labourer as per the provision of the Industrial Disputes Act. The Contractor shall strictly comply with the statutory rules and regulations in respect of working hours of female labourer at site and other benefits available to such female contract labourers.

5.5 Security Deposit: To indemnify the Company against any losses or any claim that the Company might have to suffer on account of non-fulfilment of the statutory and other obligations by the Contractor and also as a security towards due and faithful performance of the contract by the Contractor, a Security Deposit equivalent to 5% of the Total work-value will be realised from the Contractor. Out of this, the Initial Security Deposit will amount to 2½ % of the Total -value. The Initial Security Deposit less the Earnest Money already deposited is to be deposited by the Contractor within 10 (ten) days from the date of Issue of Letter of Acceptance in the shape of Bank draft/Bankers Cheque from the branch of a Public Sector bank nearest to the mines. The Security Deposit equivalent to the balance 2½ % of the work-value will be recovered from the progressive bills of the Contractor. The Security Deposit shall bear no interest and refund will be as per provision relating to refund of Security Deposit mentioned in General Conditions of Contract.

5.6 Refund of Security Deposit: The security deposit recovered from the on-account-bill including the Initial Security Deposit, shall be refunded on completion of work satisfactorily in terms of this contract and payment of final bill and no claim for recovery of GST lies against the contractor for denial by the GST authority of Input Tax Credit for GST claimed under the contract by concerned RMD Mines/Offices. On fulfilment of said three conditions such refunds shall not be unduly delayed and shall be paid by the Employer within 60 days from the date of payment of final bill subject to production of No Dues Certificate by the Contractor from Mine Manager and /or statutory authorities.

5.7 Work to the satisfaction of Engineer: The Contractor shall execute the work efficiently and complete it in all respects in accordance with the contract terms and conditions and shall comply with and adhere strictly to the Engineer"s instructions and directions on any matter in accordance to the terms of the Contract. The Contractor shall take instructions and directions only from the Engineer or from the Engineer"s Representative subject to Clause 2.1 hereof.

5.8 Contractors Superintendence: As soon as practicable, after the acceptance of his tender, the Contractor shall if required submit to the Engineer for his approval, a programme showing the order of procedure and methods in which he proposes to carry out the work, and shall whenever required by the Engineer furnish for his information, particulars in writing, of the Contractor"s arrangements for carrying out the work and of the equipments which the Contractor intends to use for the contract. The submission to and approval by the Engineer or its authorised representative of such programme or the furnishing of such particulars shall not absolve the Contractor or any of his duties or responsibilities under the contract.

The Contractor shall provide all necessary superintendence during the execution of the works and as long thereafter as the Engineer may consider necessary for carrying out the contract. The Contractor or his competent and authorised representative as approved by the Employer in writing, which approval may, at any time, be withdrawn, shall engage himself continuously on the works and shall make available whole of his time for the superintendence of this contracted work.

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

If such approval is withdrawn by the Employer, the Contractor shall, as soon as is practicable, having regard to the requirement of replacing him as hereinafter mentioned, after receiving written notice of such withdrawal, remove his representative from the site and shall not thereafter employ/engage him again on site in any capacity and shall replace him by another representative approved by the Employer. Such authorised representative shall receive on behalf of the Contractor instructions and direction from the Engineer or from the Engineer"s representatives subject to clause 2.0.

If in the opinion of the Engineer due progress is not made with the work in accordance with the contract and / or any directions given by the Engineer are not properly complied with or attended to, the Engineer may, if he considers it necessary or proper for the due execution of work in accordance with the contract, of which his certificate in writing will be sufficient evidence, order the employment of extra supervising staff to supervise the work, and the expenses of such employment including the salary of the supervising staff shall be provided by the Contractor, provided that the Engineer shall give to the Contractor not less than 7 days previous notice in writing of his intention to exercise this power.

5.9 Contractor's Employees: The Contractor shall provide and employ at site in connection with the execution of the contracted work, Contractor's employees comprising:

a) Only such technical assistants and other staff as are skilled and experienced in their respective callings and foremen competent to provide proper supervision to the works, and

b) Such skilled, semi-skilled and unskilled labourer as is necessary for the proper and timely execution of the contracted works.

The aforesaid employees will be under the direct control and supervision of the contractor. The Engineer shall be at liberty to object to and require the contractor to remove from the work any person employed by the contractor for or in connection with the execution of the work whose employment is considered by the Engineer to be detrimental or undesirable and such person shall not be again employed for the work without written permission of the Engineer. Any person so removed from the work shall be replaced without delay by competent substitute.

The Contractor shall submit to the Engineer or the Engineer's Representative, returns in such forms and at such intervals as the Engineer may prescribe, from time to time showing in details the supervisory staff, his permanent employees deployed at site and the numbers of the several classes of labourers engaged by the Contractor at site and such other information as may be deemed necessary for the purpose of ensuring that the provisions of the contract, in so far as Contractor's employees are concerned, are being duly complied with by the Contractor. The Contractor shall not employ labourers below the age as specified in the Mines Act/Mines Regulations and also shall not employ labourers of more than 60 years of age and shall also employ only medically fit persons.

5.10 Watching and Lighting: The Contractor shall, in connection with the work, provide and maintain at his own cost lights, fencing and watching as and when necessary or as may be required by the Engineer or Engineer's Representatives for the protection of the work and for the safety and convenience of the public or others.

5.11 Damage to person or property: The Contractor shall except if and so far as the contract otherwise provides, indemnify and keep indemnified the Employer against all losses and claims for injuries or damages to any person or property whatsoever which may arise out of and in the course of execution of contract, as a consequence thereof and against all claims, demand, proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

5.11.1 From the commencement of the work to its completion the contractor shall take full responsibility of the care of the work including the mines and minerals and of all temporary works, and in case any damage, loss or injury which happen to the works or to any part thereof or to any temporary works from any cause whatsoever, shall at his own cost repair and make good the same so that at the completion the works shall be in good order and conditions and in conformity in every respect with the requirement of the contract and the Engineer's instructions.

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

5.11.2 Before the commencement of the contracted work, the Contractor shall, but without limiting his obligations and responsibility under clause 5.10.1 hereof, insure against any damages loss or injury which may occur to any property, including that of Employer, or to any person, including any person /employee of the Employer, by or arising out of the execution of contracted work or in carrying out the contract otherwise than due to "excepted risks".

Note : The „excepted risks" mentioned above are war hostilities (whether war be declared or not), act of foreign enemies, rebellion, revolution, insurrection or military or usurped power , civil war or riot, commotion or disorder (otherwise than among contractors own employees) riot, commotion or disorder, or any such operation of the forces of nature as responsible foresight and ability on the part of the contractor could not foresee or reasonably provide against.

5.12 Third Party Insurance: The Contractor shall take third party insurance towards third party liability. The third party liability shall cover loss/disablement of human life(persons not belonging to the Contractor). Such insurance shall be effected with an insurer and in terms approved by the Employer. The value of third party liability for compensation for loss of human life or partial / full disablement shall be of required statutory value but not less than Rs. 2.0 lakhs per death, Rs. 1.5 lakhs per full disablement and Rs. 1.0 lakhs per partial disablement and shall nevertheless cover such compensation as may be awarded by a court of Law in India or abroad. The Contractor shall whenever required, produce to the Engineer the policies of insurance and the receipts for payments of the current premium. As such, the employer shall not be responsible and liable on this account and the liability shall remain entirely with the Contractor. Further the contractor shall continue to be bound by the provisions of the Employees Compensation Act,1923 and other statutes relating to this, as may be applicable, and the above insurance shall in no manner whatsoever dilute his statutory responsibilities and obligations.

5.13 Accident or Injury to Workmen: The Employer shall not be liable for or in respect of any damages or compensation payable as per law in respect of and in consequences of any accident or injury to any workmen or any other person in the employment of the Contractor, save and except for accident or injury resulting from any act or default of the Employer, his representative or servant. The Contractor shall indemnify and keep indemnified the Employer against all such damages and compensation (save and except as aforesaid) as against all claims demands, proceedings, costs, charges and expenses whatsoever in respect or in relation thereto.

5.14 Workman Compensation: The Contractor shall at all times indemnify the Employer against all claims for compensation under the provision of the Employees Compensation Act, 1923 or any other law for the time being in force by, or in respect of any workmen employed by the Contractor or any Sub-Contractor in carrying out the contract and against all costs and expenses for penalties incurred by the Employer in connection therewith and, without prejudice to any other means of recovery, the Employer shall be entitled, to deduct from any money due or become due to the Contractor (whether under this contract or any other contract) all money paid or payable by way of compensation aforesaid or for costs or expenses in connection with any claims thereto and the Contractor shall abide by the decision of the Employer as to the sum payable by Contractor under the provisions of this Clause.

5.15 Notice & Payments of fees: The Contractor shall give all notices and pay all fees required to be given or paid under any Central or State statute, ordinance or other law or any regulation or bye-law of any local or other duly constituted authority in relation to the execution of this contracted work and by the Rules & Regulation of all public bodies whose property or rights are affected or may be affected in any way by the contracted work.

5.16 Fossils: All fossils, coins, articles of value or antique and structures and other remains or things of geological or archaeological interest discovered on site shall be, as between the Employer and the Contractor, be deemed to be the absolute property of the Employer and the Contractor shall take reasonable precaution to prevent his workmen or any other persons from removing or damaging any such article or thing and shall, immediately upon discovery thereof deposit the same with the Employer, at the place designated by the Engineer.

5.17 Patent Right & Royalties: The Contractor shall be liable and responsible for any claim made against the Company for any infringement of patents through the use or application of patented

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

tools, articles, appliances, structures, materials, devices, applications, methods, ways, processes or any other use of such patent in the performance of the Work or by the use of any process or method connected with the Work or by the use of any materials used upon the Work, except to the extent that a claim results from the Contractor's use of a material or product specifically required by the Company in the Specifications. The Contractor shall save harmless and indemnify the Company from and against all costs, expenses and damages (including reasonable legal expenses), which any of them shall incur or be obligated to pay, by reason of any such infringement or claim of infringement, and shall, at the election of the Company, defend at the Contractor's sole expense, all such claims in connection with any alleged infringement.

5.18 Interference With Traffic & Adjoining Properties: All operations necessary for the execution of this contracted work shall so far as in compliance with the requirements of the contract permits, be carried out so as not to interfere unnecessarily or improperly with the public or private convenience or the access to use and occupation of public or private roads and foot-paths or to the properties whether in the possession of the Employer or any other person and the Contractor shall save harmless and indemnify the employer in respect of all claims, damages proceedings damages, cost, charges and expenses whatsoever arising out of or in relation to any such matter.

5.19 Facilities for other Contractors: The Contractor shall in accordance with the requirements of the Engineer afford all reasonable facilities to any other Contractors employed by the Employer and their workmen and for the workmen of the Employer and of any other properly authorised authorities or statutory bodies who may be employed in the execution on or near the site of any work not included in the Contract scope or any contract which the Employer may enter into in connection with or ancillary to this contracted work.

5.20 Clearance of Site on Completion: On the completion of the period of contract all materials, rubbish and temporary structures of any sort or kind used for the purpose of or connected with contracted work including quarters for Contractor"s labourers are to be removed by the Contractor and all pits and excavations filled up and site handed over in a tidy and workmanlike condition. No final payment in settlement of the accounts for the work shall be held to be due or shall be made to the Contractor till such site clearance shall have been effected by him. In the event of the Contractor failing to comply with this provision within 7 days after receiving notice in writing from the Engineer to that effect, such clearance may be made by the Engineer at the cost expense of the Contractor without any further correspondence. The Employer shall under no circumstances be held liable for any loss or damage to such Contractor"s property as may be on site due to removal therefrom, which removal may be effected by means of public sale of such materials and property or in such way as may be deemed fit and most convenient to the Engineer. Employer shall not be liable to make any payment in this respect.

5.21 Force Majeure: If, at any time, during the currency of this contract, the performance in whole or in part, by either party, of any obligation under this contract, shall be prevented or delayed by reasons of war, hostility, acts of public enemy, civil commotion, sabotage, fires, floods explosions, epidemic, quarantine restrictions, Acts of State or other Acts of God, hereinafter referred to as eventualities, then, provided notice of the happenings of any such eventuality is given by either party to the other, within 15 days from the date of occurrence thereof, neither party shall by reason of such eventuality be entitled to terminate this contract, nor shall either party have any claim for damages against the other, in respect of such non-performance or delay in performance and work under this contract shall resume as soon as practicable after such eventuality has come to an end or ceased to exist and the decision of the Employer as to whether the work has to be resumed shall be final and conclusive.

Should one or both parties be prevented from fulfilling their contractual obligations by a state of *force - majeure* lasting continuously for a period of at least three months, the two parties should consult each other regarding further implementation of the contract, provided always, that if no mutually satisfactory arrangement is arrived at, within a period of a month, from the expiry of three months referred to above, the contract shall be deemed to have expired at the end of the said 4th month referred to above, in which event the liability under the contract shall be settled

General Manager (Mines) & ESL
SAIL-BSL, Gua Ore Mines

taking into consideration the work carried out by the Contractor up to the expiry date without prejudice to the rights of Employer arising prior to the expiry date.

If there are any Judicial Pronouncement/Statutory notifications/orders, the employer reserves to himself the right to withdraw partly or fully any item/items of work as required for compliance of such orders without any financial claim on this account by the other party.

5.22 Foreclosure of Contract: The employer shall have the right to foreclose the contract for whatever reasons by giving three months notice on the Contractor without any claim of damages by the Contractor.

5.23 Supply of Materials etc.: Except where otherwise specified, the Contractor shall, at his own expense, supply and provide all the construction plant, temporary works, materials both for temporary and for permanent works, labour (including the supervision thereof) transport to or from site and in and about the works and item of any kind required for the constructions, completion and maintenance of the works.

