



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

Vill. Baldihi, Ps. Koira, Dist. Sundergarh, Odisha, 770048

E-Mail: [raga@tradeconminerals@gmail.com](mailto:raga@tradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1ZW

CIN: 51420MH1995PTC162317

To

The Divisional Forest Officer,  
Bonai Forest Division  
Bonai

**Sub:** Proposal for seeking prior approval of the Central Government under Section 2 (ii) of the Forest (Conservation) Act, 1980 in favour of M/s Raga Tradecon Pvt. Ltd. for non-forestry use of 66.242 ha ( including 2.09 ha Safety Zone) of forest land for mining of Iron Ore within Netrabandha Pahar (west) iron ore block in Villages Baldihi and Sanua under Bonai Forest Division of Sundergarh District of Odisha State (Online Proposal No. FP/OR/MIN/153549/2022.

**Ref:** File No. 8-14/2023-FC dated 21.12.2023 of Government of India, Ministry of Environment, Forest and Climate Change

Your office letters No 10472 dated 30/11/2024, 6330 dated 29/07/2024 & 6333 dated 29/07/2024.

Sir,

This has reference to the letter on the subject cited above, we would like to inform you that Ministry of Environment, Forest and Climate change, Govt. of India has accorded approval of the Central Government under Section 2 (ii) of the Forest (Conservation) Act, 1980 in favour of M/s Raga Tradecon Pvt. Ltd. for non-forestry use of 66.242 ha of forest land within Netrabandha Pahar (West) Iron Ore Block in Villages Baldihi and Sanua under Bonai Forest Division of Sundergarh District of Odisha State. We are submitting herewith the point wise compliance to the conditions stipulated as follows:-

**1. The legal status of the diverted forest land shall remain unchanged.**

In compliance to the above, we hereby undertake that the legal status of the diverted forest land shall remain unchanged. An undertaking to this effect is enclosed as **Annexure- 1**

**2. Compensatory Afforestation**

- The User Agency shall transfer the cost of raising and maintaining the compensatory afforestation as per the approved CA Scheme at the current wage rate in consultation with the State Forest Department in the account of CAMPA of the concerned State



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### through online portal.

In compliance to the above, it is to inform you that a scheme for Compensatory Afforestation over 66.25 ha of non forest land identified in Village Mahupada under Koira Tahasil in Sundergarh District has been prepared by the DFO, Rourkela with a financial outlay of Rs. 2,45,57,600/- which is technically approved by PCCF ( Nodal). The DFO Bonai vide letter No.10472 dated 30.11.2024 issued demand notice to pay Rs. 2,45,57,600/- towards scheme for Compensatory Afforestation. Accordingly an amount of Rs. 2,45,57,600/- deposited through online portal in favour of Odisha CAMPA vide RTGS/ UTR No-YESBR52025021954700682 in ORISSA CAMPA A/C No.1508258153549644, IFSC code UBIN0996335 dated 19.02. 2025. It is to state that NEFT/ RTGS challan for CAMPA funds has been generated for Rs. 10,26,52,000/- on 13.02.2025 towards the payment of compensatory levies (Compensatory afforestation - Rs.24557600/- +Additional Compensatory Afforestation - 31751100/- + Scheme for 1.5 time of SZ - 5161300/-+ Scheme for creation & maintenance of habitat/ Avifauna - Rs.876000/- \_SSWLP - 40306000/-). Accordingly an amount of Rs. 10,26,52,000/- has been deposited through online portal in favour of Odisha CAMPA vide RTGS/ UTR No-YESBR52025021954700682 in ORISSA CAMPA A/C No.1508258153549644, IFSC code UBIN0996335 dated 19.02. 2025. The copy of the proof of deposit has been is enclosed as **Annexure-2**.

- b. **The land identified for raising Compensatory Afforestation shall be notified by the State Government as RF under Section-4 or PF under Section-29 of the Indian Forest Act, 1927 or under the relevant Section of the local Forest Act, as the case may be, before Stage-II approval.**

In compliance to the above, it is to submit that Collector, Sundergarh has sanctioned the alienation of non-forest land identified in Village - Mahupada under Koira Tahsil in favour of Forest Department vide sanction order No.10940/II-48/2024 dated 30.11.2024 and as per the demand notice we have deposited Rs. 4,13,93,657/- towards land premium/ Govt. dues. Further the Tahsildar, Koira vide letter No. 231 dated 29.01.2025 has informed the DFO, Rourkela that the Special Survey & Settlement Process in Village- Mahupada is at Form-20 Stage and hence mutation proceeding cannot be carried out after the date of display of draft village map under rule 7(6) of Odisha Special Survey & settlement Rules, 2012. The letter of Tahasildar is enclosed as **Annexure-3A**.

In view of the above, the transfer & mutation of non-forest land in favour of Forest department can be possible after completion of Form-20 Stage.





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We here by undertake that the land identified for raising Compensatory Afforestation shall be notified by the State Government as PF after transfer & mutation and would be declared as Protected Forest. The draft proposal for the same under section 33 of Odisha Forest Act, 1972 will be submitted for notification before Stage-II approval. An undertaking to this effect is enclosed as **Annexure-3B**.

- c. **The cost of survey, demarcation and erection of permanent pillars, if required on the identified CA land, shall be deposited in advance with the Forest Department by the user agency. The CA will be maintained for 10 years. The scheme may include afforestation of indigenous species with appropriate provision for anticipated cost increase for works scheduled for subsequent years.**

In compliance to the above, the area identified for raising Compensatory afforestation has been demarcated by erecting Concrete Pillars as per the Co-ordinate of DGPS Survey. Few photographs of boundary pillar of CA land is enclosed As **Annexure - 2A**. The CA scheme has been prepared including afforestation of indigenous species with appropriate provision for anticipated cost increase for works scheduled for subsequent years with a maintenance period of 10 years which is technically approved by PCCF, Nodal with a financial out lay of Rs. 2,45,57,600/-. As iterated above the amount has been deposited in State Specific CAMPA fund in online portal. The CA scheme is enclosed herewith for your kind perusal is enclosed as **Annexure- 6**.

- d. **The compensatory afforestation over non-forest land, equal in extent to the forest land being diverted i.e. 66.242 ha, shall be raised by the State Forest Department at the project cost within three years from the date of grant of Stage - II approval.**

In compliance to the above, non-forest land for raising Compensatory Afforestation over 66.25 ha of non forest land identified in Village Mahupada under Koira Tahasil in Sundergarh District in two phases. During processing of diversion proposal, 64.5 ha of non forest land has been identified in Village Mahupada against 64.452 ha of prorest proposed for diversion excluding 2.090 ha of area earmarked for safety zone. As Safety zone also need to be diverted, an area of 1.7 ha identified adjoining to the aforesaid area. The total non forest land identified for raising Compensatory Afforestation is 66.250 ha ( 64.500 ha + 1.700 ha) against 66.242 forest land is being diverted. The cost towards the CA scheme of Rs. 2,45,57,600/- has already been deposited. The CA scheme is Enclosed as **Annexure-2B**.

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- e. Afforestation on degraded forest land to be selected elsewhere, measuring one and a half times the area under safety zone, shall also be done at the project cost under the supervisions of the State Forest Department and afforestation will be done within three years from the date of Stage-II clearance and maintained thereafter in accordance with the approved Plan in consultation with the State Forest Department.

In compliance to the above, scheme for 1.5 time of Safety Zone Afforestation over 3.20 Ha identified in Nagaria PRF in Bonai Forest Division has been prepared by DFO, Bonai and technically approved by RCCF, Rourkela Circle with an financial outlay of Rs. 51,61,300/-. The DFO Bonai vide letter No.6330 dated 19.07.2024 issued demand notice to pay Rs. 51,61,300/- towards scheme for scheme for 1.5 time of Safety Zone Afforestation. Accordingly an amount of Rs. 51,61,300/- deposited through online portal in favour of Odisha CAMPA vide RTGS/ UTR No - YESBR52025021954700682 ORISSA CAMPA dated 19.02.2025. The copy of the proof of deposit is enclosed as **Annexure-4**.

- f. User agency either himself or through the State Forest Department shall undertake gap planting and soil & moisture conservation activities to restock and rejuvenate the degraded open forests (having crown density less than 0.40), if any, located in the area within 100 meters from outer perimeter of the mining lease. The plan for plantation and SMC activities will be prepared and submitted to MoEF & CC before Stage-II Clearance.

In compliance to the above, Scheme for gap planting, soil & moisture conservation to restock and rejuvenate the degraded open forests (having crown density less than 0.40), within 100 meters from outer perimeter of Iron ore mining lease has been prepared by incorporating the plantation & SMC in respect of Netrabandh Pahar (West) Iron ore Block. The aforesaid scheme has been Technically approved by the RCCF, Rourkela Circle with an financial out lay of Rs. 1,21,49,100.00 ( Rupees One Crore Twenty One Lakhs Forty Nine Thousand One hundred only). The copy of the approved scheme is enclosed as **Annexure -5A**. We also here by undertake to execute the item of works mentioned in the scheme in a phased manner at the Project cost. An undertaking to this effect is enclosed as **Annexure -5B**.





### NETRABANDHA (WEST) IRON ORE MINES

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OSTN 21A/C/CR442901/W

- In compliance to the above, a scheme for Compensatory Afforestation over 66.25 ha of non forest land identified in Village Mahupada under Koira Tahasil in Sundergarh District has been prepared by the DFO, Rourkela and technically approved by PCCF (Nodal) with a financial outlay of Rs. 2,45,57,600/- wherein it has been included 25% of the CA cost additionally towards soil and moisture conservation activities. The CA scheme with Financial out lay is enclosed as **Annexure -6.**

a. The User Agency shall transfer the funds towards the cost of Net Present Value (NPV) of the forest land being diverted under this proposal from the User Agency as per the orders of the Hon'ble Supreme Court of India dated 28.03.2008, 24.04.2008 and 09.05.2008 in Writ Petition (Civil) No. 202/1995 and the guidelines issued by this Ministry vide its letter No. 5-3/2007-FC dated 06.01.2022 read with 22.03.2022 through online portal of CAMPA account of the State Concerned;

*The State Government shall ensure that NPV, in lieu of the forest land under consideration will be realized from the user agency, in accordance with MoEF&CC's guidelines dated 06.01.2022 read with guidelines dated 22.03.2022 and deposited, through e-challan, in to the CAMPA account of the State concerned.*

In compliance to the above condition of Stage-I under Section 2(iii) approval, we have already deposited the NPV for. Rs. 9,51,67,894.00. However it is to state that the total forest land involve in the mining lease is 66.242 ha and the DFO Bonai vide vide letter No.6952 dated 11.09.2023 issued demand notice to pay NPV for Rs. 9,51,67,894.00(66.242 X Rs.14,36,670/-) ( Rupees Nine Crores Fifty one Lakhs Sixty seven thousand Eight Hundred ninety four only) towards payment Net Present value(NPV). Accordingly, an amount of Rs. 9,51,67,894.00 deposited in favour of Odisha CAMPA vide RTGS - YESBR52023091898893017 -

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2414920230918000101838270 - ORISSA CAMPA dated 17.09.2023. The copy of the proof of deposit is enclosed as **Annexure-7**.

- b. **At the time of payment of the Net Present Value (NPV) at the present rate, the user agency shall furnish an undertaking to pay the additional amount of NPV, if so determined, as per the final decision of the Hon'ble Supreme Court of India.**

In compliance to the above, we do undertake that at the time of payment of the Net Present Value (NPV) at the present rate we will pay the additional amount of NPV, if so determined, as per the final decision of the Hon'ble Supreme Court of India. An undertaking to abide by the above condition which is enclosed as **Annexure-8**.

4. **The CA area has been provided over 64.152 ha NFL; therefore, the State Govt. shall ensure that the equivalent non-forest land to the extent of the forest land being diverted will be provided. Details of the NFL along with the KML will be provided at the time of the submission of the compliance of the Stage-I.**

In compliance to the above, it is to state that diversion proposal over 66.242 ha was submitted including 2.090 ha of Safety zone. Accordingly CA land had been provided over 64.50ha in lieu of forest land to be diverted over 64.152 ha. Since the safety zone is part of diversion, an area of 1.700 ha identified adjoining to the aforementioned CA land and total Non-forest land for raising compensatory afforestation is 66.250 ha. Accordingly a CA scheme over 66.250 ha prepared afresh by DFO, Rourkela and technically approved by PCCF(Nodal) with a financial outlay of **Rs. 2,45,57,600/-** As mentioned above we have already deposited cost in State Specific CAMPA account.

The details of NFL land is enclosed in the CA scheme which is enclosed as **Annexure - 9. The KML file is enclosed in a pen drive.**

5. **Transportation of ore shall be as per the recommendation in the report submitted by CSIR-NEERI.**

In compliance to the above, we do undertake that Transportation of ore shall be strictly complied with the recommendation in the report submitted by CSIR-NEERI. An undertaking to this effect is enclosed as **Annexure-10**.

6. **A holistic transportation plan shall be prepared by the State Govt. aiming to have minimum impact in the landscape. The same shall be implemented. Transportation of ore should be as far as possible through common conveyor belt, slurry pipeline, railways, etc. Transportation of ore through road should be minimized in a time bound manner.**

In compliance to the above, we do undertake that we will carry out the

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transportation plan prepared by the State Govt. aiming to have minimum impact in the landscape. An undertaking to this effect is enclosed as **Annexure -11**.

7. **An Oversight Committee shall be constituted under the Chairmanship of the DDGF (Central) RO Bhubaneswar for 10 years who will monitor and review the compliance of the conditions stipulated in the approval for these five mines [namely- 1. Netrabandha Pahar iron Ore Block (area 112.621 ha), 2. Netrabandha Pahar (West) area 66.242 ha), 3. Laserda Pacheri Manganese & Iron Ore Block (area 94.351 ha), 4. Kalmang West (Northern Part) Block for Iron Ore Mines Iron Ore Block (Area 42.608 ha) and 5. Guali Opencast Iron Ore Mines (area 194.683 ha)] twice a year and submit their yearly report to this Ministry in the month of December. This Oversight Committee shall consist following members and logistics of this Committee shall be borne by State Government at the cost of UAs:**
  - a. DDGF (Central) – Regional Office Bhubaneswar- Chairman.
  - b. One Representative from IIFM Bhopal.
  - c. One Representative from WII Dehradun.
  - d. One Representative from ICFRE.
  - e. One Representative from NEERI.
  - f. One expert in Geology.
  - g. Two other experts nominated by MoEF&CC.

The recommendation made by the said committee shall be considered by the Ministry and if agreed the same shall be binding on the UAs;

In compliance to the above, we hereby undertake that we will submit the compliance to the stipulated condition of approval for review of the committee. We also further undertake that we will abide by the recommendation of the committee. An undertaking to this effect is enclosed as **Annexure-12**.

8. **Integrated Regional Wildlife Conservation Plan shall be prepared for 10 years covering the forest Division of Sundargarh, Jharsuguda and Keonjhar Districts at the cost of UA. The works shall be executed as per APO and the regional plan shall have site/species specific wildlife sub plans/ prescriptions.**

In compliance to the above, we do undertake that we will bear the proportionate cost as will be demanded by the State Forest Department for implementation of Integrated Regional Wildlife Conservation Plan covering the forest Division of Sundargarh, Jharsuguda and Keonjhar Districts. An undertaking to this effect is enclosed as **Annexure-13**.

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## NETRABANDHA (WEST) IRON ORE MINES

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9. **A Bio-diversity Conservation Plan for this entire landscape shall also be prepared by the State Govt at the cost of UA.**

In compliance to the above, we undertake that we will bear the proportionate cost for Bio-diversity Conservation Plan for this entire landscape prepared by the State Government. An undertaking to this effect is enclosed as **Annexure-14**.

10. **Soil and moisture conservation measures shall be undertaken in and around 10 KM radius of the mining lease areas at project cost.**

In compliance to the above, a scheme of Soil and moisture conservation measures in and around 10 KM radius has been prepared and technically approved by the RCCF, Rourkela Circle with a financial out lay of Rs.59,85,800/- The copy of the approved scheme is enclosed as **Annexure -15A**. We also here by undertake to execute the item of works mentioned in the scheme in a phased manner at the Project cost. An undertaking to this effect is enclosed as **Annexure -15B**

11. **The conditions stipulated in EC should be strictly implemented and monitored.**

In compliance to the above, we hereby undertake that conditions stipulated in EC shall be strictly implemented and monitored. An undertaking to this effect is enclosed as **Annexure-16**.

12. **Compensatory levies to be realized from the User Agency under the project shall be transferred/ deposited, through e-challan, into the account of CAMPA pertaining to the State concerned through e-portal (<https://parivesh.nic.in/>);**







## NETRABANDHA (WEST) IRON ORE MINES

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GSTN: 21AACR44290L/W

- In Compliance to the above, a scheme for Construction of check dams, retention / toe walls to arrest sliding down of the excavated material along the contour has been prepared and technically approved by the RCCF, Rourkela circle. The financial forecast has already been provided in the scheme for Mitigative measures to minimize soil erosion and choking of stream, so no budgetary provision has been suggested for this scheme. The copy of the approved scheme is enclosed as **Annexure -19A**. We also here by undertake to execute the item of works mentioned in the scheme in a phased manner at the Project cost. An undertaking to this effect is enclosed as **Annexure – 19B**.





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- d. **Stabilize the overburden dumps by appropriate grading/benching, in accordance with the approved scheme, so as to ensure that angles of repose at any given place is less than 28°; and**

In Compliance to the above, a scheme for Stabilize the overburden dumps by appropriate grading/benching has been prepared and technically approved by the RCCF, Rourkela circle. The financial forecast has already been provided in the scheme for Mitigative measures to minimize soil erosion and choking of stream, so no budgetary provision has been suggested for this scheme. The copy of the approved scheme is enclosed as **Annexure -20A**. We also here by undertake to execute the item of works mentioned in the scheme in a phased manner at the Project cost. An undertaking to this effect is enclosed as **Annexure -20B**.

15. **Safety Zone Management: Following activities, at project cost, shall be undertaken by the user agency for the management of safety zone as per relevant guidelines issued by the Ministry's guidelines:**

- a. **User agency shall ensure demarcation of safety zone (7.5-meter strip all along the inner boundary of the mining lease area), and its fencing, protection and regeneration by erecting adequate number of 6 feet high RCC boundary pillars inscribed with DGPS coordinates with barbed wire fencing and deploying adequate number of watchers under the supervision of the. State Forest Department.**

In compliance to the above, the Safety zone (7.5-meter strip all along the inner boundary of the mining lease area) has been demarcated by posting 6 feet high RCC boundary pillars inscribed with DGPS coordinates. We do hereby undertake that the safety zone will be protected with barbed wire fencing so that regeneration will take place. We also here by undertake that plantation activities will be undertaken and adequate numbers of watchers will be deployed at our cost under the supervision of State Forest Department. An undertaking to this effect is enclosed as **Annexure- 21**.

- b. **Boundary of the safety zone of the mining lease, adjacent to habitation/roads, should be properly fenced by the user agency. -**

In compliance to the above, we do hereby undertake that the boundary of the safety zone of the mining lease, adjacent to habitation/roads will be fenced properly. An undertaking to this effect is enclosed as **Annexure-22**

- c. **Safety zone shall be maintained as green belt around mining lease and to ensure dense canopy in the area, regeneration shall be taken up in this area by the user agency at project cost under the supervision of the State Forest Department.**



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

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In compliance to the above, we do hereby undertake that safety zone will be maintained as green belt around mining lease and we will ensure dense canopy in the area by regeneration and plantation at project cost under the supervision of the State Forest Department. An undertaking to this effect is enclosed as **Annexure-23**.

**d. The State Government and the user agency shall ensure that safety zone is maintained as per the prescribed norms.**

In compliance to the above, we do hereby undertake that the safety zone will be maintained as per the prescribed norms. An undertaking to this effect is enclosed as **Annexure-24**.

**16.No damage shall be caused to the topsoil and the user agency will follow the top soil management plan;**

In compliance to the above, we do hereby undertake that no damage shall be caused to the topsoil, and the topsoil management plan will be strictly followed. An undertaking to this effect is enclosed as **Annexure-25**.

**17. The User Agency shall prepare a list of existing village tanks and other water bodies with GPS co-ordinates located within five km from the mine lease boundary. This list is to be duly verified by the concerned Divisional Forest Officer. The User Agency shall regularly undertake desilting of these village tanks and other water bodies so as to mitigate the impact of siltation of such tanks/water bodies. A detailed approved plan for desilting of identified ponds and water bodies to be prepared in consultation with forest department and shall be submitted to MoEF & CC before Stage-II approval;**

In compliance to the above, that a scheme of de-silting of village tanks and other water bodies within 05 km from the mine lease boundary so as to mitigate the impact of siltation of such tanks/waterbodies has been prepared and technically approved by the RCCF, Rourkela Circle with a financial out lay of Rs.108,06,400/-. The copy of the approved scheme is enclosed as **Annexure -26A**. We also here by undertake to execute the item of works mentioned in the scheme in a phased manner at the Project cost. An undertaking to this effect is enclosed as **Annexure-26B**.

**18.The cost of felling of trees shall be deposited by the User Agency with the State Forest Department;**

In compliance to the above, we do hereby undertake that The cost of felling of trees shall be deposited with the State Forest Department as per the demand order of the DFO Bonai. An undertaking to this effect is enclosed as **Annexure-27**.

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**19. Trees should be felled in phased manner as per the requirement in the approved Mining Plan with prior permission of concerned DFO;**

In compliance to the above, we do hereby undertake that trees would be felled in phased manner as per the requirement in the approved Mining Plan with prior permission of DFO Bonai. An undertaking to this effect is enclosed as **Annexure-28**.

**20. The User Agency shall undertake that afforestation of the non-mineralized virgin forest land within the mining area shall be taken up at project cost;**

We hereby undertake that the afforestation of non-mineralized virgin forest land within the mining area shall be carried out at the project's cost. An undertaking to this effect is enclosed as **Annexure- 29**.

**21. The user agency shall explore the possibility of translocation of maximum number of trees identified to be felled and shall ensure that any tree felling shall be done only when it is unavoidable and that too under strict supervision of the State Forest Department.**

In compliance to the above, we do hereby undertake that we will explore the possibility of translocation of maximum number of trees identified to be felled under guidance of DFO, Bonai and we shall ensure that any tree felling shall be done only when it is unavoidable and that too under strict supervision of the State Forest Department. An undertaking to this effect is enclosed as **Annexure-30**.

**22. A site-specific Wildlife Management Plan shall be prepared by the State Government in consultation with the PCCF (Wildlife) for the protection and conservation of wildlife of the area. A copy of approved Plan shall be submitted to the Ministry along with the compliance of Stage-I approval. Entire cost of implementation of the provisions of the Wildlife Management Plan shall be deposited into the account of CAMPA of the State;**

In compliance to the above, a Site-Specific Wildlife Conservation Plan has been prepared & approved by PCCF(WL) & CWLW, Odisha with a financial outlay of Rs. 403.06 lakhs. The aforesaid amount has been deposited in favour of Odisha CAMPA vide TRAN/UTR No YESBR52025021954700682 in ORISSA CAMPA AC No; 1508258153549644, IFSC code UBIN0996335 dated 19.02.2025 through Bank. The copy of the approved Site-Specific Wildlife Conservation plan is enclosed as **Annexure -31A** and the proof of deposit are enclosed as **Annexure - 31B**.

**23. State Government shall complete settlement of rights, in term of the Scheduled Tribes and Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, if any, on the forest land to be diverted and submit the documentary evidence, along with compliance of Stage-I approval, as prescribed by this Ministry's letter No. 11-9/1998-FC (Pt.) dated 03.08.2009 read with 05.07.2013, in support thereof;**

*Sanjay*



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In compliance to the above, the user agency has obtained clearance under the provisions of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006. The certificate in this regard issued by the Collector, Sundargarh vide his letter No.3799 Dtd. 22/11/2022. Copy of the certificate is enclosed vide **Annexure- 32**.

**24.The User Agency shall undertake that user agency, and the State Forest Department shall create and maintain from funds to be provided by the user agency alternate habitat/ home for the avifauna, whose nesting trees are to be cleared in this project as per the plan duly approved by the Principal Chief Conservator of Forests (Wildlife) and the Chief Wildlife Warden Odisha. Bird nests artificially made out of eco-friendly materials shall be used in the area, including forest area and human settlements, adjoining the forest area being diverted for the project.**

In Compliance to the above, a scheme for alternate habitat/ home for the avifauna has been prepared, whose nesting trees are to be cleared in this project as per the plan and duly approved by the Principal Chief Conservator of Forests (Wildlife) and the Chief Wildlife Warden Odisha with a financial out lay of Rs.8,76,000/-. The copy of the approved scheme is enclosed as **Annexure -33**.

**25.The User Agency shall undertake that the project authority needs to take up works for construction and cleaning of garland drains, stabilizing retaining walls, proper terracing of OB dumps and checking gully formation resulting in soil erosion.**

In compliance to the above, a scheme for top soil management has been prepared and technically approved by the RCCF, Rourkela Circle wherein construction and cleaning of garland drains, stabilize retaining walls, have been considered. We here by undertake that the project authority will carry out construction and cleaning of garland drains, stabilize retaining walls, ensure proper terracing of OB dumps, and implement measures to prevent gully formation and soil erosion. An undertaking to this effect is enclosed as **Annexure- 34**. The copy of the approved scheme is enclosed as **Annexure -34 A**.

**26.The User Agency shall undertake that plants which are having lowest translocation factor can be preferred under afforestation on the OB dumps and fruit trees to be avoided in planting during biological stabilization of OB dumps.**

We here by undertake to prioritize plants with the lowest translocation factor for afforestation on OB dumps and avoid planting fruit trees during the biological stabilization of OB dumps. An undertaking to this effect is enclosed as **Annexure-**

**35**

*Jafoy*





# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

ON:53420MN1995PTC162937

VIII, Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTN: 21AACCR4429012W

**27.The User Agency shall undertake that prevention of fall of wild animals into mining pit by fencing the open pit area.**

We here by undertake to prevent the fall of wild animals into the mining pit by ensuring proper fencing around the open pit area. An undertaking to this effect is enclosed as **Annexure-36**

**28.The User Agency shall undertake that the angle of repose in OB dumps to be maintained to ensure stability and safety.**

In compliance to the above, a scheme for maintaining the angle of response in OB dumps to ensure safety and stability has been prepared and technically approved by the RCCF, Rourkela circle which is enclosed as **Annexure- 37A**. We do hereby undertake that the angle of repose in OB dumps to be maintained to ensure stability and safety. An undertaking to this effect is enclosed as **Annexure -37B**.

**29.The User Agency shall undertake that vetiver grass can be planted at the lower reaches of the dump to bind the soil and prevent soil erosion giving better stability to the dump.**

In compliance to the above, it is to state that a scheme for stabilize the over-burden dumps by appropriate grading/ benching has been prepared and enclosed as **Annexure -38A** where it has been suggested to broadcast grass seeds on the slope of terrace and agave plantation at the toe of the dump. However, we hereby undertake to plant vetiver grass at the lower reaches of the dump to bind the soil and prevent soil erosion giving better stability to the dump. An undertaking to this effect is enclosed as **Annexure- 38B**

**30.The User Agency shall undertake mining in a phased manner after taking due care for reclamation of the mined over area. The concurrent reclamation plan as per the approved mining plan shall be executed by the User Agency from the very first year, and an annual report on implementation thereof shall be submitted to the Nodal Officer, Forest (Conservation) Act, 1980, in the concerned State Government and the concerned Regional Office of the Ministry. If it is found from the annual report that the activities indicated in the concurrent reclamation plan are not being executed by the User Agency, the Nodal Officer or the concern Addl. Principle Chief Conservator of Forests (Central) may direct that the mining activities shall remain suspended till such time, such reclamation activities area satisfactorily executed.**

We do hereby undertake to carry out mining as per the approved Mining Plan and reclamation will be carried out as per Progressive Mines Closure Plan approved by IBM. The annual report on implementation thereof will be submitted to the Nodal Officer, Forest (Conservation) Act, 1980, Odisha and IRO, MoEF&CC, Bhubaneswar. An undertaking to this effect is enclosed as **annexure -39**

*Jeetu*



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN:514204MH1995PTC162337

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [raga.tradeconminerals@gmail.com](mailto:raga.tradeconminerals@gmail.com)

GSTIN: 21AACTR4429D1ZW

**31.The User Agency shall comply with the Hon'ble Supreme Court order on re-grassing, and re-grass the mining area and any other areas which may have been disturbed due to mining to restore them to a condition which is fit for growth of fodder, flora, fauna, etc. in a timely manner.**

In compliance to the above, we hereby undertake to comply with the Hon'ble Supreme Court order on re-grassing by restoring the mining area and all other disturbed areas to a condition suitable for the growth of fodder, flora, and fauna in a timely manner. An undertaking to this effect is enclosed as **Annexure- 40**

**32. Period of diversion of the said forest land under this approval shall be for a period co-terminus with the period of the mining lease proposed to be granted under the Mines and Minerals (Development and Regulation) Act, 1957, as amended and the Rules framed there-under.**

In compliance to the above, we here by undertake that the diversion of the forest land under this approval shall be co-terminus with the duration of the mining lease granted under the Mines and Minerals (Development and Regulation) Act, 1957, as amended, and the applicable rules framed thereunder. An undertaking to this effect is enclosed as **Annexure- 41**

**33.The User Agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, if required.**

In compliance to the above, the Environment Clearance for production of 1 MTPA has been granted by SEIAA, Odisha vide file No. 462515/07-MIN/02-2024 dated 18.11.2024. The copy of Environmental Clearance is enclosed as **Annexure -42.**

**34.No labour camp shall be established on the forest land and the User Agency shall provide fuels preferably alternate fuels to the labourers and the staff working at the site so as to avoid any damage and pressure on the nearby forest areas;**

In compliance to the above, we do here by undertake that no labour camp shall be established on forest land within the Mining Lease and to provide free electricity with induction heaters to the staff working at the site so as to avoid damage and pressure on the adjacent forest areas which is enclosed vide **Annexure -43 .**

**35.The boundary of the diverted forest land, mining lease and safety zone, as applicable, shall be demarcated on ground at the project cost, by erecting four feet high reinforced cement concrete pillars, each inscribed with its serial number, distance from pillar to pillar and GPS coordinates.**

In compliance to the above, it is to state that the boundary of the diverted forest land, mining lease and safety zone, already demarcated on ground by erecting four

*Sanjay*





# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

ON:53420MH1955PTC162317

Vill. Baldih, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AAACR442901ZW

feet high reinforced cement concrete pillars, each inscribed with its serial number, distance from pillar to pillar and GPS coordinates. The photograph of the above is enclosed as **Annexure-44**.

**36.The layout plan of the mining plan/ proposal shall not be changed without the prior approval of the Central Government and the forest land shall not be used for any purpose other than that specified in the proposal.**

In compliance to the above, we do here by undertake that the layout plan of the mining plan/ proposal shall not be changed without the prior approval of the Central Government and the forest land shall not be used for any purpose other than that specified in the proposal. An undertaking to this effect is enclosed as **Annexure-45**.

**37.The forest land proposed to be diverted shall under no circumstances be transferred to any other agency, department or person without prior approval of the Central Government.**

In compliance to the above, we do here by undertake that the forest land proposed to be diverted shall under no circumstances be transferred to any other agency, department or person without prior approval of the Central Government. An undertaking to this effect is enclosed as **Annexure-46**

**38.No damage to the flora and fauna of the adjoining area shall be caused.**

We do here by undertake that no damage to the flora and fauna of the adjoining area shall be caused. An undertaking to this effect is enclosed as **Annexure-47**

**39.Any other condition that the concerned Regional Office of this Ministry may stipulate with the approval of competent authority in the interest of conservation, protection and development of forests & wildlife.**

We hereby undertake to comply with any additional conditions stipulated by the concerned Regional Office of this Ministry, with the approval of the competent authority, in the interest of the conservation, protection, and development of forests and wildlife. An undertaking to this effect is enclosed as **Annexure-48**

**40.The user agency shall comply with all the provisions of all Acts, Rules, Regulations, Guidelines, Hon'ble Court Order (s) and NGT Order (s) pertaining to this project, if any, for the time being in force, as applicable to the project.**

We here by undertake to comply with all applicable provisions of Acts, Rules, Regulations, Guidelines, and Orders of the Hon'ble Courts and the National Green Tribunal (NGT) relevant to this project, as in force. An undertaking to this effect is enclosed as **Annexure- 49**.

*Selby*



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN:U34204MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1ZW

**41. Violation of any of these conditions will amount to violation of Forest (Conservation) Act, 1980 and action would be taken as prescribed in para 1.21 of Chapter 1 of the Handbook of comprehensive guidelines of Forest (Conservation) Act, 1980 as issued by this Ministry's letter No. 5-2/2017-FC dated 28.03.2019.**

We do here by undertake that any violation of these conditions will constitute a violation of the Forest (Conservation) Act, 1980 and agrees to abide by the actions prescribed in para 1.21 of Chapter 1 of the Handbook of Comprehensive Guidelines of the Forest (Conservation) Act, 1980, as issued by the Ministry's letter No. 5-2/2017-FC dated 28.03.2019. An undertaking to this effect is enclosed as **Annexure- 50**.

**42. The User Agency shall submit the annual self -compliance report in respect of the above stated conditions to the State Government, concerned Regional Office and to this Ministry by the end of March every year regularly.**

We do here by undertake to submit the annual self -compliance report in respect of the above stated conditions to the State Government, concerned Regional Office and to this Ministry by the end of March every year regularly. In compliance to the above, an undertaking is enclosed as **Annexure-51**.

**43. The compliance report shall be uploaded on e-portal (<https://parivesh.nic.in/>).**

We do here by undertake to upload the compliance report on e-portal (<https://parivesh.nic.in/>). An undertaking is enclosed as **Annexure -52**.

In view of the above, we request your good self to recommend our compliance report for obtaining Stage-II clearance.

Thanking you,

Yours faithfully,

Raga Tradecon Pvt. Ltd.

Authorised Signatory

Encl: As above





# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN:31420MH1995PTC162317

Vill. Baldhi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1ZW

### ANNEXURE-1

CONDITION NO.: 1

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Limited, do here by undertake that the legal status of the diverted forest land shall remain unchanged.

For M/s Raga Tradecon Private Ltd

Raga Tradecon Pvt. Ltd.  
  
(Sangram Keshari Ray)  
Authorized signatory

**RAGA TRADECON PRIVATE LIMITED**

Regd. Office: G-165 EXPRESS ZONE MALL B WING MALAD (E) NORTH SIDE OF RANI SATI  
W E HIGHWAY MUMBAI - 400097 (MH)

CIN: U51420MH1995PTC162317

DATE: - 19.02.2025

To,  
The Branch Manager,  
YES BANK  
RDC Rajnagar  
Ghaziabad-201001

Sub-REQUEST FOR RTGS/NEFT TRANSACTION CONFIRMATION FROM AC-003863300004523

Sir/Madam,

We are requesting you to kindly give the confirmation for the following payment details mentioned below from our account of **RAGA TRADECON PVT LTD A/C- 003863300004523**

Beneficiary Name	RTGS AMOUNT	DATE & TIME	IFSC CODE	ACCOUNT NO	UTR NO.
ORISSA CAMPA	10,26,52,000/-	19.02.2025 16:14:55	UBIN0996335	1508258153549644	YESBR52025021954700682

Kindly do the needful.

For RAGA TRADECON PRIVATE LIMITED

For RAGA TRADECON PRIVATE LIMITED

Director/Auth. Signatory Director



*Handwritten signature*  
634104



**AGENCY COPY**

**यूनियन बैंक ऑफ इंडिया Union Bank of India**

NEFT / RTGS CHALLAN for CAMPA Funds  
Date : 13-02-2025

Agency Name,	RAGA TRADECON PRIVATE LIMITED
Application No.	58153549644
MoEF/SG File No.	8-14/2023-FC
Location,	ORRISA
Address,	503, 5th Floor, Greenland Appts, BLDG No-3, JB Nagar, Andheri East, Mumbai-400059 Maharashtra Mumbai City
Amount(in Rs)	102652000/-

Amount in Words : Ten Crore Twenty-Six Lakh Fifty-Two Thousand Rupees Only

**NEFT/RTGS to be made as per following details;**

Beneficiary Name:	ORRISA CAMPA
IFSC Code:	UBIN0996335
Pay to Account No.	1508258153549644 Valid only for this challan amount.
Bank Name & Address:	Union Bank Of India FCS Centre, 21/1, III Floor, Jelitta Towers, Mission Road, Bengaluru-560027

• This Challan is strictly to be used for making payment to CAMPA by NEFT/RTGS only

**BANK COPY**

**यूनियन बैंक ऑफ इंडिया Union Bank of India**

NEFT / RTGS CHALLAN for CAMPA Funds  
Date : 13-02-2025

Agency Name,	RAGA TRADECON PRIVATE LIMITED
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• This Challan is strictly to be used for making payment to CAMPA by NEFT/RTGS only

**Note:** After making the required payment through challan, if the payment status has not been updated even after 7 working days, then kindly mail a copy of your challan with transaction date and reference id to Email: fcsblr@unionbankofindia.bank, epurse@unionbankofindia.bank, ubin0903710@unionbankofindia.bank

We have PAID the Amount Rs. 102652000/- vide UTR NO:- YESBF-52025021954700682 on dated 19.02.2025. Kindly accept the Payment.



For RAGA TRADECON PRIVATE LIMITED

Director

## STATEMENT OF ACCOUNT

M/S. RAGA TRADECON PRIVATE LIMITED  
1ST FLOOR SHYAM RESIDENCY FLAT NO  
101 NEAR JHARPADA JAIL,  
BHUBANESWAR KHORDHA  
KHORDHA  
751008  
ODISHA  
INDIA

Branch: GHAZIABAD, UTTAR PRADESH  
A/C type: Freedom Flexi 500  
OD Limit: 0  
Unclear Amt: 0  
Swedish: N  
Email id: ragatradecon@gmail.com

A/C Number: 003863300004523  
Customer id: 16320551  
Jt Holder 1:  
Jt Holder 2:

Period: 19-FEB-2025 To 19-FEB-2025

*IN DATE	VALUE DATE	DESCRIPTION	REFERENCE	DEBITS	CREDITS	BALANCE
19-FEB-2025	19-FEB-2025	B/F		0.00	779,851.40	779,851.40
19-FEB-2025	19-FEB-2025	RTGS CR-HOFC0000240- SHARU/CONTAINERSPRIVATE- RAGATRADECONPVTLD- HOFCRS2025021992160173		0.00	115,000,000.00	115,779,851.40
19-FEB-2025	19-FEB-2025	RTGS-YEDBR5005021954700682- 2414920250219000900331929-ORISSA CAMPA		102,652,000.00	0.00	13,127,851.40
Opening Balance		779,851.40	C			
Total Debit Amt		102,652,000.00				
Total Credit Amt		115,000,000.00	Dr Count: 1			
Closing Balance		13,127,851.40	Cr Count: 1			

\*\*\*\*\*END OF STATEMENT\*\*\*\*\*























# OFFICE OF THE TAHASILDAR, KOIRA

Dist-Sundargarh, E-Mail: [tah.koira@odisha.nic.in](mailto:tah.koira@odisha.nic.in)

Letter No. 231/..... dt. 28/01/2025.....

To

The Divisional Forest Officer  
Rourkela Division.

Sub - Mutation of land in favour of Forest Environment & Climate Change Department in vill-  
Mahupada

Sir

With reference to the letter on the subject cited above, I am to say that the alienation of Ac 163.704 dec in respect of following schedule of govt land of vill-Mahupada has been sanctioned in favour of Forest, Environment & Climate Change Department, Govt. of Odisha through the Divisional Forest Officer, Rourkela Division for Compensatory Afforestation in lieu of diversion of forest land for Mining of Iron Ore within Netrabandha Pahar (West) of M/s Raga Tradecon Pvt Ltd Iron Ore Block in vill-Baldihi and Sanua is duly sanctioned by the Collector, Sundargarh vide sanction order no 10940/II-48/2024 dt. 30.11.2024.

Sanction order no 10940/II-48/2024 dt. 30.11.2024.

Village	Khata No.	Plot No.	Kisam	Applied Area (in Ac.)
Mahupada	44 (AAA)	10/773/p	Pahad	6.079
		29/774/p	Pahad	30.245
		15/775	Pahad	25.748
		15/776	Pahad	21.992
		222/793	Pahad	8.945
		222/794/p	Pahad	4.571
		222/795/p	Pahad	9.167
		222/796	Pahad	9.760
		35/777	Pahad	12.009
		38/778	Pahad	12.009
		93/780/p	Pahad	5.263
		108/781/p	Pahad	5.263
		108/782/p	Pahad	6.178
		115/788/p	Pahad	1.285
		115/789/p	Pahad	0.865
		108/781/p	Pahad	4.325
		Total	16 Plots	Ac. 163.704 dec.

It is to be mentioned here that the Special

It is to be mentioned here that the Special Survey & Settlement process in vill-Mahupada is at Form-20 stage. Hence mutation proceeding cannot be carried out after the date of display of draft village map U/r 7(6) of Odisha Special Survey and Settlement Rules-2012 as per Revenue and Disaster Management Deptt. Letter no 25108 dt. 11.08.2016.

This is for favour of kind information and necessary action.

Yours faithfully,

*[Signature]*  
Tahasildar, Koira.

Memo No. 232 JDL 28/01/2015

Copy submitted to the Additional District Magistrate, Sundargarh/ Sub-Collector, Bonai  
for favour of kind information and necessary action.

  
28/01/15  
Tahasildar, Koira.





# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN-51420MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1ZW

ANNEXURE-36

CONDITION NO.: 2B

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do here by undertake that the land identified for raising Compensatory Afforestation shall be notified by the State Government as PF after transfer & mutation and would be declared as Protected Forest. The draft proposal for the same under section 33 of Odisha Forest Act, 1972 will be submitted for notification before Stage-II approval

For M/s Raga Tradecon Private Ltd

Raga Tradecon Private Ltd

Authorized Signatory  
(Sangram Keshari Ray)

Authorized signatory

## RAGA TRADECON PRIVATE LIMITED

Regd. Office: G-165 EXPRESS ZONE MALL B WING MALAD (E) NORTH SIDE OF RANI SATI  
W E HIGHWAY MUMBAI - 400097 (MH)

CIN: U51420MH1995PTC162317

DATE: - 19.02.2025

To,  
The Branch Manager,  
YES BANK  
RDC Rajnagar  
Ghaziabad-201001

Sub-REQUEST FOR RTGS/NEFT TRANSACTION CONFIRMATION FROM AC-003863300004523

Sir/Madam,

We are requesting you to kindly give the confirmation for the following payment details mentioned below from our account of RAGA TRADECON PVT LTD A/C- 003863300004523

Beneficiary Name	RTGS AMOUNT	DATE & TIME	IFSC CODE	ACCOUNT NO	UTR NO.
ORISSA CAMPA	10,26,52,000/-	19.02.2025 16:14:55	UBIN0996335	1508258153549644	YESBR52025021954700682

Kindly do the needful.

For RAGA TRADECON PRIVATE LIMITED

For RAGA TRADECON PRIVATE LIMITED

Director/Auth. Signatory Director



*Handwritten signature*  
634104



## AGENCY COPY



## NEFT / RTGS CHALLAN for CAMPA Funds

Date : 13-02-2025

Agency Name.	RAGA TRADECON PRIVATE LIMITED
Application No.	58153549644
MoEF/SG File No.	8-14/2023-FC
Location.	ORRISA
Address.	503, 5th Floor, Greenland Appts, BLDG No-3, JB Nagar, Andheri East, Mumbai-400059 Maharashtra Mumbai City
Amount(in Rs)	102652000/-

Amount in Words : Ten Crore Twenty-Six Lakh Fifty-Two Thousand Rupees Only

NEFT/RTGS to be made as per following details:

Beneficiary Name:	ORRISA CAMPA
IFSC Code:	UBIN0996335
Pay to Account No.	1508258153549644 Valid only for this challan amount.
Bank Name & Address:	Union Bank Of India FCS Centre, 21/1, III Floor, Jelitta Towers, Mission Road, Bengaluru-560027

• This Challan is strictly to be used for making payment to CAMPA by NEFT/RTGS only

## BANK COPY



## NEFT / RTGS CHALLAN for CAMPA Funds

Date : 13-02-2025

Agency Name.	RAGA TRADECON PRIVATE LIMITED
Application No.	58153549644
MoEF/SG File No.	8-14/2023-FC
Location.	ORRISA
Address:	503, 5th Floor, Greenland Appts, BLDG No-3, JB Nagar, Andheri East, Mumbai-400059 Maharashtra Mumbai City
Amount(in Rs)	102652000/-

Amount in Words : Ten Crore Twenty-Six Lakh Fifty-Two Thousand Rupees Only

NEFT/RTGS to be made as per following details:

Beneficiary Name:	ORRISA CAMPA
IFSC Code:	UBIN0996335
Pay to Account No.	1508258153549644 Valid only for this challan amount.
Bank Name & Address:	Union Bank Of India FCS Centre, 21/1, III Floor, Jelitta Towers, Mission Road, Bengaluru-560027

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Note: After making the required payment through challan, if the payment status has not been updated even after 7 working days, then kindly mail a copy of your challan with transaction date and reference id to Email: fcsblr@unionbankofindia.bank, epurse@unionbankofindia.bank, ubin0903710@unionbankofindia.bank

We have PAID the Amount Rs. 102652000/- vide UTR NO:- YESBF-52025021954700682 on dated 19.02.2025. Kindly accept the payment.



For RAGA TRADECON PRIVATE LIMITED

Director

**Scheme**

**For**

GAP PLANTING, SOIL & MOISTURE CONSERVATION ACTIVITIES  
TO RESTOCK AND REJUVINATE DEGRADED OPEN FORESTS  
(HAVING CROWN DENSITY < 0.4) WITHIN 100 M OUTER  
PERIMETER OF MINING LEASE

in compliance

with

Condition No.2 (f) of

Stage-I approval granted vide

Letter No.8-14/2023-FC dt.21.12.2023 of

Government of India, Ministry of Environment,

Forest & Climate Change

for

Diversion of 66.242 Hects of Forest Land

for U/s-2 (ii) of F.C. Act'1980

within 74.37 Ha. Netrabandha Pahar West Iron Ore Block

of

**M/s Raga Tradecon Pvt. Ltd.**

**in village Baldihi and Sanua in Koira Tahsil, Bonai Forest Division**

**Dist. Sundargarh Odisha.**



SCHEME FOR GAP PLANTING, SOIL & MOISTURE CONSERVATION TO  
RESTOCK AND REJUVENATE DEGRADED OPEN FORESTS WITHIN 100M FROM  
OUTER PERIMETER OF IRON ORE MINING LEASE OF M/S ESSAR STEEL INDIA  
LTD. IN SUNDARGARH DISTRICT OF ODISHA.

**1. INTRODUCTION**

M/s Raga Tradecon Private Limited has been incorporated under Company Act 1956 vide Certificate of Incorporation No. 21- 73114 on 24.07.1995. The corporate identity Number of the company is U51420MH1995PTC162317. The registered office is situated at State of Maharashtra (Mumbai) having regd. office at G-165 Express Zone Mall B Wing, Mallad (E), North Side of Ranisati W E Highway, Mumbai, Mumbai City Maharashtra 400097 India, to carry on all or any of the business as manufacturers, buyers, sellers, suppliers, traders, exporters, minerals, metals etc. The company does not have any other mines in the State of Odisha or any other part of India.

The Govt of Odisha issued the notice inviting tender dated 07.07.2021 for commencement of the auction process to grant the mining Lease for Netrabandha Pahar (West) Iron Ore Block located in Koida Tahasil of Sundargarh district of Odisha along with the Mines and Minerals (Development and Regulation) ACT, 1957 and the Mineral (Auction) Rules, 2015. The e-auction process was conducted in accordance with the tender document and the mineral auction rule, 2015 for said mineral block and M/s Raga Tradecon Pvt. Ltd. was declared as the preferred Bidder under Rule 9(9) (iii) or Rule 10(A) of Auction Rules having quoted a final price offer of 139.50%.

The Government of Odisha has issued letter of Intent (LoI) vide letter No.8722/IV(B)SM-53/2021/SM, Bhubaneswar, dated 28.10.2021 under Rule 10(2) of Mineral Auction Rules 2015 in favour of M/s Raga Tradecon Pvt. Ltd. for grant of Mining Lease for Nethrabandha Pahar (West) Iron Ore Block over an area of 74.370 near Baladia village, Koira Tahasil of Sundargarh district of Odisha for a period of 50 years.

Accordingly, M/s Raga Tradecon Pvt. Ltd. has submitted the proposal to obtain diversion of 66.242 ha. of forest land including safety zone area of 2.09 ha. for iron ore mining under Section 2(ii) of the Forest (Conservation) Act 1980 for entire forest land 66.242 ha including safety zone area of 2.090 ha. in their favour within their allotted Netrabandh Pahar (West) Iron Ore Block of 74.370 ha. located in village Baldihi & Sanua in Koira Tehsil and Koira Range under Bonai Forest Division of Sundargarh District, Odisha.

Further, Stage-I approval over 66.242 ha. of Forest Land for U/s-2 (ii) of F.C. Act 1980 has been granted by MoEF&CC, Govt. of India vide their Letter No.8-14/2023-FC dt.21.12.2023, wherein it has been stipulated as per **Condition No.2 (f) for preparation and implementation of a Scheme containing for gap plantation and soil & moisture conservation activities to restock and rejuvenate the degraded open forest (having crown density less than 0.4) if any, located in the area within 100m from outer perimeter of the mining lease.**

## **2. LOCATION**

Netrabandha Pahar (West) Iron ore Block of M/s Raga Tradecon Pvt. Ltd. is located in Sundargarh District of Odisha and can be approached throughout the year by road. It falls within the survey of India Topo sheet No.F45N5 (73 G/5). The total mining lease hold area is 74,370.

## **3. TOPOGRAPHY**

The area is represented by sloppy area with gentle undulation, resembling a relict type of topography. The highest contour is 748 meters and the lowest one is of 622 meters. Part of the proposed site comes within the Khajurdihi PRF of Bonai Forest Division.

## **4. SOIL TYPE**

Soil type in the study area varies widely from hard rock to lateritic soil. Areas at higher elevations are usually hard rock consisting of laterite. The top soil is scanty in the area. Whatever top soil is available is thinly spread over all Soil profile in nature. The pH of the soil is slightly acidic in nature.

## **5. CLIMATE**

The study area is characterized by an oppressively hot summer with high humidity. Summer generally commences in the month of March. Temperature beings to rise rapidly attaining a maximum in the month of May. During the summer maximum temperature can go up to 47.7°C. The weather becomes pleasant with onset on monsoon in June and remains as such upto end of October. The temperature in the month of December is lowest, i.e., 7° C. The average annual rainfall as recorded at IMD observatory is 1325.16 mm. Predominant wind direction is South-West. Area remains calm for nearly 50% of the year.

## **6. DRAINAGE**

There are few ephemeral first order nalas originate at mid contours of the main hill in the intervening valleys that follows the natural gradient feeding to the regional Suna Nadi with its numerous ephemeral to perennial nala draining the area. The Sunanadi with its numerous ephemeral to perennial tributaries controls the drainage system in the area. Teherei Nala a tributary of Sunanadi flowing to the North of block and Khajurdihi Nala flowing in the south-eastern part of the area controls the drainage.

## **7. OBJECTIVES OF THE SCHEME**

The main objective of the present scheme is to fulfil the condition No.2 (f) *which envisages to undertake gap planting and soil & moisture conservation activities to restock and rejuvenate the degraded open forests (having crown density less than 0.4) if any, located in the area within 100m from outer perimeter of the mining lease.*



- 1) To afforest the degraded forest land and to restore the degraded forest lands by RDF plantation within 100m from the outer perimeter of the lease area.
- 2) Clearly demarcating and fencing the area in ground to dispense with the biotic interferences.
- 3) To improve the micro edaphic conditions by undertaking suitable soil and moisture conservation measures
- 4) To create awareness among the local villagers for protection and maintenance of this plantation in particular and the adjoining forest for ensuring enrichment of the ecosystem.

#### **8. PROPOSED TECHNIQUE**

To achieve the above objectives, it has been proposed to take up ANR plantation @ 500 plants/ha. at a spacing of 2.5 mt X 2.5 mt. in identified permanent gaps. The following items of works prescribed in the scheme will be taken up, the detailed expenditure statement of which is enclosed in **Annexure-I**.

To achieve the above objectives, the following items of work are mainly prescribed to be taken up:

#### **9. SURVEY AND DEMARCATION OF BOUNDARY**

The identified degraded forest lands will be surveyed clearly with reference to the village maps and reserve forest boundary and demarcated by posting R.C.C. pillars at every corner/turning point of boundary line and the Scheme proposes financial implication for the same.

#### **10. REGENERATION CLEANING AND TENDING OPERATION**

The operation aims at tending (climber cutting, cleaning, double shoot cutting, pruning etc.) of the existing crop for the growth of promising principal species of the locality (Sal with associates ) for ensuring better growth of the plants. It includes removal of inferior, diseased, malformed, dead, dying and defective tree growth and disposal of them by distributing it among the local VSS members. Apart from it, weed eradication is also an integral part as they interfere with the growth of both planted species and natural regeneration.

The detailed operation to be carried out is as follows-

- i) Cutting of herbs and shrubs interfering with the growth of the promising species.
- ii) Cutting back of top broken pole crops interfering with growth of well-formed pole crops.
- iii) Cutting back of malformed and diseased species.
- iv) Cutting of climbers up to hand's reach.
- v) Sharp cutting of high stumps at a height of 0.5 mtr above the ground level to get a smooth stool with least damage to the cortex layer .This will promote growth of new stool shoots as well as root collar shoots of species having coppicing vigor.
- vi) Singling out the coppice shoots coming out from stools and retaining two to three most promising ones.
- vii) Pruning of the branches of the pole crops up to hand's reach.

During the 1<sup>st</sup> year, timber cutting, and cutting of high stumps, weeds and malformed and diseased species will be done. In the next two years, cutting back of malformed individuals and singling of coppice shoots in case of desired species will be done in the subsidiary silvicultural activities.

#### **11. PLANTING& POST-PLANTING**

The area will be re-stocked by raising plantation@ 500 plants per hectare in ANR (Assisted Natural regeneration) model. Taking into consideration, the site specific soil condition, existing indigenous species growing there and the bonafied requirement of the local people, the species have been proposed to be planted in the area as mentioned below.

The main objective of the present scheme is to raise gap plantation in degraded forest as well as to apply soil & moisture conservation measures, restock & rejuvenate degraded forest within 100 m. in the outer perimeter of Mining lease of M/s Raga Tradecon Pvt. Ltd. Such Plantations will act as a Transition Crop to support the main crop of the lease area.

Hence, the main objective of the present scheme is as follows:-

- i) To afforest the degraded forest land and to restore the degraded forest lands by ANR model.
- ii) Clearly demarcating and fencing with brush wood the area to dispense with the biotic interferences.
- iii) To improve the micro edaphic conditions by undertaking suitable soil and moisture conservation measures.
- iv) To protect the area against encroachment, illicit felling, fire incidences, grazing and all other forms of biotic interference.
- v) To create awareness among the local villagers for protection and maintenance of plantation for ensuring enrichment of the ecosystem and replacement of the degraded areas with natural green cover.

#### **12. LAND SCHEDULE**

**LAND SCHEDULE OF DEGRADED FOREST LAND OF 100 METER OUTER PERIFERI OF MINING LEASE OF NETRABANDHA PAHAR (WEST) IRON ORE BLOCK**

SL NO	VILL NAME	PLOT NO	KHATA NO	KISSAM	APLIED AREA IN Ha.	APLIED AREA IN Acr.	CATEGORY OF LAND	REMARKS
1	Baldihi	14	65	Bada jungle	0.383	0.946	VILLAGE FOREST	
2	Baldihi	16	16	Pahad	1.771	4.375	DLC	
3	Baldihi	578	67	Patra jungle	0.005	0.012	VILLAGE FOREST	
4	Baldihi	546	68	Pahada	3.202	7.912	P.R.F	
5	Baldihi	544	68	Pahada	4.656	11.504	P.R.F	
6	Baldihi	15	65	Jungle	0.662	1.635	VILLAGE FOREST	
<b>TOTAL AREA</b>					<b>10.679</b>	<b>26.384</b>		

Forest plots of village Baldihi in Sundargarh District have been selected for gap plantation (canopy density is < 0.4). Location of the plots is shown in the map annexed to this scheme.



### 13. SELECTION OF SITE FOR GAP PLANTING

The above degraded forest land is situated in the outer perimeter of the mining lease of Netrabandha Pahar (West) Iron Ore Block in Sundargarh District of Orissa by M/s Raga Tradecon Pvt. Ltd. under Bonai Forest division. The proposed sites measure 10.679 ha, in Baldihi village. The topography of the site is sloppy in nature. The soil is mostly sandy loam at patches and depth of the soil is of limited extent. Location of the plots is shown in the map annexed to this scheme.

### 14. DESCRIPTION OF THE EXISTING VEGETATION

The proposed site for gap plantation has dense growth of weeds like Eupatorium & Lantana etc. The available growth is degraded due to biotic pressure like loping, grazing and fire wood collection.

#### Choice of species:

As far as possible, care shall be taken to select indigenous species for plantation which are associates of local species.

The list of species to be adopted for the plantation is as follows:

1	Amla	<i>Emblica officinalis</i>
2	Bamboo	<i>Dendrocalamus strictus</i>
3	Karanja	<i>Pongamia pinnata</i>
4	Asan	<i>Terminalia tomentosa</i>
5	Sisoo	<i>Dalbergia sisoo</i>
6	Gambhar	<i>Gmelina arborea</i>
7	Neem	<i>Azadirachta indica</i>
8	Harida	<i>Terminalia chebula</i>
9	Bahada	<i>Terminalia bellerica</i>
10	Kasi	<i>Bridelia retusa</i>

### 15. RAISING OF NURSERY

Seedlings required for the plantation shall be raised in the nursery of Netrabandha Pahar (West) Iron ore Block. The Nursery should have a capacity of raising adequate seedlings. Nursery works will be undertaken in consultation with D.F.O., Bonai Division. All the infrastructures shall be provided by M/s Raga Tradecon Pvt. Ltd. Work will be started one year before the year of plantation so that eighteen months old seedlings will be available for plantation. 20% extra seedlings shall be raised to compensate and mitigate the eventuality of seedling casualty in the nursery. Standard nursery practices shall be followed for raising of seedlings in polythene bags.

16. **ALIGNMENT AND STACKING**

Alignment, stacking and pitting will be taken up in the month of March-April, Pits of size 45cmX 45cm X 45cm will be dug maintaining a spacing of 2.5 mt x 2.5 mt @ 500 plants per hectare.

17. **PLANTING**

The seedlings will be planted in dug out pits of 30 cm<sup>3</sup> maintaining a spacing of 2.5 mt between the pits @ 500 seedlings per hectare. Plantation should be taken up after first regular shower of monsoon and should be completed by end of August. NPK/DAP fertilizer @ 50 gms per plant should be given as basal dose. Anti- termite and insecticide like @ 5 gms. per plant should be applied per pit. Foreign earth shall be provided in each pit to enrich the growth of seedlings within a marked period. Casualty replacement when required during the planting year and in the second year should be undertaken for which the seedlings shall be raised.

18. **WEEDING, SOIL WORKING AND MANURING**

For establishment and better growth of the planted seedlings, weeding, soil working and manuring are necessary. It is proposed to carry out two weeding, soil working and manuring added with vermin compost @ 200 gm/plant during the first year and second year of plantation. Weeding and manuring for the first and second year shall be carried out during September – October Urea 70 gm & NPK 50 gm and the second one during September-October along with soil working during which 70gms of vermi-compost shall be added to the soil per plant. First weeding shall be for entire area weeding and the second weeding should be strip weeding. The weeding and of third year will be for entire area weeding which shall be carried out during August.

19. **APPLICATION OF INSECTICIDES**

The plantation site after planting with good seedlings may in course of time get infested with diseases owing to influx of insects and pests into the area which usually cause heavy damage to the soft, tender and avidly growing parts of the plant that affects the rate of growth and sometimes causes wide spread casualty of the seedlings. To avoid such incidences, foliar spray and ground application of insecticides at regular intervals usually on a sunny day in the fore noon shall be done.

20. **FIRE LINE TRACING AND MAINTENANCE**

Fire causes irreparable damage to the plantation and the forest growth during fire season and to prevent such fire out-breaks in the area, the plantation area shall be divided into suitable blocks by tracing fire lines. Boundaries of the plantation patches and these block lines will be scrapped of forest growth to a width of 3.0 mt. during Feb-March and the cut back materials and the dry leaves stacked along these fire lines shall be burnt under direct supervision. This operation is highly essential and the scheme proposes to carry this operation for the first three years.



The detailed cost estimate of various operations to be taken up in ANR plantation has been furnished in **Annexure-I**.

#### 21. POINTS OF IMPORTANCE

While taking up plantation, the following vital points shall be taken up for consideration:

- All care will be taken to raise healthy seedlings of minimum 2' height and 20% extra of the required stock shall be raised. 1 year old seedlings shall be used in case of Asan, Arjun, Phasi, Neem, Harida, Bahada, Kasi etc. However, in case of Sisoo, Gambhar, Chakunda etc. 18 months old seedlings can be used. Pitting shall be invariably done during February – April, i.e. before onset of monsoon. In hilly areas, pits shall be dug along the contours. Planting shall be done on the onset of monsoon and should not be delayed. The gradient of the site is 1:10 which is considered as level ground with slight undulating at places.
- Basal dose of 30 grams of NPK and 5 grams of Aldrin be applied at the time of planting. Casualty replacement, weeding and soil working, application of fertilizer and insecticides shall be taken up as per the provisions in the cost- norm at the proper time. Watchers shall be engaged who shall also take up tracing of inspection path and fire line and maintenance of fence in addition watch and ward duty.
- All out efforts shall be taken to keep the plantation free from grazing, fire and other biotic interference.

#### 22. SOIL CONSERVATION MEASURES

The sites selected for restocking and rejuvenation by afforestation are degraded forest lands and the slope of the identified area varies from steep to moderate with undulating topography and gullies are formed due to heavy erosion. Therefore, soil conservation measure is indispensable and is to be appropriately designed. Taking into consideration the degradation of the area due to soil erosion, it has been proposed to take up Soil Conservation Measures by construction of **Loose Boulder Check dam (LBCD)** such as contour bunds, check dams over the area 10 nos. 2mt span 10 nos. 3mt span.

The details of estimate of different size of Loose Boulder Structure are given in **Annexure-II & III**.

#### 23. SPECIAL SOIL CONSERVATION MEASURES

To check soil erosion and the rain water draining out of the area, it has been proposed to take up special conservation measures by digging staggered trenches along the contour over the area @ 250 nos per hectare. The size of the trenches will be 2 Mtr x 0.5 Mtr x 0.5mtr. Digging of staggered trenches will be done during September of 1<sup>st</sup> year. Agave planting will also be taken up on the dugout soil of the trench for its stabilization and to restrict the dugout soil from re-filling into the trench.

The detail of estimate of staggered trench is given in **Annexure-IV**.

24. **WATCH AND WARD**

To protect the area against grazing, fire accident and other biotic interference it is proposed in the cost estimate for ANR Plantation to engage watchers for ten years from the year of plantation.

25. **FENCING :**

To protect the ANR plantation from biotic interference, Angle Iron & Chain link wire mesh fencing is proposed over the identified area of 10.679 ha. within 100 mt outer boundary of the Mining Lease area in Koira Range. The total perimeter of the said identified area is 3283 RMT (Or, 3.283 Km) length of boundary.

The cost norm for Angle Iron & Chain link wire mesh fencing is enclosed as Annexure-V.

26. **MOTIVATION OF PEOPLE:**

As per Govt. resolution of 2011, the villagers of the adjoining village, i.e. Baldihi and Sanua of Bonai Division are to be involved in protection and management of plantation. Before execution of the work, a meeting will be conducted in the above villages and resolution regarding support to plantation activities will be made. To motivate the people in this direction, they will be provided with incentives in shape of different community articles, buildings, and different community amenities of fixed and movable type through entry point activities (EPA). Health camps shall also be organized in the villages. Thus, 15% of the plantation cost has been earmarked for expenditure on this score.

27. **EXECUTING AGENCY**

All the works under this scheme shall be executed by the User Agency having specialized departments headed by qualified persons with outsourced man and machinery. To facilitate this, the user agency shall establish own executing and supervision cells along with required infrastructural facilities. In order to maintain the quality of work, in-house supervision through competent personnel shall be provided. The entire work shall be carried out in co-ordination with the Forest Department.

**SPECIALISED CELL**

Sl. No.	Name	Educational Qualification	Designation	Expertise
1	Shri Nihar Satpathy	AMIE – Mining	GM (Mining)	32 Years experience

28. **INSPECTION, MONITORING AND EVALUATION**

For successful implementation of the present Scheme, intensive inspection and technical guidance from concerned technical wing is required. Sufficient fuel/ conveyance charges for the executing agency and technical experts shall be provided by the user agency for proper execution of this programme.



29. REQUIREMENT OF FUNDS

The total cost of the implementation of proposed scheme will be Rs.1,21,49,100/- (Rupees One Crore Twenty One Lakh Forty Nine Thousand One Hundred) Only, details are as under

**TOTAL COST OF GAP PLANTING, SOIL & MOISTURE CONSERVATION WITHIN 100MTR.FROM OUTER PERIMETER OF MINING LEASE TO RESTOCK AND REJUVENATE DEGRADED FOREST**

**Wage Rate Rs.352.00**

1.	ANR Plantation with 500 seedling per Ha. over 10.679 ha. @Rs. 1,50,051/- per ha.	16,02,395.00
2.	Angle Iron & Chain link wire mesh fencing over 3.283 KM (Or, 3283 RMT) @ ₹1,849.26/- per RMT.	60,71,121.00
3.	Soil Conservation measures	
	a) Loose boulder structure 2 mt. size 10 nos. @ Rs.12527/-	1,25,270.00
	b) Loose boulder structure 3mt. size 10 nos. @ Rs.26275/-	2,62,750.00
4.	Excavation of staggered trench over 10.679 ha. @ Rs.69,495/- per Ha.	7,42,137.00
	<b>Total :-</b>	<b>88,03,673.00</b>
5.	15% of the total cost for motivation of VSS / People involved.	13,20,551.00
	<b>Total :-</b>	<b>1,01,24,224.00</b>
6.	Add 20% escalation	20,24,845.00
	<b>Grand Total :-</b>	<b>1,21,49,069.00</b>
		<b>Or,</b>
		<b>1,21,49,100.00</b>

(Rupees One Crore Twenty One Lakh Forty Nine Thousand One Hundred) only

*M/s Raga Tradecon Pvt. Ltd. do hereby undertake to execute the item of works mentioned in this scheme in a phased manner at the project cost.*

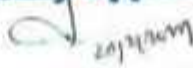
Raga Tradecon Private Limited

  
Authorised Signatory

Countersigned

  
Divisional Forest Officer  
Bonai Division

**Technically Approved**

  
Regional Chief Conservator of Forests  
Rourkela Circle

## Annexure-1

ANNEXURE-7

Basic Cost Norms for Compensatory Afforestation through Aided Natural Regeneration (ANR) @ 500 Seedlings/Ha.

WAGE RATE Rs- 311/- PER MAN/DAY

Sr. No.	Name of work	Preferable Period of Execution	No of Mandays	Labour Cost (In Rs.)	Material Cost (In Rs.)	Total cost (In Rs.)
<b>6th Year (Advance work) Pre-Planting Operation</b>						
1	Survey, Demarcation and Pole setting	Nov/Dec	2	622	0	622
2	Preparation of Treatment Map (Digital Map)	Nov/Dec	1	311	0	311
3	Site preparation	Nov/Dec	2	622	0	622
4	Site clearance operations including uprooting of weed, cutting of branches, high stump cutting, singeing of stems & removal of soil and other debris from the barren land area	Jan/Feb	25	7775	0	7775
5	Alignment and marking for digging of pits	Feb/Mar	1	311	0	311
6	Digging of pits (1.5 m x 0.5 m x 0.5 m) in hard and gravelly soil	Feb/Mar	20	6220	0	6220
<b>Total</b>			<b>49</b>	<b>12750</b>	<b>0</b>	<b>12750</b>
<b>7th Year/Planting Year</b>						
1	Bedding of pits by allowing the deposit soil of the pits, application of organic compost/ FYM/ PWS & mixing the same perfectly	June/Jul	4	1244	2500	3744
2	Transportation of 25 months old polythene bag seedlings to head office/ nursery from the permanent/ huge nursery for planting site including loading & unloading (Average load of 10 bags & reaching the seedling @ Rs/4 seedling (500 nos.)	Jul/Aug	0	0	2500	2500
3	Planting polythene bag seedlings at planting site of plantation	Jul/Aug	1	311	0	311
4	Overseeing of polythene bag seedlings on head office from the planting site to individual digger pits within the planting site, applying insecticide, fertilizer & planting after covering the soil with other applied materials and pressing the soil perfectly around the planted seedling	Jul/Aug	11	3421	0	3421
5	Cost of Fertilizer & Insecticide (a) FYM/ Bio Fertilizer @ 50 gms/plant in hard soil - 25kg @ Rs.35/- per kg = Rs. 875/- (b) Urea/Vermicompost/Neem cake/any other fertilizer @ Rs. 375.00 (c) Insecticide/ Bio pesticide @ 2 gms/plant = 22 kg @ Rs.205/- per kg = Rs. 4510/-	Jul/Aug	0	0	5300	5300
6	Canopy replacement @ 10% (50 nos.)	Jul/Aug	1.5	466.5	0	466.5
7	Site weeding & Monitoring	Aug/Sep	5	1555	0	1555



Sl. No.	Items of work	Preferable Period of Execution	No. of Mandays	Labour Cost (Rs.)	Material Cost (Rs.)	Total cost (Rs.)
9	2nd Weeding, 2nd weeding (1m diameter around the plant) & Weeding	Oct/Nov	8	2400	0	2400
9	3rd Weeding & Inspection path	Feb/Mar	2	600	0	600
10	Watch & Ward including watering as per requirement	Aug/Mar	8	2400	0	2400
	<b>Total</b>		<b>48.0</b>	<b>5400.0</b>	<b>0.0</b>	<b>5400.0</b>
<b>2nd Year Maintenance</b>						
1	Transplantation of 10 seedlings from Nursery to plantation including loading, unloading & carrying by tractor @ Rs.10/- per seedling	Jul	0.5	0.0	500.0	500.0
2	Landmark replacement	Jul	0.5	150.0	0.0	150.0
3	Cost of Fertilizer & Insecticide a) Cost of Insecticide @ 50% (including Transport) @ Rs. 5 per kg - 25 kg @ Rs. (50/-) per kg - Rs. 1250/- b) Urea/NPK/Bo-fertilizer/Vermincompost/Ms. Kurel/urea (after Rs.10000/-) 100kg/-	July/Aug	0	0	1837.5	1837.5
4	Weeding (Complete weeding), Mounding & Soil weeding (1m diameter around the plant)	Sept/Oct	8	2400	0	2400
5	3rd Weeding (2 m. wide line) & Inspection path	Feb/Mar	2	600	0	600
6	Watch & Ward including watering as per requirement	Apr/May	12	3600	0	3600
	<b>Total</b>		<b>23.0</b>	<b>7437.5</b>	<b>1837.5</b>	<b>9275.0</b>
<b>3rd Year Maintenance</b>						
1	Cost of Fertilizer Urea/NPK/Bo-fertilizer/Vermincompost/Bo-fertilizer (after Rs.10000/-) 100kg/-	July/Aug	0	0	1800.0	1800.0
4	Weeding (Complete weeding), Mounding & Soil weeding (1m diameter around the plant)	Sept/Oct	8	2400	0	2400
5	3rd Weeding (2 m. wide line) & Inspection path	Feb/Mar	2	600	0	600
6	Watch & Ward including watering as per requirement	Apr/May	12	3600	0	3600
	<b>Total</b>		<b>22.0</b>	<b>7400.0</b>	<b>1800.0</b>	<b>9200.0</b>
<b>4th Year Maintenance</b>						
1	3rd Weeding (2 m. wide line) & Inspection path	Feb/Mar	2	600	0	600
2	Watch & Ward including watering as per requirement	Apr/May	12	3600	0	3600
	<b>Total</b>		<b>14.0</b>	<b>4200.0</b>	<b>0.0</b>	<b>4200.0</b>
<b>5th Year Maintenance</b>						
1	3rd Weeding (2 m. wide line) over 400 m length	Feb/Mar	2	600.00	0	600
2	Watch & Ward including watering as per requirement	Apr/May	12	3600.00	0	3600
	<b>Total</b>		<b>14.0</b>	<b>4200.0</b>	<b>0.0</b>	<b>4200.0</b>
<b>6th Year Maintenance</b>						
1	3rd Weeding (2 m. wide line) over 400 m length	Feb/Mar	2	600.00	0	600
2	Watch & Ward including watering as per requirement	Apr/May	12	3600.00	0	3600
	<b>Total</b>		<b>14.0</b>	<b>4200.0</b>	<b>0.0</b>	<b>4200.0</b>
<b>7th Year Maintenance</b>						
1	3rd Weeding (2 m. wide line) over 400 m length & cultural operations	Feb/Mar	2	600.00	0	600
2	Watch & Ward including watering as per requirement	Apr/May	12	3600.00	0	3600
	<b>Total</b>		<b>14.0</b>	<b>4200.0</b>	<b>0.0</b>	<b>4200.0</b>
<b>8th Year Maintenance</b>						
1	3rd Weeding (2 m. wide line) over 400 m length	Feb/Mar	2	600.00	0	600
2	Watch & Ward including watering as per requirement	Apr/May	12	3600.00	0	3600
	<b>Total</b>		<b>14.0</b>	<b>4200.0</b>	<b>0.0</b>	<b>4200.0</b>
<b>9th Year Maintenance</b>						
1	3rd Weeding (2 m. wide line) over 400 m length	Feb/Mar	2	600.00	0	600
2	Watch & Ward including watering as per requirement	Apr/May	12	3600.00	0	3600
	<b>Total</b>		<b>14.0</b>	<b>4200.0</b>	<b>0.0</b>	<b>4200.0</b>
<b>10th Year Maintenance</b>						
1	3rd Weeding (2 m. wide line) over 400 m length	Feb/Mar	2	600.00	0	600
2	Watch & Ward including watering as per requirement	Apr/May	12	3600.00	0	3600
	<b>Total</b>		<b>14.0</b>	<b>4200.0</b>	<b>0.0</b>	<b>4200.0</b>
<b>Very near Abstract of Cost Norms (including weeding cost separately)</b>						





Matrix for Model-II A (ANN-500 plants/ha)

In Rupees																														
Sl. No.	Construction No.	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	XXI	XXII	XXIII	XXIV	XXV	XXVI	XXVII	XXVIII	Total Cost
1	2023-22	12400	48873	11218	8922	8120	8028	8800	8800	8800	8800	8800	8800	8800	8800	8800	8800	8800	8800	8800	8800	8800	8800	8800	8800	8800	8800	8800	8800	115008
2	2023-23		14078	53882	14276	10812	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	115008
3	2023-24			14276	86075	14276	11130	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	115008
4	2023-25				15612	10802	12717	12027	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	115008
5	2023-26					16289	42776	18028	17913	2081	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	115008
6	2023-27						17208	80483	17913	18149	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	115008
7	2023-28							17908	86796	18149	13806	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	115008
8	2023-29								18806	17106	14400	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	115008
9	2023-30									18796	79618	20018	13271	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	115008
10	2023-31										22789	79618	21304	13882	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	8028	115008

AMCD (Forest Division & NO. FC Act)

Detail Estimate of Loose Boulder Structure (S.M.C.)

Wage rate@ Rs.352.00

Ht. = 0.6 mtr

Slope- U/S :- 1:1.5


D/S slope :- 1:2

Span - 2 mtr.

Leveling the un-shape surface of the selected site & layout the structure foundation L.S. 1 MD.			352.00
Excavation of foundation in hard soil within initial lead of 50 mtr. including rough dressing and breaking of clods to maximum size 5 cm. to 7 cm. laying in layer not exceeding 0.3 in depth to strengthening both side U/S approx. bund of loose boulder structure.			
Base with apron- $1 \times 3.70 \times 3.00 \times 0.30 =$	3.33		
Wing wall- $4 \times 0.50 \times 0.50 \times 0.30 =$	0.30	3.63cum	
@ Rs.15745.64 per 100 cum.			571.56
Rough stone dry packing up to GL			
Base with apron- $1 \times 3.70 \times 3.00 \times 0.30 =$	3.33		
Wing wall- $4 \times 0.50 \times 0.50 \times 0.30 =$	0.30		
Above GL			
Super structure $1 \times 2.00 \times \frac{2.70 + 0.60}{2} \times 0.60 =$	1.980		
Wing wall- $4 \times 0.50 \times 0.50 \times 0.50 =$	0.50		
Side wall-			
i. $2 \times \frac{0.50 + 1.10}{2} \times 0.9 \times 0.5 =$	0.72		
ii. $2 \times \frac{0.5 + 1.10}{2} \times 1.2 \times 0.5 =$	0.96		
iii. $2 \times 0.6 \times 0.6 \times 0.5 =$	0.36		
iv. $2 \times 1.0 \times 0.5 \times 0.5 =$	0.50		
		8.65 cum	
@ Rs.1341.44 per cum			11603.45
			12527.01
			Or
		G. Total:-	12527.00

(Rupees Twelve Thousand Five hundred Twenty Seven) only

Raga Tradecon Private Limited

  
 Authorised Signatory



Span - 3 mtr.

**Slope- U/S :- 1:1.5**

D/S slope :- 1:2.0

(Rupees Twenty Sixthousand Two hundred Seventy Five) only

Authorized Signatory

Annexure-IV

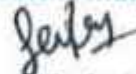
Estimate for digging of one no. of staggered trench of size 2 mt x 0.5 mt x 0.5 mt along with Agave plantation on the dug out soil.