If the Employer has undertaken to supply materials specified in the Special Condition of Contract or otherwise at terms stated therein, the Contractor shall keep himself in touch with the day-to-day position regarding the supply of materials from the Engineer/Mines Manager and shall so adjust the progress of the work that his labour may not remain idle nor may there be any other claim due to or arising from delay in obtaining the materials. No claim whatsoever shall be entertained by the Employer on Account of Delay in supplying materials or in the event of its inability to such supply at all.

5.24 Idle Labour/Machinery: No claim on account of idle wages of the labour or idle charges for machineries engaged shall be entertained under any circumstances.

5.25 Liquidated Damages: The work shall throughout the stipulated period of the contract be proceeded with due diligence. The Contractor is to execute the contracted/targeted quantity within the time as stipulated in the contract and contractor will be given monthly target by the Head of Mines (HOM) or his authorised representative at the beginning. However, if no month-wise target is separately specified, the contracted quantity divided by the period of contract would be prorate monthly and treated as the month-wise target for the contracted period.

If the Contractor fails to fulfill the monthly target during the contract period and/or as required by the Company for the reasons attributable to the contractor, Liquidated Damages, not as a penalty equal to 10% of the value of the left out quantity (unexecuted quantity) of target during the month, will be recovered from the RA bills or Security deposit. However, the total L D imposed & recovered for the Contract period shall be subject to a maximum of 5% of the contract value. Final reconciliation of LD amount imposed / recovered shall be done at the end of contract period and adjustment of LD amount imposed / deducted, if any, shall be done at the end of contract period. Such recovery of LD shall be done by raising GST Invoices on the Contractor by the Employer by charging GST at applicable rate on the amount of LD due and the GST so charged shall generally be available for Input Tax Credit in the hands of a GST Registered Contractor.

If the LD so imposed exceeds the security deposits of the contractor then the employer may deduct the same from the amount due to the contractor in any other contract or any bills of the Contractor pending anywhere with the SAIL. This is, however, without prejudice to any other right of recovery that the employer may have against the contractor in this regard under the law.

The deduction of such damage as referred above shall not however relieve the contractor from his obligations to complete the work in time as stipulated in the contract.

However, if the short fall exceeds 30% of the target given during the month for the two consecutive months, the Company reserves the right to terminate the contract without any notice and get the job completed through any other means including engagement of other agencies at the Contractor's risk and cost.

The decision of the employer as regards the non-fulfillment of the targets, as referred above, whether attributable to the contractor or not shall be final & binding on the contractor in this regard.

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

5.26 Lien: The employer shall have a first and foremost lien upon the plant, machineries and materials of the contractors against its all dues and till the same are paid off by the contractor, the employer shall have a exclusive right to retain its all aforesaid goods and materials.
While the Company will take all the reasonable care of the plant, machineries and materials over which it exercises its lien, neither the Company, nor its servants or agents, will be held responsible for loss, destruction or deterioration of the plant, machineries and materials, because of any alleged inadequacy in maintenance, or circumstances beyond the control of the Company. The Company will be entitled to be reimbursed by the Contractor, any cost incurred towards ensuring the safety and security of the plant, machineries and materials in its custody, when it exercises its lien.

5.27 Performance of the Contractor: The performance of contractor will be considered unsatisfactory if:

i. The contractor does not attend the work as per Contract in full or part in time without any valid reason.
ii. The contractor does not carry out the instruction of the Mines Manager / Engineer / Employer.
iii. The contractor has executed excess work beyond allotted amount without any written clearance from the Engineer.
iv. The contractor is found consistently irregular in reporting to the concerned Supervisor / Engineer / Engineer"s Representative for carrying out the day-to-day business.
v. The Contractor incurs loss to the Employer / Company in any of the activities.
vi. The contractor does not follow the terms and conditions as per contract / contract agreement.
vii. The contractor executes any defective/ poor quality work.
viii. The contractor does not supply the materials/ equipments as per specification and does not respond to the instruction/ information of department/ legal authority in time.
ix. The contractor does not maintain discipline in work place.

6. LABOUR:

6.1 Compliance with Labour Statutes: The Contractor shall comply with all the obligations under the Contract Labour (Regulation and Abolition Act), the Mines Act / the Factories Act, the Minimum Wages Act, the Payment of Wages Act, the Employees" Provident Funds and Pension Act, the Payment of Gratuity Act, the Industrial Disputes Act, the Maternity Benefit Act, the Employees" State Insurance Act, the Employees Compensation Act, and all other labour statutes for the time being in force, and applicable to the Works. The Contractor agrees to keep the Principal Employer / Company indemnified at all times against any demands from the labour or statutory authorities on this account.

6.2 Contract Labour (Regulation & Abolition) Act, 1970: The Contractor is required to produce license as enjoined in the Contract Labour (Regulation and Abolition) Act, 1970, if the Act is applicable to him. The contractor shall obtain License from the appropriate Licensing Officer of the area before commencement of the work and shall produce a copy thereof of the work along with the original to the Engineer immediately on start of the work. The original will be returned to the contractor after verification. He shall not be allowed to undertake or execute any work through contract labour except under, and in accordance with, a License issued under the said Act in that behalf by the authorised Licensing Officer.
The Contractor shall thoroughly familiarise himself with the provisions of the Contract (Regulation and Abolition) Labour Act, 1970 and the Rules thereunder, and submit a certificate to the Engineer In-charge of the Work indicating whether the provisions of the said Act and Rules are applicable to him. In case the said Act and Rules are applicable, the contractor shall take all steps to comply with their provisions, maintain records and registers as required, submit reports and returns to the prescribed authorities periodically as required, issue employment cards / service certificates and display notice in accordance with Contract Labour Rules, with copies thereof to the Company.

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

The contractor shall provide rest rooms, canteens, latrines and urinals, washing facilities and first-aid facilities strictly in accordance with the provisions of Contract Labour Rules. If these facilities are not provided by the contractor within the stipulated time, the same will be provided by Company and the cost for the same will be recovered from the contractor.

The contractor shall pay wages to his labour in a manner laid down in Contract Labour (R&A) Act"1970 and Rules, in the presence of the Engineer (Principal Employer), or his authorised representative. He shall at least pay the minimum wages applicable under the Minimum Wages Act. The Contractor shall notify to the Engineer the date and place of payment of wages to the Engineer, who shall nominate a representative to witness the payment. The Contractor shall also submit to the Engineer a copy of the Wage Payment Sheets, which have been receipted by the contract labour, and counter-signed by the representative of the Engineer.

By virtue of default of the Contractor, or otherwise, if the Company is obliged to provide amenities and / or pay wages to labour employed by the Contractor directly, or through Sub-Contractor(s) under this Contract, then the contractor shall indemnify the Company fully, and the Company shall be entitled to recover from the Contractor the expenditure incurred on providing the said amenities, and / or the wages so paid by deducting it from the Security Deposit or from any sum payable by the Company to the Contractor, either under this or under any other Contract.

Provided that if any dispute arises as to expenditure incurred by the Company on provisions of the said amenities, the decisions of the Engineer thereof shall be final and binding.

6.3 Standing Orders: The Contractor shall make his own Standing Orders for the employees engaged by him and get the same approved through the concerned Regional Labour Commissioner or other appropriate Authority and implement the same in conformity with provisions of Industrial Employment Standing Orders Act. In absence of such Standing Order, the Model Standing Orders shall be implemented.

6.4 Payment of Wages Act: The Contractor shall comply with the provisions of the Payment of Wages Act, 1936 and the Rules made thereunder in respect of all persons employed by him in carrying out this contract. Any dispute regarding the statutory payment which may arise shall be immediately settled by the Contractor with his Workmen.

6.5 Minimum Wages Act: The Contractor shall comply with the provisions of the Minimum Wages Act 1948 and the Rules made thereunder by the Central Govt. in respect of all employees employed by him in carrying out this contract. He shall pay the employees, wages not less than the Minimum Rate of Wages, as notified by the appropriate Govt. from time to time. The Contractor shall make all payments to the labourers in the presence of authorised representatives of the Employer. The Contractor shall also submit to Engineer copies of wages payment sheets in proof of having paid wages to various labourer with due counter signature by the representative of the Employer.

The Contractor shall at all times indemnify the Employer against all claims arising out of provisions of the Minimum Wages Act and the rules framed thereunder as admissible in respect of any workman employed by the Contractor in carrying out the contract and against costs and expenses incurred by the Employer in connection with and without prejudice to other means of recovery. The Employer shall be entitled to deduct, from any money which is due to or which shall become due to the Contractor whether under this contract or any other contract, all money paid or payable by the Employer, by way of wages and other dues (including compensations, penalty, if any) imposed for committing breach of any provision of the Act and Rules by the Contractor in connection with any claim thereto and the Contractor shall abide by the decision of the Employer as to the sum payable by the Contractor under the provisions of this clause.

6.6 Amenities to Labour: In respect of labour employed by the Contractor on the work, the Contractor shall provide at his cost reasonable amenities for securing proper working and living conditions such as water supply, bathing places, etc. The Contractor shall provide necessary sanitary facilities for employees on this Work wherever needed, properly screened from public observation as provided in statutes, and kept in a clean and sanitary condition satisfactory to the Engineer. The same shall be removed when so directed.

Where women labour is employed, urinals and lavatories will be provided separately by the Contractor for male and female workers as well as crèches for the infant children of women

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

laborers. Labourers engaged shall be provided thereunder with necessary safety appliances as free of charge required under the provisions of Mines Act and regulations made by the Contractor.

The Contractor shall provide hutment for labour employed on the work only in the areas specially earmarked for this purpose and at no other location. The land will be allotted to the Contractor free of charge for labour hutment depending upon availability by the Employer. However in cases of non-availability of the land for such purpose the Employer shall not be saddled upon with any liability.

6.7 Medical Facilities: First Aid and Ambulance facilities shall be provided by the Contractor to his labourers as per Mines Act 1952. He must ensure full medical coverage under ESI Scheme, wherever statutorily required to do so, or provide medical facilities, where coverage under ESI Scheme is not mandated or is not available. He must take out insurance coverage of the contract labour for liability under ESI Scheme, and other statutory sickness or accident benefit scheme, and provide the Engineer with copies of documentary evidence of the same. Medical facilities at the Company"s Hospital / Dispensary wherever possible can be provided on payment of charges applicable to outside parties as per Company"s Rules. No free medical treatment shall be provided by the Employer to the Contractor"s labourers.

6.8 Inspection and Investigations: The Contractor"s establishment will be subject to inspection, investigations etc. by Engineer or such other Representative of the Employer as duly authorized on behalf of him assuring proper and faithful compliance of the provisions of this contract by the Contractor particularly with regard to the implementations of Labour Laws and other matters anticipated herein. The Contractor shall abide by the decisions and orders of the Engineer/ Mine Manager with regard to any such matter and furnish, if required, necessary compliance report within the stipulated time.

7.0 **Obligation of the Contractor regarding Observance of Various Statutes**:

The Contractor shall, at his own cost observe, perform and comply with the provisions of all statutory enactments, rules, regulations and bye-laws framed thereunder as are applicable for control / operation / regulation of mines, during the execution of work and shall maintain such registers, documents, records etc., as are required under the various statutes, for production of the same before the Employer and / or other statutory authorities prescribed in this behalf, as and when required. Non-compliance of the provisions / stipulations of these Acts / Rules will render the Contractor liable to payment of necessary compensation / penalty, as deemed fit by the Employer / Statutory authorities. It will be the sole responsibility of the Contractor to ensure all kinds of statutory payments to his workers and submission of returns etc., to various statutory authorities in time.

In case of Contractor's default in making statutory payment in time, the Employer reserves the right to deduct necessary amount from the Contractor"s bills towards such payments. In case the Contractor fails to supply the required safety equipments (as per DGMS norms) to his workers then the company reserves the right to supply the same equipments and deduct the cost of such materials & cost of storage from the Contractor's bill. The Contractor should also ensure that his workers use the safety equipments during work.

The contractor shall be fully responsible to comply with all applicable statutory obligations as employer, e.g., all contributions under P.F. and Pension Scheme(EPF) etc. under the Employees" Provident Fund and Misc. Provision Act, 1952, Employees" Deposit Linked Insurance(EDLI), Employees" State Insurance Act, 1948, benefits under the Maternity Benefit Act, 1961, payment under Payment of Gratuity Act, Payment of Bonus Act, Industrial Disputes Act, etc., and all other such obligations / liabilities in respect of their labour engaged by them for the job undertaken under the contract as per applicable statutory provisions/law and Government Notifications, and will take full liability on this account. The company will not take any financial liability on this account. In the event of failure of the contractor to comply with the above, the company shall be entitled to recover the amount by deduction from any amount payable to the contractor under the contract, including security deposit, or as debt payable by the contractor.

8.0 **WORK MATERIALS & PLANT:**

General Manager (Mines) & ESL
SAIL-BSL, Gua Ore Mines

8.1 Removal of improper work, equipment & materials: The Engineer / Mine Manager shall during the progress of work, have power to order in writing from time to time the following:

a) The removal from site within such time or times as may be specified in the order, of any material / equipment which in the opinion of Engineer / Mine Manager are not in accordance with the contract.

b) The substitution of suitable equipment and / or materials.

c) The removal and proper re-execution, not-withstanding any interim payment there against, of any work which, in the opinion of the Engineer / Mine Manager, is not in accordance with the contract.

8.2 Default of Contractor in compliance: In case of default on the part of the Contractor in carrying out such order, the Employer shall be entitled to employ and pay other persons / Agency(s), to carry out the same and all expenses consequent thereon or incidental thereto shall be borne by the Contractor and shall be recoverable from him by the Employer or may be deducted by the Employer from any money due or which may become due to the Contractor.

8.3 Suspension of work: The Contractor shall on the written order of the Engineer / Mine Manager suspend the progress of the work or any parts thereof for such time and in such manner as the Engineer / Mines Manager may consider necessary and shall during such suspension, properly protect and secure the work as is necessary in the opinion of the Engineer / Mine Manager. If the progress of the works or any part thereof is suspended on the written order of the Engineer / Mine Manager for more than ninety days, the Contractor may serve a written notice on the Employer requiring permission to resume the suspended work with a further period of 30 days from the date such Notice is received by the Employer. If such permission is not granted within that time the Contractor, by a further written notice to serve may elect to treat the suspension as termination of the contract, without any financial repercussions to either the Employer or to the Contractor.