Wage rate Rs.352.00

i)	Earth work in excavation of staggered trench in hard soil including rough dressing and leveling the beds and heaping the dug out soil at the down hill side of the trench and leveling the same too.		
	Size of a trench = 2.0 mt x 0.5 mt x 0.5 mt = 0.5 cum		
	@ 695.18 per 2.83 cum	Rs.	122.82
ii)	Cost for Agave planting on the dugout soil and its maintenance including weeding, soil working, manuring, cost of fertilizer etc. for three years		
	3 nos. of Agave plants per trench @ Rs.51.72/- per plants on LS	Rs.	155.16
Total :-		Rs.	277.98

Cost of 250 nos. of staggered trenches covering one Ha. =  $250 \times 277.98 =$   
Rs.69,495.00

Raga Tradecon Private Limited



Authorised Signatory



## Fencing Model F-8

Fencing for Compensatory Plantation raised outside the Forest Areas using Angle Iron & Chain Link wire mesh (250 Rmt/ Ha.)						
WAGE RATE Rs. 211/- PER DAY						
Sl. No	Items of work	Preferable Period of Execution	Max days	Wages	Material cost (Rs)	Total Cost (Rs. per Ha.)
Cth Year (PFG)						
1	Earth work (Excavation of Filling) for Main cut at a distance 1 mt. 0.40m x 0.40m x 0.40m = 0.064 cum @ Rs. 150/cum = Rs. 9.60		2.42	506.62	0.0	506.62
2	Concrete concrete (1: 4: 8) using 40 mm BHC chaps 0.4 x 0.40m x 0.40m = 1.344 @ 3755.94/cum		0	0	5017.4	5017.4
3	Angle iron pole of size 30 mm x 30 mm x 6 mm of height 2.40 mt. 0.4 x 2.40 = 201.60 Sqmt. @ 4.30/kg/ Sqmt. = 907.20 kg @ 69.50 per kg				63,050.0	63,050.0
4	Concrete concrete (1: 2: 4) for strong concrete angle pole using 12mm BHC Chaps 0.4 x 0.40m x 0.40m x 0.20m = 4.032 cum @ 5096.77/cum				22,123.0	22,123.0
5	Cost of Chain link wires using 4 mm Dia GI wire having gap size 50 mm x 50 mm 250 Rmt x 2.10 mt. = 525 Sqmt @ 311/Sqmt = Rs. 1,73,775. Double coil painting of iron angle pole with a coat of primer using good quality enamel paint 0.4 x 2.10 x 2 = 35.20 sqmt. @ Rs.100.00/Sqmt				1,73,775.0	1,73,775.0
6	Painting of GI Chain link mesh 250 x 2.10 x 2 = 1050/10 = 105 Sqmt. @ Rs. 108.00/Sqmt.				11,424.0	11,424.0
7	Transportation of Chain link mesh, Iron Angle, Strengthening & Painting of chain link mesh etc. @ 2% of the total cost.				5,600.0	5,600.0
	<b>TOTAL</b>		<b>2.42</b>	<b>506.62</b>	<b>2,04,857.4</b>	<b>2,05,364.0</b>
Rate per running mt. 2,05,364/ 250 = Rs. 821.46/Rmt						
1st Year Maintenance						
1	No Maintenance is required.	Sept./Oct	0	0	0	0
2nd Year Maintenance						
1	Maintenance of wire mesh fence @ 1% per running mt. cost of installation in 1st yr. 1142x 1% = 11.42 say Rs. 11	Sept./Oct	0	0	11000	11000
3rd Year Maintenance						
1	Maintenance of wire mesh fence @ 1% per running mt. cost of installation in 1st yr. 1142x 1% = 11.42 say Rs. 11	Sept./Oct	0	0	11000	11000
4th Year Maintenance						
1	Maintenance of wire mesh fence @ 1% per running mt. cost of installation in 1st yr. 1142x 1% = 11.42 say Rs. 11	Sept./Oct	0	0	11000	11000
5th Year Maintenance						
1	Maintenance of wire mesh fence @ 1% per running mt. cost of installation in 1st yr. 1142x 1% = 11.42 say Rs. 11	Sept./Oct	0	0	11000	11000
6th Year Maintenance						
1	Maintenance of wire mesh fence @ 1% per running mt. cost of installation in 1st yr. 1142x 1% = 11.42 say Rs. 11	Sept./Oct	0	0	11000	11000
7th Year Maintenance						
1	Maintenance of wire mesh fence @ 1% per running mt. cost of installation in 1st yr. 1142x 1% = 11.42 say Rs. 11	Sept./Oct	0	0	11000	11000
8th Year Maintenance						
1	Maintenance of wire mesh fence @ 1% per running mt. cost of installation in 1st yr. 1142x 1% = 11.42 say Rs. 11	Sept./Oct	0	0	11000	11000
9th Year Maintenance						
1	Maintenance of wire mesh fence @ 1% per running mt. cost of installation in 1st yr. 1142x 1% = 11.42 say Rs. 11	Sept./Oct	0	0	11000	11000
10th Year Maintenance						

Sr. No.	Items of work	Preferable Period of Execution	Man days	Wages	Material cost (Rs.)	Total Cost (Rs. per Ha.)
1	Number of wire mesh fence @ 75 per meter net cost of installation is 1st yr. 1142x 75 = 11.47 per Ha. 11	Sept./Oct	8	0	11000	13800

Abstract					
Sr. No.	Year	No. person days	Labour cost @ Rs. 311/- per day	Material Cost	Total cost (Rs.)
1	0th year	2.42	752.6	204027.4	204780.0
2	1st year	0.0	0.0	0.0	0.0
3	2nd year	0.0	0.0	11000.0	11000.0
4	3rd year	0.0	0.0	11000.0	11000.0
5	4th year	0.0	0.0	11000.0	11000.0
6	5th year	0.0	0.0	11000.0	11000.0
7	6th year	0.0	0.0	11000.0	11000.0
8	7th year	0.0	0.0	11000.0	11000.0
9	8th year	0.0	0.0	11000.0	11000.0
10	9th year	0.0	0.0	11000.0	11000.0
11	10th year	0.0	0.0	11000.0	11000.0
Total:		2.42	752.62	204027.4	204780.0

  
APCC (Forest Division & NO. FC Act)



Karnafor rearing Model-B-2 (from single with Chinlink wire mesh)

[illegible]

Annex  
after (Forest Division & MO, FC Act)



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

ON-51420MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1ZW

ANNEXURE-5B

CONDITION NO.: 2F

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do here by undertake to to execute the item of works mentioned in the scheme for gap planting, soil & moisture conservation to restock and rejuvenate the degraded open forests (having crown density less than 0.40), within 100 meters from outer perimeter of Netrabandh Pahar (West) Block in a phased manner at the Project cost.

For M/s Raga Tradecon Private Ltd

Raga Tradecon Pvt. Ltd.

(Sangram Keshari Ray)

Authorized signatory



**REVISED  
SCHEME FOR  
COMPENSATORY AFFORESTATION OVER TOTAL  
66.25 HA.**

**(AREA 32.00 HA.@200 PLANTS  
& AREA 32.50 HA.@500 PLANTS)  
& ADDITIONAL 1.75 HA. OF  
IN NON-FOREST LAND IDENTIFIED AT  
VILLAGE- MAHUPADAIN  
BANKI RANGE**

**UNDER  
ROURKELA FOREST DIVISION**

**IN LIEU OF DIVERSION OF 66.242 HA. OF FOREST LAND  
(INCLUDING 2.09 HA. SAFETY ZONE)**

**AGAINST THE NETRABANDHA PAHAR (WEST)  
IRON ORE BLOCK  
OF**

**M/S RAGA TRADECON PVT. LTD.  
UNDER KOIRA TAHASIL,  
SUNDARGARH DISTRICT.**

o/c

o/c

22.650

# INDEX

SL. NO.	NAME OF THE ENCLOSER	ANNEXURE	PAGE NO.
1	Plantation Cost Norm	I	10-17
2	Fencing Cost Norm	II	18-20
3	SMC Cost Norm	III	21-22
4	Watering Provision Cost Norm	IV	23-24
5	DSS Report	V	25-26
6	DSS Analysis	VI	27
7	Suitability Certificate of Banki Range	VII	28-31
8	Site Inspection Report	VIII	32-33
9	Topo Map	IX	Enclosed
10	DGPS Map	X	Enclosed
11	Previously approved CA Scheme by the PCCF (NODAL)	XI	Enclosed
12	KML file (in Disc.)	XII	Enclosed



SCHEME FOR COMPENSATORY AFFORESTATION OVER TOTAL 66.25 HA. (@200 NOS SEEDLINGS OVER 32.0 HA. & @500 NOS. SEEDLINGS OVER 32.50 HA. AND 1.75 HA. ADDITIONAL LAND) FOR COMPENSATORY AFFORESTATION IN THE NON-FOREST LAND IDENTIFIED IN VILLAGE MAHUPADA IN BANKI RANGE UNDER KOIRA TAHASIL OF ROURKELA FOREST DIVISION IN LIEU OF THE NETRABANDHA PAHAR (WEST) IRON ORE BLOCK OF M/S RAGA TRADECON PVT. LTD. UNDER KOIRA TAHASIL OF SUNDARGARH DISTRICT.

## 1. INTRODUCTION:-

This Compensatory Afforestation Scheme has been prepared for raising Compensatory Afforestation over 66.25 Ha. (32 Ha. + 32.50 Ha. + 1.75 Ha. Additional land) for Compensatory Afforestation of non-forest land identified in village Mahupada under Banki Range of Sundargarh District. The scheme aims to compensate the loss of 66.242 Ha. of forest land (including 2.09 Ha. safety zone) proposed for diversion by M/S Raga Traders Pvt. Ltd. under Koira Tahasil of Sundargarh District. The areas have been demarcated by erecting RCC Pillars of (77nos. of pillars in 64.50 Ha. of land + 7nos. of pillars in 1.75 Ha. of land) 84 nos. and the numbering of the pillars as per boundary description shown in the map.

The non-Forest land has been verified in the field by the Forest Officials and is found suitable for ANR plantation over total 66.25 ha. (@200 seedlings per ha over 32.0 ha. & @500 nos. seedlings over 32.5 ha. in Banki Range for CA and 1.75 Ha. Additional land) and is free from encroachment and encumbrances.

The ANR Plantation at a spacing of 2.5 Mtr. x 2.5 Mtr. will be taken up over @200 plants per ha over 32.00 ha & @500 plants per ha over 32.50 ha in the identified non-Forest area for CA with a larger maintenance period of 10 years as per the MoEF & CC Guideline No F. No. 11-423/2011-FC Dated 08.11.2017. The cost estimate for this ANR Plantation calculated as per prescribed cost norms including regeneration work are enclosed as Annexure-I. The topo map has been enclosed as Annexure-VIII. Geo-referenced (Polygon map with DGPS coordinates) has been enclosed as Annexure-IX.

## 2. TOPOGRAPHY AND SOIL:-

The topography of the areas is mainly plain with moderate slope. The soil is mostly sandy loam at patches and depth of the soil is fairly good. The area experiences tropical climate with monsoonal rainfall.

The topographical configuration of the selected site is suitable for undertaking plantation activities. The soil is mostly sandy loam to lateritic in some areas. For such characteristics, the scheme proposes to dovetail adequate soil and moisture conservation measures into the afforestation programme. Honey comb structure with rubble stones around individual plants to retain soil along with three tier continuous trench will prove quite effective not only for the growth of plants but also for controlling soil erosion which has been incorporated in this scheme.

### 3. CLIMATE:-

The study area lies in tropical region where climate is characterized by very hot summers and cool winters. The summer season usually starts from March and continue up to June during which monthly temperature ranges from a maximum of 45°C during daytime to a minimum of 8°C at night. Winter usually starts from November and continue up to February during which the maximum temperature goes up to 35°C during daytime and goes down to 10°C during night-time. The average annual rainfall as recorded is 1500 mm.

### 4. OBJECTIVE OF THE SCHEME:-

The main objective of the scheme is to restock the non-forest crop in village Mahupada under Banki Range, Koira Tahsil of Sundargarh District by taking up tending operation of the existing forest crop and supplementing it with ANR Plantation over **64.50 ha. (@200 nos. seedlings per ha over 32.0 ha. & @500 nos. seedlings over 32.50 ha. and 1.75 Ha. of Additional land)** for Compensatory Afforestation. The scheme also envisages carrying out adequate and appropriate soil conservation measure works along with the afforestation work so as to conserve soil and water for recharging the ground water table and to check erosion of the fertile top soil of the area.

Further, the aim of the proposed scheme is as follows:

- i) To improve the micro-edaphic conditions by under taking suitable soil and moisture conservation measures.
- ii) To protect the area against encroachment, illicit felling, fire occurrence, grazing etc. so as to check further degradation of the area and maintain the eco-restoration.
- iii) To provide gainful employment to the local people, mainly ST/SC population.
- iv) To create awareness among the local villagers for protection and maintenance of plantation and forest.



## **5. PROPOSED TECHNIQUE:-**

To achieve the above aims and objectives, it has been proposed to take up ANR Plantation over total 66.25 ha. (@200 nos. seedlings over 32.0 ha. and @500 nos. seedlings over 32.5 ha. and 1.75 Ha. Additional land) for Compensatory Afforestation in the identified non- forest land in village Mahupada under Banki Range of Rourkela Forest Division of Sundargarh District. The said plantation work will be done in the first year followed by maintenance during second, third, fourth, fifth, sixth, seven, eight, nine & ten year. The detailed expenditure statement is furnished below.

### **(A) SURVEY AND DEMARCATION:**

This work has already been taken up by the User Agency with due consultation with the Range Officer, Banki of Rourkela Forest Division, which has been certified by the concerned Range Officer copy enclosed as **Annexure-VII**.

The Compensatory Afforestation work is to be taken up in the given patch of land as per the land schedule. Further, the identified area has been verified with the help of **Decision Support System (DSS)** and found suitable for Compensatory Afforestation. The DSS report is attached as **Annexure-V**.

The certificate on DSS analysis report in the prescribed format is enclosed as **Annexure-VI**.

The boundary has been surveyed and demarcated by positing RCC pillars of size 1.25 cm x 20 cm x 20 cm at visible distance, which have been embedded in the ground, and one signboard has been affixed at the site.

### **(B) REGENERATION, CLEANING AND TENDING OPERATION:**

The operation aims at tending the existing crop silviculturally to desirable species for ensuring better growth of the plants. It includes removal of inferior, diseased, malformed, dead, drying and defective tree growth and disposal of them either by distributing it among the local villagers or by control burning them at a selected site so as not to damage the new recruits. Apart from it, weed eradication and climber cutting is also an integral part as they interfere with the growth of trees and also their regeneration by shrouding them from the sun rays and also through root competition. Hence Site clearance by removing climbers and uprooting Eupatorium and other weeds is also being proposed to be done in the area. The detailed operation to be carried out is as follows-

- i) Cutting back of herbs and shrubs interfering with the growth of the desirable species.
- ii) Cutting back of individual inferior poles interfering with growth of well formed pole crops.
- iii) Cutting back of malformed and diseased species.
- iv) Cutting of climbers up to hand reach distance.
- v) Cutting of high stumps flush to the ground.
- vi) Singling of coppice shoots coming out from stools retaining the most promising one.
- vii) Pruning of the branches of the pole crops up to hand reach distance.

During the 1<sup>st</sup> year, climber cutting, and cutting of high stumps, weeds and malformed and diseased species will be done. In the next two years, cutting back of ill grown individuals and singling of coppice in case of desired species.

#### **{C.} PLANTATION:**

The area will be stocked by way of raising ANR plantations over total 66.25 ha. of non-forest land (@200 nos. seedlings over 32.0 ha., @500 nos. seedlings over 32.5 ha. and 1.75 Ha. of Additional land) for Compensatory Afforestation. Taking into consideration the soil condition and the local habitation and suitability of species to the site, the following species are selected:

1. *Pongamia pinata* (Karanja)
2. *Azadiracta indica* (Neem)
3. *Acacia catechu* (khaira)
4. *Terminalia bellirica* (Bahada)
5. *Gmelina arborea* (Gambhar)
6. *Terminalia tomentosa* (Asan)
7. *Terminalia arjuna* (Arjun)
8. *Dendrocalamius strictus* (Salia Bamboo)
9. *Dalbergia latifolia* (Pahadi Sissoo), etc

**Land Schedule of [Non-forest Land] for Compensatory Afforestation**

Village	Khata No.	Plot No.	Kisam	Proposed Area (in Ha.)
Mahupada	44(AAA)	10/773 (P)	Pahada	2.460
		29/774(P)	Pahada	12.240
		15/775	Pahada	10.420
		15/776	Pahada	8.900
		222/793	Pahada	3.620
		222/794(p)	Pahada	1.850
		222/795(p)	Pahada	3.710
		222/796	Pahada	3.950
		35/777	Pahada	4.860
		38/778	Pahada	4.860
		93/780(p)	Pahada	2.130
		108/781(p)	Pahada	2.130
		108/782(p)	Pahada	2.500
		115/788(P)	Pahada	0.520
		115/789(P)	Pahada	0.350
Total:-				64.500

**Land Schedule of Additional Non-forest Land for Compensatory Afforestation as per Condition No. 2(d) of In-Principle approval order U/s - 2 of the FCA,1980 vide letter no. 8-14/2023-FC Dated 21.12.2023**

Mahupada	44(AAA)	108/781(p)	Pahad	1.750
<b>Grand Total</b>				<b>66.25</b>

Different other operations to be taken up for plantation are as follows:

**a) Raising of nursery:-**

18 months old seedlings required for the plantation shall be raised in a Decentralized nursery nearer to the plantation site with a perennial water source and connected by a fair-weather road. Nursery work will be started one year before the year of plantation so that second year seedlings will be available for plantation. 10% extra seedlings shall be raised to compensate and mitigate the eventuality of seedling casualty in the nursery. Standard nursery practices shall be followed for raising of 18 months old seedlings in polythene bags.



**b) Alignment and stacking:-**

Alignment stacking and pitting will be taken up in the month of March-April. Pits of size 45cm X 45cm X 45cm will be dug maintaining a spacing of 2.5 mtr. @200 nos. seedlings over 32.0 ha. for CA, @500 nos. seedlings over 32.5 ha. for Compensatory Afforestation plants per hectare.

**c) Planting:-**

The seedlings will be planted in dug out pits of 45cm X 45cm X 45cm maintaining a spacing of 2.5 mtr. between the pits @200 nos. seedlings over 32.0 ha. for CA, @500 nos. seedlings over 32.5 ha. Plantation should be taken up after first regular shower of monsoon and should ideally be completed by end of August. NPK/DAP fertilizer @ 50 gms per plant should be given as basal dose. Anti- termite and insecticide like methyl parathion @ 5 gms. per plant should be applied per pit. Care should be taken to avoid direct contact of the root tip of the plant with that of the insecticide to prevent damage to the plant. Casualty replacement when required during the planting year and in the second year should be undertaken for which the seedlings shall be raised.

**d) Weeding, Soil working and manuring:-**

For establishment and better growth of the planted seedlings, weeding, soil working and manuring are necessary. It is prescribed to carry out two weeding, soil working and manuring during the first year and second year of plantation and one weeding and soil working during the third year. Weeding and manuring for the first and second year shall be carried out during August- September and the second one during October-November along with soil working during which 30 gms. of NPK/DAP shall be added to the soil per plant. First weeding shall be area weeding and the second weeding should be strip weeding. The weeding of third year will be area weeding which shall be carried out during August.

e) **Application of Insecticides:-**

The plantation site after planting with good seedlings may in future course of time get infested with diseases owing to influx of insects and pests into the area which usually cause heavy damage to the soft, tender and avidly growing parts of the plant that heavily affects the rate of growth and sometimes causes wide spread casualty of the seedlings. To avoid such incidences foliar spray and ground application of insecticides in at regular intervals usually on a sunny day before fore noon shall be done.

f) **Fire line tracing and maintenance:-**

Fire causes irreparable damage to the plantation and the forest growth during fire season and to prevent such fire out breaks in the area, the plantation area shall be divided into suitable blocks by tracing fire lines. Boundaries of the plantation patches and these block lines will be scrapped of forest growth to a width of 3.0 mtr. during Feb-March and the cut back materials and the dry leaves stacked along these fire lines shall be controlled burnt under direct supervision of the forest staff. This operation is highly essential and the scheme proposes to carry this operation for the first three years.

**6.SOIL CONSERVATION MEASURES:-**

Soil & Moisture Conservation work will be carried out over 66.25 ha. **(32 Ha. CA + 32.50 Ha. CA + 1.75 Ha.)**. The cost norm of SMC is enclosed as **Annexure-III**.

7. **FENCING:-**

Fencing is an important aspect for a successful plantation. Thus, Solar Fencing with RCC pillar (400 pillars/RKM) over **66.25 Ha. (32 Ha. for CA + 32.50 Ha. for CA + 1.75 Ha. Additional land)** area is proposed to protect the Compensatory Afforestation area from biotic interference. The cost norm for Solar Fencing with RCC pillar (400 pillars/RKM) is enclosed as **Annexure-II**.

9. **WATERING PROVISION TO CA PLANTATION:-**

Watering of the plantation will be carried out aided by solar system with Bore Well (1 system for 5 Ha. Plantation) fitted with Drip System for plantation. The cost norm is enclosed as **Annexure-IV**.

#### 10. EXECUTING AGENCY:-

The Divisional Forest Officer, Rourkela will be assigned with the task of executing this scheme and the cost norm applicable is enclosed herewith. The Compensatory Afforestation scheme has been prepared with one time cost norm in accordance with guidelines issued by the Principal Chief Conservator of Forests & HoFF, Odisha vide his Office Order No.1109 dt.08.11.2021 and communicated vide memo no.18833, dtd.08.11.2021 of the Principal Chief Conservator of Forests & HoFF, Odisha, Bhubaneswar.

#### 11. TOTAL COST OF THE PROJECT:-

For implementation of all the prescriptions out lined above Rs. Rs 2,79,83,946.00 (Rupees Two Crore Seventy-Nine Lakh Eighty-Three Thousand Nine Hundred Forty Six only) will be required as detailed below. As there will be a time lag between the preparation of the scheme and its implementation, the User Agency will pay the enhance wage rate as and when required.



## TOTAL COST OF PROJECT FOR COMPENSATORY AFFORESTATION

Sl. No.	Description	Amount (Rs.)
1.	Cost of ANR Plantation @200 plants per ha with 18 months old seedling over 32.00 ha. @ Rs 1,11,286/- per ha. with 10 years maintenance.	35,61,152.00
2.	Cost of ANR Plantation @500 plants per ha with 18 months old seedling over 32.50 ha. @ Rs 1,57,554/- per ha. with 10 years maintenance.	51,20,505.00
4.	As per real-time estimate, the actual perimeter of CA land comes to be 7558 RMT. Dividing it by 250, the area comes to be 30.232 Ha. cost of fencing with Solar Fencing with RCC Pillars(400 Pillars/RKM) over 30.232 Ha.@ Rs.1,87,474 /-	56,67,713.96
5.	Soil & Moisture Conservation work @ 41,248/- per ha. over 66.25 ha.(32 Ha. CA + 32.50 Ha. CA + 1.75 Ha. )	27,32,680.00
	<b>Water provision to CA Plantation</b>	
6.	22,650 Nos. of seedlings are planted over 66.25Ha. of CA land. Water provision to CA Plantation through Solar system with Bore Well (1 system for 5 Ha. Plantation) fitted with Drip System = Rs. 2,34,221.00 per ha. X 22.650 ha.	53,05,105.65
	<b>Total Plantation Cost</b>	<b>2,23,87,156.61</b>
7.	25% of total plantation cost towards soil and moisture conservation activities in the proposed CA area as per condition no-2 (g) of "in-principle" approval order in lieu of Netrabandha Pahar (west) Iron Ore Block of M/s Raga Tradecon Pvt. Ltd. under Koira Tahasil of Sundargarh District.	55,96,789.15
	<b>Grand Total=</b>	<b>2,79,83,945.76</b> <b>Or</b> <b>Rs 2,79,83,946.00</b>
8.	<b>Infrastructure to be provided as per consent of the User Agency:</b> (Already approved by the PCCF (FD & Nodal Officer, FC Act) and communicated to the DFO Rourkela vide memo no-25375 Dtd. 28.12.2023 of the Conservator of Forests (Nodal), O/o the Principal Chief Conservator of Forests & HoFF, Odisha, Bhubaneswar. <b>(Copy Enclosed in Annexure-X)</b>	Supply of one Toyota Innova Crysts ZX2.4AT7STR (Pearl White) with all accessories, including RTO, insurance and other charges.

(Rupees Two Crore Seventy-Nine Lakh Eighty-Three Thousand Nine Hundred Fourty Six only)

The scheme is prepared by me  
as per instruction of PCCF  
vide his letter no. 4495  
dated 5.10.24

24.10.24  
ACF Rk.

-9-

28/10/24  
Divisional Forest Officer,  
Rourkela Division.



Sl. No.	Items of work	Preferable Period of Execution	No. of Man-days	Labour Cost (In Rs.)	Material Cost (In Rs.)	Total cost (In Rs.)
1	Transportation of 20 seedlings from the nursery to plant area including loading, unloading & convenience by Tractor @ Rs.4/- per seedling	Feb	0	0	80	80
2	Planting for casualty replacement Cost of Fertilizer & Insecticide:- A) Cost of Insecticide/ Bio-pesticide (Thiomethoate) @ 5 gm/plant - 0.1 Kg @ Rs.150/- per kg; Rs.15/- B) Urea/NPK/Bio Fertilizer/Vermicompost/Mu Khata/any other fertilizer - Rs.500/-	Feb	0.5	155.5	0.0	155.5
3	Weeding (Complete weeding), Manuring & Soil working (1 mt. diameter around the plants)	Sep/Oct	3	1244	0.0	1244
4	Fire line tracing (2 m. wide fire line over 400 m long) & inspection path	Feb/Mar	1	911	0.0	911
5	Watch & Ward including watering as per requirement	Apr/May	12	1732	0.0	1732
<b>Total 3rd Year Maintenance</b>			<b>19.5</b>	<b>6064.5</b>	<b>695.0</b>	<b>6759.5</b>
1	Cost of Fertilizer - Urea/NPK/Bio fertilizer/Vermicompost/Mu Khata/any other fertilizer - Rs.500/-	Sep/Oct	0	0	500	500
2	Weeding (Complete weeding), Manuring & Soil working (1 mt. Diameter around the plants)	Aug/Sep	3	1244	0	1244
3	Fire line tracing (2 m. wide fire line over 400 m long) & inspection path	Feb/Mar	1	911	0	911
4	Watch & Ward including watering as per requirement	Apr/May	12	1732	0	1732
<b>Total 4th Year Maintenance</b>			<b>19.0</b>	<b>5909.0</b>	<b>500.0</b>	<b>6409.0</b>
1	Fire line tracing (2 m. wide fire line over 400 m long) & inspection path	Feb/Mar	1	911	0	911
2	Watch & Ward including watering as per requirement	Apr/May	12	1732	0	1732
<b>Total 5th Year Maintenance</b>			<b>15</b>	<b>4665</b>	<b>0</b>	<b>4665</b>
1	Fire line tracing (2 m. wide fire line over 400 m length) & inspection path	Feb/Mar	1	911.00	0	911
2	Watch & Ward including watering as per requirement	Apr/May	12	1732.00	0	1732
<b>Total 6th Year Maintenance</b>			<b>15.0</b>	<b>4665.0</b>	<b>0.0</b>	<b>4665.0</b>
1	Fire line tracing (2 m. wide fire line over 400 m length) & inspection path	Feb/Mar	1	911.00	0	911
2	Watch & Ward including watering as per requirement	Apr/May	12	1732.00	0	1732
<b>Total 7th Year Maintenance</b>			<b>15.0</b>	<b>4665.0</b>	<b>0.0</b>	<b>4665.0</b>
1	Fire line tracing (2 m. wide fire line over 400 m length) & inspection path	Feb/Mar	1	911.00	0	911
2	Watch & Ward including watering as per requirement	Apr/May	12	1732.00	0	1732
<b>Total 8th Year Maintenance</b>			<b>15.0</b>	<b>4665.0</b>	<b>0.0</b>	<b>4665.0</b>





Sl. No.	Details of work	Preferable Period of Execution	No. of Man-days	Labour Cost (In Rs.)	Material Cost (In Rs.)	Total cost (In Rs.)
1	Fire line tracing (2 m. wide fire line over 400 m length) Sanjeetpur path	Feb/Mar	1	933.00	0	933
2	Watch & Ward including watering as per requirement	Apr/May	12	1732.00	0	1732
	<b>Total</b>		<b>13.0</b>	<b>4665.0</b>	<b>0.0</b>	<b>4665.0</b>

**9th Year Maintenance**

1	Fire line tracing (2 m. wide fire line over 400 m length) Sanjeetpur path	Feb/Mar	1	933.00	0	933
2	Watch & Ward including watering as per requirement	Apr/May	12	1732.00	0	1732
	<b>Total</b>		<b>13.0</b>	<b>4665.0</b>	<b>0.0</b>	<b>4665.0</b>

**10th Year Maintenance**

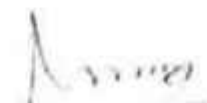
1	Fire line tracing (2 m. wide fire line over 400 m length) Sanjeetpur path	Feb/Mar	1	933.00	0	933
2	Watch & Ward including watering as per requirement	Apr/May	12	1732.00	0	1732
	<b>Total</b>		<b>13.0</b>	<b>4665.0</b>	<b>0.0</b>	<b>4665.0</b>

**Year wise Abstract of Cost Norm (showing seedling cost separately)**

Sl. No.	Year	No. person days	Labour cost @ Rs. 111/- per day (Rs.)	Material Cost (In Rs.)	Monitoring, Evaluation, Learning, Documentation and Other Contingency (5%) of (4+5+6)	Cost of Seedlings @Rs.50.31 per seedlings	TOTAL COST
1	2	3	4	5	7	6	8
1	0th year	28.5	3163.5	100	436.50	0.00	9100.0
2	1st year	23.0	2553.0	2920	327.00	11060.00	21560.0
3	2nd year	19.5	2164.5	695	240.50	10060.00	10060.0
4	3rd year	19.0	2109.0	560	211.00	0.00	6700.0
5	4th year	15.0	1665.0	0	135.00	0.00	4000.0
6	5th year	15.0	1665.0	0	135.00	0.00	4000.0
7	6th year	15.0	1665.0	0	135.00	0.00	4000.0
8	7th year	15.0	1665.0	0	135.00	0.00	4000.0
9	8th year	15.0	1665.0	0	135.00	0.00	4000.0
10	9th year	15.0	1665.0	0	135.00	0.00	4000.0
11	10th year	15.0	1665.0	0	135.00	0.00	4000.0
	<b>Total:</b>	<b>195.0</b>	<b>60645.0</b>	<b>4275.0</b>	<b>2200.0</b>	<b>12074</b>	<b>79274.0</b>

**Notes:**

1. Priority must be given to the indigenous local species available nearby to the site of plantation.
2. (a) Indigenous fruit bearing trees must be preserved in Plantation.
3. Site specific Soil conservation work like L.B.C, Gully Plugging, Staggered Terrace, Contour Trench, Graded Bank, etc. may be taken up.
4. Clean link fencing can be adopted in the CA plantation taken up outside the forest area and Bamboo strip fencing may be preferred in CA plantations taken up in degraded forest area.
5. Watering facilities for procurement of water & watering may be adopted as per the availability of water.
6. The Cost Norm of various items can be changed with the approval of the concerned RO/CF keeping the overall cost norm fixed for each Financial Year.

  
 A.P. Singh  
 A.P. Singh (Forest Division & HQ, FC Act)

# Matrix for ANR-200 Plants/ Ha

Y	Chromosome	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	Total Cost
Base Year	2000	2194	2028	2100	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020
1	2018-22	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020
2	2018-22	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020
3	2018-22	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020
4	2018-22	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020
5	2018-22	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020
6	2018-22	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020
7	2018-22	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020
8	2018-22	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020
9	2018-22	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020
10	2018-22	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020
11	2018-22	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020
12	2018-22	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020

APCC (Forest Division & N.O. FC Act)

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Base Cost Norms for Compensatory Afforestation through Aided Natural Regeneration (ANR) for 500 Seedlings/ha.

WAGE RATE Rs. 114/- PER MAN/DAY						
No.	Items of work	Probable Period of Execution	No. of Man/days	Labour Cost (In Rs.)	Material Cost (In Rs.)	Total cost (In Rs.)
<b>0th Year (Advance work) Pre-Planting Operation</b>						
1	Survey, demarcation and pillar planting	Feb/Mar	1	67.2	0	67.2
2	Preparation of Treatment Map (Digital Map)	Nov/Dec	1	13.2	2.00	15.2
3	Site preparation	Nov/Dec	2	67.2	3	70.2
4	Pre-planting operations including treatment of seeds, sowing of seeds in high density sowing, digging of pits to a nominal depth of not more than 10 cm from the field to black layer	Jan/Feb	22	1308	0	1308
5	Alignment and stacking for shipping of pits	Feb/Mar	1	31.1	0	31.1
6	Shipping of pits (40 cm x 15 cm x 40 cm) to hort and grower field	Feb/Mar	54	62.76	0	62.76
	<b>Total</b>		<b>81</b>	<b>1275.4</b>	<b>100</b>	<b>1385.4</b>
<b>1st Year/Planting Year</b>						
1	Soiling of pits after allowing the deposit soil of the pits, application of organic compounds/225g/225g/225g in each pit (one gram only)	Jan/Feb	1	12.4	2.00	14.4
2	Transportation of 10 months old polythene bag seedlings on foot/ bullock/ tractor from the nursery/70-120 m away to planting site including loading & unloading (Average load of 100 bags) & stacking the seedling of 100 bags seedling (500 nos.)	Jul/Aug	40	0	1200	1200
3	Watering polythene bag seedlings at stacking site of plantation	Jul/Aug	1	31.1	0	31.1
4	Conversion of polythene bag seedlings on foot/ bullock from the stacking site to individual deposit pits within the planting site, applying insecticide, fertilizer & planting after removing the soil with other applied materials, and covering the soil perfectly around the planted seedling	Jul/Aug	11	342.1	0	342.1
5	Cost of Fertilizer & insecticide (a) 20 kg/ha fertilizer @ 50 gms/plant @ local price 2 kg @ Rs. 10/- per kg. Rs. 200/- (b) Urea/Vermin compost/100 kg/ha/any other fertilizer @ Rs. 225.00 (c) Insecticide/ bio pesticide @ 5 gms/plant @ 2 kg @ Rs. 150/- per kg. Rs. 325/-	Jul/Aug	0	0	1500	1500
6	Canopy Replacement @ 10% (50 nos.)	Jul/Aug	1.5	36.5	0.0	36.5
7	1st weeding & Shading	Aug/Sept	3	155.5	0	155.5

Sl. No.	Items of work	Preferable Period of execution	No. of Man-days	Labor Cost (Rs.)	Material Cost (Rs.)	Total cost (Rs.)
1	Seed Sowing: 1st year sowing (Treat sowing for around the plant) 1 ha. sowing	May/June	1	2400	0	2400
2	Free line tracing & inspection path	Feb/Mar	1	933	0	933
3	Watch & Ward including watering as per requirement	Apr/May	1.7	1732	0	1732
	<b>Total</b>		<b>4.5</b>	<b>12900.5</b>	<b>7300.0</b>	<b>20200.5</b>
<b>2nd Year Maintenance</b>						
1	Transplantation of 50 seedlings from 1st year to plantation site including tracing, including & inspection - 1/2 ha. Transplant seedlings	Jul/Aug	1	2400	0	2400
2	Carbide replacement	Jul/Aug	1.7	1732	0	1732
3	Cost of Fertilizer & insecticide a) Cost of Insecticide (100 g/ha) (Thiomethoate 25% WP) 25 Kg @ Rs. 150/- per kg. @ Rs. 37.50 b) Cost of Fertilizer (100 g/ha) (NPK) 100 Kg @ Rs. 150/- per kg. @ Rs. 150.00	Jul/Aug	0	0	1500.0	1500.0
4	Free line tracing (2 m. wide free line & inspection path)	Feb/Mar	1	933	0	933
5	Watch & Ward including watering as per requirement	Apr/May	1.7	1732	0	1732
	<b>Total</b>		<b>4.4</b>	<b>6065.5</b>	<b>1500.0</b>	<b>9565.5</b>
<b>3rd Year Maintenance</b>						
1	Cost of Fertilizer a) Cost of Fertilizer (100 g/ha) (NPK) 100 Kg @ Rs. 150/- per kg. @ Rs. 150.00 b) Cost of Insecticide (100 g/ha) (Thiomethoate 25% WP) 25 Kg @ Rs. 150/- per kg. @ Rs. 37.50	Jul/Aug	0	0	1500.0	1500.0
2	Free line tracing (2 m. wide free line & inspection path)	Feb/Mar	1	933	0	933
3	Watch & Ward including watering as per requirement	Apr/May	1.7	1732	0	1732
	<b>Total</b>		<b>3.4</b>	<b>3665.0</b>	<b>1500.0</b>	<b>5165.0</b>
<b>4th Year Maintenance</b>						
1	Free line tracing (2 m. wide free line & inspection path)	Feb/Mar	1	933	0	933
2	Watch & Ward including watering as per requirement	Apr/May	1.7	1732	0	1732
	<b>Total</b>		<b>2.7</b>	<b>2665.0</b>	<b>0.0</b>	<b>2665.0</b>
<b>5th Year Maintenance</b>						
1	Free line tracing (2 m. wide free line over 300 m length)	Feb/Mar	1.2	933.00	0	933
2	Watch & Ward including watering as per requirement	Apr/May	1.7	1732.00	0	1732
	<b>Total</b>		<b>2.9</b>	<b>2665.0</b>	<b>0.0</b>	<b>2665.0</b>
<b>6th Year Maintenance</b>						
1	Free line tracing (2 m. wide free line over 300 m length)	Feb/Mar	1	933.00	0	933
2	Watch & Ward including watering as per requirement	Apr/May	1.7	1732.00	0	1732
	<b>Total</b>		<b>2.7</b>	<b>2665.0</b>	<b>0.0</b>	<b>2665.0</b>
<b>7th Year Maintenance</b>						
1	Free line tracing (2 m. wide free line over 400 m length)	Feb/Mar	1	933.00	0	933
2	Watch & Ward including watering as per requirement	Apr/May	1.7	1732.00	0	1732
	<b>Total</b>		<b>2.7</b>	<b>2665.0</b>	<b>0.0</b>	<b>2665.0</b>
<b>8th Year Maintenance</b>						
1	Free line tracing (2 m. wide free line over 400 m length) & cultural operation	Feb/Mar	1	933.00	0	933
2	Watch & Ward including watering as per requirement	Apr/May	1.7	1732.00	0	1732
	<b>Total</b>		<b>2.7</b>	<b>2665.0</b>	<b>0.0</b>	<b>2665.0</b>
<b>9th Year Maintenance</b>						
1	Free line tracing (2 m. wide free line over 400 m length)	Feb/Mar	1	933.00	0	933
2	Watch & Ward including watering as per requirement	Apr/May	1.7	1732.00	0	1732
	<b>Total</b>		<b>2.7</b>	<b>2665.0</b>	<b>0.0</b>	<b>2665.0</b>
<b>10th Year Maintenance</b>						
1	Free line tracing (2 m. wide free line over 300 m length)	Feb/Mar	1	933.00	0	933
2	Watch & Ward including watering as per requirement	Apr/May	1.7	1732.00	0	1732
	<b>Total</b>		<b>2.7</b>	<b>2665.0</b>	<b>0.0</b>	<b>2665.0</b>

**Year wise Abstract of Cost Norm (showing seedling cost separately)**

Sl. No.	Items of work	Period of Period of	No of Man-days	Labour cost (Rs.)	Material Cost (Rs.)	Total cost (Rs.)	Total cost (Rs.)
		10/10/2018 to 10/10/2019					
1	2	3	4	5	6	7	8
1	1000 sq.m	11	12750.00	1000.00	13750.00	13750.00	13750.00
2	1000 sq.m	12	12750.00	1000.00	13750.00	13750.00	13750.00
3	1000 sq.m	13	12750.00	1000.00	13750.00	13750.00	13750.00
4	1000 sq.m	14	12750.00	1000.00	13750.00	13750.00	13750.00
5	1000 sq.m	15	12750.00	1000.00	13750.00	13750.00	13750.00
6	1000 sq.m	16	12750.00	1000.00	13750.00	13750.00	13750.00
7	1000 sq.m	17	12750.00	1000.00	13750.00	13750.00	13750.00
8	1000 sq.m	18	12750.00	1000.00	13750.00	13750.00	13750.00
9	1000 sq.m	19	12750.00	1000.00	13750.00	13750.00	13750.00
10	1000 sq.m	20	12750.00	1000.00	13750.00	13750.00	13750.00
11	1000 sq.m	21	12750.00	1000.00	13750.00	13750.00	13750.00
Total		2150	27000.00	10500.00	37500.00	37500.00	37500.00

Notes:

1. Priority work for good to the indigenous forest species and the work to be done in the plantation.
2. The work to be done in the plantation to be done in the plantation.
3. The work to be done in the plantation to be done in the plantation.
4. The work to be done in the plantation to be done in the plantation.
5. The work to be done in the plantation to be done in the plantation.
6. The work to be done in the plantation to be done in the plantation.

APCCF (Forest Division & HQ, FC, AC)



Matrix for Model-II A (ANR-500 Plants/ Ha)

Sl. No.	Commence plant year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	XI	Total Cost
Year No.	13400	48872	12318	8800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800
1	2003-22	13400	48872	12318	8800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	136798
2	2003-23	13400	48872	12318	8800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	142804
3	2003-24	13400	48872	12318	8800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	150051
4	2003-25	13400	48872	12318	8800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	157554
5	2003-26	13400	48872	12318	8800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	165433
6	2003-27	13400	48872	12318	8800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	173705
7	2003-28	13400	48872	12318	8800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	182390
8	2003-29	13400	48872	12318	8800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	191510
9	2003-30	13400	48872	12318	8800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	201096
10	2003-31	13400	48872	12318	8800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	211141

APCCF (Forest Division & NO. EC ACT)



Author's Present Address:

[illegible]

Nov 2009

AdCTF (Farnesyl Diphosphate Synthase, FCS, AC11)







17

Quack

AFCCF (Forest Division &amp; NO. FC Act)



**Watering Model M-1**  
**Watering provision to CA Plantations**

Water system with Bore well (1 system for 5 Ha Plantation) fitted with Drop system. Wage rate of Rs.111/-  
 Year of Installation (0th Year)

1. Cost of Bore well	1,50,000/-	
2. Installation of Solar pump & other system	3,00,000/-	
3. Cost of 2.5 HP submersible motor with accessories	50,000/-	
4. Water Storage tank/ flexible pipe	10,000/-	
5. Cost of laying Drop system including all accessories, fittings etc. @Rs. 225/457	3,02,457/-	
<b>Total</b>	<b>8,12,457/-</b>	
6. Cost of Water & electricity per Ha (Rs.12,431.2/-) x 5 = 1,50,396/-		1,50,396/-
7. No. machines engaged		0
<b>Total</b>		<b>0</b>
<b>2nd Year Watering</b>		
8. Maintenance of system @ 2% of initial cost of installation		8,174/-
<b>Total</b>		<b>8,174</b>
<b>3rd Year Watering</b>		
9. Maintenance of system @ 2% of initial cost of installation		8,174/-
<b>Total</b>		<b>8,174</b>
<b>4th Year Watering</b>		
10. Maintenance of system @ 2% of initial cost of installation		8,174/-
<b>Total</b>		<b>8,174</b>
<b>5th Year Watering</b>		
11. Maintenance of system @ 2% of initial cost of installation		8,174/-
<b>Total</b>		<b>8,174</b>

**Abstract**

Sl. No.	Year	No. person days	Labour cost @ Rs. 111/- per day	Material Cost	Total cost (Rs.)
1	0th year	0	0.00	16,14,000.00	16,14,000.00
2	1st year	0	0.00	0.00	0.00
3	2nd year	0	0.00	81,740.00	81,740.00
4	3rd year	0	0.00	81,740.00	81,740.00
5	4th year	0	0.00	81,740.00	81,740.00
6	5th year	0	0.00	81,740.00	81,740.00
<b>Total:</b>		<b>0</b>	<b>0</b>	<b>196,102</b>	<b>1,96,102</b>

Matrix for Watering W1 (Solar Borewell) fitted with Drip System (per Ha)

S	Component Budget Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	Total Cost
1	2016-17	153485	2	8174	8174	8174	8174											
2	2017-18	153485	2	8174	8174	8174	8174											222553
3	2018-19	153485	2	8174	8174	8174	8174	32239										233766
4	2019-20	153485	2	8174	8174	8174	8174	32239										245475
5	2020-21	153485	2	8174	8174	8174	8174	32239										257184
6	2021-22	153485	2	8174	8174	8174	8174	32239										268893
7	2022-23	153485	2	8174	8174	8174	8174	32239										280602
8	2023-24	153485	2	8174	8174	8174	8174	32239										292311
9	2024-25	153485	2	8174	8174	8174	8174	32239										304020
10	2025-26	153485	2	8174	8174	8174	8174	32239										315729
11	2026-27	153485	2	8174	8174	8174	8174	32239										327438
12	2027-28	153485	2	8174	8174	8174	8174	32239										339147
13	2028-29	153485	2	8174	8174	8174	8174	32239										350856
14	2029-30	153485	2	8174	8174	8174	8174	32239										362565
15	2030-31	153485	2	8174	8174	8174	8174	32239										374274

257184 → 2.54,001.00

DSS Report is A' ready approved CA over 64,500 tfa in NIEL



# GIS based Decision Support System

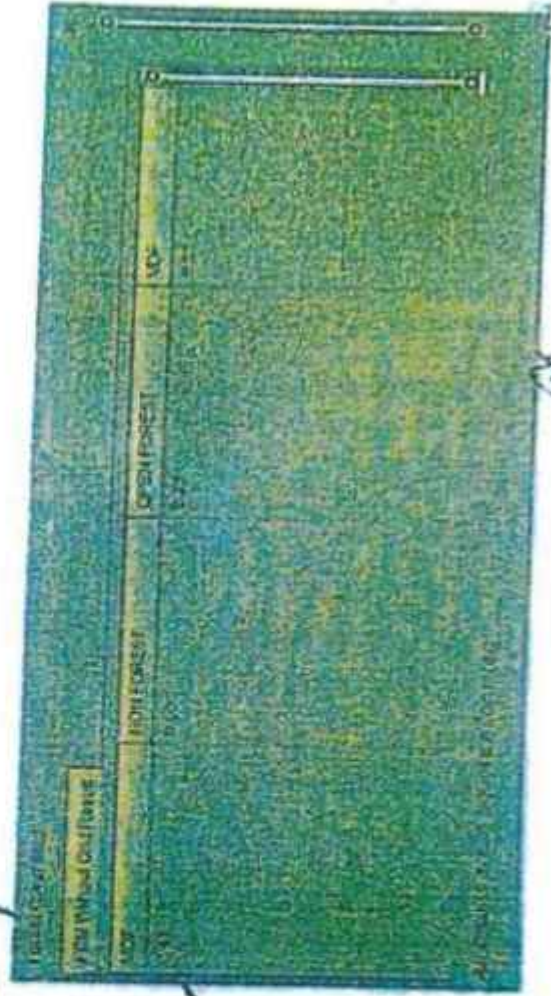


JHARKHAND



122 000 1000 (1:10,000)

Ms 110153



Divisional Forest Officer  
Rourkela Division






19/12/2019  
Divisional Forest Officer  
Bourkela Division

# **CERTIFICATE ON DSS ANALYSIS FOR CA/ACA/PCA**

This is to certify that DSS Analysis of land Identified for CA/ACA/PCA and subsequent ground truthing have been done. The outcome is as mentioned below:

Sl. No	Name of Range	Name of the Forest Block(Rf/ PRF/PF/ DPF/ Revenue Forest)	Area Identified for CA/ACA/PCA (in ha)	Classification of Identified land (in ha)								Area suitable for plantation in ha				Plantation Model (AR/ANR)
				Very Dense Forest	Moderately Dense Forest	Open Forest	Non-Forest	Scrub	Water	Total	Very Dense Forest	Moderate Forest	Open Forest	Non-Forest	Total	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	16	18	19
1	Banki	Mahupada Village	64.5 for CA	0.5	41	23	0	-	-	64.5	0.5	41	23	0	64.5	ANR Plantation @200 plants/ha. over 32.00&ANR Plantation @500 plants/ha. over 32.50 ha.
2	Banki	Mahupada Village	2.0 for CA	2.0	0	0	0	-	-	2.0	1.75	0	0	0	1.75	For Soil & Moisture Conservation work

  
 25/10/24  
 Divisional Forest Officer  
 Rourkela Forest







14	Madhapada	44(AAA)	215/788(p)	94340	6,770	0.520	Plot No. 762	Plot No. 782(p)	Plot No. 782	Plot No. 782	Plot No. 782
15	Madhapada	44(AAA)	119/789(p)	94340	6,800	0.520	Plot No. 762	Plot No. 782(p)	Plot No. 782	Plot No. 782	Plot No. 782
Total					103,260	64,500					

1. Certified that the above non-forest Government land as mentioned above is in compact patches of 4 Ha or more having adequate soil depth suitable for plantation from management point of view.
2. Certified that the above non-forest Government land found suitable for plantation is free from encroachment and encumbrances.
3. Certified that the above non-forest Government land is not covered under 4(1) Notification.
4. Certified that the above non-forest Government land is not covered under DLC report.
5. Certified that the above non-forest Government land is not covered under previously.
6. Certified that the above non-forest Government land is not covered under any M.L.P.L. areas.
7. Certified that the above plot not settled in favors of individual/ community under 1.R. Act, 2006.
8. Certified that the Status of the above plot was non forest as on 25.10.1980.
9. Certified that the above plots are not covered under any proposed reserved forest.
10. Certified that the above plots are unfit not only for agriculture, but also for other development requirements.
11. Certified that the above plots have no future potential for agrarian or industrial use.

2-829  
FORESTER  
O.A. IAS/INFA SECTION

2-829  
FORESTER  
O.A. IAS/INFA SECTION

2-829  
FORESTER  
O.A. IAS/INFA SECTION

2-829  
FORESTER  
O.A. IAS/INFA SECTION

2-829  
FORESTER  
O.A. IAS/INFA SECTION





OFFICE OF THE COLLECTOR & DISTRICT MAGISTRATE, SUNDERGARH  
(Revenue Section)

No. 1277 /Rev. VIII-9/2024/ Dt. 22.02.24

The Divisional Forest Officer  
Rourkela

Sub.

Identification of non-forest government land of 1.75 Ha for  
Compensatory Afforestation in lieu of diversion of forest land for  
mining of Iron Ore within Netrabandh Pahar (West) Iron Ore  
Block in Vill- Baldihi and Sauna.

Madam/ Sir,

With reference to the subject cited above, I am to say that  
Tahasildar, Koira has identified 1.75 Ha of non-forest government land in  
village Mahupada for compensatory afforestation in lieu of diversion of forest  
land for mining of Iron Ore within Netrabandh Pahar (West) Iron Ore Block  
in Vill- Baldihi and Sauna. The land schedule in detailed and map is  
sending herewith for taking necessary action at your end.

LAND SCHEDULE

Sl No	Mouza	Khata No.	Plot No	Kisani	Area
01	Mahupada	44 (AAA)	108/781	Pahad	1.75 Ha
Total					1.75 Ha

It is requested to fix up a date for joint verification of above  
schedule of land with Revenue Officer for checking suitability of the land for  
raising compensatory afforestation.

Further, I am to say that the land identified for C.A. will be  
transferred and mutated in favour of the State Forest Department for  
creation of C.A. immediately on receipt of stage-I approval under the FC Act  
for diversion of forest land required by the project proponent.

Encl: As above

Yours faithfully,

Addl. District Magistrate  
Sundergarh


Memo No 1280 /Rev. Dt. 22.02.2024  
Copy to Authorized Signatory M/s. Raja Traders Pvt Ltd  
(ragatradeconinerals@gmail.com) for information and necessary action

Addl. District Magistrate  
Sundergarh

SUITABILITY CERTIFICATE OF 1.75 HA OF NON FOREST GOVT LAND IN VILLAGE MAHUPADA UNDER KOIRA TAHASIL, DISTRICT SUNDERGARH IDENTIFIED/ALLOTTED FOR RAISING COMPENSATORY AFFORESTATION AGAINST THE SZ AREA OF NETRABANDH PAHAR IRON ORE BLOCK OF M/S RAGATRADE PVT LTD.

1. Certified that the above non- forest Government land identified for CA land is in compact patches of 4 Ha or more having adequate soil depth suitable for plantation from management point of view.
2. Certified that the above government land found suitable for plantation is free from encroachment and encumbrances.
3. Certified that the above government land is not covered under 4(I) Notification.
4. Certified that the above government land is not covered under covered under DLC report.
5. Certified that the above government land is not allotted previously.
6. Certified that the above government land is not covered under covered under any M.L / P. L areas.
7. Certified that the above plot not settled in favors of individual/ community under F.R. Act,2006.
8. Certified that the Status of the above plot was non-forest as on 25.10.1980.
9. Certified that the above plots are not covered under any proposed reserved forest.
10. Certified that the above plots are unfit not only for agriculture, but also for other development requirements.
11. Certified that the above plots have no future potential for agrarian or industrial use.

  
REVENUE INSPECTOR  
K BAIANG

  
FORESTER  
BANKI RANGE

  
Tehsil  
KOIRA

  
Forest Range Officer  
Banki Range

  
Divisional Forest Officer  
Rourkela Division.

**JOINT VERIFICATION OF NON-FOREST GOVT. LAND FOR COMPENSATORY AFFORESTATION IN  
RESPECT OF NETRABANDH IRON ORE BLOCK(WEST) OF RAGA TRADECON PVT LTD**

Date: - .....  
Tahsil: - Koira  
Range: - Banki Range

Sl no.	Name of Village	Khata No	Plot no	Kissam	Area as per RoR in Ha.	Area found Suitable for Plantation in Ha				Surrounded by				Area in Ha found for Unsuitable with Reason	Remarks
						AR	ANR	Total		North	South	East	West		
1	2	3	4	5	6	7	8	9							
	Mahupada	44(AAA)	108/781(p)	Pahad	7.180		ANR Plantation 400 Plant/Ha.	1.750		Plot No- 780	Plot No- 781(p)	Plot No- 781(p)	Plot No- 782	11	
Total								1.750							

1. Certified that the above non-forest Government land as mentioned above is in compact patches of 4 Ha or more having adequate soil depth suitable for plantation from management point of view.
2. Certified that the above non-forest Government land found suitable for plantation is free from encroachment and encumbrances.
3. Certified that the above non-forest Government land is not covered under 4(I) Notification.
4. Certified that the above non-forest Government land is not covered under covered under DLC report.
5. Certified that the above non-forest Government land is not allotted previously.
6. Certified that the above non-forest Government land is not covered under any M.L.P. L areas.
7. Certified that the above plot not settled in favors of individual/ community under F.R. Act,2006.
8. Certified that the Status of the above plot was non forest as on 25.10.1980.
9. Certified that the above plots are not covered under any proposed reserved forest.
10. Certified that the above plots are unfit not only for agriculture, but also for other development requirements.
11. Certified that the above plots have no future potential for agrarian or industrial use.

Divisional Forest Officer  
Bourkela Division

  
Tehsildar  
KOIRA

  
FORESTER  
BANKI SECTION

Forest Range Officer  
Banki Range

  
RANGE OFFICER  
BANKI RANGE



**JOINT VERIFICATION OF NON-FOREST GOVT. LAND FOR COMPENSATORY AFFORESTATION IN  
RESPECT OF NETRABANDH IRON ORE BLOCK(WEST) OF RAGA TRADECON PVT LTD**

Date: - .....

Tahsil: - Koirā

Range: - Banki Range

Sl no.	Name of Village	Khata No	Plot no	Kissam	Area as per RoR in Ha.	Area found Suitable for Plantation in Ha			Surrounded by				Area in Ha found for Unsuitable with Reason	Remarks
						AR	ANR	Total	North	South	East	West		
1	2	3	4	5	6	7	8	9	10				11	
1	Mahupada	44(AAA)	10/773(p)	Pahad	4.470			2.460	Plot No- 15, 773(p)	Plot No- 774	Plot No- 15	Plot No- 6		
2	Mahupada	44(AAA)	25/774(p)	Pahad	13.090			12.240	Plot No- 773	Plot No- 46	Plot No- 776	Plot No- 6		
3	Mahupada	44(AAA)	15/775	Pahad	10.420			10.420	Plot No- 28	Plot No- 776	Plot No- 793	Plot No- 774		
4	Mahupada	44(AAA)	15/776	Pahad	8.900			8.900	Plot No- 775	Plot No- 59	Plot No- 796	Plot No- 774		
5	Mahupada	44(AAA)	222/793	Pahad	3.620			3.620	Plot No- 6	Plot No- 37	Plot No- 35	Plot No- 6		
6	Mahupada	44(AAA)	222/794(p)	Pahad	2.110			1.550	Plot No- 777	Plot No- 780	Plot No- 37, 38	Plot No- 6		
7	Mahupada	44(AAA)	222/795(p)	Pahad	7.080		ANR plantation over 64.500 ha @ 400 seedling/ha	3.710	Plot No- 778	Plot No- 781	Plot No- 93	Plot No- 780(p)		
8	Mahupada	44(AAA)	222/796	Pahad	3.950			3.950	Plot No- 773	Plot No- 46	Plot No- 776	Plot No- 6		
9	Mahupada	44(AAA)	35/777	Pahad	4.860			4.860	Plot No- 6	Plot No- 37	Plot No- 35	Plot No- 6		
10	Mahupada	44(AAA)	38/778	Pahad	4.860			4.860	Plot No- 777	Plot No- 780	Plot No- 36, 38	Plot No- 6		
11	Mahupada	44(AAA)	93/780(p)	Pahad	4.350			2.130	Plot No- 778	Plot No- 781	Plot No- 93	Plot No- 780(p)		
12	Mahupada	44(AAA)	108/781(p)	Pahad	7.180			2.130	Plot No- 780	Plot No- 781(p)	Plot No- 781(p)	Plot No- 782		
13	Mahupada	44(AAA)	782(p)	Pahad	8.300			2.500	Plot No- 782(p)	Plot No- 788, 789	Plot No- 781	Plot No- 782(p), 109		

14	Mahupada	44(AAA)	115/788(D)	Pahad	5.270			0.530	Pilot No- 782	Pilot No- 788(D)	Pilot No- 789	Pilot No- 109	
15	Mahupada	44(AAA)	115/789(D)	Pahad	5.800			0.350	Pilot No- 782	Pilot No- 789(D)	Pilot No- 785		
	Mahupada	44(AAA)	108/781(D)	Pahad	7.180		ANK Flotation 6400 Panti/BA	1.750	Pilot No- 780	Pilot No- 781(D)	Pilot No- 782		
	Total				110.40			66.25					

1. Certified that the above non-forest Government land as mentioned above is in compact patches of 4 Ha or more having adequate soil depth suitable for plantation from management point of view.
2. Certified that the above non-forest Government land found suitable for plantation is free from encroachment and encumbrances.
3. Certified that the above non-forest Government land is not covered under 4(i) Notification.
4. Certified that the above non-forest Government land is not covered under covered under DLC report.
5. Certified that the above non-forest Government land is not allotted previously.
6. Certified that the above non-forest Government land is not covered under any M.L.P. L areas.
7. Certified that the above plot not settled in favors of individual/ community under F.R. Act,2006.
8. Certified that the Status of the above plot was non forest as on 25.10.1980.
9. Certified that the above plots are not covered under any proposed reserved forest.
10. Certified that the above plots are unfit not only for agriculture, but also for other development requirements.
11. Certified that the above plots have no future potential for agrarian or industrial use.

Forest Range Officer  
Banki Range

  
Tehsildar  
KOIRA

FORSTER  
BANK SECTION

Divisional P.O. Officer  
Gourkela Division

*Beh*  
REVENUE INSPECTOR  
K. BALANG







STATE FOREST HEADQUARTERS, ODISHA  
OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS & HoFF  
PLOT NO. GD-2/12, ARANYA BHAWAN, CHANDRASEKHARPUR  
BHUBANESWAR-751023

E-mail:- [nodal.pccfho@odisha.gov.in](mailto:nodal.pccfho@odisha.gov.in) / [nodal.pccfodisha@gmail.com](mailto:nodal.pccfodisha@gmail.com)

Memo No. 25372

OF (MGI) - 12/2023

Dated, Bhubaneswar the

28<sup>th</sup> December 2023

To

The Divisional Forest Officer  
Bonai Forest Division

Sub: Proposal for seeking prior approval of the Central Government under Section 2 (ii) of the Forest (Conservation) Act, 1980 in favour M/s Raga Tradecon Pvt. Ltd. for non-forestry use of 66.242 ha (including 2.09 ha safety zone) of forest land for Mining of Iron Ore within Netrabandha Pahar (West) Iron Ore Block in villages Baldhi and Sanua under Bonai Forest Division of Sundargarh Odisha -- Stage-I approval regarding.

Ref: Letter No.8-14/2023-FC dated 21.12.2023 of the Scientist 'D', Government of India, MoEF & CC (FC Division), New Delhi.

Enclosed, please find herewith a copy of Govt. MoEF & CC (FC Division), New Delhi letter No. 8-14/2023-FC dated 21.12.2023 of the Scientist 'D' Government of India, MoEF & CC (FC Division), New Delhi which is self-explanatory.

The financial outlay for Compensatory Afforestation Scheme over an area of 64.50 ha of Non-Forest Govt. land identified in village Mahupada under koiria Tahasil in Banki Forest Range of Rourkela Forest division pertaining to the above project has been approved by PCCF (FD & Nodal Officer, FC Act) as per approved One-time cost norm for Rs 2,22,54,100/- (Rupees two crores twenty two lakhs fifty four thousand and one hundred) only which is enclosed.

Further, the financial outlay for Additional Compensatory Afforestation Scheme over an area of 73.462 ha of Degraded Forest land identified in Mahulpada RF under Kuliposh Forest Range in Bonai Forest division to accommodate balance seedlings pertaining to the above project has been approved by PCCF (FD & Nodal Officer, FC Act) as per approved One-time cost norm for Rs 1,98,10,200/- (Rupees one crore ninety eight lakhs ten thousand and two hundred) only which is enclosed.

In this context, I am directed to request you to furnish the compliance to the conditions imposed in the above said letter through RCCI, Rourkela Circle for onward transmission to the Govt. MoEF & CC (EC Division), New Delhi and also raise demand on the user agency for payment of compensatory levies through web portal of MoEF & CC and submit the deposit particulars of the amount paid in prescribed CAMPA format along with the Stage-I compliance.

Encl-As above

Memo No. 25373

Dt 28-12-2023

Conservator of Forests (Nodal)

Copy alongwith its enclosure forwarded to the PCCF (WL) & CWI.W. Odisha, Prakruti Bhawan, Plot No. 1439, Sahced Nagar, Bhubaneswar-751007 for favour of kind information & necessary action

Memo No. 25374

Dt 28-12-2023

Conservator of Forests (Nodal)

Copy alongwith its enclosure forwarded to the RCCI, Rourkela Circle for information & necessary action

Memo No. 25375

Dt 28-12-2023

Conservator of Forests (Nodal)

Copy alongwith its enclosure forwarded to the DFD, Rourkela Forest division for information & necessary action

Memo No. 25376

Dt 28-12-2023

Conservator of Forests (Nodal)

Copy alongwith the financial outlay forwarded to the Vice-President, M's Raga Tradecon Pvt. Ltd. 1st floor, Shyam Residency, Flat No.101, Near Jharpada Jail, Bhubaneswar-751006 for information and necessary action with reference to Letter No. 8-14/2023-FC dated 21-12-2023 of the Scientist 'D', Government of India, MoEF & CC (EC Division), New Delhi

Conservator of Forests (Nodal)

Government of India  
Ministry of Environment, Forest and Climate Change  
(Forest Conservation Division)

\*\*\*\*\*

Indira Paryavaran Bhawan,  
Jor Bagh Road, Aliganj  
New Delhi - 110003

Dated: 21<sup>st</sup> December, 2023

To

The Addl. Chief Secretary (Forests)  
Government of Odisha,  
Bhubaneswar

Sub: Proposal for seeking prior approval of the Central Government under Section 2 (ii) of the Forest (Conservation) Act, 1980 in favour of M/s Raga Tradecon Pvt. Ltd. for non-forestry use of 66.242 (including 2.09 ha safety zone) ha of forest land for Mining of iron ore within Netrabandha Pahar (West) Iron Ore Block in villages Baldini and Sanua under Bonal Forest Division of Sundargarh District of Odisha (Online proposal No. FP/OR/MIN/153549/2022).

Madam/Sir,

I am directed to refer to the State Government of Odisha's letter No. FE-DIV-FLD-0028-2023-10F (Cons) 20/2023- 5713/FE&CC dated 28.03.2023, and additional information submitted vide No. 13392/9F(MG)-12/2023 dated 04.07.2023 and 22593/9F (MG)- 12/2023 dated 18.11.2023 on the above subject seeking prior approval of the Central Government in accordance with Section-2 of the Forest (Conservation) Act, 1980. The proposal was considered by the Advisory Committee (AC) in its meeting held on 29.11.2023 and to say that the proposal has been examined by the Advisory Committee constituted by the Central Government under Section - 3 of the aforesaid Act.

2. After careful examination of the proposal of the State Government and on the basis of the recommendations of the Advisory Committee, and approval of the same by the competent authority of the MoEF&CC, New Delhi, the Central Government hereby accords '*in-principle*' approval under Section - 2 of the Forest (Conservation) Act, 1980 in favour of M/s Raga Tradecon Pvt. Ltd. for non-



forestry use of 66.242 (including 2.09 ha safety zone) ha of forest land for Mining of iron ore within Netrabandha Pahar (West) Iron Ore Block in villages Baldini and Sanua under Bonal Forest Division of Sundargarh District of Odisha subject to fulfillment of the following conditions:

1. Legal status of the diverted forest land shall remain unchanged;
2. **Compensatory Afforestation:**
  - a. The User Agency shall transfer the cost of raising and maintaining the compensatory afforestation as per the approved CA Scheme at the current wage rate in consultation with State Forest Department in the account of CAMPA of the concerned State through online portal;
  - b. The land identified for raising Compensatory Afforestation shall be notified by the State Government as RF under Section-4 or PF under Section-29 of the Indian Forest Act, 1927 or under the relevant Section (s) of the local Forest Act, as the case may be, before the Stage-II approval;
  - c. The cost of survey, demarcation and erection of permanent pillars, if required on the identified CA land, shall be deposited in advance with the Forest Department by the user agency. The CA will be maintained for 10 years. The scheme may include afforestation of indigenous species with appropriate provision for anticipated cost increase for works scheduled for subsequent years;
  - d. The compensatory afforestation over non-forest land, equal in extent to the forest land being diverted i.e. 66.242 ha, shall be raised by the State Forest Department at the project cost within three years from the date of grant of Stage - II approval;
  - e. Afforestation on degraded forest land to be selected elsewhere, measuring one and a half times the area under safety zone, shall also be done at the project cost under the supervisions of the State Forest Department and afforestation will be done within three years from the date of Stage-II clearance and maintained thereafter in accordance with the approved Plan in consultation with the State Forest Department;
  - f. User agency either himself or through the State Forest Department shall undertake gap planting and soil & moisture conservation activities to restock and rejuvenate the degraded open forests (having crown density less than 0.40), if any, located in the area within 100 meter from outer perimeter of the mining lease. The plan for plantation and SMC activities will be prepared and submitted to MoEF &CC before Stage-II

Clearance;

- g 25% of the CA cost additionally will be spent towards soil and moisture conservation activities in the proposed CA area as per site requirement and deposited in CAF;

3. NPV:

- a The User Agency shall transfer the funds towards the cost of Net Present Value (NPV) of the forest land being diverted under this proposal from the User Agency as per the orders of the Hon'ble Supreme Court of India dated 28.03.2008, 24.04.2008 and 09.05.2008 in Writ Petition (Civil) No. 202/1995 and the guidelines issued by this Ministry vide its letter No. 5-3/2007-FC dated 06.01.2022 read with 22.03.2022 through online portal of CAMPA account of the State Concerned;
  - b At the time of payment of the Net Present Value (NPV) at the present rate, the user agency shall furnish an undertaking to pay the additional amount of NPV, if so determined, as per the final decision of the Hon'ble Supreme Court of India;
4. The CA area has been provided over 64.152 ha NFL; therefore, the State Govt. shall ensure that the equivalent non-forest land to the extent of the forest land being diverted will be provided. Details of the NFL along with the KML will be provided at the time of the submission of the compliance of the Stage-I.
5. Transportation of ore shall be as per the recommendation in the report submitted by CSIR-NEERI;
6. A holistic transportation plan shall be prepared by the State Govt. aiming to have minimum impact in the landscape. The same shall be implemented. Transportation of ore should be as far as possible through common conveyor belt, slurry pipeline, railways, etc. Transportation of ore through road should be minimized in a time bound manner;
7. An Oversight Committee shall be constituted under the Chairmanship of the DDGF (Central) RO Bhubaneswar for 10 years who will monitor and review the compliance of the conditions stipulated in the approval for these five mines [namely- 1. Netrabandha Pahar Iron Ore Block (area 112.621 ha, 2. Netrabandha Pahar (West) area 66.242 ha), 3. Laserda Pacheri Manganese & Iron Ore Block (area 94.351 ha), 4. Kalmang West (Northern Part) Block for Iron Ore Mines Iron Ore Block (Area 42.608 ha) and 5. Guali Opencast Iron Ore Mines (area 194.683 ha)] twice a year and submit their yearly report to this Ministry in the month of December. This Oversight Committee shall consist following members and logistics of this



*Committee shall be borne by State Government at the cost of UAs.*

- a. DDGF (Central) – Regional Office Bhubaneswar- Chairman.
- b. One Representative from IIFM Bhopal.
- c. One Representative from WII Dehradun.
- d. One Representative from ICFRE.
- e. One Representative from NEERI.
- f. One expert in Geology.
- g. Two other experts nominated by MoEF&CC.

*The recommendation made by the said committee shall be considered by the Ministry and if agreed the same shall be binding on the UAs.*

8. *Integrated Regional Wildlife Conservation Plan shall be prepared for 10 years covering the forest Division of Sundargarh, Jharsuguda and Keonjhar Districts at the cost of UA. The works shall be executed as per APO and the regional plan shall have site/species specific wildlife sub plans/prescriptions;*
9. *A Bio diversity Conservation Plan for this entire landscape shall also be prepared by the State Govt at the cost of UA.*
10. *Soil and moisture conservation measures shall be undertaken in and around 10 KM radius of the mining lease areas at project cost.*
11. *The conditions stipulated in EC should be strictly implemented and monitored.*
12. *Compensatory levies to be realized from the User Agency under the project shall be transferred/ deposited, through e-challan, in to the account of CAMPA pertaining to the State concerned through e-portal (<https://parivesh.nic.in/>);*
13. *The KML files of diverted area, the CA areas, the proposed SMC treatment area and the WLMP area shall be uploaded on the e-Green watch portal with all requisite details prior to Stage-II approval;*
14. *Following activities, as per approved plan / schemes, shall be undertaken in the lease area by the User Agency under the supervision of the State Forest Department. Approved scheme/plan shall be submitted to the Ministry along with compliance of Stage-I approval:*
  - a. *Mitigative measures to minimize soil erosion and choking of stream shall be implemented within a period of three years with effect from the issue of Stage-II clearance in accordance with the approved Plan in consultation with the State Forest Department.*
  - b. *Planting of adequate drought hardy plant species and sowing of seeds, in the appropriate area within the mining lease to arrest soil erosion in accordance with the approved scheme;*



- c. Construction of check dams, retention toe walls to arrest sliding down of the excavated material along the contour in accordance with the approved scheme.
  - d. Stabilize the overburden dumps by appropriate grading/benching, in accordance with the approved scheme, so as to ensure that angles of repose at any given place is less than 28°; and
15. **Safety Zone Management:** Following activities, at project cost, shall be undertaken by the user agency for the management of safety zone as per relevant guidelines issued by the Ministry's guidelines:
- a. User agency shall ensure demarcation of safety zone (7.5-meter strip all along the inner boundary of the mining lease area), and its fencing, protection and regeneration by erecting adequate number of 6 feet high RCC boundary pillars inscribed with DGPS coordinates with barbed wire fencing and deploying adequate number of watchers under the supervision of the State Forest Department;
  - b. Boundary of the safety zone of the mining lease, adjacent to habitation/roads, should be properly fenced by the user agency;
  - c. Safety zone shall be maintained as green belt around mining lease and to ensure dense canopy in the area, regeneration shall be taken up in this area by the user agency at project cost under the supervision of the State Forest Department;
  - d. The State Government and the user agency shall ensure that safety zone is maintained as per the prescribed norms;
16. No damage shall be caused to the top-soil and the user agency will follow the top soil management plan;
17. The User Agency shall prepare a list of existing village tanks and other water bodies with GPS co-ordinates located within five km from the mine lease boundary. This list is to be duly verified by the concerned Divisional Forest Officer. The User Agency shall regularly undertake desilting of these village tanks and other water bodies so as to mitigate the impact of siltation of such tanks/water bodies. A detailed approved plan for desilting of identified ponds and water bodies to be prepared in consultation with forest department and shall be submitted to MoEF & CC before Stage-II approval;
18. The cost of felling of trees shall be deposited by the User Agency with the State Forest Department;
19. Trees should be felled in phased manner as per the requirement in the approved Mining Plan with prior permission of concerned DFO;
20. The User Agency shall undertake that afforestation of the non-mineralized virgin forest land within the mining area shall be taken up at project cost;

21. The user agency shall explore the possibility of translocation of maximum number of trees identified to be felled and shall ensure that any tree felling shall be done only when it is unavoidable and that too under strict supervision of the State Forest Department.
22. A site-specific Wildlife Management Plan shall be prepared by the State Government in consultation with the PCCF (Wildlife) for the protection and conservation of wildlife of the area. A copy of approved Plan shall be submitted to the Ministry along with the compliance of Stage-I approval. Entire cost of implementation of the provisions of the Wildlife Management Plan shall be deposited into the account of CAMPA of the State;
23. State Government shall complete settlement of rights, in term of the Scheduled Tribes and Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, if any, on the forest land to be diverted and submit the documentary evidence, along with compliance of Stage-I approval, as prescribed by this Ministry's letter No. 11-9/1998-FC (PL) dated 03.08.2009 read with 05.07.2013, in support thereof;
24. The User Agency shall undertake that user agency and the State Forest Department shall create and maintain from funds to be provided by the user agency alternate habitat/ home for the avifauna, whose nesting trees are to be cleared in this project as per the plan duly approved by the Principal Chief Conservator of Forests (Wildlife) and the Chief Wildlife Warden Odisha. Bird nests artificially made out of eco-friendly materials shall be used in the area, including forest area and human settlements, adjoining the forest area being diverted for the project;
25. The User Agency shall undertake that the project authority needs to take up works for construction and cleaning of garland drains, stabilizing retaining walls, proper terracing of OB dumps and checking gully formation resulting in soil erosion;
25. The User Agency shall undertake that plants which are having lowest translocation factor can be preferred under afforestation on the OB dumps and fruit trees to be avoided in planting during biological stabilization of OB dumps;
27. The User Agency shall undertake that prevention of fall of wild animals into mining pit by fencing the open pit area;
28. The User Agency shall undertake that the angle of repose in OB dumps to be maintained to ensure stability and safety;
29. The User Agency shall undertake that vetiver grass can be planted at the lower reaches of the dump to bind the soil and prevent soil erosion giving



better stability to the dump;

30. The User Agency shall undertake mining in a phased manner after taking due care for reclamation of the mined over area. The concurrent reclamation plan as per the approved mining plan shall be executed by the User Agency from the very first year, and an annual report on implementation thereof shall be submitted to the Nodal Officer, Forest (Conservation) Act, 1980, in the concerned State Government and the concerned Regional Office of the Ministry. If it is found from the annual report that the activities indicated in the concurrent reclamation plan are not being executed by the User Agency, the Nodal Officer or the concern Addl. Principle Chief Conservator of Forests (Central) may direct that the mining activities shall remain suspended till such time, such reclamation activities area satisfactorily executed;
31. The User Agency shall comply with the Hon'ble Supreme Court order on re-grassing, and re-grass the mining area and any other areas which may have been disturbed due to mining to restore them to a condition which is fit for growth of fodder, flora, fauna, etc. in a timely manner;
32. Period of diversion of the said forest land under this approval shall be for a period co-terminus with the period of the mining lease proposed to be granted under the Mines and Minerals (Development and Regulation) Act, 1957, as amended and the Rules framed there-under;
33. The User Agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, if required;
34. No labour camp shall be established on the forest land and the User Agency shall provide fuels preferably alternate fuels to the labourers and the staff working at the site so as to avoid any damage and pressure on the nearby forest areas;
35. The boundary of the diverted forest land, mining lease and safety zone, as applicable, shall be demarcated on ground at the project cost, by erecting four feet high reinforced cement concrete pillars, each inscribed with its serial number, distance from pillar to pillar and GPS coordinates;
36. The layout plan of the mining plan/ proposal shall not be changed without the prior approval of the Central Government and the forest land shall not be used for any purpose other than that specified in the proposal;
37. The forest land proposed to be diverted shall under no circumstances be transferred to any other agency, department or person without prior approval of the Central Government;
38. No damage to the flora and fauna of the adjoining area shall be caused;
39. Any other condition that the concerned Regional Office of this Ministry may stipulate with the approval of competent authority in the interest of



conservation, protection and development of forests & wildlife; and

40. The user agency shall comply with all the provisions of the all Acts, Rules, Regulations, Guidelines, Honble Court Order (s) and NGT Order (s) pertaining to this project, if any, for the time being in force, as applicable to the project.
41. Violation of any of these conditions will amount to violation of Forest (Conservation) Act, 1980 and action would be taken as prescribed in para 1.21 of Chapter 1 of the Handbook of comprehensive guidelines of Forest (Conservation) Act, 1980 as issued by this Ministry's letter No. 5-2/2017-FC dated 28.03.2019.
42. The User Agency shall submit the annual self-compliance report in respect of the above stated conditions to the State Government, concerned Regional Office and to this Ministry by the end of March every year regularly;
43. The compliance report shall be uploaded on e-portal (<https://parivesh.nic.in/>).