8.4 Free Access: The Employer and / or Engineer and any person authorized by them shall at all times have access to the works at site and the Contractor shall afford every facility for and every assistance to, in obtaining the right to such access.

8.5 Site facilities to Contractor and its Workers:

8.5.1 Transport: Generally arrangements of all transports are within the responsibility of the Contractor. However the Employer / Company may provide transport within the shop without hampering the production or production activities, which shall be determined by the Engineer or his representatives.

8.5.2 Power & Water Supply: Power and water shall be supplied generally within 50 m from the Contractor's Work site. From there, necessary distribution shall have to be done by the Contractor. Supply of water shall be free whereas power will be charged as per prevailing tariff. Contractor will provide proper facilities to the EA or his authorized representative for inspection of his temporary electrical installation as and when required. The Contractor will immediately attend the defects so pointed out during the inspection. In case of wastage of power and/or water, if noticed by the Engineer or his representatives, the Company will penalize the Contractor suitably. The decision of the Company is final and binding on the Contractor in this respect.

8.5.3 Provision of Land for Office / Stores: The Employer / Company shall provide space free of cost to the Contractor on his request for construction of site offices & stores for storage of equipment / tools & tackles. The Contractor shall construct at its own cost such offices, sheds, stores. The Contractor may also request for suitable space in the existing building in the adjoining area for allotment, for the consideration of the Employer / Company. The Employer / Company, at his discretion, may consider the request.

After completion of the Work the Contractor has to vacate such offices, sheds and stores and clear the site. However, if the Employer / Company requires them the Contractor shall have to provide the same to the Company free of cost.

8.5.4 Fire Prevention: In case of any fire, the same shall be brought to the notice of the Engineer / Engineer"s Representative / Mines Manager / Fire Officer / Safety Officer at once. However, the Contractor shall be responsible for all damages/losses/delays in execution due to fire if it is due

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

to his negligence or improper operation/maintenance/handling, etc. The decision of the Employer / Company shall be final and binding on the Contractor.

8.5.5 Use of Land & Building: Wherever any land or building belonging to the Company is allotted to the Contractor, the Contractor shall return vacant possession of the same land / building in good condition to the Company after the completion of the Work as soon as the Contract is over / terminated, failing which the Company would be entitled to withhold the refund of the Security Deposit and / or final bill in addition to any other action which the Company may like to take for getting the vacant possession of the land or building as aforesaid.

8.5.6 Wherever any charges become leviable by the Employer from the Contractor under sub-clause no. 6.7 (Medical Facilities) and / or sub-clause no. 8.5.2 (Power & Water Supply), levy of such charges shall accompany the charges of GST at applicable rates on such levy by raising GST Invoices on the Contractor by the Employer.

9.0 **COMMENCEMENT TIME & DELAYS:**

9.1 Commencement of Work: The date of effect of the commencement of the contract shall be reckoned from the date as specified in the Work Order or the date of taking possession of site, whichever is earlier, after deposit of ISD.

9.2 Possession of site: Save in so far as the contract may prescribe the extent of portions of the site of which the Contractor is to be given possession from time to time and the order in which portions shall be made available to him and subject to any requirement in the contract as to the order in which the works shall be executed, the Employer will, with the Engineer"s/Mine Manager"s written order to commence the work, give to the Contractor, possession of so much of the site as may be required to enable the Contractor to commence and proceed with the work in accordance with such reasonable proposals of the Contractor as he shall by notice in writing to the Engineer/Mines Manager make and will from time to time as the work proceeds give to the Contractor possession of such further portions of the site as may be required to enable the Contractor to proceed with the work with due despatch in accordance with the said proposals.

9.2.1 The Contractor shall bear all expenses and charges for special or temporary way leaves required by him in connection with access to the site. The Contractor shall also provide at his own cost any additional accommodation at / outside site required by him for the purpose of the works.

9.2.2 In case the Contractor delays to take possession of the site within the time specified in such written order / information / instruction from the Employer or his representative, and the delay subsequently results in further delay / complications, for extension of contract the sole responsibility of such delay / complications shall be resting with the Contractor.

9.2.3 Without prejudice to the right of the Employer and without in any manner affecting the duties of the Contractor, if in the opinion of the Engineer, the Contractor has failed or is likely to fail to carry out any part of the work and such failure or apprehended failure might result in incurring of demurrages, any loss or damage to the Company, then the Engineer may cause any part of the work to be carried out departmentally or through other agencies and all expenses incurred by Employer in excess over the contract rate shall be recoverable from ad-hoc / monthly / fortnightly „on-account" bills of the Contractor. The decision of the Engineer in regard to the exercise of this provision as well as to the recovery of additional expenses incurred by the company is final and binding on the Contractor. Once Contractor takes possession of the site as per written order of the Employer, the responsibility of Security and Protection of the site from any complication shall be the sole responsibility of the Contractor.

9.3 Compliance with Statutes: The Contractor shall at his own cost, observe, perform and comply with the provisions of the Acts applicable during the execution of the contract, and Rules / Bye-laws framed thereunder including but not limiting to the following and shall maintain such registers and documents, as are required under the various statutes, for production of the same before the company and/or other Statutory Authorities prescribed in this behalf, as and when required. The contractor agrees to keep the Employer indemnified at all times against any demands / penalties by statutory authorities, and shall defray to the Employer any costs / expenses incurred by the Employer in proceedings before the statutory authorities. A list of the

General Manager (Mines) &
SAIL-BSL, Gua Ore Mines

relevant laws applicable to the process of execution of work under the contract is given below. The list is illustrative and not exhaustive.

i) The Contract Labour (Regulation & Abolition) Act, 1970 and Rules framed thereunder.
ii) The Payment of Wages Act, 1936 and Rules 1937
iii) The Employees' Provident Fund and miscellanious provision Act, 1952 & Schemes framed thereunder.
iv) The Maternity Benefit Act, 1961 and Amended Act, 2017.
v) The Payment of Bonus Act, 1965 and Rules 1975.
vi) The Mines Act, 1952 and Mines Rules, 1955.
vii) Metalliferous Mines Regulations, 1961.
viii) Mines & Minerals (Development & regulation) Act, 1957 and Amendments.
ix) The Industrial Disputes Act, 1947 and Rules 1957.
x) The Employees Compensation Act, 1923 and Amendment Act 2017.
xi) The Minimum Wages Act, 1948 and minimum wages (Central) Rules,1950.
xii) The Payment of Gratuity Act, 1972 as and when applicable.
xiii) Indian Explosives Act, 1884 & Indian Explosives Rules, 2008.
xiv) Mines Vocational Training Rules, 1966
xv) Mineral Concession Rules, 1960 and Amendment.
xvi) Mineral Conservation & Development Rules, 2017.
xvii) Forest Conservation Act, 1980
xviii) Air & Water Pollution Acts
xix) Indian Forest Act, 1927
xx) Environment (Protection) Act, 1986 and Environment (Protection) Rules, 1986
xxi) Mines Creche Rules, 1986
xxii) Indian Electricity Rules,1956.
xxiii) Mines Rescue Rules,1985
xxiv) Mineral (Evidence of Mineral Contents) Rules, 2015
xxv) Employees State Insurance Act, 1948.
xxvi) The Child Labour (Prohibition & Regulation) Acts, 1986.

9.4 Waiver: The non-enforcement of any of the Terms and Conditions of the contract strictly by any party to the Contract would not amount to waiver of that term in favour of the other party.

10.0 **REMEDIES AND POWERS**:

10.1 Anticipatory Breach and Termination; Risk and Cost: If the contractor shall neglect to execute the work with due diligence and expedition, or shall refuse or neglect to comply with any reasonable orders given him in writing by the Engineer in connexion with the work or shall contravene any provision of the contract, the Company / Employer may give seven (7) days" notice in writing, to the contractor, to make good the failure, neglect, or contravention complained of. If the contractor fails to comply with the notice within the stipulated period from the date of service thereof in the case of a failure, neglect, or contravention capable of being made good within that time, then and in such case the Employer shall be at liberty to employ other workmen, and forthwith perform such work as the contractor may have neglected to do.

If the Employer shall think fit, it shall be lawful for him to take the work wholly, or in part, out of the contractor"s hands and give it to another person on contract at a reasonable price or provide any other material, tools tackle or labour for the purpose of completing the work, or any part thereof, and in that event the Employer shall without being responsible to the contractor for fair wear and tear of the same, have the free use of all the materials, tools, tackle, or other things which may be on the site, for use at any time in connection with the work to the exclusion of any right of the contractor over the same. The Employer shall be entitled to retain and apply any balance, which may be otherwise due on the contract by him to the payment of the cost of executing such work as aforesaid, and shall be entitled to make a claim for the balance amount, in accordance with law.

10.2 Bankruptcy and Breach: If the Contractor shall become bankrupt or have an order for appointment of any receiver made against him or shall present any position in bankruptcy or

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

shall make an arrangement with /or assignment in favour of his creditors or shall agree to carry out the contract under committee of inspection of his creditors or being a corporation shall go into liquidation (other than voluntary liquidation, for the purpose of amalgamation, absorption or reconstruction) or if the Contractor shall assign the contract without the prior consent in writing of the Employer, or shall have an execution levied on his goods, or if the Engineer shall certify in writing to the Employer that in his opinion, the Contractor:

a) has abandoned the contract or

b) without reasonable excuse has failed to commence the work or has suspended the progress of the works for 7 days after receiving from the Engineer written notice to proceed or,

c) is not executing the works in accordance with the contract or is persistently or flagrantly neglecting to carry out his obligations under the contract or,

d) has to the detriment of good workmanship or in defiance of the Engineer's instructions to the contrary sublet any part of the contract or,

e) otherwise failed to perform his part of the contract according to the true intent and meaning thereof.

Then the Employer may after giving 7 days notice in writing to the Contractor, enter upon the site and expel the Contractor therefrom, without thereby avoiding the Contractor or releasing the Contractor from any of his obligations or liabilities under the contract or affecting the rights and powers conferred on the Employer or the Engineer under the contract or otherwise available under the law, may appoint any other Contractor to complete the work at the cost and risk of the Contractor. However on happening of any eventualities as per above sub clause (a) to (e) the Employer shall be at discretion to terminate the contract by giving 7 days notice and the contract shall stand/ terminated w.e.f. the 8th day from the date of issue of this notice. In any of the eventualities mentioned above in a) to e), the employer shall have the right to take possession of the plants and machineries of the contractor and realise the dues by sale of the said plants and machineries.

10.2.1 Valuation in case of forfeiture: The Engineer shall as soon as practicable after any such entry and expulsion by the Employer fix and determine such investigation or enquiries as he may think fit to or institute and shall certify what amount (if any) at the time of such entry and expulsion been reasonably earned by or would reasonably accrue to the Contractor in respect of work actually done by him under the contract.

10.2.2 Payment after forfeiture: If the Employer shall enter & expel the Contractor under this clause, he shall not be liable to pay to the Contractor any money on account of contract until the expiry of the period of contract and thereafter until the costs of completion and damages and all other expenses incurred by the Employer have been ascertained. The Contractor shall then be entitled to receive only such sums(if any) as the Engineer may certify to be due to him upon the completion by him after deducting the said amount payable to Employer. But if such amounts shall exceed the sum which would have been payable to the Contractor on the completion by him then the Contractor shall upon demand pay to the Employer the such excess amount and it shall be deemed a debt due by the Contractor to the Employer and shall be recoverable accordingly.

10.3 Illegal gratification, breach of contract: The contract may also be terminated and the Contractor shall be liable to make good any loss or damage resulting from such cancellation (specified under clause 10.1), if any bribe gratuity, gift, loan reward or advantage pecuniary or otherwise shall either directly or indirectly be given, promised or offered by the Contractor or any of his servants or agents to any person employed by the Employer in any way relating to his office or employment or if any such person shall become in any way directly or indirectly interested in the contract or if the Contractor has committed a breach of any of the terms of the contract and in particular minimum wages clause and labour regulations.

10.3.1 Retention of Dues: The Employer will have full liberty to retain and set off all sums due or to become due to the Contractor (including security deposit) whether under this contract or under

General Manager (Mines) & ESL
SAIL-BSL, Gua Ore Mines

any other transaction or claim whatsoever, against any sum due or to become due to the Employer under this contract or any other transaction or claim whatsoever.

11.0 **PAYMENT TERMS:**

11.1 Monthly Payment: Unless other wise specified in the Tender Terms/Special Conditions of Contract to the tender & subject to any deduction that may have to be made in accordance with the terms and conditions of this contract, the Contractor shall be paid on-account bills on monthly basis for the work done during the previous month.

11.2 Documents for Monthly Payment: Unless other wise specified in the Tender Terms/Special Conditions of Contract to the tender, for the purpose of such monthly payments, invoices in their printed forms and in case GST is payable, such printed invoices must be raised in conformity with clause No. 4.3 of GCC along with the documentary proof for having deposited the Contractors" permanent employees and his labourers" contribution towards PF and pension with his jurisdictional RPF Commissioner, alongwith the certificate from Engineer"s representative for provision of safety equipments to all his workers, and also proof of payment of wages to his workmen in presence of the authorised representative of the Employer shall be prepared and submitted by the Contractor for the work done during the previous month within seven days from the expiry of the previous month.

11.3 Details of Bank Account Payments against on-account bills shall be released through on line within 30 days from the date of submission of clear invoices and PF documents and others as in clause 11.2 above by the Contractor. For this purpose the contractor should give the details of the name of the Bank, Branch & Account No. before submission of the first R.A. bills. Final bill will be paid within 60 days on completion of all formalities as per the Terms & Conditions of the Contract.

11.4 Regulation of Monthly Payment: Payment shall be regulated as per the rates mentioned in the "Schedule of Rates"

11.5 Requisites for Engagement of Trucks:The Contractor shall observe necessary formalities for engagement of trucks, measurement of truck body, loading pattern, issue and admission of challans as per instructions of Engineer /Engineer"s representative.