3. After receipt of the compliance report on fulfilment of the conditions mentioned above, the proposal shall be considered for final approval under Section 2 of the Forest (Conservation) Act, 1980. Transfer of forest land shall not be affected till final approval is granted by the Central Government in this regard.

Yours Sincerely,

Signed by

Charan Jeet Singh

Date: 21-12-2023 12:27:08 (Charan Jeet Singh)  
Scientist 'D'

Copy to:

1. PCCF (HoFF), State Forest Department, Government of Odisha, Bhubaneswar
2. PCCF & Nodal Officer (FCA), O/o PCCF, State Forest Department, Government of Odisha, Bhubaneswar
3. DDGF (Central), Regional Office of MoEF&CC at Bhubaneswar.
4. User Agency.
5. Monitoring Cell, FC Division, MoEF&CC, New Delhi
6. Guard File

Financial Outlay for Compensatory Afforestation Scheme over an area of 64.50 ha of Non-forest land identified in Mahupada under Koiria Tahasil in Banki Forest Range of Rourkela Forest Division against 66.242 ha of forest land to be diverted for Netrabandha Pahar (West) Iron Ore Block of M/s Raga Tradecon Pvt. Ltd. of Sundargarh District as per approved One-time Cost Norm

Sl. No.	Description	Amount (Rs.)
1.	Cost of ANR Plantation @ 200 Plant per ha over 32.0 ha @ Rs.1,00,938/- per ha with 10 years maintenance	32,30,016.00
2.	Cost of ANR Plantation @ 500 Plant per ha over 32.5 ha @ Rs.1,42,904/- per ha with 10 years maintenance	46,44,380.00
3.	Cost of fencing with solar fencing with RCC pillars over 64.5 ha @ Rs.1,70,045/- per 250 RMT/ ha with 10 years maintenance	1,09,67,903.00
4.	Cost of SMC activities like staggered trenches, percolation pits, contour trench, graded earthen bund, LBCD, wire mesh LBCD, Sub-Surface Dyke and WHS as per the slope and site requirement @ Rs.37,415.00 per ha over 64.5 ha with 5 years maintenance	24,13,268.00
5.	Watering model W-1: Borewell fitted with Solar and Drip System (1 Borewell for 5 ha Plantation) a. @ Rs.42,489/- X 6 Nos. = Rs.2,54,934/- b. @ Rs.1,06,222/- X 7 Nos. = Rs.7,43,554/-	9,98,488.00
Grand Total		2,22,54,055.00 or rounded off to 2,22,54,100.00
6.	Infrastructure to be provided as per consent of the User Agency in kinds as proposed by the DFO, Rourkela Division	
	i. Supply of one Toyota Innova Crysts ZX2.4AT7STR (Pearl White) with all accessories, including RTO, insurance and other charges	

(Rupees Two Crore twenty two lakhs fifty four thousand & one hundred) only

Approved

  
Principal Chief Conservator of Forests  
Forest Diversion & Nodal Officer, FC Act  
Principal Chief Conservator of Forests  
(Forest Diversion & Nodal Officer FC Act)  
O/o. the P.C.C.F. Odisha, Bhubaneswar








Financial Outlay for Compensatory Afforestation Scheme over an area of 66.25 ha of Non-forest land identified in Mahupada under Koira Tahasil in Banki Forest Range of Rourkela Forest Division against 66.242 ha of forest land to be diverted for Netrabandha Pahar (West) Iron Ore Block of M/s Raga Tradecon Pvt. Ltd. of Sundargarh District as per matrix 2024-25 of approved One-time Cost Norm

Sl. No.	Description	Amount (Rs.)
1.	Cost of ANR Plantation @ 200 Plant per ha over 32.0 ha @ Rs.1,11,286/- per ha with 10 years maintenance	35,61,152.00
2.	Cost of ANR Plantation @ 500 Plant per ha over 32.5 ha @ Rs.1,57,554/- per ha with 10 years maintenance	51,20,505.00
3.	Cost of fencing with solar fencing with RCC pillars over 7558 RMT @ Rs.1,87,474/- per 250 RMT/ ha with 10 years maintenance (As proposed by the DFO, Rourkela Forest Division)	56,67,714.00
4.	Cost of SMC activities like staggered trenches, percolation pits, contour trench, graded earthen bund, LBCD, wire mesh LBCD, Sub-Surface Dyke and WHS as per the slope and site requirement @ Rs.41,248.00 per ha over 66.25 ha with 5 years maintenance	27,32,680.00
5.	Watering model W-I: Borewell fitted with Solar and Drip System for 22650 nos. of plants @ Rs.2,34,221/- per 1000 plants (As proposed by the DFO, Rourkela Forest Division)	53,05,105.00
6.	25% of the plantation cost towards Soil and Moisture Conservation measures in the proposed CA area as per condition No.2 (g) of in-principle approval order of the project	21,70,414.00
Grand Total		2,45,57,570.00 or rounded off to 2,45,57,600.00
7.	Infrastructure to be provided as per consent of the User Agency in kinds as proposed by the DFO, Rourkela Division	
	i. Supply of one Toyota Innova Crysts ZX2.4AT7STR (Pearl White) with all accessories, including RTO, insurance and other charges	

(Rupees Two Crore Forty Five Lakhs Fifty Seven Thousand & Six Hundred) only

Approved

  
Principal Chief Conservator of Forests  
Forest Diversion & Nodal Officer, FC Act

Principal Chief Conservator of Forests  
{Forest Diversion & Nodal Officer, FC Act}  
O/o the PCCF & HoFF, Odisha, Bhubaneswar







STATE FOREST HEADQUARTERS, ODISHA  
OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS & HoFF  
PLOT NO. GD-2/12, ARANYA BHAWAN, CHANDRASEKHARPUR  
BHUBANESWAR-751023

E-mail:- [nodal.pccfodisha@gmail.com](mailto:nodal.pccfodisha@gmail.com)

Memo No. 23606 /9F(MG) -12/2023

Dated, Bhubaneswar the 26<sup>th</sup> November'2024

To

The Divisional Forest Officer  
Bonai Forest Division

Sub: **Proposal for seeking prior approval of the Central Government under Section 2(ii) of the Forest (Conservation) Act, 1980 in favour of M/s Raga Tradecon Pvt. Ltd. for non-forestry use of 66.242 ha (including 2.09 ha safety zone) of forest land for mining of Iron Ore within Netrabandha Pahar(West) Iron Ore Block in village Baldihi and Sanua under Bonai Forest Division of Sundargarh District – Financial Outlay of CA and ACA Schemes regarding.**

Ref:- Memo No. 3554 dated 06.08.2024, 5425 dated 29.10.2024 and 5783 dated 16.11.2024 of RCCF, Rourkela Circle.

Enclosed, please find herewith a copy of approved CA & ACA Schemes alongwith its financial outlay as detailed below:-


(i) Financial outlay for Compensatory Afforestation Scheme over an area of **66.25 ha** of **Non-Forest land** identified in **village Mahupada under Koira Tahasil** in Banki Forest Range of **Rourkela Forest Division** pertaining to the above project has been approved by PCCF (FD & Nodal Officer, FC Act) as per matrix 2024-25 of approved One-time cost norm for Rs 2,45,57,600/- (Rupees two crores forty five lakhs fifty seven thousand and six hundred) only.

(ii) Financial outlay for Additional Compensatory Afforestation Scheme over an area of **73.462 ha** of **Degraded Forest land** identified in **Mahulpada RF under Kuliposh Forest Range of Bonai Forest Division** pertaining to the above project has been approved by PCCF (FD & Nodal Officer, FC Act) as per matrix 2024-25 of approved One-time cost norm for Rs 2,98,11,500/- (Rupees two crores ninety eight lakhs eleven thousand and five hundred) only.

(iii) Financial outlay for Additional Compensatory Afforestation Scheme over an area of **2.0 ha** of **Degraded Forest land** identified in **Chudia RF under Rajgangpur Forest Range of Rourkela Forest Division** pertaining to the above project has been approved by PCCF (FD & Nodal Officer, FC Act) as per matrix 2024-25 of approved One-time cost norm for Rs 19,39,600/- (Rupees nineteen lakhs thirty nine thousand and six hundred) only.

In this context, I am directed to request you to raise demand on the user agency for payment of compensatory levies through web portal of MoEF& CC and submit the deposit particulars of the amount paid in prescribed CAMPA format alongwith the Stage-I compliance.

Encl-As above

  
Deputy Conservator of Forests (Nodal)


Memo No. 23607 Dt 26.11.2024

Copy alongwith its enclosure forwarded to the RCCF, Rourkela Circle for information & necessary action with reference to his Memo No. 3554 dated 06.08.2024, 5425 dated 29.10.2024 and 5783 dated 16.11.2024.

  
Deputy Conservator of Forests (Nodal)

Memo No. 23608 Dt 26.11.2024

Copy alongwith its enclosure forwarded to the DFO, Rourkela Forest Division for information & necessary action with reference to his Memo No. 3553 dated 06.08.2024, 5424 dated 29.10.2024 and 5782 dated 16.11.2024.

  
Deputy Conservator of Forests (Nodal)

Memo No. 23609 Dt 26.11.2024

Copy alongwith its enclosure forwarded to the Authorised Signatory, M/s Raga Tradecon Pvt. Ltd., 1<sup>st</sup> Floor Shyam Residency, Flat No.101, Near Jharpada Jail, Bhubaneswar for information and necessary action.

  
Deputy Conservator of Forests (Nodal)



**RAGA TRADECON PRIVATE LIMITED**

REGD. OFFICE: G-165 EXPRESS ZONE MALL B WING MALAD (E) NORTH SIDE OF  
RANI SATI W E HIGHWAY MUMBAI 400097  
CIN NO: U51420MH1995PTC162317

Date:-18.09.2023

To,  
The Branch Manager,  
YES Bank,  
RDC Rajnagar,  
Ghaziabad-201001

Sub-REQUEST FOR RTGS/NEFT TRANSACTION CONFIRMATION FROM AC-  
003863300004523

Sir/Madam,

We are requesting you to kindly give the confirmation for the following payment details mentioned below from our account of RAGA TRADECON PVT LTD A/C-  
003863300004523

Beneficiary Name	RTGS AMOUNT	DATE & TIME	IFSC CODE	ACCOUNT NO	UTR NO.
ORISSA CAMPA	9,51,67,894.00	18.09.2023 10:48:46	UBIN0996335	1508258153576234	YESBR52023091898893017

Kindly do the needful.

For RAGA TRADECON PRIVATE LIMITED

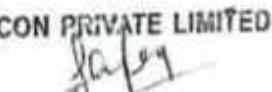
For RAGA TRADECON PRIVATE LIMITED

  
DIRECTOR

Director/ Auth. signatory



RAGA TRADECON PRIVATE LIMITED

  
Authorised Signatory

## STATEMENT OF ACCOUNT

M/S RAGA TRADECON PRIVATE LIMITED  
1ST FLOOR SHYAM RESIDENCY FLAT NO.  
101 NEAR JHARPADA JAIL  
BHUBANESWAR KHORDHA  
KHORDHA  
751006  
ODISHA  
INDIA

Branch: GHADABAD, UTTAR PRADESH  
A/C type: Freedom Fleet 100  
OD Limit: 90000000  
Unclear Amt: 0  
Sweepin: N  
Email to: ragatradecon@gmail.com

A/C Number: 003853300004523  
Customer No: 10320551  
Jt Holder 1:  
Jt Holder 2:

Period: 18-SEP-2023 To 18-SEP-2023

TXN DATE	VALUE DATE	DESCRIPTION	REFERENCE	DEBITS	CREDITS	BALANCE
18-SEP-2023	18-SEP-2023	B/F --		0.00	6,203,486.91	6,203,486.91
18-SEP-2023	18-SEP-2023	RTGS-YESBR52023091898893017- 2414920230918000101838270-ORISSA CAMPA		95,167,894.00	0.00	-88,964,407.09
<hr/>						
Opening Balance :		6,203,486.91	C			
Total Debit Amt :		95,167,894.00				
Total Credit Amt :		0.00	Dr Count : 1			
Closing Balance :		-88,964,407.09	Cr Count : 0			

\*\*\*\*\*END OF STATEMENT\*\*\*\*\*



RAGA TRADECON PRIVATE LIMITED

Authorised Signatory

## AGENCY COPY

यूनियन बैंक  
Union Bank  
of India



NEFT / RTGS CHALLAN for CAMPA Funds

Date : 16-09-2023

Agency Name.	RAGA TRADECON PRIVATE LIMITED
Application No.	58153576234
MOEF/SG File No.	8-12/2023-FC
Location.	ORRISA
Address.	503, 5th Floor, Greenland Appis, BLDG No-3, JB Nagar, Andheri East, Mumbai-400059 Maharashtra/Mumbai City
Amount(In Rs)	95167894/-

Amount in Words: Nine Crore Fifty-One Lakh Sixty-Seven Thousand Eight Hundred and Ninety-Four Rupees Only

NEFT/RTGS to be made as per following details:

Beneficiary Name:	ORRISA CAMPA
IFSC Code:	UBIN0996335
Pay to Account No.	1508258153576234 Valid only for this challan amount.
Bank Name & Address:	Union Bank Of India FCS Centre, 21/1, III Floor, Jodha Towers, Mission Road, Bengaluru-560027

\* This Challan is strictly to be used for making payment to CAMPA by NEFT/RTGS only

## BANK COPY

यूनियन बैंक  
Union Bank  
of India



NEFT / RTGS CHALLAN for CAMPA Funds

Date : 16-09-2023

Agency Name.	RAGA TRADECON PRIVATE LIMITED
Application No.	58153576234
MOEF/SG File No.	8-12/2023-FC
Location.	ORRISA
Address:	503, 5th Floor, Greenland Appis, BLDG No-3, JB Nagar, Andheri East, Mumbai-400059 Maharashtra Mumbai City
Amount(In Rs)	95167894/-

Amount in Words: Nine Crore Fifty-One Lakh Sixty-Seven Thousand Eight Hundred and Ninety-Four Rupees Only

NEFT/RTGS to be made as per following details:

Beneficiary Name:	ORRISA CAMPA
IFSC Code:	UBIN0996335
Pay to Account No.	1508258153576234 Valid only for this challan amount.
Bank Name & Address:	Union Bank Of India FCS Centre, 21/1, III Floor, Jodha Towers, Mission Road, Bengaluru-560027

\* This Challan is strictly to be used for making payment to CAMPA by NEFT/RTGS only

We have Paid the amount Rs. 95167894 Vide UTR NO. YESBR52023-091898893017 on dated 18.09.2023. KINDLY Accept the payment.

RAGA TRADECON PRIVATE LIMITED

*[Signature]*  
Authorised Signatory

*[Signature]*  
23/9/23





# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN:53420MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACTR4429D1ZW

### ANNEXURE-8

CONDITION NO.: 38

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do here by undertake to pay the additional amount of NPV, if so determined, as per the final decision of the Hon'ble Supreme Court of India.

For M/s Raga Tradecon Private Ltd

Raga Tradecon Pvt. Ltd.

*Sangram Keshari Ray*  
Authorized Signatory

(Sangram Keshari Ray)

Authorized signatory

BOUNDARY DESCRIPTION OF CA LAND AT VILLAGE MAHUPADA IN LIEU OF DIVERSION OF FOREST LAND OVER AN AREA OF 66.25 Ha. IN RESPECT OF NETRABANDHA PAHAR(W) IRON ORE BLOCK OF M/S RAGA TRADECON PVT LTD.								
Sl.No	Khata No	Plot No	Kissam	Area in Ha	North	South	East	West
1	44	773	Pahad	2.46	Plot No-15(P)	Plot No-774(P)	Plot No-15	Village Boundary
2		775	Pahad	10.42	Plot No-28(P)	Plot No-776	Plot No-793	Plot No-15(P)
3		776	Pahad	8.9	Plot No-775	Plot No-66(P)	Plot No-796(P)	Plot No-774
4		777	Pahad	4.86	Village Boundary	Plot No-778 & 37	Plot No-35	Village Boundary
5		793	Pahad	3.62	Plot No-28(P)	Plot No-796	Plot No-794	Plot No-775
6		794	Pahad	1.85	Plot No-28(P)	Plot No-795	Plot No-28(P)	Plot No-773 & 15(P)
7		795	Pahad	3.71	Plot No-794	Plot No-207(P)	Plot No-795(P)	Plot No-796
8		796	Pahad	3.95	Plot No-793	Plot No-207(P)	Plot No-795	Plot No-776
9		778	Pahad	4.86	Plot No-777	Plot No-780	Plot No-39	Plot No-779
10		108/781/P	Pahad	2.13	Plot No-93	Plot No-781(P)	Plot No-108	Plot No-774
11		780	Pahad	2.13	Plot No-778	Plot No-781	Plot No-93	Plot No-780(P)
12		108/781/P	Pahad	1.75	Plot No-778	Plot No-781	Plot No-108	Plot No-781
13		782	Pahad	2.5	Plot No-782(P)	Plot No-788(P) & 789(P)	Plot No-781(P)	
14		789	Pahad	0.35	Plot No-781(P) & 782(P)	Plot No-789(P)	Plot No-789(P)	Plot No-788(P)
15		788	Pahad	0.52	Plot No-782	Plot No-788(P)	Village Boundary	Plot No-789(P)
16		774	Pahad	12.24	Plot No-773 & 15	Plot No-46(P)	Plot No-776(P) & 29 & 30	Village Boundary, Plot No-776(P) & 29 & 30
		TOTAL		66.25				



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN:51420MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1ZW

### ANNEXURE-10

CONDITION NO.: 5

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do here by undertake that transportation of ore shall be strictly complied with the recommendation in the report submitted by CSIR-NEERI.

For M/s Raga Tradecon Private Ltd

  
Raga Tradecon Pvt Ltd

(Sangram Keshari Ray)  
Authorized Signatory

Authorized signatory





# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

ON-51420MH1995FTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACC84429D1ZW

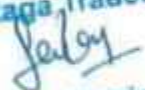
### ANNEXURE-11

CONDITION NO.: 6

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake that we will carry out the transportation plan prepared by the State Govt. aiming to have minimum impact in the landscape.

For M/s Raga Tradecon Private Ltd

  
Authorized Signatory  
(Sangram Keshari Ray)

Authorized signatory



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN:51420MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTN: 21AACCR4429D1ZW

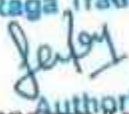
### ANNEXURE-12

CONDITION NO.: 7

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake that we will submit the compliance to the stipulated condition of approval for review of the committee constituted under the Chairmanship of the DDGF (Central) RO Bhubaneswar for 10 years . We also further undertake that we will abide by the recommendation of the committee.

For M/s Raga Tradecon Private Ltd

  
Authorized Signatory  
(Sangram Keshari Ray)

Authorized signatory



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GSTIN: 21AAUCR4429D1ZW

### ANNEXURE-13

CONDITION NO.: 8

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do here by undertake that we will bear the proportionate cost as will be demanded by the State Forest Department for implementation of Integrated Regional Wildlife Conservation Plan for 10 years covering the forest Division of Sundargarh, Jharsuguda and Keonjhar Districts.

For M/s Raga Tradecon Private Ltd

Raga Tradecon Pvt. Ltd.  


(Sangram Keshari Ray)  
Authorized Signatory

Authorized signatory





# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN: 51420MH1995PTC162917

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1Z/W

### ANNEXURE-14

CONDITION NO.: 9

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do here by undertake that we will bear the proportionate cost for Bio-diversity Conservation Plan for this entire landscape prepared by the State Government.

For M/s Raga Tradecon Private Ltd

Raga Tradecon Pvt. Ltd.

(Sangram Keshari Ray)

Authorized signatory

## SCHEME

OF

### SOIL AND MOISTURE CONSERVATION MEASURES IN AND AROUND 10KM RADIUS

in compliance to Condition No – 10 of  
Stage-I Forest Clearance grant Order  
Vide F. No. 8-14/2023 FC dated 21.12.2023  
Of MoEF& CC, Govt. of India, New Delhi

### NETRABANDHA PAHAR (WEST) IRON ORE BLOCK OF M/S RAGA TRADECON PRIVATE LIMITED IN

BONAI FOREST DIVISION  
OF SUNDARGARH DISTRICT, ODISHA

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4	Location Plan of the Project area, Proposed LBCD and Check Dams (Scale:1:50,000)	4
5	Topomap showing the 10 Km radius of 05 mines in Keonjhar and Sundargarh district, Odisha (Scale:1:80,000)	5

**SCHEME FOR SOIL AND MOISTURE CONSERVATION MEASURES IN AND AROUND 10KM RADIUS OF NETRABANDHA PAHAR (WEST) IRON ORE BLOCK OF M/S RAGA TRADECON PRIVATE LIMITED IN BONAI FOREST DIVISION OF SUNDARGARH DISTRICT, ODISHA**

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**1. INTRODUCTION**

The Govt of Odisha issued notice inviting tender dated 07.7.2021 for commencement of auction process for grant of mining lease of Netrabandha Pahar (West) Iron Block located in Koida Tahasil of Sundargarh District, Odisha as per provisions of Mines & Minerals (Development & regulation) Act 1957 & Mineral (Auction) Rules, 2015. In this process of e-auction M/s Raga Tradecon Pvt. Ltd was declared as the preferred bidder under Rule 9(9) (iii) of Rule 10(A) of Auction rules.

Further the company made payment through treasury challan against 1<sup>st</sup> installment. Accordingly Govt. of Odisha issued Letter of Intent (LOI) vide Letter No. 8772/IV (B) SM-53/2021/SM, Bhubaneswar of 28.10.2021 under Rule 10(2) of Mineral Auction Rules 2015 in favour of M/s Raga Tradecon Pvt. Ltd for growth of mining lease for Netrabandha Pahar (West) Iron Block over an area of 74.370ha near Baldia Village, Koida Tahasil of Sundargarh District, Odisha for a period of 50 years (Annexure-1).

**2. ABOUT THE COMPANY**

M/s Tradecon Pvt. Ltd. is incorporated under company Act, 1956 vide certificate of incorporation No. 21- 73114 on 24.07.1995 and its identity No is U51420MH 1995 PTC 162317 having its registered office in the State of Maharashtra(Mumbai) at 503, 5<sup>th</sup> Floor , Green land Appts, BLDG No. 3 , JB Nagar Andheri East Mumbai - 400059. The Company deals business as Manufacturers, buyers, sellers, suppliers, traders, exporters mineral and metals etc.

- i. As per terms and conditions of LOI, the applicant has to fulfill the provisions of all Acts and rules as applicable to the project and mainly obtain forest clearance under FC (Act), 1980. Accordingly, M/s Tradecon Pvt. Ltd. applied for diversion of forest land 66.242 ha including SZ area of 2.090ha (49.411ha of PRF, 8.032ha of Revenue Forest and 8.799ha of DLC Forest) and Non-Forest land of 8.128ha i.e., total area of the project being 74.370ha is covered in this project.

- ii. The company has obtained all consents, approvals, permits, NOC required for commencement of mining operations indicated below.

Name of the statutory clearances	Authority from which clearances to be obtained	Project status	Remarks
Approval of Mining Plan	Indian Bureau of Mines, GOI	Approved vide No.	Soft Copy enclosed - Annexure-2
Forest Clearance	Ministry of Environment, Forest & Climate Change, GOI	In Principle approval accorded	Copy enclosed Annexure -3
Environment Clearance	Ministry of Environment, Forest & Climate Change, GOI/SEIAA	EC approved	Copy enclosed Annexure-4
Surface Right	Collector, Sundargarh	Documents to be provided	
Consent to Establish	State Pollution Control Board, Odisha	Documents to be provided	
Consent to Operate	State Pollution Control Board, Odisha	Documents to be provided	

- iii. Forest Diversion Proposal under FC Act, 1980 was submitted as per provisions for diversion of forest land of 66.242ha including 2.090ha of Safety zone.

The proposed land use pattern is as follows:

PROPOSED LAND USE PATTERN							
Sl No	Particulars	PRF (Ha)	REV. FOREST (Ha)	DLC LAND (Ha)	Total Forest Land (Ha)	Non-forest (Ha)	Total area (Ha)
1	Mining including mines road and Mobile mineral processing unit	32.716	0.537	8.424	41.677	2.143	43.820
2	Waste dump with safeguard measures like retaining wall, garland drain and settling pond, check dam etc.	7.403	0.000	0.000	7.403	0.000	7.403
3	Mineral stacking yard / Mineral Storage	4.035	0.000	0.000	4.035	0.128	4.163
4	Top Soil	0.272	0.000	0.000	0.272	0.000	0.272
5	Road	2.519	0.205	0.000	2.724	0.247	2.971
6	Infrastructure (Office, Magazine, work shop, fuel station, parking plaza & Temp. Top Soil yard etc.)	0.000	0.000	0.000	0.000	1.652	1.652
7	Green Belt / Grass Turfing	0.000	1.315	0.000	1.315	2.143	3.458
8	Undisturbed Land	0.000	0.000	0.000	0.000	0.903	0.903
9	Entry and exit within safety zone area	0.000	0.000	0.000	0.000	0.010	0.010
	Sub Total	47.945	7.883	8.424	64.252	7.226	71.478
10	Safety zone around Mi. boundary	1.505	0.149	0.375	2.029	0.902	2.931
	Grand Total	49.450	8.032	8.799	66.281	8.128	74.409



- iv. The Mineral resources as per approved mining plan is as follows (Soft copy enclosed).

**MINERAL RESOURCES AS PER MINING PLAN**

Classification	Code	Quantity			Grade	
		Forest	Non-Forest	Total	Forest	Non-Forest
A. Mineral Reserve		14563715.7	2710356.4	17274072.2	+45%F	+45%F
		51	8	3	e	e
1. Proved Mineral Reserve (A)	111	Nil	Nil	Nil	Nil	Nil
2. Probable Mineral Reserve (A)	121	Nil	Nil	Nil	Nil	Nil
3. Probable Mineral Reserve (A)	122	1265016	264112	15291289	+55%F	+55%F
		0.234	8.80	034	e	e
		1913555	69227.6	1982783	45-	45-55%
		516	8	198	55%Fe	Fe
B. Remaining Resources		324525.6	429295.4	753821	+45%F	+45%F
					e	e
1. Feasibility Mineral Resource (B)	211	Nil	Nil	Nil	Nil	Nil
2. Prefeasibility Mineral Resource (B)	221	Nil	Nil	Nil	Nil	Nil
3. Prefeasibility Mineral Resource (B)	222	263309.12	298443.08	561752	+55%F	+55%F
				2	e	e
		41216.48	130852.32	172068	45-	45-
				8	55%Fe	55%Fe
4. Measured Mineral Resource (B)	331	Nil	Nil	Nil	Nil	Nil
5. Indicated Mineral Resource (B)	332	Nil	Nil	Nil	Nil	Nil
6. Inferred Mineral Resource (B)	333	Nil	Nil	Nil	Nil	Nil
7. Reconnaissance Mineral Resource (B)	334	Nil	Nil	Nil	Nil	Nil
Total Mineral Resources (A+B)		14888241.4	3139652	18027893.0	+45%F	+45%F
					e	e

**3. LOCATION OF THE PROJECT**

- The allowed area of the project i.e. Netrabandha Pahar (West) Iron ore block of 74.370ha is shown in Topo sheet (1:50000) Plate: 4)
- GPS location: The applied area find place in Toposheet No. F45N1 (73-G) and bounded by 21° 52' 58.66.927" N to 21° 52' 53.367" N, Longitude: 85° 16' 46.84.900"E to 85° 17' 15.901"E
- Stage-I approval (In principal approval) under Sec 2 of the Forest (Conservation) Act, 1980 vide their No. 8-14/2023 FC dated 21.12.2023 (Copy enclosed at Annexure-3) in favour of M/s Raga Tradecon Pvt. Ltd. for Non forest use of 66.242(including 2.09ha of Safety Zone) of forest land

for Mining of Iron Ore within Netrabandha Pahar (West) Iron Ore block and various stipulated conditions have been laid down. The present scheme is w.r.t condition No. 10 which relates to **"Soil & Moisture Conservation measures shall be undertaken in and around 10km radius of the Mining lease area at the Project cost"**

Before describing the SMC measures, the following informations are of paramount importance relating to the area involved.

#### **a) TOPOGRAPHY**

The above allotted block under study is a highly rugged terrain, with elongated hills trending ENE-WSW direction, low mounds and narrow valleys. The highest elevation of ridges in the area is 690 m above MSL forming the ridge. Lowest elevation is 585 m above MSL which forms the valley floor in this block.

#### **b) SOIL TYPE**

The low-lying areas are filled up with alluvial soil which is ferruginous in nature and reddish brown in colour. In most of the area the soil is moderately coarse in nature whereas it is loamy in the cultivated land. Since the area is devoid of any perennial nala or river, the soil has been deposited in the valley area mostly from the low order nala or from the slope wash of the nearby hillock occupied by the iron ore group of rocks. The soil group found is of clay, fine sand, coarse, sand and gravel. The soil class composition includes clay, sandy, sandy loam, loamy sand, Silt loam, silt clay, sandy clay, clay loam. PH value of a soil solution is due to excess of hydrogen ions and Hydroxyl ions which determines acidity or alkalinity of a soil.

#### **c) CLIMATE**

The mining lease area lies in tropical region where climate is characterized by an oppressively hot summer and cool winter. Summer is typically from April to July when monthly temperature ranges from a maximum of 48 °C during daytime to a minimum of 15° C at night time. Winter is from November to February when the maximum temperature during daytime goes to 37°C and minimum temperature at night- becomes as low as 8°C. The average annual rainfall as recorded at IMD observatory at Keonjhar is 1325 mm (average data for last 10 years).

#### **d) DRAINAGE**

The dendritic type of drainage pattern is generally displayed by the area. Because of the hilly topography, there is a perennial nala i.e. Teherei Nala found in the western part outside of the area and Khjuridihi Nala found in the southern part outside of the area. Suna nadi is a perennial river flowing from North to South outside the area. The drainage channel originating in the Northern part of the area traverses through the area towards N-S.

Epipheral streams originate from the mid contours of Khajuridihi PRF forming Suna Nadi with many perennial nallahs. Teherei nalla is a tributary to Suna Nadi in the north and Khajuridihi nalla flowing in the South-eastern side of the natural drainage system. The proposed mining site is about 1.2 to 2.5 kms from the natural streams.

#### **e) EXISTING VEGETATION**

The forest growth available in the area resembles Northern Tropical Dry Deciduous Forest. Sal (*Shorea robusta*) is the most dominant species with Mahul (*Madhuca indica*), Asan (*Terminalia tomentosa*), Char (*Buchanania lanjan*), Kendu (*Diospyros melanoxylon*), Kusum (*Schleichera oleosa*), Dimiri as common associates.

The vegetation of the applied area composed of Sal (*Shorea robusta*), Saguean (*Tectona grandis*), Sidha (*Lagerstroemia parviflora*), Bandhan (*Ougeinia oojeinensis*), Char (*Buchanania lanjan*), Dhaura (*Anogeissus latifolia*), Asan (*Terminalia tomentosa*), Mango (*Mangifera indica*), Kendu (*Diospyros melanoxylon*), Bahada (*Terminalia belerica*), Jamu (*Syzygium cumini*), Kusum (*Schleichera oleosa*), Mahul (*Madhuca indica*) etc. Sal (*Shorea robusta*) is the predominant species. The canopy density of the area is about 60%.



#### **f) LAND DETAILS OF THE MINE**

During the life of mine, about 74.370 ha will be utilized for mining, minerals processing, road and green belt plantation in safety zone area etc. The details of land use pattern will be as follows:

Sl No.	District	Forest Area(ha)	Non Forest area(ha)	Total area(ha)
1	Sundargarh	66.242	8.128	74.370

#### **4. OBJECTIVES OF THE SCHEME**

- i. To comply the stipulated condition of Stage-I approval under forest (conservation) Act.
- ii. To prevent soil erosion and to improve moisture conservation of the area to minimize the adverse impact of proposed mining.
- iii. To maintain the quality and quantum of water availability during peak summer for wildlife and human.
- iv. To increase the ground water table through soil and moisture conservation.
- v. To construct Check dam for retention and to safe disposal of runoff water and also to maintain the natural perennial Suna Nadi/Nallaha, which is the main source of fresh water in the area.
- vi. To construct LBCD in the watershed area of Nala within adjoining Khajuridihi PRF area which is the watershed area of perennial stream (Suna Nadi).

#### **5. METHODS ADOPTED**

- i) Collection and compilation of available information from various documents including mining plan, Forest diversion proposal under FC Act, relevant toposheets, working plan of the area etc.
- ii) Use of drone to take aerial photographs showing the canopy, location of the natural streams, existing gaps inside the adjoining forest block, degraded areas, location of the villages etc.

iii) Use of GIS and GPS in identifying and geotagging the locations of the Nalla and the points of intervention.

iv) Site visit and collection of various site data for formulating SMC plan.

v) Structured discussion with forest field staff, representatives of the user agency and local community.

## **6. PROPOSED INTERVENTIONS**

It is worth mentioning here that the instant project is surrounded by other mining projects such as Netrabandh Iron ore Block, Kolmang West Block, Guali Iron ore mines, Lasarda Pacheri Mn Mines. The 10 Km radius area of this project overlaps with them and similar conditions i.e. SMC finds place/ likely to find place within 10 Km radius of the said projects. So, there is every possibility of overlapping of such projects within their 10 Km radius area. So, to avoid such scenario, field inspection has been taken up in presence of concerned field staff of Koira Range in Bonai Division along with the representatives / Consultants of the project. Drone camera has been used to survey the specified area within 10 Km radius by competent organization. After analysis of the aerial photos (enclosed) and discussion during field inspections the following activities/ measures are proposed for this scheme.

### **A. PROPOSED SMC WORKS WITHIN 10 KM RADIUS AREA**

After analysis of the aerial photographs of the mining site and the adjoining areas, it is evident that there is no existing gap inside the forest areas to take up afforestation activities (in Khajuridihi PRF). The canopy density of the forest is about 60%. The perennial Suna Nadi/ Nalla is the only lifeline of many local communities, cattle population in the downstream. For appropriate soil and moisture conservation and for ensuring extensive absorption and percolation of rainwater, it is proposed to undertake the following activities.

- i. Construction of check dam- 02 nos.
- ii. Construction of LBCD= 109 nos.

#### i) CONSTRUCTION OF CHECK DAM

It is proposed to construct 2 number of check dams within Teherei Nala located within 10km radius area of ML. Care has been taken to locate the same corresponding to drainage pattern of the 10 km radius of the ML area. The locations and size of the check dam are furnished below. The cost estimate of the construction of check dam has been provided in Annexur-1 & 2.

Sl No	Forest Division	Name	Size	Latitude	Longitude
1	Bonai	Teherei Nala (Check Dam-1)	Length=4.00 mtr, Ht=1.30 mtr, Slope U/S=1:1.5	21°52'26.982"N	85°16'21.437"E
2		Teherei Nala (Check dam-2)	Length=4.00 mtr, Ht=1.30 mtr, Slope U/S=1:1.5	21°51'55.355"N	85°16'04.079"E

#### ii) PLAN FOR CONSTRUCTION OF LBCD

After studying the topography and the drainage pattern it has been found that there are 109 spots where the LBCD required and accordingly it is proposed to construct in different span length across the Khajuridihi Beat of Khajuridihi PRF & Ranisal Section of Koira Range, which is the watershed areas of the perennial stream. The cost norm of LBCD has been provided in Annexue-5, 6 & 7. The details of LBCD of different span is mentioned below.

Location of LBCD and its Span						
Sl No	D	M	S	D	M	S
Span - 2mtr, Ht- 0.60 mtr, U/S - 1: 1.5, D/S - 1:2						
1	21	50	22.739	85	17	16.152
2	21	50	22.734	85	17	14.55
3	21	50	22.8	85	17	13.344
4	21	50	23.784	85	17	11.262
5	21	50	24.881	85	17	8.783
6	21	50	25.685	85	17	03.918
7	21	50	24.287	85	17	04.259
8	21	50	31.146	85	17	00.743
9	21	50	39.084	85	16	58.284



10	21	50	45.276	85	16	58.379
11	21	50	46.367	85	17	00.456
12	21	50	46.601	85	17	02.861
13	21	50	53.772	85	17	18.744
14	21	50	55.379	85	17	16.074
15	21	50	59.225	85	17	13.295
16	21	51	01.080	85	17	11.754
17	21	51	01.620	85	17	10.823
18	21	51	06.648	85	16	58.590
19	21	51	05.604	85	16	54.875
20	21	51	28.229	85	16	46.482
21	21	51	27.947	85	16	45.258
22	21	51	28.109	85	16	42.935
23	21	51	28.692	85	16	42.312
24	21	51	27.234	85	16	39.785
25	21	51	25.637	85	16	36.917
26	21	51	25.649	85	16	34.475
27	21	51	24.545	85	16	30.138
28	21	51	24.455	85	16	29.460
29	21	51	34.487	85	16	28.128
30	21	52	06.461	85	16	10.846
31	21	52	05.477	85	16	12.390
32	21	52	05.267	85	16	13.773
33	21	52	04.848	85	16	13.284
34	21	52	04.259	85	16	13.721
35	21	52	04.290	85	16	14.201
36	21	52	06.929	85	16	10.524
37	21	52	07.391	85	16	11.207
38	21	52	07.277	85	16	11.862
39	21	52	07.032	85	16	13.517
40	21	52	07.029	85	16	13.854
41	21	52	06.941	85	16	14.573
42	21	52	13.097	85	16	10.463
43	21	52	13.409	85	16	11.526
44	21	52	12.708	85	16	13.241
45	21	52	12.611	85	16	13.385
46	21	52	12.203	85	16	13.542
47	21	52	13.571	85	16	15.773
48	21	52	13.080	85	16	16.140
49	21	52	10.242	85	16	23.466
50	21	52	09.683	85	16	24.006
51	21	52	07.277	85	16	23.826
52	21	52	10.253	85	16	25.071

53	21	52	19.356	85	16	12.197
54	21	52	19.175	85	16	12.636
55	21	52	19.109	85	16	16.757
56	21	50	26.297	85	17	05.526
57	21	50	27.402	85	17	03.762
Span - 3mtr, Ht- 1.0 mtr, U/S - 1: 1.5, D/S - 1:2						
1	21	50	29.153	85	17	02.604
2	21	50	42.803	85	16	54.983
3	21	50	43.109	85	16	52.884
4	21	50	46.937	85	17	02.127
5	21	50	46.505	85	17	05.262
6	21	50	54.449	85	17	17.453
7	21	50	57.323	85	17	14.406
8	21	51	03.876	85	17	01.374
9	21	51	05.886	85	17	01.374
10	21	51	09.186	85	17	06.131
11	21	51	28.062	85	16	41.046
12	21	51	27.996	85	16	40.638
13	21	51	25.986	85	16	33.911
14	21	51	25.548	85	16	33.414
15	21	51	25.998	85	16	32.195
16	21	51	25.308	85	16	31.680
17	21	51	25.242	85	16	31.032
18	21	51	25.079	85	16	30.618
19	21	51	35.47	85	16	32.376
20	21	51	34.722	85	16	30.708
21	21	51	34.445	85	16	29.111
22	21	52	06.000	85	16	11.951
23	21	52	07.308	85	16	13.164
24	21	52	06.905	85	16	15.195
25	21	52	13.188	85	16	11.117
26	21	52	13.722	85	16	14.046
27	21	52	13.668	85	16	14.435
28	21	52	12.012	85	16	19.458
29	21	52	11.705	85	16	19.649
Span - 4mtr, Ht- 1.3 mtr, U/S - 1: 1.5, D/S - 1:2						
1	21	52	10.721	85	16	21.588
2	21	52	09.216	85	16	24.240
3	21	52	07.871	85	16	23.969
4	21	52	10.811	85	16	26.081
5	21	52	10.428	85	16	25.823
6	21	50	34.433	85	16	58.817
7	21	50	41.729	85	16	57.731

8	21	50	44.412	85	16	56.322
9	21	51	02.268	85	17	09.923
10	21	51	05.112	85	17	04.031
11	21	52	06.107	85	16	11.297
12	21	52	12.630	85	16	17.076
13	21	52	12.066	85	16	18.833
14	21	52	11.207	85	16	20.747
15	21	52	10.536	85	16	22.326
16	21	52	08.616	85	16	24.119
17	21	51	04.818	85	16	55.100
18	21	51	26.501	85	16	38.339
19	21	52	04.116	85	16	14.675
20	21	52	07.350	85	16	12.756
21	21	52	09.977	85	16	25.019
22	21	52	19.301	85	16	13.908
23	21	52	19.512	85	16	15.858

The location of lease area, 10km radius of buffer zone and interventions under a & b above are shown in Map (Plate-4).

## 7. EXECUTING AGENCY

The User agency shall provide fund for execution of the works prescribed in the scheme under the supervision of the State Forest Department for effective prevention of soil erosion and conservation of moisture/water in the proposed area.

## 8. INSPECTION, MONITORING AND EVALUATION

For successful implementation of the present scheme, intensive inspection and technical guidance from concerned technical wing is required. Sufficient fuel /conveyance charges for the executing agency and technical experts shall be provided by the user agency for proper execution, monitoring and evaluation of the proposed interventions.



#### 9. REQUIREMENT OF FUNDS.

The total cost of the implementation of proposed scheme will be ₹59,85,800/- (Rupees Fifty Nine Lakhs Eighty Five Thousand Eight Hundred) only. The component wise detail financial requirements is indicated below.

<u>Works to be executed by the User Agency.</u>			
1.	Construction of 1 no. of Check dam (20 m width) @ ₹9,53,956/- each.	₹	9,53,956.00
2.	Construction of 1 no. of Check dam (18 m width) @ ₹8,89,468/- each.		8,89,468.00
3.	Soil Conservation measures		
	a) Loose boulder structure 2 mt. size 57 nos. @ ₹15125/-	₹	8,62,125.00
	b) Loose boulder structure 3mt. size 29 nos. @ ₹33944/-	₹	9,84,376.00
	c) Loose boulder structure 4mt. size 23 nos. @ ₹56442/-	₹	12,98,166.00
	SUB-TOTAL :-	₹	49,88,091.00
	Price escalation @20%	₹	9,97,618.00
	GRAND TOTAL :-	₹	59,85,709.00
			Or,
		₹	59,85,800.00

(Rupees Fifty Nine Lakhs Eighty Five Thousand Eight Hundred) only.

Raga Tradecon Private Limited

  
Authorised Signatory

  
Divisional Forest Officer  
Divisional Forest Officer,  
Bonai Division.

Technically Approved

  
Regional Chief Conservator of Forests  
Rourkela Circle

By e-mail

**GOVERNMENT OF INDIA  
MINISTRY OF MINES  
INDIAN BUREAU OF MINES  
OFFICE OF THE REGIONAL CONTROLLER OF MINES, BHUBANESHWAR**

No. MCDR-MGT/0FF/42/2023-BRS-IRM\_RO\_BRS

Dt: 15/06/2023

Shri/Ms. RAGA TRADECOM PRIVATE LIMITED,

G-165 EXPRESS ZONE MALL B WING MALAB (E) NORTH SIDE OF RANI SATI W E HIGHWAY AM, OD  
NETRABANDHA PAHAR (WEST) BLOCK (PRG4)

**Subj:** Approval of the Modification of Mining Plan alongwith Progressive Mine Closure Plan (PMCP) in respect of NETRABANDHA  
PAHAR (WEST) BLOCK Mining Lease for Iron Ore over an area of 74.37 ha of M/s Raga Tradecon Pvt Ltd, situated in Balidhi  
Village, KoraTahda, Sundargarh District of Odisha State

Sir,

In exercise of the powers conferred by clause (b) of sub-section (2) of section 5 of the Mines & Minerals (Development & Regulation) Act, 1957 and Rule 16 clause (3) of Rule 17 of the Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016 read with Government of India Order No. S.O. 1857(E) dated 18th May, 2016, I hereby **approve** the Modification of Mining Plan along with Progressive Mine Closure Plan (PMCP) in respect of NETRABANDHA PAHAR (WEST) BLOCK Mining Lease Area for Iron Ore over an area of 74.37 ha of M/s Raga Tradecon Pvt Ltd, situated in Balidhi Village, KoraTahda, Sundargarh District of Odisha State. This approval is subject to the following conditions:-

**A-General Conditions:**

- (1). The Modification of Mining Plan is approved without prejudice to any other law applicable to the mine area from time to time whether made by the Central Government, State Government or any other authority and without prejudice to any order or direction from any court of competent jurisdiction.
- (2). That this approval of aforesaid Modification of Mining Plan does not in any way imply the approval of the Government in terms of any other provision of Mines & Minerals (Development & Regulation) Act, 1957, or the Mineral Concession Rules, 2016 and any other laws including Forest (Conservation) Act, 1980, Environment (Protection) Act, 1986 or the rules made there under and other relevant statutes, order and guidelines as may be applicable to the lease area from time to time.
- (3). The provisions of the Mines Act, 1952 and Rules and Regulations made thereunder including submission of notices of opening, appointment of manager and other statutory officials as required by the Mines Act, 1952 shall be complied with.
- (4). The execution of Modification of Mining Plan shall be subjected to vacations of prohibitory orders / notices, if any.
- (5). If anything is found to be concealed as required by the Mines Act in the contents of the mining plan and the proposal for rectification has not been made, the approval shall be deemed to have been withdrawn with immediate effect.
- (6). This approval for proposed mining operations and associated activities is restricted to the mining lease area only from this date. The mining lease area is as shown on the statutory plans by the Lessee/QP/Applicant and Indian Bureau of Mines has not undertaken any survey verification of mining lease boundary on the ground.
- (7). Your attention is invited to the Supreme Court interim order in W.P. (C) No. 202 dated 12.12.1996 for compliance. The approval of above said Mining Plan is therefore, issued without prejudice to and is subject to the said directions of the Supreme Court as applicable.
- (8). This department does not undertake any responsibility regarding correctness of the boundaries of the lease area shown on the ground.
- (9). At any stage, if it is observed that the information furnished in the document are incorrect or misrepresent facts, the approval of the document shall be revoked with immediate effect.
- (10). If this approval conflicts with any other law or court order/ Direction under any statute, it shall be revoked immediately.

1/60607/2023

Government of India  
Ministry of Environment, Forest and Climate Change  
(Forest Conservation Division)

\*\*\*\*\*

Indira Paryavaran Bhawan,  
Jor Bagh Road, Aliganj  
New Delhi - 110003

Dated: 21<sup>st</sup> December, 2023

To

The Addl. Chief Secretary (Forests),  
Government of Odisha,  
Bhubaneswar.

**Sub: Proposal for seeking prior approval of the Central Government under Section 2 (ii) of the Forest (Conservation) Act, 1980 in favour of M/s Raga Tradecon Pvt. Ltd. for non-forestry use of 66.242 (including 2.09 ha safety zone) ha of forest land for Mining of iron ore within Netrabandha Pahar (West) Iron Ore Block in villages Baldini and Sanua under Bonal Forest Division of Sundargarh District of Odisha (Online proposal No. FP/OR/MIN/153549/2022).**

Madam/Sir,

I am directed to refer to the State Government of Odisha's letter No. FE-DIV-FLD-0028-2023-10F (Cons) 20/2023- 5713/FE&CC dated 28.03.2023, and additional information submitted vide No. 13392/9F(MG)-12/2023 dated 04.07.2023 and 22593/9F (MG)- 12/2023 dated 18.11.2023 on the above subject seeking prior approval of the Central Government in accordance with Section-2 of the Forest (Conservation) Act, 1980. The proposal was considered by the Advisory Committee (AC) in its meeting held on 29.11.2023 and to say that the proposal has been examined by the Advisory Committee constituted by the Central Government under Section - 3 of the aforesaid Act.

2. After careful examination of the proposal of the State Government and on the basis of the recommendations of the Advisory Committee, and approval of the same by the competent authority of the MoEF&CC, New Delhi, the Central Government hereby accords '*in-principle*' approval under Section - 2 of the Forest (Conservation) Act, 1980 in favour of M/s Raga Tradecon Pvt. Ltd. for non-



1/50607/2023

Clearance;

- g. 25% of the CA cost additionally will be spent towards soil and moisture conservation activities in the proposed CA area as per site requirement and deposited in CAF;

3. NPV:

- a. The User Agency shall transfer the funds towards the cost of Net Present Value (NPV) of the forest land being diverted under this proposal from the User Agency as per the orders of the Hon'ble Supreme Court of India dated 28.03.2008, 24.04.2008 and 09.05.2008 in Writ Petition (Civil) No. 202/1995 and the guidelines issued by this Ministry vide its letter No. 5-3/2007-FC dated 06.01.2022 read with 22.03.2022 through online portal of CAMPA account of the State Concerned;
- b. At the time of payment of the Net Present Value (NPV) at the present rate, the user agency shall furnish an undertaking to pay the additional amount of NPV, if so determined, as per the final decision of the Hon'ble Supreme Court of India;
4. *The CA area has been provided over 64.152 ha NFL; therefore, the State Govt. shall ensure that the equivalent non-forest land to the extent of the forest land being diverted will be provided. Details of the NFL along with the KML will be provided at the time of the submission of the compliance of the Stage-I.*
5. *Transportation of ore shall be as per the recommendation in the report submitted by CSIR-NEERI;*
6. *A holistic transportation plan shall be prepared by the State Govt. aiming to have minimum impact in the landscape. The same shall be implemented. Transportation of ore should be as far as possible through common conveyor belt, slurry pipeline, railways, etc. Transportation of ore through road should be minimized in a time bound manner;*
7. *An Oversight Committee shall be constituted under the Chairmanship of the DDGF (Central) RO Bhubaneswar for 10 years who will monitor and review the compliance of the conditions stipulated in the approval for these five mines [namely- 1. Netrabandha Pahar iron Ore Block (area 112.621 ha, 2. Netrabandha Pahar (West) area 66.242 ha), 3. Laserda Pacheri Manganese & Iron Ore Block (area 94.351 ha), 4. Kalmang West (Northern Part) Block for Iron Ore Mines Iron Ore Block (Area 42.608 ha) and 5. Guali Opencast Iron Ore Mines (area 194.683 ha)] twice a year and submit their yearly report to this Ministry in the month of December. This Oversight Committee shall consist following members and logistics of this*

1/60607/2023

- c. Construction of check dams, retention /toe walls to arrest sliding down of the excavated material along the contour in accordance with the approved scheme;
  - d. Stabilize the overburden dumps by appropriate grading/benching, in accordance with the approved scheme, so as to ensure that angles of repose at any given place is less than 28°; and
15. **Safety Zone Management:** Following activities, at project cost, shall be undertaken by the user agency for the management of safety zone as per relevant guidelines issued by the Ministry's guidelines:
- a. User agency shall ensure demarcation of safety zone (7.5-meter strip all along the inner boundary of the mining lease area), and its fencing, protection and regeneration by erecting adequate number of 6 feet high RCC boundary pillars inscribed with DGPS coordinates with barbed wire fencing and deploying adequate number of watchers under the supervision of the, State Forest Department;
  - b. Boundary of the safety zone of the mining lease, adjacent to habitation/roads, should be properly fenced by the user agency;
  - c. Safety zone shall be maintained as green belt around mining lease and to ensure dense canopy in the area, regeneration shall be taken up in this area by the user agency at project cost under the supervision of the State Forest Department;
  - d. The State Government and the user agency shall ensure that safety zone is maintained as per the prescribed norms;
16. No damage shall be caused to the top-soil and the user agency will follow the top soil management plan;
17. The User Agency shall prepare a list of existing village tanks and other water bodies with GPS co-ordinates located within five km from the mine lease boundary. This list is to be duly verified by the concerned Divisional Forest Officer. The User Agency shall regularly undertake desilting of these village tanks and other water bodies so as to mitigate the impact of siltation of such tanks/water bodies. A detailed approved plan for desilting of identified ponds and water bodies to be prepared in consultation with forest department and shall be submitted to MoEF & CC before Stage-II approval;
18. The cost of felling of trees shall be deposited by the User Agency with the State Forest Department;
19. Trees should be felled in phased manner as per the requirement in the approved Mining Plan with prior permission of concerned DFO;
20. The User Agency shall undertake that afforestation of the non-mineralized virgin forest land within the mining area shall be taken up at project cost;



1/60607/2023

- better stability to the dump;
30. The User Agency shall undertake mining in a phased manner after taking due care for reclamation of the mined over area. The concurrent reclamation plan as per the approved mining plan shall be executed by the User Agency from the very first year, and an annual report on implementation thereof shall be submitted to the Nodal Officer, Forest (Conservation) Act, 1980, in the concerned State Government and the concerned Regional Office of the Ministry. If it is found from the annual report that the activities indicated in the concurrent reclamation plan are not being executed by the User Agency, the Nodal Officer or the concern Addl. Principle Chief Conservator of Forests (Central) may direct that the mining activities shall remain suspended till such time, such reclamation activities area satisfactorily executed;
  31. The User Agency shall comply with the Hon'ble Supreme Court order on re-grassing, and re-grass the mining area and any other areas which may have been disturbed due to mining to restore them to a condition which is fit for growth of fodder, flora, fauna, etc. in a timely manner;
  32. Period of diversion of the said forest land under this approval shall be for a period co-terminus with the period of the mining lease proposed to be granted under the Mines and Minerals (Development and Regulation) Act, 1957, as amended and the Rules framed there-under;
  33. The User Agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, if required;
  34. No labour camp shall be established on the forest land and the User Agency shall provide fuels preferably alternate fuels to the labourers and the staff working at the site so as to avoid any damage and pressure on the nearby forest areas;
  35. The boundary of the diverted forest land, mining lease and safety zone, as applicable, shall be demarcated on ground at the project cost, by erecting four feet high reinforced cement concrete pillars, each inscribed with its serial number, distance from pillar to pillar and GPS coordinates;
  36. The layout plan of the mining plan/ proposal shall not be changed without the prior approval of the Central Government and the forest land shall not be used for any purpose other than that specified in the proposal;
  37. The forest land proposed to be diverted shall under no circumstances be transferred to any other agency, department or person without prior approval of the Central Government;
  38. No damage to the flora and fauna of the adjoining area shall be caused;
  39. Any other condition that the concerned Regional Office of this Ministry may stipulate with the approval of competent authority in the interest of



# ANNEXURE-5

Wage Rate – Rs.450.00

## CHECK DAM UNDER BONAI FOREST DIVISION

Span- 4 mtr, Ht- 1.30 mtr, U/S- 1:1.5, D/S- 1:2

- 1 Earth work in Stoney earth and gravels mixed with stone and boulder not exceeding 0.014 cum in volume within 50m initial lead and 1.5m initial lift including roughdressing and breaking clods to maximum 5cm to 7cm and laying in layer not exceeding 0.3m in depth and as per specification approved by the department.

Base	1	x	5.00	x	20.00	x	0.50	=	50.00
Wing wall	4	x	2.00	x	0.50	x	0.50	=	2.00
Apron	2	x	3.00	x	5.00	x	0.20	=	6.00
Cutoff wall	2	x	5.00	x	0.45	x	0.50	=	2.25

60.25

Cum

@ Rs.

338.83

/cum 20414.51

- 2 Filling foundation and plinth with filling sand laying in layers including ramming, watering, compacting including cost, conveyance and royalty of sand from approved quarry and other taxes if any with all leads, lifts, T&P etc complete the items of work in all respect as per specification and direction of Engineer in charge.

Base	1	x	5.00	x	20.00	x	0.075	=	7.50
Wing wall	4	x	2.00	x	0.50	x	0.075	=	0.30
Apron	2	x	3.00	x	5.00	x	0.075	=	2.25
Cutoff wall	2	x	5.00	x	0.45	x	0.075	=	0.34

10.39

Cum

@ Rs.

1244.90 /cum 12931.40

- 3 CC (1:4:8) using 40 mm size and down graded crusher broken HG stone metal free from weathered surface of approved quality from approved quarry in foundation and plinth including laying concrete in layers with due compaction, watering and curing including cost, conveyance, royalty and taxes of all materials with all lead, lifts and delifts, T&P etc required for completion of the work in all respect as per direction of the Engineer-in-charge.

Base	1	x	5.00	x	20.00	x	0.075	=	7.50
Wing wall	4	x	2.00	x	0.50	x	0.075	=	0.30
Apron	2	x	3.00	x	5.00	x	0.075	=	2.25
Cutoff wall	2	x	5.00	x	0.45	x	0.075	=	0.34

10.39

Cum

@ Rs.

9842.83 /cum 102242.40

- 3 CC (1:2:4) using 12mm and down graded size in hard granite crusher broken stone chips free from weathered surface of approved quality from approved quarry including cost, conveyance, royalty and all taxes of all materials with all leads, lifts, T&P etc. complete in all respect as per specification and direction of Engineer-in-charge.

Below Ground Level

Base	1	x	5.00	x	20.00	x	0.40	=	40.00
Wing wall	4	x	2.00	x	0.50	x	0.075	=	0.30
Apron	2	x	3.00	x	5.00	x	0.075	=	2.25
Cutoff wall	2	x	5.00	x	0.45	x	0.075	=	0.34

Above Ground Level

Base	1	x	4.00	x	$\frac{5.00}{2}$	x	$\frac{2.00}{2}$	x	1.00	=	14.00
Wing wall	4	x	2.00	x	0.40	x	1.000			=	3.20

60.09

Cum

@ Rs.

13619.60 /cum 818367.72

953956.02

953956.02

Say 953956.00

Raga Tradecon Private Limited

14

Divisional Forest Officer  
Bonai Division

Authorised Signatory

**CHECK DAM UNDER BONAI FOREST DIVISION**  
**Span- 4 mtr, Ht- 1.30 mtr, U/S- 1:1.5, D/S- 1:2**

- 1 Earth work in Stoney earth and gravels mixed with stone and boulder not exceeding 0.014 cum in volume within 50m initial lead and 1.5m initial lift including rough dressing and breakink clods to maximum 5cm to 7cm and laying in layer not exceeding 0.3m in depth and as per specification approved by the department.

Base	1	x	5.00	x	18.00	x	0.50	=	45.00
Wing wall	4	x	2.00	x	0.50	x	0.50	=	2.00
Apron	2	x	3.00	x	5.00	x	0.20	=	6.00
Cutoff wall	2	x	5.00	x	0.45	x	0.50	=	2.25
									55.25

Cum 338.83 /cum 18720.36  
@ Rs.

- 2 Filling foundation and plinth with filling sand laying in layers including ramming, watering, compacting including cost, conveyance and royalty of sand from approved quarry and other taxes if any with all leads, lifts, T&P etc complete the items of work in all respect as per specification and direction of Engineer in charge.

Base	1	x	5.00	x	18.00	x	0.075	=	6.75
Wing wall	4	x	2.00	x	0.50	x	0.075	=	0.30
Apron	2	x	3.00	x	5.00	x	0.075	=	2.25
Cutoff wall	2	x	5.00	x	0.45	x	0.075	=	0.34
									9.64

Cum 1244.90 /cum 11997.72  
@ Rs.

- 3 CC (1:4:8) using 40 mm size and down graded crusher broken HG stone metal free from weathered surface of approved quality from approved quarry in foundation and plinth including laying concrete in layers with due compaction, watering and curing including cost, conveyance, royalty and taxes of all materials with all lead, lifts and delifts, T&P etc required for completion of the work in all respect as per direction of the Engineer-in-charge.

Base	1	x	5.00	x	18.00	x	0.075	=	6.75
Wing wall	4	x	2.00	x	0.50	x	0.075	=	0.30
Apron	2	x	3.00	x	5.00	x	0.075	=	2.25
Cutoff wall	2	x	5.00	x	0.45	x	0.075	=	0.34
									9.64

Cum 9842.83 /cum 94860.27  
@ Rs.

- 3 CC (1:2:4) using 12mm and down graded size in hard granite crusher broken stone chips free from weathered surface of approved quality from approved quarry including cost, conveyance, royalty and all taxes of all materials with all leads, lifts, T&P etc. complete in all respect as per specification and direction of Engineer-in-charge.

**Below Ground Level**

Base	1	x	5.00	x	18.00	x	0.40	=	36.00
Wing wall	4	x	2.00	x	0.50	x	0.075	=	0.30
Apron	2	x	3.00	x	5.00	x	0.075	=	2.25
Cutoff wall	2	x	5.00	x	0.45	x	0.075	=	0.34

**Above Ground Level**

Base	1	x	4.00	x	$\frac{5.00}{2}$	x	$\frac{2.00}{2}$	x	1.00	=	14.00
Wing wall	4	x	2.00	x	0.40	x	1.000			=	3.20

Cum 13619.60 /cum 763889.32  
@ Rs.

889467.67  
889467.67

Say 889468.00

  
**Divisional Forest Officer**  
**Bonai Division**

# ANNEXURE-7

Wage Rate – Rs.450.00

## LBCD UNDER BONAI FOREST DIVISION

Span - 2mtr, Ht- 0.60 mtr, U/S - 1: 1.5, D/S - 1:2

- 1 Earth work in Stony earth and gravels mixed with stone and boulder not exceeding 0.014 cum in volume within 50m initial lead and 1.5m initial lift including rough dressing and breaking clods to maximum 5cm to 7cm and laying in layer not exceeding 0.3, depth and as per specification approved by the department.

Base	1	×	3.00	×	3.75	×	0.30	=	3.38		
Wing wall	4	×	0.50	×	0.50	×	0.30	=	0.30	@ Rs per Cum	
									3.68	304.80	1120.14

- 2 Rough stone dry packing in apron and revetment including cost, conveyance, royalty & taxes of all material to complete work.

Crest wall	1	×	3.00	×	(3.75 + 0.60) / 2	×	0.90	=	5.87		
Wing wall	4	×	0.50	×	0.50	×	1.00	=	1		
Side wall	2	×	3.45	×	0.50	×	1.00	=	3.45	@ Rs per Cum	
									10.32	1356.90	14003.21
									Total		15123.35
										Say	15125.00

Raga Tradecon Private Limited

*[Signature]*  
Authorised Signatory

*[Signature]*  
Divisional Forest Officer  
Bonai Division



**ANNEXURE-8**  
**Wage Rate – Rs.450.00**

**LBCD UNDER BONAI FOREST DIVISION**

**Span - 3mtr, Ht- 1.0 mtr, U/S - 1: 1.5, D/S - 1:2**

- 1 Earth work in Stony earth and gravels mixed with stone and boulder not exceeding 0.014 cum in volume within 50m initial lead and 1.5m initial lift including rough dressing and breaking clods to maximum 5cm to 7cm and laying in layer not exceeding 0.3, depth and as per specification approved by the department.

Base	1	×	4.00	×	5.15	×	0.30	=	6.18		
Wing wall	4	×	0.50	×	0.50	×	0.30	=	0.30	@ Rs per Cum	
									<b>6.48</b>	304.80	1975.10

- 2 Rough stone dry packing in apron and revetment including cost, conveyance, royalty & taxes of all material to complete work.

Crest wall	1	×	4.00	×	(5.15 + 0.60) / 2	×	1.30	=	14.95		
Wing wall	4	×	0.50	×	0.50	×	1.40	=	1.4		
Side wall	2	×	5.15	×	0.50	×	1.40	=	7.21	@ Rs per Cum	
									<b>23.56</b>	1356.90	31968.56
									<b>Total</b>		33943.67
										Say	<b>33944.00</b>

Raga Tradecon Private Limited

  
Authorised Signatory

  
Divisional Forest Officer  
Bonai Division

## ANNEXURE-9

## LBCD UNDER BONAI FOREST DIVISION

Span - 4mtr, Ht- 1.3 mtr, U/S - 1: 1.5, D/S - 1:2

- 1 Earth work in Stony earth and gravels mixed with stone and boulder not exceeding 0.014 cum in volume within 50m initial lead and 1.5m initial lift including rough dressing and breaking clods to maximum 5cm to 7cm and laying in layer not exceeding 0.3, depth and as per specification approved by the department.

Base	1	×	5.00	×	6.20	×	0.30	=	9.30		
Wing wall	4	×	0.50	×	0.50	×	0.30	=	0.30	@ Rs per Cum	
									9.60	304.80	2926.08

- 2 Rough stone dry packing in apron and revetment including cost, conveyance, royalty & taxes of all material to complete work.

Crest wall	1	×	5.00	×	$\frac{(5.20 + 0.60)}{2}$	×	1.60	=	27.20		
Wing wall	4	×	0.50	×	0.50	×	1.70	=	1.7		
Side wall	2	×	6.20	×	0.50	×	1.70	=	10.54	@ Rs per Cum	
									39.44	1356.90	53516.14
									Total		56442.22
										Say	56442.00

Raga Tradecon Private Limited

  
 Authorised Signatory

  
 Divisional Forest Officer  
 Bonai Division







PLATE NO-2

CHECK DAM PLAN & CROSS SECTION

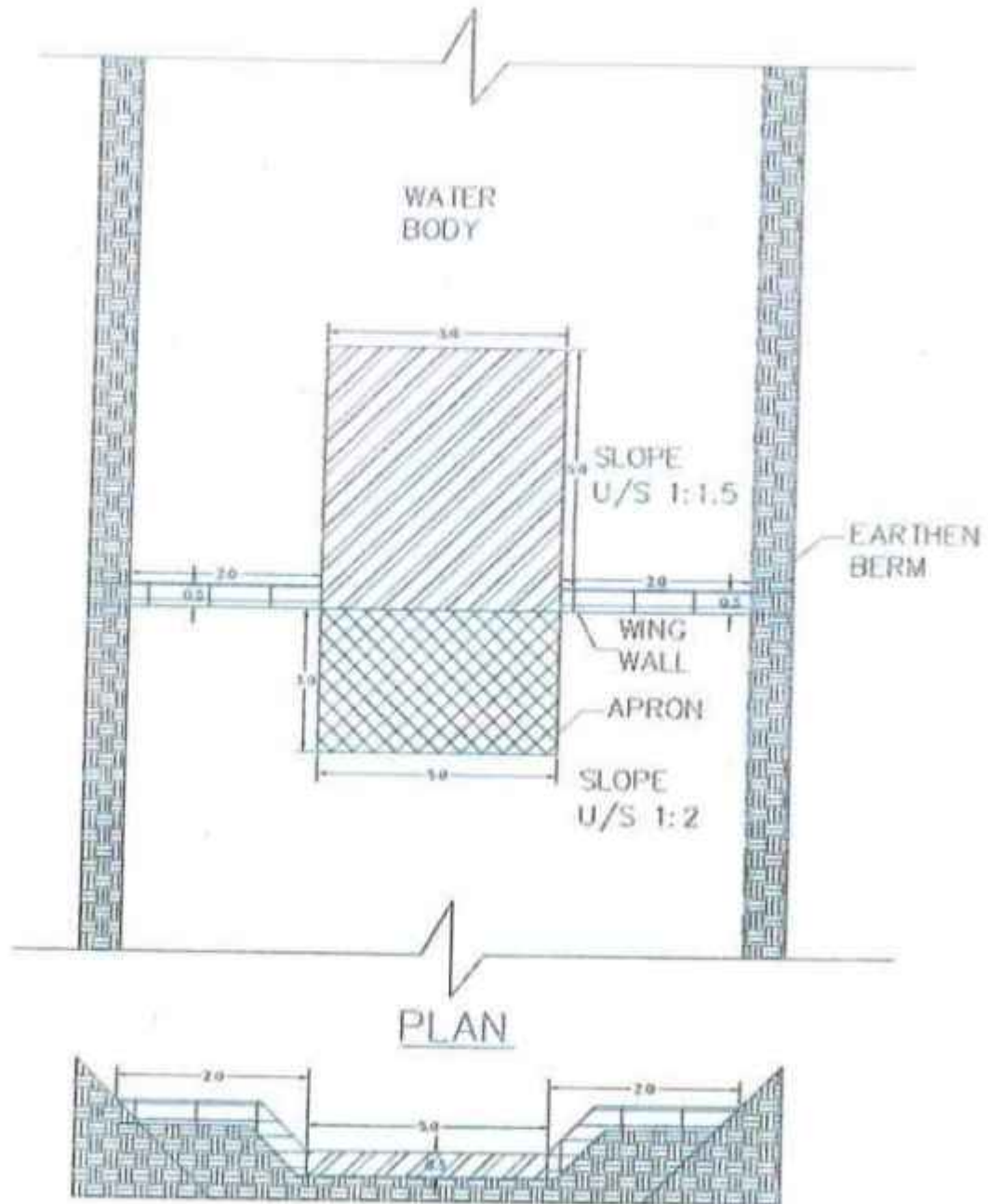
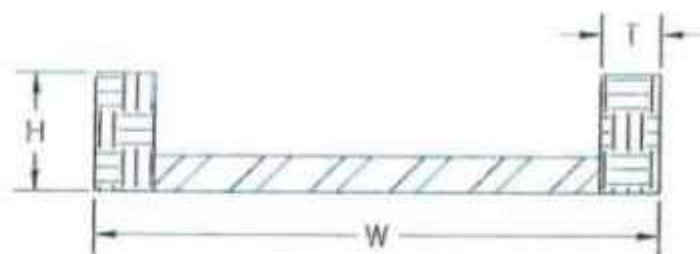


PLATE NO-3

LBCD PLAN & CROSS SECTION



PLAN



CROSS SECTION



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN-51420MH1995PTCL62317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACC4429D1ZW

ANNEXURE-15 B

CONDITION NO.: 10

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do here by undertake to execute the item of works mentioned in the scheme of Soil and moisture conservation measures in and around 10 KM radius, in a phased manner at the Project cost.

For M/s Raga Tradecon Private Ltd

Raga Tradecon Pvt. Ltd

(Sangram Keshari Ray)

Authorized signatory





# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN-51420MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACC04429D1ZW

### ANNEXURE-16

CONDITION NO.: 11

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do here by undertake that the conditions stipulated in EC shall be strictly implemented and monitored.

For M/s Raga Tradecon Private Ltd

Raga Tradecon Pvt. Ltd.

(Sangram Keshari Ray)

Authorized signatory

*Scheme  
For*

MITIGATIVE MEASURES TO MINIMIZE SOIL  
EROSION AND CHOKING OF STREAMS

in compliance  
with  
Condition No.14 (a) of  
Stage-I approval granted vide  
Letter No.8-14/2023-FC dt.21.12.2023 of  
Government of India, Ministry of Environment,  
Forest & Climate Change  
for  
Diversion of 66.242 Hects of Forest Land  
for U/s-2 (ii) of F.C. Act'1980  
within 74.37 Ha.Netrabandha Pahar West Iron Ore Block  
of

M/s Raga Tradecon Private Ltd.  
in village Baldihi and Sanua in Koira Tahsil, Bonai Forest Division  
Dist.Sundargarh Odisha.

## MITIGATIVE MEASURES TO MINIMIZE SOIL EROSION AND CHOKING OF STREAMS

### 1. INTRODUCTION

M/s Raga Tradecon Private Limited has been incorporated under Company Act 1956 vide Certificate of Incorporation No. 21- 73114 on 24.07.1995. The corporate identity Number of the company is U51420MH1995PTC162317. The registered office is situated at State of Maharashtra (Mumbai) having regd. office at G-165 Express Zone Mall B Wing, Mallad (E), North Side of Ranisati W E Highway, Mumbai, Mumbai City Maharashtra 400097 India, to carry on all or any of the business as manufacturers, buyers, sellers, suppliers, traders, exporters, minerals, metals etc. The company does not have any other mines in the State of Odisha or any other part of India.

The Govt of Odisha issued the notice inviting tender dated 07.07.2021 for commencement of the auction process to grant the mining Lease for Netrabandha Pahar (West) Iron Ore Block located in Koida Tahasil of Sundargarh district of Odisha along with the Mines and Minerals (Development and Regulation) ACT,1957 and The Mineral (Auction) Rules,2015. The e-auction process was conducted in accordance with the tender document and the mineral auction rule, 2015 for said mineral block and M/s Raga Tradecon Pvt.Ltd, was declared as the preferred Bidder under Rule 9(9) (iii) or Rule10(A) of Auction Rules having quoted a final price offer of 139.50%.

The Government of Odisha has issued letter of Intent (LoI) vide letter No.8722/IV(B)SM-53/2021/SM, Bhubaneswar, dated 28.10.2021 under Rule 10(2) of Mineral Auction Rules 2015 in favour of M/s Raga Tradecon Pvt. Ltd. for grant of Mining Lease for Nethrabandha Pahar (West) Iron Ore Block over an area of 74.370 near Baladia village, Koira Tahasil of Sundargarh district of Odisha for a period of 50 years.

Accordingly, M/s Raga Tradecon Pvt. Ltd. has submitted the proposal to obtain diversion of 66.242 ha. of forest land including safety zone area of 2.09 ha. for iron ore mining under Section 2(ii) of the Forest (Conservation) Act 1980 for entire forest land 66.242 ha including safety zone area of 2.090 ha. in their favour within their allotted Netrabandh Pahar (West) Iron Ore Block of 74.370 ha. located in village Baldihi & Sanua in Koira Tehsil and Koira Range under Bonai Forest Division of Sundargarh District, Odisha.

Further, Stage-I approval over 66.242 ha. of Forest Land for U/s-2 (ii) of F.C. Act'1980 has been granted by MoEF & CC, Govt. of India vide their Letter No.8-14/2023-FC dt.21.12.2023, wherein it has been stipulated as per **Condition No.14 (a)** for preparation and implementation of a plan containing appropriate mitigative measures to minimise soil erosion and choking of streams.



## **2. LOCATION**

Netrabandha Pahar (West) Iron ore Block of M/s Raga Tradecon Pvt. Ltd. is located in Sundargarh District of Odisha and can be approached throughout the year by road. It falls within the survey of India Topo sheet No.F45N5 (73 G/5). The total mining lease hold area is 74.370.

## **3. TOPOGRAPHY**

The area is represented by sloppy area with gentle undulation, resembling a relict type of topography. The highest contour is 748 meters and the lowest one is of 622 meters. Part of the proposed site comes within the Khajurdihi PRF of Bonai Forest Division.

## **4. SOIL TYPE**

Soil type in the study area varies widely from hard rock to lateritic soil. Areas at higher elevations are usually hard rock consisting of laterite. The top soil is scanty in the area. Whatever top soil is available is thinly spread over all Soil profile in nature. The pH of the soil is slightly acidic in nature.

## **5. CLIMATE**

The study area is characterized by an oppressively hot summer with high humidity. Summer generally commences in the month of March. Temperature beings to rise rapidly attaining a maximum in the month of May. During the summer maximum temperature can go up to 47.7°C. The weather becomes pleasant with onset on monsoon in June and remains as such upto end of October. The temperature in the month of December is lowest, i.e., 7° C. The average annual rainfall as recorded at IMD observatory is 1325.16 mm. Predominant wind direction is South-West. Area remains calm for nearly 50% of the year.

## **6. DRAINAGE**

There are few ephemeral first order nalas originate at mid contours of the main hill in the intervening valleys that follows the natural gradient feeding to the regional Suna Nadi with its numerous ephemerals to perennial nala draining the area. The Suna Nadi with its numerous ephemerals to perennial tributaries controls the drainage system in the area. Teherei Nala a tributary of Suna Nadi flowing to the North of block and Khajurdihi Nala flowing in the south-eastern part of the area controls the drainage.

## **7. EXISTING VEGETATION**

The vegetation of the applied area is composed of Sal (*Shorea robusta*), Sidha (*Lagerstroemia parviflora*), Saguani (*Tectona grandis*), Shisu (*Dalbergia latifolia*), Amla (*Kusum*) (*Schloicheria oleosa*), Bara (*Ficus bengalensis*), Harida (*Terminalia chebula*), Bahada (*Terminalia bellerica*), Char (*Buchanania lanzan*), Jamu (*Syzygium cumini*), Asan (*Terminalia tomentosa*), Kendu (*Diospyros melanoxylon*), Mahul (*Madhuca indica*), Kumbhi

(*Careya arborea*), Mango (*Mangifera indica*) etc. are major species among flora available in the applied area. *Sal* (*Shorea robusta*) is the pre-dominant species.

## 8. LAND USE PATTERN

During the life of the mine, about 74.37 hectares will be utilized for mining, Minerals processing, Road, Infrastructure, Mineral stock yard, and green belt plantation in Safety Zone area etc. The details of land use pattern will be as follows:

Sl. No.	Particulars	PRF (Ha)	REVNUUE FOREST (Ha)	DLC LAND (Ha)	Total Forest Land (Ha)	Non-forest (Ha)	Grand Total area (Ha)
1.	Mining including mines road and Mobile mineral processing unit	32.716	0.537	8.424	41.677	2.143	43.820
2.	Waste dump with safeguard measures like retaining wall, garland drain and settling pond, check dam etc.	7.403	-	-	7.403	-	7.403
3.	Mineral stacking yard / Mineral Storage	4.935	5.826	-	10.761	0.128	10.889
4.	Top Soil	0.272	-	-	0.272	-	0.272
5.	Road	2.519	0.205	-	2.724	0.247	2.971
6.	Infrastructure (Office, Magazine, work shop, fuel station, parking plaza & Temp. Top Soil yard etc.)	-	-	-	-	1.652	1.652
7.	Green Belt / Grass Turfing	-	1.315	-	1.315	2.143	3.458
8.	Undisturbed Land	-	-	-	-	0.903	0.903
9.	Entry and exit within safety zone area	-	-	-	-	0.010	0.010
<b>Sub Total</b>		<b>47.845</b>	<b>7.883</b>	<b>8.424</b>	<b>64.152</b>	<b>7.226</b>	<b>71.378</b>
10.	Safety zone around ML boundary	1.566	0.149	0.375	2.090	0.902	2.992
<b>Grand Total</b>		<b>49.411</b>	<b>8.032</b>	<b>8.799</b>	<b>66.242</b>	<b>8.128</b>	<b>74.370</b>

## 9. FACTORS RESPONSIBLE FOR SOIL EROSION & CHOKING OF STREAMS

The mining activities and overburden dumps are the major source of drainage of soil and other substances for choking of any drainage system existing down below. The forms of erosion observed in this region include mainly rill and gully. The storm water runoffs from the uplands, mine faces and OB dump slope areas carry substantial quantity of solids in the lower order streamlets and choke the higher order streams. These lower order streamlets and gullies have high erosion capacity due to steep gradient and transportation of rock fragments with high velocity of the stream and deposition of same in the connecting high order streams due to velocity drop. Streams can also erode by undercutting their banks resulting in mass-wasting processes like slumps or slides. When the undercut material falls into the stream, the fragments are transported and deposited down below in the stream bed. The other mode of sediment transportation is very negligible.