11.6 Deduction of applicable Taxes (TDS) : Deduction of applicable taxes (TDS) will be deducted from the monthly bill and TDS certificate will be issued by Finance & Accounts Department for such deductions.

11.7 Approval of Work: No certificate other than the final certificate referred to in clause 11.8 hereof shall be deemed to constitute approval of any work or other matter in respect of performance of the contract or any part thereof or on the accuracy of any claim made by the Contractor on additional or various work having been ordered by the Engineer nor shall any other certificate conclude or prejudice any of the power of Engineer.

11.8 Final Certificate: The contract shall not be considered as completed until a Final Certificate have been signed and issued to the Contractor by the Employer stating that the works have been completed in accordance with the terms of the contract.

12.0 **NOTICE:**

12.1 Service of notice on Contractor: Any notice given to the Contractor under the terms of the contract shall be served by the Engineer or his representative by registered post / courier to, or leaving the same, at the Contractor"s notified address or at its Registered Office or at the Contractor"s site office.

12.2 Service of notice of Employer: Any notice to be given to the Employer under the terms of contract shall be served by sending the same by registered post / courier at the office of Employer at site or Head Office of the Raw Materials Division at Kolkata.

12.3 Change of Address: Any change of address of the Contractor shall immediately be notified to the Engineer.

13.0 **MISCELLANEOUS:**

13.1 Adequate shoring to be provided: The Contractor shall at his own cost provide adequate shoring at all work, excavations and works such that no damage, injury, or loss is caused or likely to be

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

caused to any person or property. All works are to be done in conformity with the Metalliferrous Mines Regulations.

13.2 Provision of shed, stores, houses etc.: The Contractor shall at his own cost provide such sheds, stores houses as the Employer may consider necessary for storing materials.

13.3 Work in or around the running plant: When work is being carried out in or around a running plant / mines / where the plant must run uninterrupted, the Contractor can only work at specified places and times mutually agreed. Progress of work in certain areas might have to be expedited as required by the Employer and the Contractor must take this factor into consideration when working out his rates.

13.4 Use of Intoxicants: The Contractor shall prohibit the sale, possession, use and of sales of ardent spirits or other intoxicating beverage upon the work or in any of the boardings, houses encampments or other tenements owned, occupied by or within the control of the Contractor or any of his employees. Any Contractor or Sub-contractor personnel determined by the Company, in its sole discretion, to be in violation of the ban against narcotics, drugs and intoxicants, will be prohibited from working on the Contract.

13.5 Policing of the Work: Should the general conduct of the works including the Premises of the Employer under occupation of the Contractor lead to violation of any of the provisions of the Indian Penal Code either in consequence of riotous or illegal proceedings of the Contractor"s labour or supervising staff or others to such an extent as to necessitate the deployment of Special police or Magistrate the cost of such extra forces is to defrayed by the Contractor and not by the Employer.

13.6 Signature of receipts for amount: Every receipt for money which may become payable, or for any deposit which may become transferable, notwithstanding the contrary contained in the partnership deed, if in the name of partnership, signature on receipt by any one of the partners of a Contractor firm be good and sufficient to the Employer in respect of the money, and in the event of death of any of the Contractor partners during the currency of the contract, it is hereby expressly agreed that every receipt by any one of the surviving Contractor-partners shall, if so signed as aforesaid, be a good and valid discharge, as aforesaid, Provided that nothing in this clause shall be deemed to prejudice or affect any claim which the Employer may hereafter have against the legal representative of any deceased Contractor-partner for or in respect or any breach of any of the conditions of contract, and provided also that nothing in this clause shall be deemed to prejudice or affect the respective rights or obligations of the Contractor-partners and of the legal representatives of any deceased Contractor-partner's interest.

13.7 Law in Force in Relation to Contract: The contract or amendments thereof entered into between the Employer and the Contractor under the contract shall be governed and regulated by the relevant laws for the time being in force in the territory of India relating to contracts.

13.8 Change in Constitution of Firm: If the Contractor is a partnership firm the contractual relationship shall be deemed to have terminated if there is any change in the constitution of the firm, whether by retirement, introduction of new partners or otherwise, unless such change has the previous written approval of the Employer, notwithstanding that the Employer may have other dealings with such reconstituted firm. In the event of death of one of the partners, the Contractor shall immediately inform the Employer, giving necessary particulars of the heirs and legal representatives of the deceased partner, and it shall be the option of the Employer either to continue the contractual relationship with the said reconstituted firm, or to treat the Contract as having being terminated by such supervening events, and the decision of the Employer in this regard will be binding on all the partners concerned. No claim for compensation / damages on premature termination will be made or sustainable against the Employer on account of such termination.

13.9 The Contractor shall make his own arrangements for transporting equipment required by him obtained prior permission for bringing into mines or carrying / removing from the mines of such equipment. No such permission for removing / carrying of any equipment by the contractor from the mines shall be granted unless he has cleared his outstanding to the employer nor shall he be entitled to any compensation on this account.

General Manager (Mines) & CSO
SAIL-BSL, Gua Ore Mines

13.10 The Contractor shall not allow any visitor on the work sites, without the prior permission of the Engineer / Mine Manager.

13.11 Order on one or more than one parties will be placed on the basis of L-1 quotation and, if required, negotiation will be held with L-1 tenderer only. However, all the tenderers may be required to explain / justify the basis of their quoted price as and when asked for. In case, any tenderer fails to justify his quoted price or refuses to co-operate in this regard, they will not be considered for participating in the retendering if order / contract is not finalised from the present tender.

13.12 If a tenderer quotes unworkable rates and is considered for placement of order, the party will be asked to justify the rate quoted and will have to give a Performance Guarantee Bond (in addition to the Security Deposit) in prescribed format in the form of Bank Draft/ Bank Guarantee. The amount of Performance Guarantee Bond will be decided by SAIL-RMD at the time of placement of order. Earnest money of the tenderers who refuse to give Performance Guarantee Bond will be forfeited and they will not be considered in re-tendering if order/ contract is not finalised from the present tender.

14.0 Safety:

14.1 The Contractor will be responsible to ensure safety of the workmen under them.

14.2 Except in special circumstances (to be recorded in writing and with due approval) the contractor will not be allowed to employ subcontractor/petty contractors.

14.3 At each work site, contractor will employ a supervisor with specifically assigned duties for ensuring safe working and will inform the local management in writing. No work can be started by the contractor at any site without such employment.

14.4 Such supervisors will constantly be in touch with the Asst. Mines Manager / Mines Manager of the mines and will conduct work as per his guidelines. The suitability to the supervisor for the purpose of ensuring safety will be assessed by Asst. Mines Manager / Mines Manager and if needed he shall be given suitable training.

14.5 The contractor employing more than 400 persons has to appoint Safety Officer to look after the Safety aspects.

14.6 Safety Officers / Supervisors must ensure that the Contractor"s employees use safety appliances / PPE"s at the worksites.

14.7 Safety Officers / Supervisors must ensure that the Contractor concerned must visit the entire area of worksite every day and take immediate action to remove hazards whenever noticed.

14.8 All hazardous and serious jobs must be performed after safety protocol is signed by all the concerned agencies and taking all safety measures.

14.9 Every contractor must ensure that all the working areas are as per provisions of Mines Act., Regulations & Rules and bylaws made thereunder.

14.10 Every contractor must maintain statutory registers as per relevant Rules, Regulations etc.

14.11 "Permit to work" system is to be implemented on the site and a register shall be maintained.

14.12 Before starting of work, all contractors must ensure that periodic medical examination (PME) of all contractual workers took place as per statute.

14.13 The contractor shall maintain good house keeping at the worksite for safe working.

14.14 The contractor shall ensure that no workman is deployed on work without getting a basic safety training from Safety Officer / VTO and those who are not trained earlier are released (with wages) for training under Safety Officer / VTO of the Company. Record of such training is to be maintained in a register meant for the purpose.

For violation of Safety Rules etc., following would be the penalties imposed on the contractor:

Sl no	Description of Violation	Penalty
1.	Occasional violation of not wearing safety helmet in works area/Uses of improper tools/tackles per case.	Rs. 2,000/-
2.	Minor violation per case	Rs. 5,000/-
3	Major violation, height work without full body harness & height pass	Rs. 10,000/-

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

per case.		
4.	High risk violation may leading to fatal accident (Near Miss cases) per case.	Rs. 50,000/-
5.	Fatal accident per case	Rs. 1,00,000/- or 20% of contract value whichever is lower.

The penalty shall be decided after investigation and obtaining the report from Mines Manager. The penalty as decided by Mines Manager / Head of Mines will be deducted from the RA bill with information to the contractor. Record of such penalties imposed also should be maintained by safety department.

14.15 SAFETY TERMS & CONDITIONS:

GENERAL

14.15.1 Safety is the responsibility of the Contractor and his staff / employees / workmen engaged/deployed for execution of work under the Contract, individually and collectively. For this purpose, the Contractor staff means and includes all its Associates/Sub-contractors/Vendors/Sub-vendors and their staff / employees/ Workmen deployed for execution of the work covered under the Contract. The Contractor shall ensure that his workmen participate in the safety awareness programs, health care programs and safety training programs whenever such programs are organized by the employer or the contractor.

14.15.2 Contractor shall ensure that a copy of the Safety Codes is handed over to Associates/Sub-contractors/Vendors/Sub-vendors working under his control for the execution of the contract and this will also be available with the safety coordinator. The contractor shall also ensure that its Associates/Sub contractors/Vendors/sub-vendors shall abide by the safety codes, safety rules and instructions of the employer.

NOTE: The word 'Contractor' shall include all his associates / subcontractor / vendors/sub-vendors working under his control for executing the contract.

14.15.3 The Contractor and his Associates/sub-contractors/Vendors/sub-vendors shall observe all precautions and provide adequate supervision pertaining to safe working and safety of their staff / employees / workmen on the work and also safety of assets and employer's equipment while executing the work. Statutory supervision shall be provided by the employer/his representative in mines.

14.15.4 The Contractor shall ensure that their staff/employees/workmen function effectively towards their own safety as well as safety of their coworkers and other persons working in the area, including the areas in the vicinity which may become unsafe due to their activities.

14.15.5 The contractor shall designate either himself or a person as SAFETY COORDINATOR who shall maintain regular liaison with the Employer (Engineer i.e. person appointed by the employer in the manner provided in contract and to perform the duties delegated by the Employer and Safety Engineering Department of (employer) to ensure the implementation/compliance of the Safety Codes and existing as well as latest instruction of the employer on safety.

14.15.6 The contractor shall, in accordance with prescribed procedure, obtain Gate Passes from the competent authority who shall make it available to the contractor and his staff/employee/workmen to enter the work area. The provision of Photo Passes shall be applicable only for contracts of duration of one year or more.

14.15.7 The contractor shall be fully responsible for accidents caused due to his or his agent's or workmen's negligence or carelessness in regard to the observance of safety requirements and shall be liable to pay compensation for injuries and delay in work due to these.

14.15.8 The contractor shall motivate and encourage his employees/workmen to make personal contribution towards enhancing safety on the basis of their knowledge and experience.

14.15.9 The contractor shall have adequate number of pocket sized safety cards containing safety instructions prepared on the basis of employer's model safety book for contractor's workers in Hindi or regional languages as may be required and shall issue them to all his employees/workmen and ensure that they read it before commencing the work. The safety instructions from the safety card shall be read and explained by the contractor or his

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

representative to those employees/workmen who are illiterate and cannot read and ensure that these have been understood.

14.15.10 The contractor shall ensure that drums or other make-shift arrangement are not used in place of ladder or work benches or supports for any job.

14.15.11 The contractor shall ensure that compressed air is not used for removing dust from one's clothes. Compressed air shall not be blown against anyone as it may injure or even kill him/her.

14.15.12 The contractor shall ensure that if a workman, in the course of his work, encounters condition of unusual hazard with which the worker is not familiar, he shall contact the supervisor for advice before proceeding further.

14.15.13 The contractor shall particularly ensure that the contractor himself or his workmen do not operate any equipment, if not authorized. The contractor shall not start the work without a written permit from the engineer or his authorized representative (ENCLOSURE -A).

14.15.14 The Contractor shall follow all special safety precautions issued by the Executing Authority or his site Engineer from time to time.

14.15.15 Whenever working at height is involved, the contractor shall adhere to IPSS: 1-11-005-98' Procedure for working at height for contractor's workers.

14.16 LEGAL AND PENAL

14.16.1 The contractor shall abide by the provisions of all statutory acts and rules as applicable.

14.16.2 The contractor shall be liable to follow all the rules and regulations laid down under law with respect to maintenance of Register & Documents under different Act, submission of Periodical Reports & Returns, furnishing information/report relating to accidents in time to competent authorities, damages to equipment and injuries to human beings occurring in the areas of work.

14.16.3 The contractor shall be liable for prosecution and penalty in accordance with and as prescribed under law of the land, terms & conditions of contract as well as rules of the Company relating to safety, for not observing those provisions by the contractor or its employees/workmen.

14.16.4 The contractor shall keep the Employer / Company indemnified against all losses/claims due to accidents/injuries/damages caused at the contractor's works site. The contractor shall be fully responsible for accidents caused by him or his agents or his workmen's negligence/ carelessness in regard to the observance of the safety requirements and shall be liable to pay compensation for injuries.

14.16.5 The Engineer or the Head of the Safety Department or their authorized nominees, upon their satisfaction that the Contractor is not conforming to the safety requirements, may direct stoppage of work and direct the contractor to remedy the defects or supply the facilities/equipment as the case may be. The contractor shall not proceed with the work until he has complied with such directions to the satisfaction of the Engineer/Safety Deptt.

14.16.6 The contractor shall be responsible to ensure that vehicles belonging to him are not driven in reckless or rash manner so as to become a potential threat to the safety of the traffic in the Mines or township area. The drivers of the vehicles shall be made to adhere to the speed limits wherever applicable. Failure to comply with the above may result in the termination of the contract.