#### 10. OBJECTIVES OF THE SCHEME

The objectives are as follows:-

- i) To fulfil Condition No.14 (a) of the Stage-I approval granted vide No.8-14/2023-FC dt.21.12.2023 of MoEF & CC to undertake "Mitigative measure to minimize soil erosion & choking of stream shall be implemented within a period of three years with effect from the issue of Stage-II clearance in accordance with the approved plan in consultation with State Forest Department".
- ii) To prevent erosion of top soil.
- iii) To prevent obstruction of existing natural water course.
- iv) Proper Management of overburden deposited so as to prevent siltation in the down below streams.
- v) To prevent overflow of eroded soils from the mining areas to the natural streams.

#### 11. PROPOSED METHODOLOGY

To achieve the above objectives, it has been proposed to take up both biological and structural works for soil and water conservation. The vegetative measures are to be adopted mostly in the upper reaches & around O.B dumping sites whereas the structural works are suggested in the lower reaches such as in the garland drain & critical points around O.B. dumps. 2 check dams and 2 catch drains have been proposed across the contour to arrest the sediment load arising from up-slopes of seasonal streams, and to prevent choking of streams followed by de-silting before onset of monsoon. The following activities are proposed to be taken up to mitigate soil erosion and choking of streams:

- a. There exists one seasonal stream inside the lease area. The slope of the North-western part and central part of the lease hold area is steep in nature, one Rain water harvesting pond has been proposed to collect the rain water flown from mining pits, haul roads as well as areas devoid of vegetation. During monsoon heavy runoff carrying silt and sediments will reduce the velocity of water flow from overburden dump. So, two numbers of Catch drains, 2 nos. of check dam have been proposed, demarcated at suitable location and shown in the attached plan.
- b. Periodic Sediment/silt removal/De-silting etc will also be undertaken in those proposed check dams as well as from garland drains and subsequently biological reclamation will be made.
- c. Along with the above sedimentation control measures, erosion from OB dump slopes areas will be controlled by additional garland drain, loose boulder structures, settling tanks etc. The main purpose is to control soil erosion from OB dump and mineral stock piles.

#### 12. MEASURES ALREADY ADOPTED

There is no biological and Structural measures exist. It is a fresh mining lease and no mining activities have been taken place so far.



### 13. MEASURES PROPOSED

The details of proposed mitigative measures to minimize soil erosion and choking of streams in Netrabandha Pahar West Iron Ore Block of M/s Raga Tradecon Pvt. Ltd. are given below:

#### a. Biological Measures

##### i) Plantation

Soil erosion is moderate since the forest canopy is having density of more than 0.4, and hence it needs protection from soil getting further eroded by drips and the natural binding of the soil due to the root system. Hence, it is proposed to undertake plantation over 7.00 ha. on the surface of the dump. It is also proposed to plant Agave Plants in degraded and poor soils along the slope & toe of plantations over a length of 1116 running meter for controlling soil erosion. Details of proposed plantation & Agave plantation is provided in the map.

The cost norm of Block Plantation and Agave Plantation has been provided in Annexure -I and II.

The list of species proposed for plantation is as follows:

Sl. No.	Local Name	Botanical Name	Family
1	Gamhar	<i>Gmelina arborea</i>	<i>Verbenaceae</i>
2	Teak	<i>Tectona grandis</i>	<i>Lamiaceae</i>
3	Mahula	<i>Madhuca indica</i>	<i>Sapotaceae</i>
4	Jamun	<i>Syzygium cumini</i>	<i>Myrtaceae</i>
5	Babul	<i>Acacia nilotica</i>	<i>Leguminosae</i>
6	Neem	<i>Azadirachta indica</i>	<i>Meliaceae</i>
7	Chhatian	<i>Alstonia scholaris</i>	<i>Apocyanaceae</i>
8	Siris	<i>Albizia lebbek</i>	<i>Leguminosae</i>
9	Sissoo	<i>Dalbergia latifolia</i>	<i>Fabaceae</i>
10	Sal	<i>Shorea robusta</i>	<i>Dipterocarpaceae</i>
11	Karanja	<i>Pongamia pinnata</i>	<i>Papilionaceae</i>
12	Asan	<i>Terminalia tomentosa</i>	<i>Combretaceae</i>

Planting shall be done during July in pre-dug pits of size 45 cm X 45 cm X 45 cm. A basal dose of N.P.K fertiliser shall be applied at the time of planting, besides mixing with insecticides to prevent termites & insects. Fruit bearing trees and bamboo rhizomes shall not be planted in close proximity. A minimum distance of 2.5 mt X 2.5 mt shall be maintained on every fourth plants in planting either of the species. Care should be taken to complete the planting during July while rains are still on during first or second week of July.

##### ii) Weeding

For establishment and better growth of the planted seedlings, timely weeding, soil working and manuring are necessary. It is proposed to carry out two weeding, soil working and manuring during the first year and second year of plantation and one weeding and soil working during third year. During first year and second year, first weeding and manuring shall be carried out during August-September and the second one during October-November along with soil working. First weeding shall be around the plants and the second will be of strip weeding. The

weeding of third year will be around the plants, which will be carried out during August.

After each weeding, soil working will be done around each plant at a radius of 0.5mtr, and manuring of each plant will be done @ 50grms of NPK/ Bio fertilizer per plant in ring form.

iii) Application of Insecticides

After planting of good healthy seedlings, the plantation site may cause influx of insects, which usually eat and damage the tender leaves and shoots of the plants. To get rid of such insect attack, application of insecticides will be taken up in required doses at desired intervals. Spraying of insecticides shall be done preferably in a sunny day in the forenoon as per requirement.

b. Structural Measures

Vegetative means of erosion control are the most feasible and economic measures. However, as the pressure on land is increasing, it is necessary to bring even highly eroded land underutilization. In these lands, vegetative measures are not adequate to keep down the erosion. Some structural measures are required to be taken before vegetative measures are adopted. Structural measures, therefore, serve as supplementary to vegetative measures. The objective behind building mechanical structures is to reduce the degree and length of the slope, reducing run-off and consequently, reducing soil erosion.

i) Plan for Construction of Loose Boulder Structure

After studying the topography and the drainage pattern it has been found that there are 1 spot where the LBCD required and accordingly it has proposed to construct 1 no. of loose boulder structure of 4m span across the proposed garland drain along the dumps & in phase-2, settling pit will help in stabilization of silt & sediment as well as prevention of soil erosion & enrichment of vegetation & greenery development. The cost norm of LBCD has been provided in Annexure –III.



*Loose Boulder Structures*

ii) **Plan for Construction of Garland drain**

A shallow trench (1.0 m wide x 1.50m deep) will be dug for storage of runoff accumulated for draining surface water before it is released to the agriculture land or natural water course. Details of proposed Garland drain 1243 m shall be constructed during the ensuing seven years period with location is shown in the map. The cost norm of Garland Drain has been provided in **Annexure –IV**



*Garland Drain around Waste Dump*

iii) **Construction of Retaining wall**

A retaining wall is a structure designed and constructed to resist the lateral pressure of soil when there is a change in ground elevation that exceeds the angle of repose of the soil. The Retaining walls are proposed for construction over 1524m. Also, there is a provision for maintenance of the retaining wall for the next 4 years. The cost norm of Retaining wall has been provided in **Annexure- V**.



*Details of Retaining walls*

iv) **Terracing of OB Dump Slope**

It is proposed to construct berm & terraces over a length of 260mt. on the proposed dumps considering the volume of OB materials & the area earmarked for dumping. The slope of individual terrace should be within the permissible range considering the angle of repose of the soil and space available, thereby maintaining the angle of repose at less than  $28^{\circ}$ . The terracing will be done through the internal resources by deploying the operating mining equipment. All these operations will be carried out after sufficient deposition of OB. When OB dump will partially mature, the work will be executed. The cost norm of Terrace Development has been provided in **Annexure-VI**.





*Terracing of OB Dumps*

**v) Plan for Construction of Check Dams**

After studying the drainage pattern, it has been found total number of check dam required is 2 and accordingly, 2 nos. of Check Dam will be constructed near the rain water harvesting pit. During monsoon there is heavy on-rush of water as a runoff arising from up slope/higher elevation to lower elevation. Hence, attention is to be paid to reduce the flow velocity of runoff & settle the silts/sediments flown from overburden dumps, haul roads inside the mine and areas cleared of vegetation. The check dam will be constructed near proposed dump area. Details of proposed Check Dams are shown in the map. The cost norm of Check Dam has been provided in **Annexure –VII**



*Check Dam to restrict Soil erosion & silt flow*

**vi) Plan for Construction of Settling Tanks**

It is a process that involves separation of solid material from slurry. Sometimes, this process is called sedimentation. When waste water is treated, a large quantum of materials is filtered out of the liquid by physical barriers. Even then, the water will contain some solids which need to be removed. A settling tank is proposed to be used to protect the surface water. It has been proposed to construct **2 nos.** of settling tanks. Details of proposed 2 nos. of settling Tanks are shown in the map. The cost norm of Settling Tank has been provided in **Annexure –VIII**.

**vii) Plan for Construction of catch drain**

A pyramid structure catch drain has been proposed to stream-line the flow of surface runoff from the dump to the foot of the dump, and stair of the catch drain will be placed inward to restrict flow of water. Catch drain is preferably made up of half concrete with number of stairs to reduce gully formation due to rain water wash off, so that runoff water will flow through each terrace of the dump & connect to the catch drain, the water of which goes through catch drain via settling pit to the garland drain. The catch drain will be constructed after the proposed dump height exceeds 26m. 2 nos. of catch drain have been proposed. The cost norm of Catch Drain has been provided in **Annexure -IX**.



*Catch Drains*

**viii) De-siltation**

The de-silting works of the settling tank will be taken up at regular intervals to prevent sedimentation and choking of streams. This de-silting of settling tank will provide space and base to hold the sediment laden runoff thereby allowing settling and clear water to flow down. This de-silting work will be preferably undertaken once in a year before & after monsoon. The implementation of the plans will be site specific in nature depending upon the severity of the sedimentation and choking of stream.

#### **14. INSPECTION, MONITORING AND EVALUATION**

For successful implementation of the above Mitigative measures, intensive inspection and technical guidance from concerned technical wing is required. Sufficient fuel/ conveyance charges for technical experts shall be provided by the user agency for proper execution of these programmes.

#### **15. MOTIVATION OF PEOPLE:**

As per Govt. resolution of 2011, the villagers of the adjoining village, i.e. Bakihi and Sanua of Bonai Division are to be involved in protection and management of plantation. Before execution of the work, a meeting will be conducted in the above villages and resolution regarding support to plantation activities will be made. To motivate the people in this direction, they will be provided with incentives in shape of different community articles, buildings, and different community amenities of fixed and movable type through entry point activities (EPA). Health camps shall also be organized in the villages. Thus, 15% of the plantation cost has been earmarked for expenditure on this score.

#### **16. EXECUTING AGENCY**

The works in the present Scheme shall be executed by the User Agency having specialized departments headed by qualified persons with outsourced man and machinery. To facilitate this, the user agency shall establish its own executing and supervision cells along with required infrastructural facilities. In order to maintain the quality of work, in-house supervision through competent personnel shall be provided. The entire work shall be carried out in co-ordination with the Forest Department.

#### **SPECIALISED CELL**

<b>Sl. No.</b>	<b>Name</b>	<b>Educational Qualification</b>	<b>Designation</b>	<b>Expertise</b>
1	Shri Nihar Satpathy	AMIE – Mining	GM (Mining)	32 Years experience



# 17. REQUIREMENT OF FUNDS

The total cost of implementation of mitigative measures will be Rs.1,29,16,400.00 (Rupees One Crore Twenty-Nine Lakh Sixteen Thousand Four Hundred) Only. The expenditure will be made during the next seven years period. This budget will be subject to increase in amount considering the increase in cost of materials and labour charges. The tentative annual expenditure planned for next seven years for the implementation of the mitigative measures is given in the following tables:

## FINANCIAL FORECAST OF THE PROJECT (74.37 HA.)

Wage Rate Rs.352.00

Sl. No.	Description of the Work	Fund Required (inRs.)
1.	<b>Biological Measures</b>	
A.	Block Plantation (1600 no./ha.) on the dumps and pit to be reclaimed in future over 7.00 ha. @ Rs.3,41,903/- per ha.	23,93,321.00
B.	Agave Plantation at the toe of dump over a length of 1116m. @ Rs.6,38,625/- for 1000 RMT	7,12,706.00
	<b>Total</b>	<b>31,06,027.00</b>
2.	<b>Structural Measures</b>	
A.	1 no. of Loose Boulder Structure of 4mt span @ Rs.44,461/- per each	44,461.00
B.	Construction of Garland drain over a length of 1243m @ Rs.498/- per RMT	6,19,014.00
C.	Construction of retaining wall over 1524 m @ Rs.1948.54 per RMT	29,69,575.00
D.	Terracing of OB dump over a length of 260 m. @ Rs.833/- per RMT	2,16,580.00
E.	Construction of 2 no. of check dam @ Rs.3,85,954.00/- per each	7,71,908.00
F.	Construction of 2 no. of settling tank @ Rs.14,908.00/- per each	29,816.00
G.	Construction of 2 nos. of catch drain (26 m. at dump slope) @ Rs.3,01,137.00/- per each	6,02,274.00
	<b>Total</b>	<b>52,53,628.00</b>
3.	De-siltation / cleaning work for Garland drain, stabilizing retaining walls, settling pond etc. and check dam twice in a year on LS	5,00,000.00
4.	Maintenance of retaining walls	5,00,000.00
	<b>Sub Total</b>	<b>93,59,655.00</b>
5.	15% of the total cost for motivation of VSS / People involved	14,03,948.00
	<b>Total</b>	<b>1,07,63,603.00</b>
	<b>Price escalation @ 20%</b>	<b>21,52,721.00</b>
		<b>1,29,16,324.00</b>
	<b>GRAND TOTAL</b>	<b>Or, 1,29,16,400.00</b>

(Rupees One Crore Twenty Nine Lakh Sixteen Thousand Four Hundred) only  
M/s Raga Tradecon Pvt Ltd. do hereby undertake to execute the item of works mentioned in this scheme in a phased manner at the project cost.

M/s Raga Tradecon Pvt.  
Ltd.

Raga Tradecon Private Limited

Authorised Signatory

Countersigned  
COUNTERSIGNED

Divisional Forest Officer  
Divisional Forest Officer  
Bonai Division

Technically Approved

Regional Chief Conservator of Forests

## ANNEXURE-5

BASIC ESTIMATE FOR COMPENSATORY AFFORESTATION (BLOCK PLANTATION) @ 1600 PLANTS PER HECTARE (18 months old seedling)						
WAGE RATE Rs. 311/- PER MANDAY						
Sl. No.	Items of work	Probable Period of Execution	No. of Mandays	Labor Cost (Rs.)	Material Cost (Rs.)	Total cost (Rs.)
1	2	3	4	5	6	7
<b>8th Year (Advance work) Pre-Planting Operation</b>						
1	Survey, Demarcation and Pillar posting	Nov/Dec	2	622	0	622
2	Preparation of Treatment Map (Digital Map)	Nov/Dec	1	311	100	411
3	Site preparation (Clearing & removal of debris)	Nov/Dec	12	3732	0	3732
4	Creation of 5/20 m wide inspection Path	Feb/Mar	1	311	0	311
5	Alignment and stacking	Feb/Mar	2	622	0	622
6	Digging of pits (45 cm x 45 cm x 45 cm) in hard and gravelly soil	Feb/Mar	60	18660	0	18660
7	Construction of Temporary Labor Shed, Drinking water facility and First-aid etc.	Jan/Mar	8	0	2500	2500
	<b>Total</b>		<b>85</b>	<b>25205</b>	<b>2600</b>	<b>27805</b>
<b>9th Year/Planting Year</b>						
1	Refilling of pits by shovelling the dug out soil of the pits, application of Organic manure/compost/ FYM @ 100gms per pit, covering the same properly.	Jan/Feb	12	3732	0	3732
2	Transportation of 18 months old polybag seedlings in hired truck/tractor from the nursery/Haga nursery to planting site including loading & unloading. (Average load of 1000 nos) & Stacking the seedling @ 1000/- per seedling (1200 nos)	Jul/Aug	0	0	10000	10000
3	Watering the polybag seedlings at planting site	Jul/Aug	3	933	0	933
4	Consignment of polybag seedlings on hand load from the stacking site to individual dugout pits within the planting site, applying bio-insecticide, fertilizers & planting after sowing the soil with other applied materials & pressing the soil properly around the planted seedlings.	Jul/Aug	30	9330	0	9330
5	Cost of Fertilizer & Insecticide (a) NPK/Bio-fertilizer @ 50 gms/plant as basal dose = 16000/- (b) Urea/Vermicompost/Bio-Rista/any other fertilizer as two subsequent doses @ Rs. 1200.00 (c) Insecticide/ Bio-penicillin @ 5 gms/plant @ Rs. 150/- per kg = Rs. 4500.00	Jul/Aug	0	0	4000	4000

BASE COST ESTIMATE FOR COMPENSATORY AFFORESTATION (BLOCK PLANTATION) @ 1000 PLANTS PER HECTARE (10 months old seedling)						
WAGE RATE Rs- 311/- PER MANDAY						
Sl. No.	Items of work	Feasible Period of Execution	No. of Mandays	Labour Cost (Rs. Rs.)	Material Cost (Rs. Rs.)	Total cost (Rs. Rs.)
1	2	3	4	5	6	7
6	Canopy Replacement @ 10% (100 nos.)	Jul/Aug	4	1244	0	1244
7	1st weeding & Mowing	Aug/Sep	15	4665		4665
8	2nd Weeding, Soil working (1mt. diameter around the plants) and Mowing	Oct/Nov	20	6220	0	6220
9	Fire line tracing (2 m. wide fire line over 400 m long) including maintenance of inspection path	Feb/Mar	3	933	0	933
10	Watch & Ward including watering as per requirement	Aug/Mar	12	3732	0	3732
Total			105	13655	2360	50415
2nd Year Maintenance						
1	Transportation of 100 seedlings from Nursery to plantation site including loading, unloading & storage, once by Tractor @ Rs.4/- per seedling	Jul	0	0	500	500
2	Canopy replacement - 10%	Jul	4	1244	0	1244
3	Cost of Fertilizer & Insecticide: A) Cost of Insecticide/ Bio pesticides @ 5 gms/plant = 0.6 Kg @ Rs.150/- per kg = Rs.120/- B) Urea/NPK/Bio fertilizer/Vermicompost/Bio Manure/any other fertilizer @ 100 gms/plant = 4400/-	Aug/Sep	0	0	4400	4400
4	Weeding (Complete weeding), Mowing & Soil working (1mt. diameter around the plants)	Sep/Oct	20	6220	0	6220
5	Fire line tracing (2 m. wide fire line over 400 m long) including maintenance of inspection path	Feb/Mar	3	933	0	933
6	Watch & Ward including watering as per requirement	Apr-Mar	10	3090	0	3090
7	Maintenance of Temporary Labour Shed, Drinking water facility and First Aid etc.				1000	1000
Total			45	13985	6500	22565



BASE COST NORM FOR COMPENSATORY AFFORESTATION (BLOCK PLANTATION) @ 1000 PLANTS PER HECTARE (18 months old seedling)						
WAGE RATE Rs. 311/- PER HANDAY						
Sl. No.	Items of work	Periods/Period of Execution	No of Man-days	Labour Cost (Rs.)	Material Cost (Rs.)	Total cost (Rs.)
1	2	3	4	5	6	7
<b>1st Year Maintenance</b>						
3	Cost of Fertilizer/Urea/NPK/Bio-fertilizer/Vermicompost/Ms Khats/any other fertilizer	Sep/Oct	0	0	1000	1000
4	Weeding, Mowing & Soil working (last, diameter around the plants)	Sep/Oct	20	6220	0	6220
5	Fire line tracing (1 m. wide fire line over 400 m long) including maintenance of inspection path	Feb/Mar	3	933	0	933
6	Watch & Ward including watering as per requirement	Apr/May	10	3110	0	3110
7	Maintenance of Temporary Labour Shed, Drinking water facility and First aid etc.	Apr/May			1000	1000
<b>Total</b>			<b>33</b>	<b>12250</b>	<b>2000</b>	<b>14250</b>
<b>2nd Year Maintenance</b>						
1	Fire line tracing (1 m. wide fire line over 400 m long) including maintenance of inspection path	Feb/Mar	3	933	0	933
2	Watch & Ward	Apr/May	10	3110	0	3110
<b>Total</b>			<b>23</b>	<b>4043</b>	<b>0</b>	<b>4043</b>
<b>3rd Year Maintenance</b>						
1	Fire line tracing (2 m. wide fire line over 400 m long)	Feb/Mar	3	933.00	0	933
2	Watch & Ward	Apr/May	10	3098.00	0	3098
<b>Total</b>			<b>23</b>	<b>4031</b>	<b>0</b>	<b>4031</b>
<b>4th Year Maintenance</b>						
1	Fire line tracing (2 m. wide fire line over 400 m long)	Feb/Mar	3	933.00	0	933.0
2	Pruning of branches, Singling and of multiple shoots	Jan/Mar	5	1555.00	0	1555.0
3	Watch & Ward	Apr/May	10	3098.00	0	3098.0
<b>Total</b>			<b>28</b>	<b>4586</b>	<b>0</b>	<b>4586.0</b>
<b>5th Year Maintenance</b>						
1	Fire line tracing (2 m. wide fire line over 400 m long)	Feb/Mar	3	933.00	0	933
2	Watch & Ward	Apr/May	10	3098.00	0	3098
<b>Total</b>			<b>23</b>	<b>4031</b>	<b>0</b>	<b>4031</b>
<b>6th Year Maintenance</b>						
1	Fire line tracing (1 m. wide fire line over 400 m long)	Feb/Mar	3	933.00	0	933
2	Watch & Ward	Apr/May	10	3098.00	0	3098
<b>Total</b>			<b>23</b>	<b>4031</b>	<b>0</b>	<b>4031</b>
<b>7th Year Maintenance</b>						
1	Fire line tracing (1 m. wide fire line over 400 m long)	Feb/Mar	3	933.00	0	933
2	Watch & Ward	Apr/May	10	3098.00	0	3098
<b>Total</b>			<b>23</b>	<b>4031</b>	<b>0</b>	<b>4031</b>
<b>8th Year Maintenance</b>						
1	Fire line tracing (1 m. wide fire line over 400 m long)	Feb/Mar	3	933.00	0	933
2	Watch & Ward	Apr/May	10	3098.00	0	3098
<b>Total</b>			<b>23</b>	<b>4031</b>	<b>0</b>	<b>4031</b>
<b>9th Year Maintenance</b>						
1	Fire line tracing (1 m. wide fire line over 400 m long)	Feb/Mar	3	933.00	0	933
2	Watch & Ward	Apr/May	10	3098.00	0	3098

BASIC COST NORM FOR COMPENSATORY AFFORESTATION (BLOCK PLANTATION) @ 1000 PLANTS PER HECTARE (18 months old seedling)							
WAGE RATE Rs. 211/- PER MANDAY							
Sl. No.	Items of work	Feasible Period of Execution	No. of Mandays	Labour Cost (Rs.No.)	Material Cost (Rs.No.)	Total cost (Rs.No.)	
1	2	3	4	5	6	7	
	Total		24	5054	0	5054	
10th Year Maintenance							
1	Fertilizer tracing (1 kg. under the tree or 400 kg/ha/yr)	Feb/Mar	1	211	0	211	
1	Watch & Ward	Apr/May	10	2090.00	0	2290	
	Total		11	2301	0	2301	
Year wise Abstract of Cost Norm (showing seedling cost separately)							
Sl. No.	Year	No. persons days	Labour cost @ Rs. 211/- per day (Rs.)	Material Cost	Seedling, Evaluation, Monitoring, Documentation and Other Contingency (5% of (4+5))	Cost of Seedlings @Rs.50/- per seedling	TOTAL COST
1	2	3	4	5	6	7	8
1	0th year	24	22542	3000	1190.00	0	25932.00
2	1st year	105	22155	21300	2000.00	825.00	46330.00
3	2nd year	45	9495	6500	1028.00	825.00	17843.00
4	3rd year	41	8651	5400	911.00	0	14962.00
5	4th year	21	4431	0	326.00	0	4757.00
6	5th year	21	4431	0	326.00	0	4757.00
7	6th year	20	4220	0	326.00	0	4546.00
8	7th year	21	4431	0	326.00	0	4757.00
9	8th year	21	4431	0	326.00	0	4757.00
10	9th year	21	4431	0	326.00	0	4757.00
11	10th year	21	4431	0	326.00	0	4757.00
	Total	423	132175	29812	6997	8496	176280

**Notes:**

1. Priority must be given to the indigenous local species available nearby to the site of plantation.
2. If indigenous fruit bearing trees must be preferred in Plantation
3. Site specific Soil conservation work like LBS, Gully Plugging, Staggered Trench, Contour Trench, Gradient Band, etc. may be
4. Chain link fencing can be adopted in the CA plantation taken up outside the forest area and bamboo fence may be
5. Watering facilities for germination of water & watering may be adopted as per the availability of water.
6. The Cost Norm of various items can be changed with the approval of the concerned RCPs keeping the overall cost norm fixed for each Financial Year.

  
 Director, Forest Division & D.O., (C.A.)

Sl. No.	Particulars	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1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## ANNEXURE-II

## COST NORM FOR AGAVE PLANTATION (FOR 5 ROWS &amp; 40 MTRS)

Wage Rate : ₹352/day.

Sl. No.	Name of the work	Man-day	Labour cost (₹)	Material	Total
<b>FIRST YEAR OPERATION</b>					
1	Site clearance alignment and stacking	2	704.00	-	704.00
2	Cost of lime materials including transportation	0		494.00	494.00
3	Digging pits and application of lime	6	2112.00		2112.00
4	Cost of 200 Ac. (sucker) including transportation			2,483.00	2,483.00
5	Carriage and planting	2	704.00	-	704.00
6	Soil working and application of fertilizers (twice) and lime	8	2816.00		2816.00
7	Cost of fertilizer			554.00	554.00
8	Contingency			554.00	554.00
	<b>Total:-</b>	<b>18</b>	<b>6336.00</b>	<b>4085.00</b>	<b>10421.00</b>
<b>SECOND YEAR OPERATION</b>					
1	Casualty replacement (20%) including cost of suckers and pitting	2	704.00	494.00	1198.00
2	Weeding and application of fertilizer and lime	6	2112.00	-	2112.00
3	Cost of fertilizer insecticides & lime			374.00	374.00
	<b>Total:-</b>	<b>8</b>	<b>2816.00</b>	<b>868.00</b>	<b>3684.00</b>
<b>THIRD YEAR OPERATION</b>					
1	Weeding, soil working and application of fertilizers	6	2112.00		2112.00
2	Cost of fertilizer and insecticides		-	374.00	374.00
3	Plant protection measures including material cost		-	374.00	374.00
	<b>Total:-</b>	<b>6</b>	<b>2112.00</b>	<b>748</b>	<b>2860.00</b>
<b>FORTH YEAR OPERATION</b>					
1	Weeding, cleaning, soil working and application of fertilizers	6	2112.00		2112.00
2	Cost of fertilizer and insecticides		-	374.00	374.00
3	Plant protection measures including material cost		-	374.00	374.00
	<b>Total:-</b>	<b>6</b>	<b>2112.00</b>	<b>748</b>	<b>2860.00</b>
<b>FIFTH YEAR OPERATION</b>					
1	Weeding, cleaning, soil working and application of fertilizers	6	2112.00		2112.00
2	Cost of fertilizer and insecticides		-	374.00	374.00
3	Plant protection measures including material cost		-	374.00	374.00
	<b>Total:-</b>	<b>6</b>	<b>2112.00</b>	<b>748</b>	<b>2860.00</b>
<b>SIXTH YEAR OPERATION</b>					
1	Weeding, cleaning, soil working and application of fertilizers	6	2112.00		2112.00
2	Cost of fertilizer and insecticides		-	374.00	374.00
3	Plant protection measures including material cost		-	374.00	374.00
	<b>Total:-</b>	<b>6</b>	<b>2112.00</b>	<b>748</b>	<b>2860.00</b>
	<b>G.Total</b>	<b>50</b>	<b>17600.00</b>	<b>7945.00</b>	<b>25545.00</b>
Cost norm for Agave fencing with five rows 01 km for 6 year		<b>25545</b> <b>40</b>	<b>x 1000 =</b>	<b>6,38,625.00</b>	

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## Annexure-III

## Detail Estimate of Loose Boulder Structure (S.M.C)

Wage Rate- Rs.352/-

Span - 4 mtr. Ht.= 1.3 mtr

Slope- U/S :- 1:1.5 D/S slope :- 1:2.0

1.	Levelling the unshape surface of the selected site & layout the structure foundation L.S. 1 MD.			352.00
2.	Excavation of foundation in hard soil within initial lead of 50 mtr. including rough dressing and breaking of clods to maximum size 5 cm. to 7 cm. laying in layer not exceeding 0.3 in depth to strengthening both side U/S approx. bund of loose boulder structure.			
	Base with apron- $1 \times 6.15 \times 5.00 \times 0.30 =$	9.225		
	Wing wall- $4 \times 0.50 \times 0.50 \times 0.30 =$	0.30	9.525	
	@ 15441.87 per 100 cum.			1470.83
3.	Rough stone dry packing			
	up to GL			
	Base with apron- $1 \times 6.15 \times 5.00 \times 0.30 =$	9.225		
	Wing wall- $4 \times 0.50 \times 0.50 \times 0.30 =$	0.30		
	Above GL			
	Super structure $1 \times \frac{5.15 + 0.60}{2} \times 1.30 \times 4.0 =$	14.95		
	Wing wall- $4 \times 0.50 \times 0.50 \times 0.50 =$	0.50		
	Side wall-			
i.	$2 \times \frac{0.50 + 1.80}{2} \times 1.95 \times 0.5 =$	2.24		
ii.	$2 \times \frac{0.5 + 1.80}{2} \times 2.6 \times 0.5 =$	2.99		
iii.	$2 \times 0.6 \times 1.8 \times 0.5 =$	1.08		
iv.	$2 \times 1.0 \times 0.5 \times 0.5 =$	0.50		
	@ 1341.44 per cum		31.785	42637.67
			G.Total:-	44460.50 Or 44461.00

(Rupees Forty Four Thousand Four Hundred Sixty One) only

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Annexure-IV

Wage Rate- Rs.352

Detail Estimate of construction of Garland Drain

Sl No	Description of Items	No	Length	Width	Height	Qty	Unit	Rate	Amount
1	Cleaning of Jungles & bushes	1	200.00	7.00		1400.00	Sqm	9.502	13302.80
2	Earth work in hard soil in embankment roads with in 50 mtrial lead & 1.50 mtrial lift including rough dressing & breaking clods to Maximum 5.00c.m. to 7.00 c.m.& laying layers not exceeding 0.30 mtr depth as per specification approved by department along with proper compaction with H.R.R Excavation	1	200.00	2.00	0.75	300.00	Cum	265.05	79515.00
3	Rough Stone Dry Packing with local boulder only labour charges (Local boulder will be Supplied by the Company through contractual manner)	2	3.00	2.00	0.30	3.60	Cum	1877.20	6757.92
									99575.72 Or, 99576.00

Rate/Running metre length – Rs.497.88 or 498/-

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Annexure-VWage Rate- Rs.352.00

Detail Estimate of Retaining wall of loose local Boulder with cement-Sand Patching over the surface of Boulder wall.

Sl. No.	Description of Items	No	Length	Width	Height	Qty	Unit	Rate	Amount
1	2	3	4	5	6	7	8	9	10
For one K.M.Length									
1	Rough Stone Dry Packing with local boulder only labour charges (Local boulder will be Supplied by our Company)	1	1000.00	(1.00+1.50)/2	1.20	1500.00	Cum		
		1	1000.00	1.50	0.30	450.00	Cum		
						1950.00	Cum	692.382	1350144.9
2	Irregular cement sand patches on the both side of the wall with 2" thick cement sand mortar(1:6) on top	1	1000.00	1.00		1000.00	Sqm		
		2	1000.00	1.20		2400.00	Sqm		
						3400.00	Sqm	176.0	598400.00
		Rate per one K.M. Length				Total			1948544.90
									Or
									1948545.00
Cost for Running Meter length									1948.54

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Annexure-VI

Wage Rate-Rs.352.00

TERRACING OF THE DUMP SLOPE

Engagement of HEMM on the O/B dump slope for terracing

Location – Over Burden Dump

Work efficiency per hour – 3.38 running metre on the dump.

Width & height of the terrace – 5 m. & 5 m.

Rate for engagement of HEMM – Rs.2816.00/hr. i.e. Rs.2816.00/3.38 running meter i.e. Rate

X running metre = Rs.833.12/-

Therefore, terracing to be done over a length of RM is Rs.833/-

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## Annexure - VII

Wage Rate- Rs.352.00

## Detail Estimate of Concrete Structure of Check Dam

Sl No	Description of Items	No	Length	Width	Height	Qty	Rate	Amount in Rs.
1	2	3	4	5	6	7	8	9
1	Earthwork in hard soil in embankment roads within 50 mtr initial lead & 1.50 mtr initial lift including rough dressing & breaking clods to Maximum 5.00c.m. to 7.00 c.m. & laying layers not exceeding 0.30 mtr depth as per specification approved by department along with proper compaction with H.R.R Excavation							
	Base	1	5.00	5.50	0.50	13.75		
	Wing Wall	4	2.00	0.50	0.50	2.00		
	Apron	2	3.00	5.00	0.20	6.00		
	Cut of wall	2	5.00	0.45	0.50	2.25		
						24.00	265.04	6360.96
2	Plain cement concrete (1:4:8)							
	Base	1	4.00	5.50	0.075	1.65		
	Wing Wall	4	2.00	0.50	0.08	0.30		
	Apron	2	3.00	5.00	0.08	2.25		
	Cut of wall	2	4.00	0.45	0.08	0.27		
						4.47	7699.28	34415.78
3	Cement concrete (1:2:4)							
	Below Ground Level							
	Base	1	4.00	5.50	0.40	8.80		
	Wing Wall	4	2.00	0.50	0.40	1.60		
	Apron	2	3.00	5.00	0.10	3.00		
	Cut of wall	2	4.00	0.45	0.50	1.80		
						15.20		
	Above Ground Level							
	Base	1	4.00	(2.00+5.00)/2	1.00	14.00		
	Wing Wall	4	2.00	0.40	1.00	3.20		
					Total	17.20		
					Grand Total	32.40	10653.61	345176.9
	Rate per one No Check Dam. Length=4.00 mtr Ht=1.30 mtr Slope U/S=1:1.5 D/S=1:2					Total		385953.64 Or, 385954.00

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Annexure-VIII

Wage Rate- Rs.352.00

**ESTIMATE FOR PER RMT CONSTRUCTION OF SETTLING TANK**  
(Length: 1m., width: 3.0m. height: 1.5m.)

Sl No	Description of Items	No	Length	Width	Height	Qty	Unit	Rate	Amount
1	Earth work in hard soil in embankment roads within 50 mtr at initial lead &1.50 mtr initial lift including rough dressing &breaking clods to Maximum 5.00c.m. to 7.00 c.m. & laying layers not exceeding 0.30 mtr depth as per specification approved by department along with proper compaction with H.R.R Excavation	1	4.00	3.00	1.50	18.00	Cum	265.04	4770.72
2	Rough Stone Dry Packing with local boulder only labour charges (Local boulder will be Supplied by our Company)	1	4.00	6.00	0.20	4.80	Cum	1877.20	9010.56
3	Transportation charges for 5.00 K.M. lead by truck load from quarry to work site with all cost of, labour, T. & P. etc. all complete in all respect as per specification and direction of	As same as Item No-2				4.80	Cum	234.76	1126.84
Rate per one No Settling tank									14908.12 Or, 14908.00

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## Annexure -IX

Wage Rate-Rs.352.00

## Details &amp; Estimate for Construction of Catch Drain (26.00 Mtr.) at Dump Slope

Sl. No	Description of Items	No.	Length	Width	Height	Qty	Unit	Rate	Amount
1	Earth work excavation in F&P								
	Foundation								
	Side wall both sides	2	29.000	0.400	0.400	9.280	Cum		
	Between wall	1	29.000	3.000	0.300	26.100	Cum		
					<b>Total</b>	<b>35.380</b>	<b>Cum</b>	265.04	9377.11
2	Sand Filling	1.00	29.00	3.80	0.05	5.510	Cum	1724.80	9503.64
3	R R Stone Masonry with Local Boulder								
	Foundation								
	Side wall both sides	2	29.000	0.400	0.60	13.920	Cum	3935.69	54784.80
4	Rough stone Dry packing with top layer grouting								
	Floor	1	29.000	3.000		87.000	Sqm	478.71	41647.77
					<b>Total=</b>	<b>100.920</b>	<b>Cum</b>		
5	Earth Filling								
	Back filling (1/3 <sup>rd</sup> of earth work)					11.793	Cum		
					<b>Total=</b>	<b>11.793</b>	<b>Cum</b>	112.63	1328.24
6	20mm thick plastering in C.M (1:6)								
	Both sides wall	4	29.000	0.600		69.600	Sqm		
	Top	2	29.000	0.400		23.200	Sqm		
					<b>Plastering work Total</b>	<b>92.800</b>	<b>Sqm</b>	319.24	29625.47
7	C.C.work(1:2:4)								
	Wall	2.00	29.00	0.40	0.10	2.320	Cum		
	Floor	1	29.000	3.000	0.100	8.700	Cum		
					<b>Total</b>	<b>11.02</b>	<b>Cum</b>	10489.23	115591.31
							<b>Total</b>		261858.34
	<b>Add 15% for Critical Area</b>								39278.75
						<b>Grand Total</b>			<b>301137.09</b>
									<b>Or</b>
									<b>301137.00</b>

Raga Tradecon Private Limited

  
 Authorised Signatory



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN-51420MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR4439D1ZW

### ANNEXURE-17 B

CONDITION NO.: 14A

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do here by undertake to execute the item of works mentioned in the scheme for Mitigative measures to minimize soil erosion and choking of stream in a phased manner at the Project cost.