14.16.7 In case of accident or injury or damages caused by the Contractor's vehicles or staffs to any persons or property, the financial responsibility to compensate shall be borne solely by the contractor and this amount may, at the discretion of the competent authority of the Mine, be recovered from the bills or security or other deposits of the Contractor.

14.16.8 The contractor shall ensure that all employees/workmen are covered under Employee's Compensation Act. He shall pay compensation to his workmen as and when the eventuality for the same arises.

14.16.9 To ensure effective enforcement of the rules and regulations relating to safety precautions, the arrangements made by the contractor shall be open to inspection by the Engineer or his representatives, safety Engineer/officer & Labour Officer.

14.16.10 The Contractor shall enclose along with his first bill a true copy of the safety Induction Form (ENCLOSURE - B) duly certified by the Executing Authority regarding use of safety appliances,

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

following of safety instructions and observance of all safety laws, failing which the bill will not be processed for payment.

14.16.11 Notwithstanding the above clauses, there is nothing in those to exempt the contractor from the operation of any other Act or rule in Republic of India for the safety of men and materials.

14.16.12 Without prejudice to the right conferred to the Employer for stoppage of work for violations of safety requirements, the contractor shall be liable, after written warning, for a penalty of Rs 1,000/- for the first violation and up to Rs 3,000/- for the second violation. For the third violation, the contractor shall be liable to be debarred from further contracts up to a period of one year from the date of issue of debarring notice. For low value contracts up to Rs 5 Crores, fine up to Rs. 25,000/-, for medium value of contracts from Rs. 5 Crores to Rs 10 Crores, fine up to Rs. 50,000/- and for high value contract above Rs. 10 Crores find up to Rs. 1,00,000/- at a time can be imposed by Employer / Executing Authority on defaulting contractors.

14.16.13 The Mines/Units may enforce any one of the two penalty system as mentioned in 14.14 & 14.16.12.

14.17 PPE & SAFETY APPLIANCES

14.17.1 The contractor shall provide all the PPE (Personal Protective Equipment) and Safety appliances required to carry out the job to all the workmen deployed by the contractor and also ensure that his workmen use those PPE and safety appliances while on the job.

14.17.2 The standard of PPE and safety appliances supplied by the contractor must conform to any one of the following (in order of preference):

a. DGMS
b. IPSS
c. IS
d. As per advice and design by the Safety Deptt. of the Company.

14.17.3 Arrangements of supply of proper type of PPE and appliances shall be made by the contractor prior to the actual start of the job and Safety Deptt, of Company will physically cheek the same.

14.17.4 If at any stage, the contractor fails to provide proper type of PPE and safety appliances, the Company may procure and distribute the same as per requirement, with prior intimation to the contractor. In such case, the cost of items plus the other cost incurred on procurement shall be deducted from the bill of the contractor.

18 SITE CLEARANCE

14.18.1 Prior to commencement of work, the contractor shall obtain a clearance from the Safety Engineering Deptt. of the Employer and concerned Deptt/Section of the Employer where the job is to be carried out. The Employer/Engineer shall not permit the contractor to commence the work unless contractor or its representative produces such clearance certificate. The department concerned shall grant such clearance after ensuring that:

a. The contractor or his chief representative has undergone Safety Awareness briefing with the Employer"s Safety Engineering Deptt. In the preceding twelve months with respect to the awarded work.
b. The contractor's workers, identified for particular work/department, have undergone basic/refresher Safety Training in the preceding five years.
c. The contractor has arranged PPE and safety appliances for himself and all his workmen, as required.
d. The Contractor possesses work permit issued by the Employer or Employer's representative for which the "Work Clearance Form" (ENCLOSURE - C) shall be filled-in in triplicate by the Contractor for record of:
    i. Safety
    ii. Department/Section of the Employer granting clearance and
    iii. Contractor
e. The contractor and his supervisors along with the contract document and job instructions received from the employer, will come to employer's Safety' Engineering Deptt. where the contractor will obtain Safety Rule Book for

General Manager (Mines) & E&E
SAIL-BSL, Gua Ore Mines

contractor and seek clarification, if any. The Contractor is not permitted to start the job without clearance from Employer's Safety Engineering Deptt.

f. The contractor shall possess handling equipment, tools and tackles of adequate capacity and tested quality.

14.18.2 The contractor shall obtain specific permission from the Engineer and Company's Safety Deptt. before commencing the following :

a. Working in an operating plant
b. Working at height
c. Working in areas expected to have toxic/poisonous gases
d. Major site activity irrespective of the clearance already obtained
e. Wherever there are hazards of electricity, moving machinery etc.
f. Underground working

14.18.3 The executing Deptt. shall take necessary shutdown of operating Plant before commencement of job in that area.

14.19 SKILL & COMPETENCE OF WORKMEN

The contractor shall be responsible to engage competent and capable workers.

14.20 PHYSICAL FITNESS OF WORKMEN

14.20.1 The contractor shall ensure that his employees/workmen subject themselves to such medical examination as required under the Jaw or under the Company's rules and keep a record thereof.

14.20.2 The Contractor shall not permit any employee/workman to enter the work area under the influence of alcohol.

14.21 DEALING WITH ACCIDENT

14.21.1 Any accident shall immediately be reported to Safety Officer/Mines official. All other procedure shall be followed as per Mines Act, Rules & Regulations.

14.21.2 The contractor shall not interfere with the site of accident, unless inspected and/or permitted by the competent authorities.

14.21.3 The contractor shall arrange to avoid any sort commotion at site in the event of an accident.

14.22 MISCELLANEOUS SAFETY TERMS

14.22.1 The contractor shall provide adequate barricading /, guards, illumination, fencing and security wherever necessary at the Construction site and work area, for the safety and convenience.

14.22.2 The contractor shall note that smoking or keeping of naked light near gas lines, valves and any other equipment connected with the gas distribution system and handling of all inflammable material is strictly prohibited and ensure its compliance.

14.22.3 The contractor shall ensure that horse-play of any kind and unauthorized movement is prohibited inside the Mine. No one shall distract the attention of others on work.

14.22.4 The contractor shall ensure that no one takes rest/shelter below Railway Wagons, overhang / undercuts, parked vehicles, electrical installations etc.

14.22.5 The contractor shall ensure the availability of first aid box at the working sites.

15.0 **BANNING OF BUSINESS DEALINGS**:

15.1 If it is found during processing of the Tender, that the Tenderer or his representative has resorted to corrupt, fraudulent practices including misrepresentation of facts and/or fudging/forging/tampering of documents, the bid submitted by the Tenderer shall be disqualified and a ban on any further business dealings shall be imposed for a specified period under the laid down procedure of the Company.

15.2 If it is found during the validity of the Contract that the Contractor or his agent/representative or any other person claiming interest under him, indulges in any malpractice/activity prejudicial in the interest of the Plant/Unit or detrimental to the Plant/Unit, equipment and property, the said Contract may be terminated at once and a ban on any further business dealings shall be

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

imposed for a specified period under the laid down procedure of the Company (as per SAIL Guidelines for banning of business dealings and any amendment thereunder).

16.0 **ARBITRATION:**

16.1 Reference of Disputes to Conciliation / Arbitration: All disputes or differences arising out of the contract, except disputes or differences for which separate provisions for their resolution have been made in the Contract („excepted matters"), shall be settled by Conciliation or Arbitration in accordance with the Arbitration and Conciliation Act, 1996 and the amendment made thereunder including the provisions made hereinafter in this Article. Such dispute shall first be referred to Conciliation by a Conciliator selected mutually by the parties, who shall also decide the fees / remuneration and the rules of Procedure, which shall be flexible.

16.2 Appointment of Arbitrator: In the event of failure of conciliation, the dispute will be referred to an arbitral tribunal comprising of a sole arbitrator to be appointed by the Director (RM&L) or the Director"s designated representative or the head of Raw Materials Division in whatsoever designation called in respect of award of contract as follows:

When a party sends a Notice for Arbitration to the said authority, within a period of thirty days, a panel of three names suggested by the said authority, will be forwarded to the party demanding arbitration. The party shall choose one of those persons, who will be appointed as the Sole Arbitrator.

In the event the party fails to intimate one of those persons within fifteen days from the date of intimation of the three names then said authority will be at liberty to appoint any one out of the said three persons as the Sole Arbitrator.

The Arbitrator shall hear the cases independently and impartially and shall not represent the interest of any party. The Arbitrator shall, from the time of his appointment and throughout the arbitral proceedings and without delay, disclose to the parties in writing any circumstances likely to give rise to justifiable doubts as to his independence or impartiality. However, merely because he is or has been employed by one of the parties, it shall not be a disqualification for a person to be an arbitrator.

16.3 The arbitral tribunal shall be free to determine its own rules of procedure, in consultation with the parties, which it shall state at the beginning of the arbitral proceedings, and shall follow such procedure thereafter. The arbitrator may hold preparatory meetings(s) for this purpose. In the preparatory meeting(s) aforesaid, the arbitrator may, in consultation with the parties, also determine the manner of taking evidence, the summoning of expert evidence, and all such matters for the expeditious disposal of the arbitration proceedings. The arbitrator shall be entitled to fees as may be agreed by the parties and also the expenses as per actual. The seat of the arbitral tribunal shall be at Kolkata, but, if necessary, the tribunal can hold the proceedings at other places, for convenience in recording evidence, conducting investigation / survey.

16.4 Work to continue during Conciliation / Arbitration: Work under the Contract shall be continued by the Contractor during the arbitration proceedings and recourse to arbitration shall not be a bar to continuance for the work.

17.0 **AMENDMENT:** Except to the extent expressly set forth in the Contract, no change in or modification, in any form whatsoever, shall be valid or enforceable unless it is in writing on stamp paper of requisite value, and signed by the party to be charged therewith or its duly, authorized representative.

18.0 **ALTERATION OF TENDER** : It shall be the responsibility of the tenderer submitting the tender to ensure that the tender has been submitted in the formats and as per the terms and conditions prescribed in tender document and in the SAIL tender Website (https://www.sailtenders.co.in) and no change is made therein before submission of their tender. In the event of any doubt regarding the terms and conditions / formats, the tenderer / bidder may seek clarifications from the authorized officer of SAIL. In case any tampering / unauthorized alteration is noticed in the tender submitted from the Tender Document issued or as available on the SAIL tender Website (https://www.sailtenders.co.in), the said tender shall be summarily rejected and the SAIL shall

General Manager (Mines) & EIC
SAIL-BSL, Gua Ore Mines

have no liability whatsoever on the matter. However, deviation if any proposed by the tenderer may be separately indicated for acceptance or otherwise of SAIL. Such proposed deviation will not be treated as tampering for the purpose of application of this clause.

19.0 **JURISDICTION**: The District Court at Chaibasa (Jharkhand) shall have the exclusive jurisdiction upon any matter arising out of this contract.

Annexure-IV

MANDATE FORM FOR RECEIVING OF PAYMENT IN ELECTRONIC MODE

1	PARTICULARS OF EMPLOYEE/ VENDOR / SUPPLIER/ TENDERER/ INVESTOR/ CUSTOMER /OTHER (Please specify)	
A	NAME	
B	ADDRESS	
C	E.MAIL	
2	PARTICULARS OF BANK ACCOUNT	
A	BANK NAME	
B	BRANCH NAME	
C	ACCOUNT NUMBER (Full) (As required for electronic payment/ EFT / RTGS / SEFT)	
D	BANK ADDRESS WITH TELEPHONE NO.	
E	BRANCH CODE, if any	
F	9-DIGIT CODE NUMBER OF THE BANK & BRANCH, WHEREVER AVAILABLE (Appearing on the MICR CHEQUE issued by the bank) **(Enclose a copy of cancelled cheque)**	
G	ACCOUNT TYPE (S.B. Account/ Current A/C or Cash Credit)	
H	LEDGER NO/ LEDGER FOLIO NO.	
I	IFSC CODE FOR NEFT	
J	IFSC CODE FOR RTGS	

I hereby declare that the particulars given above are correct and complete. If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold SAIL responsible. I have read the option, invitation letter and agree to discharge responsibility expected of me as a participant under the Scheme.

Signature of the Investor / Customer / Employee/

Vendor/ Supplier/ Tenderer, with seal of the firm

Date:

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

सेल SAIL

Name and Address

Annexure-VI

FORMAT FOR UNDERTAKING TO BE SUBMITTED/UPLOADED BY BIDDER ALONG WITH THE TENDER DOCUMENTS.

(To be submitted in bidder letter head)

Date: __ /__ / 2025

TENDER NOTICE NO. GOM/CC/24-25/OTE/157 of 2024-25 Dated 24/03/2025

I.....(Name and Designation) appointed as the attorney/authorised signatory of the bidder (including its constituents) M/s. ..... (herein after called the bidder) for the purpose of the tender documents for .....as per the tender No. .....of .....dated. ..... (SAIL) do hereby solemnly affirm and state on the behalf of the bidder including its constituents as under:

1. I/We the bidder(s) am/are signing this document after carefully reading the contents of the above mentioned tender.
2. I/We declare and certify that I/We have not made any misleading or false representation anywhere in the tender submitted including the annexures thereto.
3. I/We also understand that my/our offer will be evaluated based on the documents/ credentials submitted along with the offer and same shall be binding upon me/us.
4. I/We declare that the information and documents submitted along with the tender documents by me/us are complete and correct and I/We are fully responsible for the authenticity and correctness of the information and documents submitted by us.
5. I/We understand that at any time during process for evaluation of tenders, if any information/ document submitted by me/ us are found to be suppressing facts/forged/false/fabricated/fudged or incorrect, it shall lead to forfeiture of the EMD, if submitted, besides banning under the extant guidelines for Banning of Business Dealings of SAIL and initiating any legal action as deemed fit by SAIL. Further, I/ We ..... (Name of the Bidder) and all my /our constituents understand that my/ our offer shall be summarily rejected.
6. I/ We also understand that any time after award of contract, if the certificate(s) submitted by me/ us are found to be suppressing facts/false/forged/fabricated/forged or incorrect, it may lead to termination of the contract, along with forfeiture of EMD/SD and Performance Guarantee if submitted, besides any other action provided in the contract including banning under the extant Guidelines for Banning of Business Dealing of SAIL and initiating any legal action as deemed fit by SAIL.

Place:
Date:

General Manager (Mines) & E&...
SAIL-BSL, Gua Ore Mines

SEAL AND SIGNATURE OF THE BIDDER

सेल SAIL

Annexure-VII

FORMAT
NON-COLLUSIVE TENDERING CERTIFICATE
(to be signed by an authorised person on the Tenderer's behalf)

To
General Manager(CC)
Gua Ore Mines
Jharkhand Group of Mines, BSL
Gua, West Singhbhum
Jharkhand- 833213.

Dear Sir/ Madam,

Non-Collusive Tendering Certificate for { **TENDER NOTICE NO. GOM/CC/24-25/OTE/157 Dated 24/03/2025**}

1. We, (name(s) of the tenderer(s)) of (address (es) of the tenderer(s)) refer to the bid/offer against the Tender No. GOM/CC/24-25/OTE/157 Dated 24/03/2025.

2. Non-collusion
We represent and warrant that in relation to the Tender:
(a) Our bid was developed genuinely, independently and made with the intention to accept the Contract it awarded;
(b) Our bid was not prepared with any agreement, arrangement, communication, understanding, promise of undertaking with any person (including any other tenderer or competitor) regarding:
i) prices;
ii) methods, factors or formulas used to calculate prices;
iii) an intention or decision to submit a bid;
iv) an intention or decision to withdraw a bid;
v) the submission of bid that does not conform with the requirements of the tender;
vi) the quality, quantity, specifications or delivery particulars of the products or services to which this tender relates; and
vii) the terms of the bid, and we undertake that we will not, prior to the award of the Contract, enter into or engage in any of the foregoing.

3. Disclosure of in case of Job/ Project Contracts
We understand that we are required to disclose all intended sub-contracting arrangements relating to the Tender to the Plants/ Units--------, Steel Authority of India Limited, Place ----------, including those which are entered into after the Contract is awarded. We warrant that we have duly disclosed and will continue to disclose such arrangements to the Plants/ Units--------, Steel Authority of India Limited, Place ----------.

4. Consequences of breach or non-compliance

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

We understand that in the event of any breach or non-compliance with any warranties or undertakings in this certificate, the Plants/ Units--------, Steel Authority of India Limited, Place ---------- may, at its discretion, invalidate our bid, exclude us in future tenders, pursue damages or other forms of redress from us (including but not limited to damages for delay, costs and expenses of re-tendering and other costs incurred), and /or (in the event that we are awarded the Contract) terminate the Contract.

Signed for and on behalf of the (tenderer)
Signature:
Name:
Position:
Date:

Note:

Para **2(b)** is not applicable to Agreements, arrangements, communications, understandings,promises or undertakings with:

(a) the Plants/ Units, Steel Authority of India Limited, Place;

(b) a joint venture partner, where joint venture agreements, arrangements, relevant to the bid exist and which are notified to the Plants/ Units--------, Steel Authority of India Limited, Place ----------;

(c) consultants or sub-contractors, provided that the communications are held in strict confidence and limited to the information required to facilitate that particular consultancy arrangement or sub-contract;

(d) professional advisers, provided that the communications are held in strict confidence and limited to the information required for the adviser to render their professional advice in relation to the Tender;

(e) insurers or brokers for the purpose of obtaining an insurance quote, provided that the communications are held in strict confidence and limited to the information required to facilitate that particular insurance arrangement; and

(f) Banks for the purpose of obtaining financing for the contract, provided that the communications are held in strict confidence and limited to the information required to facilitate that financing.

Signed for and on behalf of the (tenderer)

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

सेल SAIL

Annexure-VIII

DECLARATION FORM

(To be given in letter head of the Bidder having name and complete address of the Bidder)

Place: .....
Date: .....

To,
M/s. Steel Authority of India Ltd.,
Gua Ore Mines
Jharkhand Group of Mines, BSL
Gua, West Singhbhum
Jharkhand- 833213.

Subject: Declaration with respect to E-invoicing provisions of the Goods & Service Tax ('GST') law along with documents specified herein below as enclosed.

Dear Sir,

This is to draw your kind attention to the fact that the Government has notified vide Rule 48(4) of the CGST Rules, 2017 that certain taxpayers shall prepare the invoice by including certain particulars contained in Form GST INV-01 after obtaining an Invoice Reference Number by uploading information contained therein on the Common Goods and Services Tax Electronic Portal in such manner and subject to such conditions and restrictions as may be specified in the notification.

Further, Rule 48(5) prescribes that every invoice issued by a person to whom Rule 48(4) applies in any manner other than the manner specified in Rule 48(4) shall not be treated as an invoice.

Furthermore, vide notification no. 61/2020 – Central tax dated July 30, 2020 it is prescribed that a registered person whose aggregate turnover in a financial year exceeds Five hundred (500) crores rupees, shall prepare an invoice, in terms of sub rule (4) of the Rule 48 of the CGST Rules, 2017 in respect of the supply of goods or services or both to a registered person.

It would be pertinent to mention that as per Section 2(6) of the CGST Act, 2017, "aggregate turnover" means the aggregate value of all taxable supplies (excluding the value of inward supplies on which tax is payable by a person on reverse charge basis), exempt supplies, exports of goods or services or both and inter-State supplies of persons having the same Permanent Account Number, to be computed on all India basis but excludes CGST, SGST, UTGST, IGST and Cess.

With reference to the aforesaid provisions of the GST law, I,..... (Individual) S/D/O ..... residing at ...../ We, M/s..... (bidder who is not an individual) having our local office at ....., Pincode-..... and registered officer at ..... Pincode..... hereby declare and undertake that:

- The aggregate turnover of <my / our> organization does not exceed the thresholds prescribed or in case the same exceeds the prescribed threshold, but I/we qualify for the exemption prescribed;

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

सेल SAIL

- <I / we><am / are> will take necessary steps to ensure the fullest compliance in case the aggregate turnover exceeds the thresholds at any point of time, as prescribed/amended from time to time under the GST law and <I / we> will forthwith intimate you about such applicability of e-invoicing provisions;

- In the event of failure on <my / our> part, <I / we> will bear the cost or losses incurred by you, on account of the failure to compliance with the GST provisions applicable on above-mentioned subject.

We also enclose herewith **self-attested copies** of our PAN Card, Aaddhaar Card and latest GSTR-9 & GSTR-9C.

Yours faithfully,

.....

(Name and Designation of the authorized signatory)

Enclosed :

1. Copy of PAN Card of Authorized Signatory(Self-attested)
2. Copy of Aadhaar Card of Authorized Signatory(Self-Attested)
3. Copy of the latest GSTR-9 and GSTR-9C filed onto GSTN portal by tenderer.

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

सेल SAIL

FORM – 1

(To be submitted on Bidder's Letter Head, along with techno-commercial Bid)

Format for Acceptance of Terms and Conditions of the Tender:

We _____
(Bidder Name)

having registered office at _____

_____
(Address)

agree to all Terms & Conditions listed in Tender Number _____dated ___/___/_____ **containing** _____ **pages (including annexure & forms)** for the scope of work as per Clause No. 1 of Special Conditions of Contract (SCC).

WE CONFIRM THAT WE ARE IN A POSITION TO EXECUTE THE CONTRACT AS PER TERMS AND CONDITIONS OF TENDER NOTICE NO.GOM/CC/24-25/OTE/157 DATED 24/03/2025

We have also understood the Reverse Auction Process and the Reverse Auction rules and special instructions given in the Tender. We agree to participate in the Reverse Auction and abide by the rules. We nominate an executive, whose details are given below, to put the bids on our behalf.

The details of the person authorized to bid on our behalf is as follows.

Name : _____
Designation : _____
Email : _____
Phone : _____
Address : _____

Date:

Signature & Seal:

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

सेल SAIL

FORM - 2

Format for Indicating details of registration

	Please indicate the following applicable for your company
GST registration number	
SAC code under GST	
PAN number	
Bank Account number	
Bank name/Branch name	
Bank City	

(Signature & Seal)

Name :

Designation :

Place:
Date:

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

सेल SAIL

FORM – 3

Format for Basic Information of the Tenderer:

Instructions to fill up the Basic Information:

1. *Please use this worksheet to specify basic financial/ Contact information; an authorized person should sign the document at relevant section.*
2. *Use this form as Proforma/ Format. Use additional sheets to provide relevant information.*
3. *Provide all the certified relevant documents w.r.t claims made in this Form.*

1		Company / Firm Name			
2		Ownership Details			
3		Manufacturer/ Distributor/ Dealer			
4		Mention, if PSU/ Joint venture with PSU			
5		In case of PSU - Central or State PSU			
6		In case of Joint Venture % wise equity holding			
7		Contact Person & Designation			
8		Phone (with STD code)			
9		Fax (with STD code)			
10		E-mail			
11		Financial Detail for any three consecutive FYs out of FYs i.e 2018-19, 2019-20, 2020-21& 2021-22 (Rs Lakhs) :			
		Turnover:			
		Profit:			

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

सेल SAIL

ANNEXURE-IX

PRICE BID
(PART-III)

TENDER NOTICE NO: GOM/CC/24-25/OTE/157 DATE 24/03/2025

Installation of Solar Powered Electric Fencing for the length of 5.27 km around the lease boundary of Duarguiburu Mining Lease

AT

Gua Ore Mines

STEEL AUTHORITY OF INDIA LIMITED
[A GOVT. OF INDIA ENTERPRISES]
JGOM-Bokaro Steel Limited

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

सेल SAIL

STEEL AUTHORITY OF INDIA LIMITED
JGOM-BOKARO STEEL LIMITED
GUA ORE MINES
PRICE BID (PART-III)

To,
GM (CC)
SAIL, Gua Ore Mines

Name of Work: Installation of Solar Powered Electric Fencing for the length of 5.27 km around the lease boundary of Duarguiburu Mining Lease

Period of Contract: The contract shall be for a period of **4 (four) months** from the date of commencement of work as mentioned in the work order or actual date of commencement of work, whichever is earlier.

Dear Sir,
I/we hereby tender as specified in your above quoted tender with specifications laid down in tender document consisting of Instructions to tenderers, Techno-Commercial (Part-I), Special Conditions of Contract and General Conditions of Contract and declare that, should this tender be accepted, I/we hereby agree to abide by and fulfill all the terms and conditions of the tender which have been read and understood by me/us.

Further I/We declare that I/We shall commence the work on the date specified in the Work Order for the job and execute the necessary agreement with the Steel Authority of India Limited-Jharkhand Group of Mines-BSL, Gua Ore Mines. If I/We fail to commence the work within the stipulated time as above, the Earnest Money deposit may be forfeited.

I/We understand that the Steel Authority of India Limited- Jharkhand Group of Mines-BSL, reserves the right to reject any or all the tenders or to execute the work through others without assigning any reason thereof.
I/We, in due consideration of all the above, offer our rates for different items of the jobs as below:-

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

सेल SAIL

PRICE BID (PART-III)

SCOPE OF WORK CUM PRICE SCHEDULE

Name of the Job: Installation of Solar Powered Electric Fencing for the length of 5.27 km around the lease boundary of Duarguiburu Mining Lease of Gua Ore Mines.

Sl. No.	Particulars	Unit	Quantity	Rate	Amount (In Rs.)
1.	Solar Operated Fencing Machine (10 kV to 20 kV or equivalent) with Siren & Cable for operating range upto2km fencing length.	Nos	6	14,500	87000.0
2.	Battery Connection Cable & Solar Panel Connection Cable	Nos	12	200	2400.0
3.	Multi Strand Fencing Wire including wastage (Fencing Boundary Wire 18 SWG/20 SWG or as per requirement)	Meter	26500	28.5	755250.0
4.	Fence Wire Tightener with Spring	Nos	300	80	24000.0
5.	Plastic Insulator	Nos	10000	56	560000.0
6.	Plastic Corner Insulator	Nos	800	72	57600.0
7.	HDPE Pipe of 3 inch Dia (each of length 8 ft) with hollow cross section filled with Cement Concrete &extra supporting pole	Nos	2000	325	650000.0
8.	Solar Panel (330- 340 Watt or equivalent)	Nos	6	11600	69600.0
9.	Lithium Ion Battery 45AH (12V) or equivalent	Nos	6	8500	51000.0
10.	Solar Panel & Battery Stand & Water Proof Hard Metal Box with stand & Locking System for encasing Fencing Machine, Batteries (GI Pole of size 14 ft&dia 3 inch or equivalent)	Nos	6	30000	180000.0
11.	Solar Battery MPPT Charger Controller 20 AMP-12V/24V or equivalent	Nos	6	9500	57000.0
12.	Installation/ Testing/ Labours/ Freight charges including Bush Cutting	Lumpsum	-	-	450000.0
Total (Excl. GST)					**29,43,850.0**

We hereby submit our offer and indicate one of the three options as under, with respect to the Indicated rates.

Total value in Rs		**29,43,850.00**
	In figure	In words
PERCENTAGE QUOTED ABOVE		
PERCENTAGE QUOTED BELOW		
QUOTED AT PAR		

General Manager (Mines) & CEI
SAIL-BSL, Gua Ore Mines

सेल SAIL

NOTE:

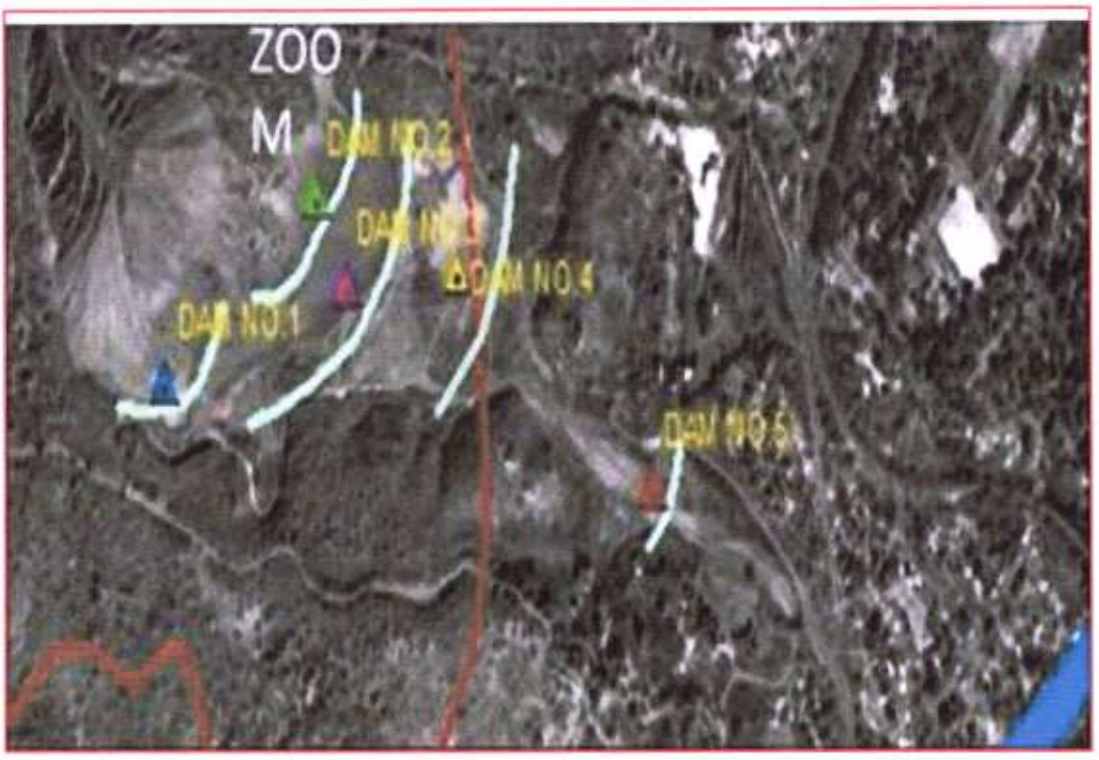
1. Tenderer is required to quote by choosing only one option out of three options indicated below by filling the blank space: % (percent) above, % (percent) below or at par the indicated rates, both in figures and words.
2. Tenderer is not allowed to quote item wise rate and also not allowed to choose more than one option.
3. In the event of choosing more than one option by tenderer, the offer will be summarily rejected.
4. The quoted percentage shall be equally applicable to all items of the Price Schedule.
5. The Quoted Price of the bidder should be inclusive of all taxes and duties as applicable **except GST.**

SIGNATURE OF THE TENDERER WITH SEAL

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Annexure-22

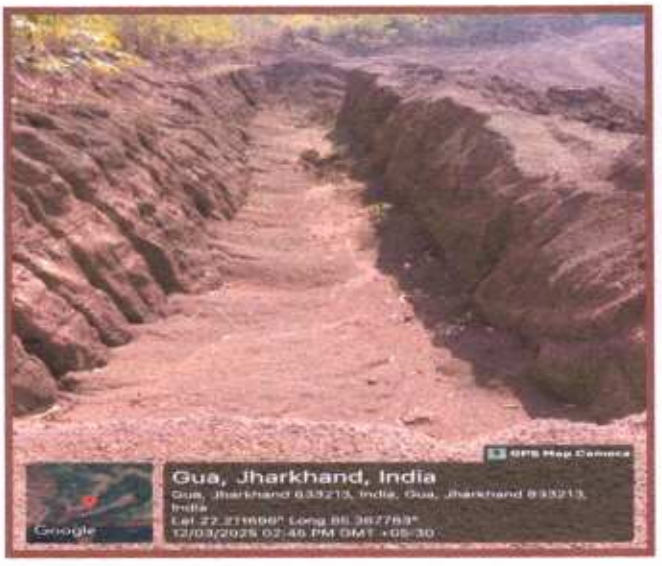
Photographs showing Measures undertaken for Steps to control flow of fines in to the river stream

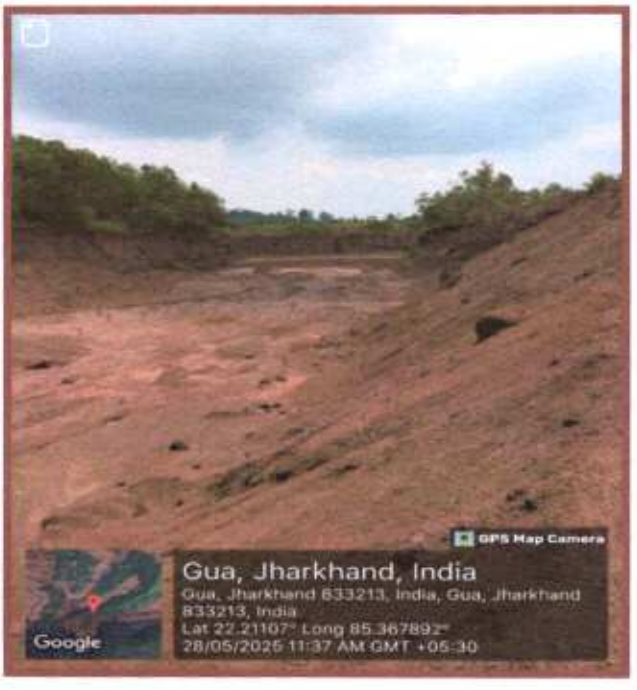


Photograph 1: Google Earth Image of Check Dams and Sediment Traps constructed for control fines

Photograph 2: Check Dams and Settling Pits / Sediment Traps constructed to control flow of fines

General Manager (Mines) & EC
SAIL-BSL, Gua Ore Mines





Photographs 3: Settling Pits / Sediment Traps constructed between Dam 1, 2 and 3 to control flow of fines

General Manager (Mines) & CS
SAIL-BSL, Gua Ore Mines

स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED

Proj/19/0039/02/GUA
April 2, 2014

To,
The ED I/c,
Raw Material Division,
Kolkata.

SANCTION LETTER

Sub: RMD-Expansion of Gua Ore Mines with Beneficiation Facilities and installation of Pellet Plant

Sir,

This is to convey that SAIL Board in its 402nd meeting held on 14th February, 2014 has accorded final approval for the Proposal for Expansion of Gua Ore Mines to 10 Mtpa of finished products along with required beneficiation facilities and installation of 4 Mtpa capacity Pellet Plant at an updated cost of Rs 4749 crore (net of cenvat credit of Rs 355 crore) including foreign exchange component of Rs 969 crore on base date of 3rd Quarter 2013 and implementation schedule of 40 months from effective date of contract.

The Board further approved the proposal for placement of order for "Crushing, Beneficiation and Pellet Plant (Package-001) for 10 Mtpa expansion of Gua ore Mines" on Consortium of M/s L&T Ltd at an evaluated price of Rs 2742.84 crore (net of cenvat of Rs 276.80 crore) including foreign exchange component of Rs 904.72 crore. The Letter of Acceptance is to be issued after receipt of Stage-I Forestry Clearance for diversion of a total of 635.989 Ha.

A copy of the SAIL Board resolution along with Board Note is enclosed for information and necessary action at your end.

Thanking you,

Yours faithfully,

(SC Jain)
Executive Director (Projects)

Encl. As above
CC: 1. ED (Projects), RMD
2. ED (F&A), SAIL, New Delhi
3. GM (F&A), RMD

Copy to:

Director (RM&L) - for kind information

18वीं मंजिल, स्कोप मीनार, नॉर्थ टावर, कोर–1, लक्ष्मी नगर डिस्ट्रिक्ट सेन्टर, लक्ष्मी नगर दिल्ली–110 092, दूरभाष: कार्यालय 2246 7360, फैक्स : 011-2246 7458, टेन्डर वेबसाईट : www.sailtenders.co.in
18th Floor, Scope Minar, North Tower, Core- 1, Laxmi Nagar Distt. Centre, Laxmi Nagar, New Delhi-110 092, Phone : 2246 7360, Fax : 011-2246 7458, Tender Website : www.sailtenders.co.in
पंजीकृत कार्यालय : इस्पात भवन, लोदी रोड, नई दिल्ली - 110 003, दूरभाष : 011-2436 7481-86, फैक्स : 24367015, ई-मेल : sailco@vsnl.com, वेबसाईट : www.sail.co.in
Registered Office : Ispat Bhawan, Lodi Road, New Delhi-110 003, Phone : 24367481-86, Fax : 24367015, E-mail : sailco@vsnl.com, Website : www.sail.co.in

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

गोपनीय

CONFIDENTIAL

स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED

14 फरवरी, 2014 को सेल निदेशक-मण्डल की 402वीं बैठक के कार्यवृत के उद्धरण

EXTRACT FROM THE MINUTES OF THE **402ND** MEETING OF THE BOARD OF DIRECTORS OF SAIL HELD ON **14TH FEBRUARY, 2014.**

XXX XXX XXX

11631. Item No.2.2: RMD-Expansion of Gua Ore Mines with Beneficiation facilities and Installation of Pellet Plant.

Director (RM&L) explained the rationale of the proposal for expansion of the Gua Ore Mines with beneficiation facilities and also the installation of a pellet plant and stated that considering the raw material security for smooth operations of the Company, there is an urgent need to expand Gua Ore Mines along with installation of a Beneficiation & Pellet Plant to meet the enhanced iron ore requirement of about 40 Million Tonnes Per Annum (MTPA) post current Modernisation & Expansion Plan of steel plants and also for meeting the qualitative requirements of input raw materials for the new high capacity Blast Furnaces, as also for the ones under modernisation. For meeting the iron ore requirement for expanded capacity, raising of about 8 MTPA additional iron ore is planned from Gua mine. Further, iron ore available at Gua requires beneficiation to increase Fe content and to reduce gangue. He further mentioned that time bound liquidation of 33 Million Tonnes dump fines is one of the major conditions of the environment clearance obtained for continuance of the operations at Gua.

2. He stated that as per the proposal, production from Gua Iron Ore Mines would be enhanced to a level of 10 MTPA of beneficiated ore including 4 MTPA of pellets, from the current level of around 2 MTPA of non-beneficiated iron ore lumps and fines. Given the current situation of availability of iron ore in India, arranging this 8 MTPA of additional beneficiated iron ore from external sources would be extremely difficult and even if possible would put an additional annual burden of around Rs.1600 crores (at least Rs.3500/ton for equivalent quality iron ore vis-à-vis about Rs.1500/ton for own iron ore from expanded Gua mines). Higher raw material input cost would considerably reduce margins and adversely affect the profitability. He further stated that the agglomeration capacity in the SAIL plants under the current modernisation & expansion plan takes into account the 4.0 MTPA pellet plant envisaged at Gua Iron Ore Mine and in the event this pellet plant is not installed there would be a significant shortage of agglomerated charge. The resultant requirement of additional lump (around 4.0 MTPA) would also become a serious constraint.

3. Giving the background of the proposal, Director (RM&L) mentioned that SAIL Board in its 359th Meeting held on 17thMarch 2010 accorded "in-principle" approval for the proposal for Expansion of Gua Iron Ore Mines to 10 MTPA of finished products along with required beneficiation facilities at an indicative Cost of Rs.2087 Crore and installation of 4 MTPA capacity Pellet Plant at an indicative cost of Rs.865 Crore (Total Indicative Cost: Rs.2952 Crores; Base date: 3rd Quarter 2009). For the instant

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED

14 फरवरी, 2014 को सेल निदेशक-मण्डल की 402वीं बैठक के कार्यवृत के उद्धरण
EXTRACT FROM THE MINUTES OF THE 402ND MEETING OF THE BOARD OF DIRECTORS OF SAIL HELD ON 14TH FEBRUARY, 2014.

XXX XXX XXX

tender, NIT was issued on 1.10.2011 with TOD of 15.11.2011. After 2 extensions, four offers were received on 27.01.2012. Three rounds of techno-commercial discussions were held with the parties. Out of four bidders, consortium of M/s MCC did not qualify as per the eligibility criteria of NIT. Of the three techno-commercially qualified bidders, only two bidders submitted the price bids on the scheduled date of 17.1.2013 (after two extensions and with a clear directive that no further extension will be given), which were opened on 18.1.2013. Consortium of M/s L&T emerged as the L-1 bidder at an evaluated price of Rs.2742.84 Crore (net of CENVAT/ Input Tax Credit on VAT) which is 4.78% lower than the consultant's estimate. The L-2 price of M/s MBE & Consortium was 13.08% higher than the consultant's estimate.

4. On a query regarding the circumstances leading to return of MECON representative on 17th January '13 without handing over the cost estimates, Director (Engineering), MECON stated that since only two bids were received on 17th January'13, there was uncertainty on the date of price bid opening as necessary approvals were required to be obtained as per procedure with the number of bids being less than X+2 bids (i.e. minimum 3 bids). Hence, the MECON representative left for HQ, Ranchi. On 18th January'13 it was informed by RMD that Price bids will be opened the same day evening. Consequently, another representative of MECON with the sealed estimate dated 18th January '13 was sent to Kolkata to hand over the same to RMD. Director (Engineering), MECON further mentioned that since new sealed envelope was sent to RMD, the envelope dated 17thJanuary'13, being property of MECON, was destroyed. This is as per the practice in vogue in MECON. Further, estimates are given at the time of opening of price bid. He reiterated emphatically that the estimate handed over before price bid opening was the same as that carried by MECON representative for the original scheduled price bid opening of 17th January'13.

5.1 Explaining the reasons for increase in estimated package cost from Rs.1821 Crores to Rs.2881 Crores and also increase in the total cost from 'in-principle' stage (Rs.2952 Crores) to updated estimates of Rs.4749 Crores, Director (RM&L) informed that the increase in package cost was on account of variations in foreign exchange rates & in price indexes, etc. (Rs.330 crore) and variations in technological requirements, insurance spares, statutory requirement, and changes in soil data resulting in increase in quantum of civil work, etc. (Rs.730 crore). Also, inclusion of outer road from Hathi Chowk to ensure smooth movement of heavy trailer traffic; change in Power Supply scheme by JSEB; Railway Sidings and Township Facilities, etc. resulted in increase of cost of balance and linked packages.

5.2. It was clarified that the technical aspects of the Project have been evaluated independently by CET. They have also recommended that the scope change made after Stage-I approval are technically required and the infrastructures in the changed scope

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED

14 फरवरी, 2014 को सेल निदेशक-मण्डल की 402वीं बैठक के कार्यवृत के उद्धरण
EXTRACT FROM THE MINUTES OF THE 402ND MEETING OF THE BOARD OF DIRECTORS OF SAIL HELD ON 14TH FEBRUARY, 2014.

XXX XXX XXX

are essential for such a large mine. Further, the proposal has been appraised by M/s IFCI. The appraisal, inter alia, covers variation in assumptions, operating expenses, cost and financial analysis. In conclusion of the report, M/s IFCI has stated that keeping in view the technical/ technological parameters assumed by MECON/RMD-SAIL and the commercial/ financial analysis carried out by IFCI, the IRR (Post Tax) works out to 28.30 per cent for the proposed project of Expansion of Gua Iron Ore Mines (10 MTPA) with Beneficiation Facilities and Pellet Plant (4 MTPA). This merits consideration for investment by SAIL. It was also mentioned that the price was also negotiated by Tender Committee with the L-1 bidder but no further rebate was offered. Also there may be further cost escalation on current base date due to monetary reasons i.e. escalation and exchange variations.

6. On a query of the Board it was stated that delay of about 6 months, after opening of price bids till being put up to the Board Sub-Committee on Capital Investments for its consideration in August'13, occurred due to certain representations received regarding the tender. These representations have been examined by SAIL Vigilance, CAG (Office of PDCA, Ranchi) and Independent External Monitors (IEMs). It was stated that IEMs discussed the issues relating to the said tender and after deliberations the IEMs have concluded that "None of the complaints had been made by any of the signatories to the Integrity Pact. Therefore, strictly speaking the complaints were not under their assigned purview". The Board was also informed that CVC had called for a report on this tender which had been sent to CVC by the Ministry of Steel. In reply, no comments have been made by the CVC on the present tender. However, CVC had asked to look into the reasons of cancellation of previous tender. This has been looked into and found to be in order. Further, representations/queries received from various quarters including Ministry of Steel have been comprehensively replied to. Board was further informed that all representations were similar in nature.

7. Director (RM&L) stated that since there were no comments from CVC/ CAG, the proposal was submitted to the Board Sub Committee (BSC) and the BSC examined and considered the same in its meetings held on 30.08.2013, 04.09.2013, 28.11.2013 & 26.12.2013. All the requisite information and relevant documents as desired by BSC were provided. The BSC after detailed deliberations has recommended the proposal for approval of SAIL Board.

8. The Board was also informed that a letter dated 17th January, 2014, addressed to the CVC, was received from Shri M.P. Achuthan, Hon'ble MP (Rajya Sabha), wherein he had expressed his concern on the tendering process including cartelisation. It was brought to the attention of the Board that the concerned Directors had thereafter apprised Shri Achuthan in person on the various aspects of the issues raised by him in his letter. A reply to his letter was also formally submitted to him on 13th February,

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED

14 फरवरी, 2014 को सेल निदेशक-मण्डल की 402वीं बैठक के कार्यवृत के उद्धरण
EXTRACT FROM THE MINUTES OF THE **402ND** MEETING OF THE BOARD OF DIRECTORS OF SAIL HELD ON **14TH FEBRUARY, 2014.**

XXX XXX XXX

2014. In response, Shri Achutan has vide his letter dated 14th February, 2014, acknowledged that senior officers of SAIL have met him on 23rd January, 2014 and 13th February, 2014 and have explained the procedures followed for finalization of the said tender. He has stated that his "only concern is safeguarding the best interest of the Public Sector Undertaking SAIL and thereby that of the country". Shri Prashant Bhushan, Advocate had also submitted a representation dated 11th February, 2014 wherein he had conveyed his suspicion of cartelisation in the Gua Project. The concerned Directors had also met Mr. Bhushan and explained to him the process followed.

9. Board was informed that in view of the representation from various quarters including the one received from Advocate, Supreme Court indicating that a petition was being filed in the Competition Commission of India and a Legal Notice received from Advocate, Supreme Court, it was considered appropriate to seek legal opinion in the matter from Solicitor General of India (SGI). After examining the same SGI, has in his opinion dated 24th January, 2014 stated that:

> "I am of the considered opinion that from the facts as mentioned in the brief of opinion and also from other documents which have been furnished for my opinion, there is no impediment on SAIL to finalise the tender and award the contract as per established procedure which appears to be transparent. Thus, the contract can be finalised or awarded in accordance with Law."

10. Director (RM&L) also informed that the Competition Commission of India in its Order dated 05/02/2014 has, inter alia, stated that:

- "As *prima facie* no Opposite Party is dominant in the relevant market, abuse of dominant position on their part cannot be inferred.
- There is no substantial evidence or material to point out any understanding or agreement between the opposite parties to rig the bidding process. *Prima facie*, there does not appear to be any violation by the three consortiums.
- In view of the above discussion, there does not exist a *prima facie* case for causing investigation to be made by Director General under section 26(1) of the Act. It is a fit case for closure under section 26(2) of the Act and the same is hereby closed".

11. On a query, it was informed that for the proposed expansion, approved Mine Plan and Environmental clearances are available for an annual production capacity of 10 Million Tonne (ROM) of iron ore and 2.5 Million Tonne of fines from existing

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED

14 फरवरी, 2014 को सेल निदेशक-मण्डल की 402वीं बैठक के कार्यवृत के उद्धरण
EXTRACT FROM THE MINUTES OF THE 402ND MEETING OF THE BOARD OF DIRECTORS OF SAIL HELD ON 14TH FEBRUARY, 2014.

XXX XXX XXX

dumps by setting up a new beneficiation plant with a throughput capacity of 12.5 MTPA and installation of a new pellet plant of 4 MTPA capacity. 'In-principle' approval (Stage-I) for Forestry Clearance (diversion of 635 Ha including already broken area of 274 Ha) is expected shortly. On getting final forestry clearance, necessary steps, as per statute, will be taken for renewal of lease for 20 years. The 'Consent to establish' is already available and approval for drawal of water has also been accorded by the State. It was also informed that land for township is available within surface right. Power will be brought to Gua from Chaibasa through JSEB on Deposit Term basis.

12. During deliberation on an observation, it was clarified that in-principle approval for Gua mine expansion and beneficiation plant for processing 12.5 MTPA of Run of Mine (ROM) and dump fines and a 4 MTPA pellet plant was taken in April 2010. Subsequently, since the tender for Pellet Plant was ready, it was floated in May 2010. After two time extensions, only 2 bidders submitted their bids having two different technologies. A Task Force was set up to examine the performance of the bidders and other issues related thereto. The Task Force recommended that this tender be cancelled as the pellet feed is linked with beneficiation plant output and the productivity and quality is also dependent on the quality of pellet concentrate. Director (RM&L) informed that, as recommended by the Task Force, the Gua Pellet and Beneficiation Plants were tendered together to elicit larger participation and seamless integration i.e. beneficiation and pellet production. Thereafter, the instant tender has been finalised after combining Crushing, Beneficiation and Pellet Plant facilities.

13. It was pointed out that while the Forest Advisory Committee (FAC) has recommended for Stage-I Forestry Clearance for diversion of 635.986 Ha, but MoEF is yet to approve the same. Director (RM&L) stated that this clearance is expected to be received shortly. It was also pointed out that proposal has been put up for approval of: (i) the expansion of Gua ore mines to 10 MTPA of finished products at an updated cost of Rs. 4749 crores for all the packages; and (ii) placement of order for "Crushing, Beneficiation and Pellet Plant (Package 001)" on the consortium of L&T Ltd., at an evaluated price of Rs.2742.84 crores and not for all the packages. It was clarified that Stage-II approval is generally sought when major package(s), by value, are firmed up. In the instant case also only the linked/balance packages remain to be firmed up as they are dependent on the main package.

14. Regarding representations on alleged collusion and cartelization to accrue benefits to bidders, it was stated that the issue of cartelization was discussed in CCI and the Petition dismissed. In case of a representation received on the letter pad of NETC, a licensee to MCC, its veracity has been verified by SAIL Vigilance and it was not found genuine. Director (RM&L) apprised the Board that the cost of Gua Project is

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

गोपनीय
CONFIDENTIAL

स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED

14 फरवरी, 2014 को सेल निदेशक-मण्डल की 402वीं बैठक के कार्यवृत के उद्धरण
EXTRACT FROM THE MINUTES OF THE **402ND** MEETING OF THE BOARD OF DIRECTORS OF SAIL HELD ON **14TH FEBRUARY, 2014.**

XXX XXX XXX

comparable with the cost estimates of other SAIL mine development projects with beneficiation facilities, like for Chiria mines prepared by M/s Hatch Associates, Australia and for Taldih mine prepared by M/s Metchem, Canada/ CET. It was also stated that in the competitive market scenario, such practices of making complaints for stalling bidding processes are not uncommon and there are instances where the cases have been dragged for several years due to such practices.

15. As desired by the Board, Director (RM&L) confirmed that:

- All the applicable procedures in vogue have been followed in processing the case of tender.
- All the deviations/modifications have the approval of Competent Authority.
- No deviations with respect to eligibility criteria has been accepted/ approved.
- No bidder was put to undue advantage or disadvantage vis-à-vis other bidders by accepting/making the deviations/ modifications.

16. During the deliberations, AS &FA stated that in some other PSUs under the Ministry of Steel, namely RINL & KIOCL, where he is on the Board, the proposals for award of contract no longer come to the Board for approval and are to be approved by the functional management. In these PSUs, the delegation of powers for the functional management have been revised and the same should also be implemented in SAIL to ensure consistency in policy across the PSUs under the Ministry where he is a Director. He also mentioned that award of contract is basically in the nature of implementation of Board's decisions on investments, etc. This should be done as per the detailed provisions in Contract/Purchase Manual/ CVC Guidelines, etc.. In view of this, he reiterated his earlier views that these powers should be delegated to the functional management. Further, he desired that in view of his views on the subject, he would like to abstain from discussions on this agenda and, therefore, will not participate.

17. After detailed deliberations the Board noted that as per the existing Delegation of Powers in vogue, award of contract for more than Rs.400 Crores requires approval of the Board and in terms of the extant policy, the Board resolved that the proposal for Expansion of Gua Ore Mines to 10 MTPA of finished products along with required beneficiation facilities and installation of 4 MTPA capacity Pellet Plant at an updated cost of Rs.4749 Crore (net of Cenvat credit of Rs.355 Crore), including Foreign Exchange component of Rs.969 Crore on base date 3rd Quarter 2013 and implementation schedule of 40 months from effective date of contract, be and is hereby approved.

General Manager (Mines) & E&I
SAIL-BSL, Gua Ore Mines

गोपनीय

CONFIDENTIAL

स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड

STEEL AUTHORITY OF INDIA LIMITED

14 फरवरी, 2014 को सेल निदेशक-मण्डल की 402वीं बैठक के कार्यवृत के उद्धरण

EXTRACT FROM THE MINUTES OF THE **402ND** MEETING OF THE BOARD OF DIRECTORS OF SAIL HELD ON **14TH FEBRUARY, 2014.**

XXX **XXX** **XXX**

18. The Board further resolved that the proposal for placement of order for "Crushing, Beneficiation and Pellet Plant (Package 001) for 10 MT Expansion of Gua Ore Mines" on Consortium of L&T Ltd., at an evaluated price of Rs. 2742.84 Crore (net of Cenvat of Rs.276.80 Crore) including Foreign Exchange component of Rs.904.72 Crore, be and is hereby approved. The Letter of Acceptance is to be issued after receipt of Stage-I Forestry Clearance for diversion of a total of 635.989 Ha.

Action: D(P&BP)/D(RM&L)

XXX XXX XXX

General Manager (Mines) & E&L
SAIL-BSL, Gua Ore Mines

Annexure - 24

गोपनीय

CONFIDENTIAL

स्टील अथॉरिटी ऑफ इण्डिया लिमिटेड
STEEL AUTHORITY OF INDIA LIMITED

EXTRACT FROM THE MINUTES OF THE 520TH MEETING OF THE BOARD OF DIRECTORS OF SAIL HELD ON 11TH FEBRUARY, 2025.

XXX XXX XXX

Item No.520/2.10: Expansion of Gua Ore Mines from 4 Mtpa to 10 Mtpa.

The Board thereafter, resolved that the proposal for Stage-I approval of "Expansion of Gua Ore Mines from 4 Mtpa to 10 Mtpa" along with

- Engagement of MDO for mining and other activities, conveying, screening, RLS and dispatch in wagons for a period of 20 years excluding construction period of 36 months
- Engagement of BOO operator for 4 Mtpa Pellet Plant for 20 years excluding construction period of 36 months
- Installation of Benficiation Plant, MRS system, Water System and Township on EPC mode at an estimated cost of Rs.2079.18 Crore (net of ITC on GST of Rs.172.24 Crore) on base date of 2nd Qtr. 2024-25, including margin money for working capital of Rs.121.09 Crore with an implementation schedule of 40 months from effective date of contract.

as detailed in the Agenda Note, be and is hereby approved.

Further resolved that

- Director I/c. BSL is authorized to approve Invitation to Tender, Mining Service Agreement & Cost Estimates for selection of MDO for mining and other activities, and, Tender Documents & Cost estimates for selection of BOO operator for the establishment of Pellet Plant for the subject proposal.
- Revised Cost Estimate of Rs.837.84 Crore (net of ITC on GST of Rs.4.94 Crore) towards linked schemes against the earlier approved cost of Rs.814.01 Crore, be and is hereby approved.

Action: D(T,P&RM)/DI/c. (BSL)

XXX XXX XXX

General Manager (Mines) & E&
SAIL-BSL, Gua Ore Mines