For M/s Raga Tradecon Private Ltd  
Raga Tradecon Private Ltd

  
Authorized Signatory  
(Sangram Keshari Ray)

Authorized signatory



**Scheme  
For**

PLANTING OF ADEQUATE DROUGHT HARDY PLANT SPECIES  
AND SOWING OF SEEDS IN THE APPROPRIATE AREA WITHIN  
MINING LEASE TO ARREST SOIL EROSION

in compliance

with

Condition No.14 (b) of

Stage-I approval granted vide

Letter No.8-14/2023-FC dt.21.12.2023 of

Government of India, Ministry of Environment,

Forest & Climate Change

for

Diversion of 66.242 Hects of Forest Land

for U/s-2 (ii) of F.C. Act'1980

within 74.37 Ha. Netrabandha Pahar West Iron Ore Block

of

**M/s Raga Tradecon Pvt. Ltd.**

**in village Baldihi and Sanua in Koira Tahsil, Bonai Forest Division**

**Dist. Sundargarh Odisha.**

**SCHEME FOR PLANTING OF DROUGHT HARDY PLANT SPECIES AND SOWING  
OF SEEDS WITHIN MINING LEASE TO ARREST SOIL EROSION**

**1. INTRODUCTION**

M/s Raga Tradecon Private Limited has been incorporated under Company Act 1956 vide Certificate of Incorporation No. 21- 73114 on 24.07.1995. The corporate identity Number of the company is U51420MH1995PTC162317. The registered office is situated at State of Maharashtra (Mumbai) having regd. office at G-165 Express Zone Mall B Wing, Mallad (E), North Side of Ranisati W E Highway, Mumbai, Mumbai City Maharashtra 400097 India, to carry on all or any of the business as manufacturers, buyers, sellers, suppliers, traders, exporters, minerals, metals etc. The company does not have any other mines in the State of Odisha or any other part of India.

The Govt of Odisha issued the notice inviting tender dated 07.07.2021 for commencement of the auction process to grant the mining Lease for Netrabandha Pahar (West) Iron Ore Block located in Koira Tahasil of Sundargarh district of Odisha along with the Mines and Minerals (Development and Regulation) ACT,1957 and the Mineral (Auction) Rules,2015. The e-auction process was conducted in accordance with the tender document and the mineral auction rule, 2015 for said mineral block and M/s Raga Tradecon Pvt. Ltd. was declared as the preferred Bidder under Rule 9(9) (iii) or Rule10(A) of Auction Rules having quoted a final price offer of 139.50%.

The Government of Odisha has issued letter of Intent (LoI) vide letter No.8722/IV(B)SM-53/2021/SM, Bhubaneswar, dated 28.10.2021 under Rule 10(2) of Mineral Auction Rules 2015 in favour of M/s Raga Tradecon Pvt. Ltd. for grant of Mining Lease for Nethrabandha Pahar (West) Iron Ore Block over an area of 74.370 near Baladia village, Koira Tahasil of Sundargarh district of Odisha for a period of 50 years.

Accordingly, M/s Raga Tradecon Pvt. Ltd. has submitted the proposal to obtain diversion of 66.242 ha. of forest land including safety zone area of 2.09 ha. for iron ore mining under Section 2(ii) of the Forest (Conservation) Act 1980 for entire forest land 66.242 ha including safety zone area of 2.090 ha. in their favour within their allotted Netrabandh Pahar (West) Iron Ore Block of 74.370 ha. located in village Baldihi & Sanua in Koira Tehsil and Koira Range under Bonai Forest Division of Sundargarh District, Odisha.

Further, Stage-I approval over 66.242 ha. of Forest Land for U/s-2 (ii) of F.C. Act 1980 has been granted by MoEF&CC, Govt. of India vide their Letter No.8-14/2023-FC dt.21.12.2023, wherein it has been stipulated as per **Condition No.14 (b)** for preparation and implementation of a plan for planting of drought hardy plant species and sowing of seeds within mining lease to arrest soil erosion.

## **2. LOCATION**

Netrabandha Pahar (West) Iron ore Block of M/s Raga Tradecon Pvt. Ltd. is located in Sundargarh District of Odisha and can be approached throughout the year by road. It falls within the survey of India Topo sheet No.F45N5 (73 G/5). The total mining lease hold area is 74,370.

## **3. TOPOGRAPHY**

The area is represented by sloppy area with gentle undulation, resembling a relict type of topography. The highest contour is 748 meters and the lowest one is of 622 meters. Part of the proposed site comes within the Khajurdihi PRF of Bonai Forest Division.

## **4. SOIL TYPE**

Soil type in the study area varies widely from hard rock to lateritic soil. Areas at higher elevations are usually hard rock consisting of laterite. The top soil is scanty in the area. Whatever top soil is available is thinly spread over all. Soil profile in nature. The pH of the soil is slightly acidic in nature.

## **5. CLIMATE**

The study area is characterized by an oppressively hot summer with high humidity. Summer generally commences in the month of March. Temperature begins to rise rapidly attaining a maximum in the month of May. During the summer maximum temperature can go up to 47.7°C. The weather becomes pleasant with onset of monsoon in June and remains as such upto end of October. The temperature in the month of December is lowest, i.e., 7° C. The average annual rainfall as recorded at IMD observatory is 1325.16 mm. Predominant wind direction is South-West. Area remains calm for nearly 50% of the year.

## **6. DRAINAGE**

There are few ephemeral first order nalas originate at mid contours of the main hill in the intervening valleys that follows the natural gradient feeding to the regional Suna Nadi with its numerous ephemeral to perennial nala draining the area. The Sunanadi with its numerous ephemeral to perennial tributaries controls the drainage system in the area. Teherei Nala a tributary of Sunanadi flowing to the North of block and Khajurdihi Nala flowing in the south-eastern part of the area controls the drainage.

## **7. EXISTING VEGETATION**

The vegetation of the applied area is composed of Sal (*Shorea robusta*), Sidha (*Lagerstroemia parviflora*), Sagan (*Tectona grandis*), Shisu (*Dalbergia latifolia*), Amla (*Kusum* (*Schleichera oleosa*), Bara (*Ficus bengalensis*), Harida (*Terminalia chebula*), Bahada (*Terminalia belerica*), Char (*Buchanania lanjan*), Jamu (*Syzygium cumini*), Asan (*Terminalia tomentosa*), Kendu (*Diospyros melanoxylon*), Mahul (*Madhuca indica*), Kumbhi (*Caraya arborea*), Mango (*Mangifera indica*) etc. are major species among flora available in the applied area. Sal (*Shorea robusta*) is the predominant species.



## 8. LAND USE PATTERN

During the life of the mine, about 74.37 hectares will be utilized for mining, Minerals processing, Road, Infrastructure, Mineral stock yard, and green belt plantation in Safety Zone area etc. The details of land use pattern will be as follows:

Sl. No.	Particulars	PRF (Ha)	REVNUE FOREST (Ha)	DLC LAND (Ha)	Total Forest Land (Ha)	Non-forest (Ha)	Grand Total area (Ha)
1.	Mining including mines road and Mobile mineral processing unit	32.716	0.537	8.424	41.677	2.143	43.820
2.	Waste dump with safeguard measures like retaining wall, gulland drain and settling pond, check dam etc.	7.403	-	-	7.403	-	7.403
3.	Mineral stacking yard / Mineral Storage	4.935	5.826	-	10.761	0.128	10.889
4.	Top Soil	0.272	-	-	0.272	-	0.272
5.	Road	2.519	0.205	-	2.724	0.247	2.971
6.	Infrastructure (Office, Magazine, work shop, fuel station, parking plaza & Temp. Top Soil yard etc.)	-	-	-	-	1.652	1.652
7.	Green Belt / Grass Turfing	-	1.315	-	1.315	2.143	3.458
8.	Undisturbed Land	-	-	-	-	0.903	0.903
9.	Entry and exit within safety zone area	-	-	-	-	0.010	0.010
	<b>Sub Total</b>	<b>47.845</b>	<b>7.883</b>	<b>8.424</b>	<b>64.152</b>	<b>7.226</b>	<b>71.378</b>
10.	Safety zone around ML boundary	1.566	0.149	0.375	2.090	0.902	2.992
	<b>Grand Total</b>	<b>49.411</b>	<b>8.032</b>	<b>8.799</b>	<b>66.242</b>	<b>8.128</b>	<b>74.370</b>

## 9. PLANTATION PLANNING DURING THE LEASE PERIOD

Planning for plantation is done with the following objectives:

Planning for plantation is done keeping in view the following objective:

- To meet the stipulation No.14(b) of Stage –I Forest clearance accorded vide letter No.8-14/2023-FC dt21.12.2023by MoEF, GOI. One of the condition is "planting of adequate drought hardy plant species & showing of seeds within mining lease to arrest soil erosion."
- To compensate the loss to vegetation due to operation of the mine.
- To prevent spread of fugitive dust generated due to mining and allied activities.
- To attenuate noise generated by the mine.
- To reduce soil erosion.
- To stabilize the slope of external over-burden dumps.
- To increase the green cover and to improve aesthetics.
- To attract the birds, which are addressed as litmus of nature.
- To provide recreational value to colony inhabitants.
- Attract Animals to re-colonize the area where the Mine is abandoned.

Development of plantation in the available areas would be carried out in a phased manner. Saplings would be planted at the rate of 1600 trees /ha in Block plantation mode. The cost norm of Block Plantation is **enclosed at Annexure-I**. Post planting care would be taken to replace casualties, remove dead, dying, diseased and top broken trees etc.

The details of proposed afforestation programme within M/s Raga Tradecon Pvt. Ltd. are given below:

Proposed Location	Area
Block Plantation	1,400 ha.
Grass seedlings	2,130 ha
Agave plantation	345 mt

The choice of species is based on the following parameters: (i) Drought hardy and (ii) it should prevent soil erosion. Selection of the plant species is based on the inventory of the local forest species like *Neem (Azadirachta indica)*, *Karanja (Pongamia pinnata)*, *Asan (Terminalia alata)*, *Kusum (Schleichera oleosa)*, *Amla (Emblica officinalis)*, *Mundi (Mitragynaparviflora)* etc. and some soil binding grasses like *Vetiveriazizanioides* will be introduced. The cost norm of grass seeding is **enclosed at Annexure-II**. The species for green belt development will be selected in consultation with the State Forest Department.

#### 10. METHODOLOGY

It is proposed to plant the Seedlings in pits(30cmx30cmx30cm) at spacing of 2.5 m along contours. The pits shall be filled with a mixture of good quality soil and organic manure (cow dung, agricultural waste, kitchen waste). The saplings shall be planted just after commencement of the monsoon to ensure maximum survival.

#### 11. PLANTATION

Plantation on the large Over Burden dumps cannot be started till dumping activities have ceased at least in a part of the dump and the site is prepared for plantation. Once dumping is completed, a path would be cleared to the particular area so that the basic inputs (water, manure, and seedlings) can be carried to the site. Next, a layer of top soil has to be spread over the area and roughly leveled. Grass seeds would be broadcasted on the soil layer to stabilize the dump. Trenches of size 30 cm X 30 cm would be dug out on the flat top of the dumps, and the excavated materials used to form a bund on the deep side of the trenches to trap maximum water in the trenches during rains. 30 cm X 30 cm pits would be dug in the contour trenches at 2.5 m intervals. The pits would be filled with a mixture of top-soil, organic manures and phosphoric fertilizers. Saplings would be planted in these pits after monsoon has commenced in order to ensure optimum survival of the saplings.



*PROPOSED PLANTATION OVER DEAD WASTE DUMP.*

**a. Pre-Planting and Planting Operation**

Different operations that will be taken up for plantation are as follows:

**i) Raising of nursery**

Seedlings required for plantation shall be raised in a temporary nursery nearer to the planting site and water sources. Nursery work will be started one and half year before the year of plantation so that one and half year old seedlings will be available for plantation. 20% extra seedlings shall be raised besides the actual requirement to compensate the casualties. Seedlings will be raised in polythene bags of 10" x 6" size following standard nursery practice.



*RAISING OF NURSERY PROPOSED WITHIN M.L AREA.*

**ii) Alignment and pitting**

Alignment and pitting will be taken up in the month of March-April, Pits of size 45cm X 45cm X 45cm will be dug maintaining a spacing of 2.5mtr X 2.5mtr.



iii) **Actual Planting**

The seedling would be planted in the dugout pits of size 45cm x 45cm x 45cm with a spacing of 2.5mtr x 2.5mtr. Plantation will be taken up after first regular shower of monsoon and will be completed by the end of July. Species will be planted as per suitability of the soil condition. NPK fertilizer @50gms per plant will be applied as basal dosage 5 gm of anti-termite insecticide will also be applied to each pit while planting. Casualties, if any noticed, shall be replaced with the extra seedlings raised for the purpose. During second year also, casualty replacement will be done for which seedlings shall be raised.

iv) **Weeding, Soil working & Manuring**

For establishment and better growth of the planted seedlings, timely weeding, soil working and manuring are necessary. It is proposed to carryout two weedings, soil working and manuring during the first year and second year of plantation and one weeding and soil working during third year. During first year and second year, first weeding and manuring shall be carried out during August-September and the second one during October-November along with soil working after rains. First weeding shall be around the plants and the second one will be done in strip. In the third year the weeding will be done around the plants, which will be carried out during August.

After each weeding, intensive soil working will be done around each plant at a radius of 0.5mtr, followed by manuring of @50grms NPK per plant in ring form.

v) **Application of insecticides**

The plantation site, after planting with good and healthy seedlings, may cause influx of insects, which usually eat and damage the tender leaves and shoots of the plants. To get rid of such insect attack, application of insecticides will be taken up in required doses at desired intervals. Spraying of insecticides shall be done preferably in a sunny day in the forenoon as per requirement.

b. **Post Plantation Care**

Post Plantation care shall be adopted to ensure maximum survival of the plants. Funds would be provided for maintenance of the plants for ten years (i.e. nine years) after the year of plantation. In the present Scheme, provision of fund would be made immediately after planting the seedlings. Watering would be done at regular interval during the dry spell. In the dry season, watering would be regularly done especially during February to June. Watering in one year planted saplings would be more frequent (10 days in a month). Manuring would be done by using organic manure (cow dung, agricultural waste, kitchen waste, etc.). Diseased and dead plants would be uprooted, destroyed and replaced by fresh saplings. Growth and survival of saplings would be regularly monitored and remedial actions would be undertaken as required.

Plantation on slope of the dumps would commence as soon as the first terrace is ready. The terraces on the slopes would be sloped inward. 45 cm X 45 cm pits would be dug at 2.5 m intervals and filled with a mixture of top soil and organic manure. Before the commencement of the monsoon, the slopes and terraces would be covered with a layer of soil and sprinkled with water. The norm for Block plantation has been appended as **Annexure-I**

## **12. INSPECTION, MONITORING AND EVALUATION**

For successful implementation of the above measures under the instant Scheme, intensive inspection and technical guidance from concerned technical wing is required. Sufficient fuel/ conveyance charges for technical experts shall be provided by the User Agency for proper execution of these programmes.

## **13. MOTIVATION OF PEOPLE:**

As per Govt. resolution of 2011, the villagers of the adjoining village, i.e. Baldhi and Sanua of Bonai Division are to be involved in protection and management of plantation. Before execution of the work, a meeting will be conducted in the above villages and resolution regarding support to plantation activities will be made. To motivate the people in this direction, they will be provided with incentives in shape of different community articles, buildings, and different community amenities of fixed and movable type through entry point activities (EPA). Health camps shall also be organized in the villages. Thus, 15% of the plantation cost has been earmarked for expenditure on this score.

## **14. EXECUTING AGENCY**

The works in the present Scheme shall be executed by the User Agency having specialized departments headed by qualified persons with outsourced man and machinery. To facilitate this, the user agency shall establish its own executing and supervision cells along with required infrastructural facilities. In order to maintain the quality of work, in-house supervision through competent personnel shall be provided. The entire work shall be carried out in co-ordination with the Forest Department.

### **SPECIALISED CELL**

Sl. No.	Name	Educational Qualification	Designation	Expertise
1	Shri Nihar Satpathy	AMIE – Mining	GM (Mining)	32 Years experience

#### 15. REQUIREMENT OF FUNDS

The total cost of the implementation of will be ₹11,31,500.00 (Rupees Eleven Lakh Thirty One Thousand Five hundred) Only. The above expenditure would be made over the next seven years period. Therefore, budget provision has been kept by the user agency for implementation of the above plantation program over a period of next ten years. This budget would be subjected to increase in amount considering the increase in material cost and labour charges.

#### TOTAL COST OF THE PROJECT

Wage Rate Rs.352/-

Sl. No.	Description of the work	Funds Required (in Rs.)
1	Block Plantation 1.400 ha. @ Rs.341903/-	4,78,664.00
2.	Grass seeding over 2.130 ha. @ Rs.56769/- per ha.	1,20,918.00
3.	Agave Plantation at the toe of dump over a length of 345 m. @ Rs.6,38,625/- for 1000 RMT	2,20,326.00
	<b>Total :-</b>	<b>8,19,908.00</b>
3.	15% of the total cost for motivation of VSS / People involved	1,22,986.00
	<b>Sub Total</b>	<b>9,42,894.00</b>
4.	Price escalation @ 20%	1,88,579.00
	<b>Grand Total</b>	<b>11,31,473.00</b> <b>OR</b> <b>11,31,500.00</b>

(Rupees Eleven Lakh Thirty One Thousand Five hundred) only

M/s Raga Tradecon Pvt Ltd. do hereby undertake to execute the item of works mentioned in this scheme in a phased manner at the project cost.

M/s Raga Tradecon Pvt. Ltd.

Raga Tradecon Private Limited

Authorised Signatory

COUNTERSIGNED

Divisional Forest Officer  
Divisional Forest Officer  
Bona Division

Technically Approved

Regional Chief Conservator of Forests  
Rourkela Circle



## ANNEXURE-5

BASIC COST NORM FOR COMPENSATORY AFForestation (BLOCK PLANTATION) @ 1000 PLANTS PER HECTARE (10 months old seedling)						
WAGE RATE Rs- 311/- PER MANDAY						
Sr. No.	Items of work	Period of Execution	No. of Mandays	Labour Cost (Rs. Rs.)	Material Cost (Rs. Rs.)	Total cost (Rs. Rs.)
1	2	3	4	5	6	7
<b>0th Year (Advance work) Pre-Planting Operation</b>						
1	Survey, Demarcation and Pillar posting	Nov/Dec	2	622	0	622
2	Preparation of Treatment Map (Digital Map)	Nov/Dec	1	311	100	411
3	Site preparation (Clearing & removal of debris)	Nov/Dec	12	3732	0	3732
4	Creation of 4.00 mt wide Inspection Path	Feb/Mar	1	311	0	311
5	Alignment and stacking	Feb/Mar	2	622	0	622
6	Shading of pits (45 cm x 45 cm x 45 cm) in hand and ground soil	Feb/Mar	44	13684	0	13684
7	Construction of Temporary Labour Block Drilling water facility and First Aid etc.	Jan/Mar	8	0	2000	2000
<b>Total</b>			<b>62</b>	<b>25302</b>	<b>2000</b>	<b>27302</b>
<b>1st Year /Planting Year</b>						
1	Shading of pits by altering the dug out soil of the pits, application of organic vermicompost (200g/FTM & making the same properly	Jan/Feb	12	3732	4000	7732
2	Transportation of 10 months old polyprop seedlings in hand truck / tractor from the permanent/Block nursery to planting site including loading & unloading (Average load of 10 Rhm) & Stacking the seedling @ Rs.6/- per seedling (1704 nos.)	Feb/Mar	8	0	48000	48000
3	Watering the polyprop seedlings at planting site	Feb/Mar	2	622	0	622
4	Conveyance of polyprop seedlings on hand truck from the stacking site to individual digout pits within the planting site, applying insecticide, fertilizers & planting after weeding the soil with other applied materials & passing the soil properly around the planted seedlings.	Feb/Mar	36	11196	0	11196
5	Cost of Fertilizer & Insecticide (a) NPK/Bio fertilizer @ 50 gms/plant as basal dose = 80kg @ Rs.30/- per kg = Rs. 2400.00 (b) Urea/Vermicompost/Ms Rhata/any other fertilizer as top subsequent doses @ Rs. 1,200.00 (c) Insecticide/ Bio-insecticide @ 5 gms/plant = 8 kg @ Rs.150/- per kg = Rs. 1200.00	Feb/Mar	8	0	4000	4000

BASE COST BURN FOR COMPENSATORY AFFORESTATION (BLOCK PLANTATION) @ 1600 PLANTS PER HECTARE (1st months old seedling)						
WAGE RATE Rs- 311/- PER MANDAY						
Sl. No.	Name of work	Proposed Period of Execution	No of Mandays	Labour Cost (Rs Rs.)	Material Cost (Rs Rs.)	Total cost (Rs Rs.)
1	2	3	4	5	6	7
4	Caulkery Replacement @ 10% (160 mm.)	Jul/Aug	8	1248	0	1248
7	1st weeding & Mounding	Aug/Sept	13	4043	0	4043
8	2nd Weeding, Soil weeding (1m. diameter around the plants) and Mounding	Oct/Nov	20	6220	0	6220
9	Fire line tracing (2 m. wide fire line over 400 m long) including maintenance of inspection path	Feb/Mar	3	933	0	933
10	Watch & Ward including watering as per requirement	Aug-Mar	12	3732	0	3732
Total			56	11643	0	11643
2nd Year Maintenance						
1	Transportation of 160 seedlings from nursery to plantation site including loading, unloading & transportation by Tractor @ Rs.4/- per seedling	Jul	8	0	640	640
2	Caulkery replacement- 10%	Jul	8	1248	0	1248
3	Cost of Fertilizer & Insecticide: A) Cost of Insecticide/ Bio pesticide @ 5 gms/plant = 0.5 Kg @ Rs.150/- per kg = Rs.120/- B) Urea/SP/ Bio-fertilizer/Vermicompost/Me. Rhizobium/other fertilizer @Rs. 400/-	Aug/Sept	0	0	6400	6400
4	Weeding (Complete weeding), Mounding & Soil weeding (1m. diameter around the plants)	Sept/Oct	20	6220	0	6220
5	Fire line tracing (2 m. wide fire line over 400 m long) including maintenance of inspection path	Feb/Mar	3	933	0	933
6	Watch & Ward including watering as per requirement	Apr-Mar	18	5598	0	5598
7	Maintenance of Temporary Labour Shed, Drinking water facility and First-aid etc.				1000	1000
Total			49	13999	6566	20565

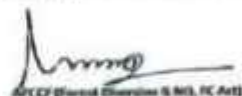
BASE COST NORM FOR COMPENSATORY AFFORESTATION (BLOCK PLANTATION) @ 1000 PLANTS PER HECTARE (18 months old seedling)						
WAGE RATE Rs. 311/- PER MANDAY						
Sl. No.	Name of work	Preferable Period of Execution	No. of Mandays	Labour Cost (Rs. No.)	Material Cost (Rs. No.)	Total cost (Rs. No.)
1	2	3	4	5	6	7
<b>3rd Year Maintenance</b>						
3	Cost of Fertilizer/Urea/NPK/like Fertilizer / Vermicompost/ No. 10/20/40/any other fertilizer	Sept/Oct	0	0	4000	4000
4	Weeding, Manuring & Soil working (1st. diameter around the plants)	Sept/Oct	30	9330	0	9330
5	Fire line tracing (2 m. wide fire line over 400 m long) including maintenance of inspection path	Feb/Mar	3	933	0	933
6	Watch & Ward including watering as per requirement	Apr/May	18	5598	0	5598
7	Maintenance of Temporary Labour Shed, Drinking water facility and First-Aid etc	Apr/May			1000	1000
<b>Total</b>			<b>41</b>	<b>12751</b>	<b>5000</b>	<b>18237</b>
<b>4th Year Maintenance</b>						
1	Fire line tracing (2 m. wide fire line over 400 m long) including maintenance of inspection path	Feb/Mar	3	933	0	933
2	Watch & Ward	Apr/May	18	5598	0	5598
<b>Total</b>			<b>21</b>	<b>6531</b>	<b>0</b>	<b>6531</b>
<b>5th Year Maintenance</b>						
1	Fire line tracing (2 m. wide fire line over 400 m long)	Feb/Mar	3	933.00	0	933
2	Watch & Ward	Apr/May	18	5598.00	0	5598
<b>Total</b>			<b>21</b>	<b>6531</b>	<b>0</b>	<b>6531</b>
<b>6th Year Maintenance</b>						
1	Fire line tracing (2 m. wide fire line over 400 m long)	Feb/Mar	3	933.00	0	933.0
2	Pruning of branches, Singling out of multiple shoots	Jan/Mar	5	1555.00	0	1555.0
3	Watch & Ward	Apr/May	18	5598.00	0	5598.0
<b>Total</b>			<b>26</b>	<b>8086</b>	<b>0</b>	<b>8086.0</b>
<b>7th Year Maintenance</b>						
1	Fire line tracing (2 m. wide fire line over 400 m long)	Feb/Mar	3	933.00	0	933
2	Watch & Ward	Apr/May	18	5598.00	0	5598
<b>Total</b>			<b>21</b>	<b>6531</b>	<b>0</b>	<b>6531</b>
<b>8th Year Maintenance</b>						
1	Fire line tracing (2 m. wide fire line over 400 m long)	Feb/Mar	3	933.00	0	933
2	Watch & Ward	Apr/May	18	5598.00	0	5598
<b>Total</b>			<b>21</b>	<b>6531</b>	<b>0</b>	<b>6531</b>
<b>9th Year Maintenance</b>						
1	Fire line tracing (2 m. wide fire line over 400 m long)	Feb/Mar	3	933.00	0	933
2	Watch & Ward	Apr/May	18	5598.00	0	5598



BASE COST NORM FOR COMPENSATORY AFFORESTATION (BLOCK PLANTATION) @ 1500 PLANTS PER HECTARE (10 months old seedling)							
WAGE RATE Rs- 311/- PER MANDAY							
Sl. No	Items of work	Feasible Period of Execution	No. of Mandays	Labour Cost (Rs Rs.)	Material Cost (Rs Rs.)	Total cost (Rs Rs.)	
1	2	3	4	5	6	7	
	Total		21	6531	0	6531	
10th Year Maintenance							
1	Furrow tracing (2 m wide furrow across 100 m length)	Feb/Mar	1	311	0	311	
2	Watch & Weed	Apr/May	10	3110.00	0	3530	
	Total		11	3421	0	3731	
Year wise Abstract of Cost Norms (showing seedling cost separately)							
Sl. No	Year	No. person days	Labour cost @ Rs. 311 / per day (Rs)	Material Cost	Planting, Evaluation, Learning, Documentation and Other Contingency 7 (7%) of (4+5)	Cost of Seedlings @Rs.50.31 per seedlings	TOTAL COST
1	2	3	4	5	6	7	8
1	10th year	02	2752	1600	1791.00	0	10703.00
2	1st year	105	32655	21300	2880.00	80546	147261.00
3	2nd year	45	13995	0500	1020.00	0920	25679.00
4	3rd year	41	12751	5400	911.00	0	17180.00
5	4th year	21	6531	0	306.00	0	6837.00
6	5th year	21	6531	0	306.00	0	6837.00
7	6th year	20	6220	0	264.00	0	6484.00
8	7th year	21	6531	0	306.00	0	6837.00
9	8th year	21	6531	0	306.00	0	6837.00
10	9th year	21	6531	0	306.00	0	6837.00
11	10th year	21	6531	0	306.00	0	6837.00
	Total	425	132175	27012	4197	90750	276288

**Notes:**

1. Priority must be given to the indigenous local species available nearby to the site of plantation.
2. 10 % indigenous fruit bearing trees must be preferred to Plantation.
3. Site specific Soil conservation work like UCC, Gully Plugging, Staggered Drench, Contour Trench, Graded Bank etc. may be.
4. Chain link fencing can be adopted in the CA plantation taken up outside the forest area and Bamboo ridge fencing may be.
5. Watering facilities for procurement of water & watering may be adopted as per the availability of water.
6. The Cost Norms of various items can be changed with the approval of the concerned UCC's keeping the overall cost norms fixed for each Financial Year.

  
 DCCP (Forest Division & NG, FC Act)



**ANNEXURE-II**

**COST NORM FOR AGAVE PLANTATION (FOR 5 ROWS & 40 MTRS)**

Wage Rate : ₹352/day.

Sl. No.	Name of the work	Man-day	Labour cost (₹)	Material	Total
<b>FIRST YEAR OPERATION.</b>					
1	Site clearance alignment and stacking	2	704.00	-	704.00
2	Cost of lime materials including transportation	0		494.00	494.00
3	Digging pits and application of lime	6	2112.00		2112.00
4	Cost of 200 Ac. (sucker) including transportation			2,483.00	2,483.00
5	Carriage and planting	2	704.00	-	704.00
6	Soil working and application of fertilizers (twice) and lime	8	2816.00		2816.00
7	Cost of fertilizer			554.00	554.00
8	Contingency			554.00	554.00
	<b>Total:-</b>	<b>18</b>	<b>6336.00</b>	<b>4085.00</b>	<b>10421.00</b>
<b>SECOND YEAR OPERATION</b>					
1	Casualty replacement (20%) including cost of suckers and pitting	2	704.00	494.00	1198.00
2	Weeding and application of fertilizer and lime	6	2112.00	-	2112.00
3	Cost of fertilizer insecticides & lime			374.00	374.00
	<b>Total:-</b>	<b>8</b>	<b>2816.00</b>	<b>868.00</b>	<b>3684.00</b>
<b>THIRD YEAR OPERATION</b>					
1	Weeding, soil working and application of fertilizers	6	2112.00		2112.00
2	Cost of fertilizer and insecticides		-	374.00	374.00
3	Plant protection measures including material cost		-	374.00	374.00
	<b>Total:-</b>	<b>6</b>	<b>2112.00</b>	<b>748</b>	<b>2860.00</b>
<b>FORTH YEAR OPERATION</b>					
1	Weeding, cleaning, soil working and application of fertilizers	6	2112.00		2112.00
2	Cost of fertilizer and insecticides		-	374.00	374.00
3	Plant protection measures including material cost		-	374.00	374.00
	<b>Total:-</b>	<b>6</b>	<b>2112.00</b>	<b>748</b>	<b>2860.00</b>
<b>FIFTH YEAR OPERATION</b>					
1	Weeding, cleaning, soil working and application of fertilizers	6	2112.00		2112.00
2	Cost of fertilizer and insecticides		-	374.00	374.00
3	Plant protection measures including material cost		-	374.00	374.00
	<b>Total:-</b>	<b>6</b>	<b>2112.00</b>	<b>748</b>	<b>2860.00</b>
<b>SIXTH YEAR OPERATION</b>					
1	Weeding, cleaning, soil working and application of fertilizers	6	2112.00		2112.00
2	Cost of fertilizer and insecticides		-	374.00	374.00
3	Plant protection measures including material cost		-	374.00	374.00
	<b>Total:-</b>	<b>6</b>	<b>2112.00</b>	<b>748</b>	<b>2860.00</b>
	<b>G.Total</b>	<b>50</b>	<b>17600.00</b>	<b>7945.00</b>	<b>25545.00</b>
Cost norm for Agave fencing with five rows 01 km for 6 year		$\frac{25545}{40}$	$\times 1000 =$	<b>6,38,625.00</b>	

Raga Tradecon Private Limited

  
Authorised Signatory



## ANNEXURE-II

## COST NORM FOR AGAVE PLANTATION (FOR 5 ROWS &amp; 40 MTRS)

Wage Rate : ₹352/day.

Sl. No.	Name of the work	Man-day	Labour cost (₹)	Material	Total
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	<b>Total:-</b>	<b>18</b>	<b>6336.00</b>	<b>4085.00</b>	<b>10421.00</b>
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	<b>Total:-</b>	<b>6</b>	<b>2112.00</b>	<b>748</b>	<b>2860.00</b>
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2	Cost of fertilizer and insecticides		-	374.00	374.00
3	Plant protection measures including material cost		-	374.00	374.00
	<b>Total:-</b>	<b>6</b>	<b>2112.00</b>	<b>748</b>	<b>2860.00</b>
	<b>G.Total</b>	<b>50</b>	<b>17600.00</b>	<b>7945.00</b>	<b>25545.00</b>
Cost norm for Agave fencing with five rows 01 km for 6 year		<b>25545</b> 40	<b>x 1000 =</b>	<b>6,38,625.00</b>	

Raga Tradecon Private Limited

  
 Authorised Signatory



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN:51420MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACC04429D1ZW

ANNEXURE-18B

CONDITION NO.: 14B

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do here by undertake to execute the item of works mentioned in the scheme for Planting of adequate drought hardy plant species and sowing of seeds in a phased manner at the Project cost.

For M/s Raga Tradecon Private Ltd

Raga Tradecon Pvt. Ltd.  
*Sangram Keshari Ray*

(Sangram Keshari Ray)  
Authorized Signatory

Authorized signatory

*Scheme  
For*

CONSTRUCTION OF CHECK DAMS, RETENTION/TOE  
WALLS TO ARREST SLIDING DOWN OF THE  
EXCAVATED MATERIAL ALONG THE CONTOUR

in compliance  
with  
Condition No.14 (c) of  
Stage-I approval granted vide  
Letter No.8-14/2023-FC dt.21.12.2023 of  
Government of India, Ministry of Environment,  
Forest& Climage Change  
for  
Diversion of 66.242 Hects of Forest Land  
for U/s-2 (ii) of F.C. Act'1980  
within 74.37 Ha.Netrabandha Pahar West Iron Ore Block  
of

**M/sRaga TradeconPvt. Ltd.**  
in village Baldihi and Sanua in Koira Tahsil, Bonai Forest Division  
Dist.Sundargarh Odisha.



**SCHEME FOR CONSTRUCTION OF CHECK DAMS, RETENTION/TOE WALLS TO  
ARREST SLIDING DOWN OF THE EXCAVATED MATERIAL ALONG THE  
CONTOUR.**

**1. INTRODUCTION**

M/s Raga Tradecon Private Limited has been incorporated under Company Act 1956 vide Certificate of Incorporation No. 21- 73114 on 24.07.1995. The corporate identity Number of the company is U51420MH1995PTC162317. The registered office is situated at State of Maharashtra (Mumbai) having regd. office at G-165 Express Zone Mall B Wing, Mallad (E), North Side of Ranisati W E Highway, Mumbai, Mumbai City Maharastra 400097 India, to carry on all or any of the business as manufacturers, buyers, sellers, suppliers, traders, exporters, minerals, metals etc. The company does not have any other mines in the State of Odisha or any other part of India.

The Govt of Odisha issued the notice inviting tender dated 07.07.2021 for commencement of the auction process to grant the mining Lease for Netrabandha Pahar (West) Iron Ore Block located in Koida Tahasil of Sundargarh district of Odisha along with the Mines and Minerals (Development and Regulation) ACT,1957 and The Mineral (Auction)Rules,2015. The e-auction process was conducted in accordance with the tender document and the mineral auction rule, 2015 for said mineral block and M/s Raga Tradecon Pvt. Ltd. was declared as the preferred Bidder under Rule 9(9) (iii) or Rule10(A) of Auction Rules having quoted a final price offer of 139.50%.

The Government of Odisha has issued letter of Intent (LoI) vide letter No.8722/IV(B)SM-53/2021/SM, Bhubaneswar, dated 28.10.2021 under Rule 10(2) of Mineral Auction Rules 2015 in favour of M/s Raga Tradecon Pvt. Ltd. for grant of Mining Lease for Nethrabandha Pahar (West) Iron Ore Block over an area of 74.370 near Baladia village, Koira Tahasil of Sundargarh district of Odisha for a period of 50 years.

Accordingly, M/s Raga Tradecon Pvt. Ltd. has submitted the proposal to obtain diversion of 66.242 ha. of forest land including safety zone area of 2.09 ha. for iron ore mining under Section 2(ii) of the Forest (Conservation) Act 1980 for entire forest land 66.242 ha including safety zone area of 2.090 ha. in their favour within their allotted Netrabandh Pahar (West) Iron Ore Block of 74.370 ha. located in village Baldihi & Sanua in Koira Tehsil and Koira Range under Bonai Forest Division of Sundargarh District, Odisha.

Further, Stage-I approval over 66.242 ha. of Forest Land for U/s-2 (ii) of F.C. Act'1980 has been granted by MoEF&CC, Govt. of India vide their Letter No.8-14/2023-FC dt.21.12.2023, wherein it has been stipulated as per **Condition No.14 (c) for preparation and implementation of a plan construction of check dams, retention/toe walls to arrest sliding down of the excavated material along the contour.**

## **2. LOCATION**

Netrabandha Pahar (West) Iron ore Block of M/s Raga Tradecon Pvt. Ltd. is located in Sundargarh District of Odisha and can be approached throughout the year by road. It falls within the survey of India Topo sheet No.F45N5 (73 G/5). The total mining lease hold area is 74,370.

## **3. TOPOGRAPHY**

The area is represented by sloppy area with gentle undulation, resembling a relict type of topography. The highest contour is 748 meters and the lowest one is of 622 meters. Part of the proposed site comes within the Khajurdihi PRF of Bonai Forest Division.

## **4. SOIL TYPE**

Soil type in the study area varies widely from hard rock to lateritic soil. Areas at higher elevations are usually hard rock consisting of laterite. The top soil is scanty in the area. Whatever top soil is available is thinly spread over all Soil profile in nature. The pH of the soil is slightly acidic in nature.

## **5. CLIMATE**

The study area is characterized by an oppressively hot summer with high humidity. Summer generally commences in the month of March. Temperature beings to rise rapidly attaining a maximum in the month of May. During the summer maximum temperature can go up to 47.7°C. The weather becomes pleasant with onset on monsoon in June and remains as such upto end of October. The temperature in the month of December is lowest, i.e., 7° C. The average annual rainfall as recorded at IMD observatory is 1325.16 mm. Predominant wind direction is South-West. Area remains calm for nearly 50% of the year.

## **6. DRAINAGE**

There are few ephemeral first order nalas originate at mid contours of the main hill in the intervening valleys that follows the natural gradient feeding to the regional Suna Nadi with its numerous ephemeral to perennial nala draining the area. The Suna-nadi with its numerous ephemeral to perennial tributaries controls the drainage system in the area. Teherei Nala a tributary of Suna-nadi flowing to the North of block and Khajurdihi Nala flowing in the south-eastern part of the area controls the drainage.

## **OBJECTIVE OF THE SCHEME**

The main objective of the present scheme is to fulfill the **Condition No. 14 (c)** which provides for **preparation of a plan for construction of Check Dams, Retention/Toe walls etc. to arrest sliding down of the excavated material along the contour in accordance with the approved scheme.** The different steps proposed to be adopted are as under:

- a) To prevent erosion of sediment due to surface runoff.
- b) To prevent obstruction of natural water sources.
- c) To complete construction activities efficiently before surface soil is exposed.
- d) To prevent overflow of eroded soil from the mining areas to the natural streams and habitations.

## 7. PROPOSED METHODOLOGY

To achieve the above objectives, it has been proposed to take up both biological and structural works for soil and water conservation. In this Scheme, considering the topography and contours of the lease area, emphasis has been given to arrest sliding down of excavated materials along the contour by constructing check dams, retention / toe walls at specified locations within the mining lease. Locations have been properly selected within the leasehold and plans are listed in the following tables & maps.

### a) The Salient features of the drainage management plan/scheme

The overall drainage Planning has been made in such a manner which follows the existing drainage pattern the block area in order to prevent silt and sediments, a number of measures have been proposed.

The major part of the mining activities is confined to the North-west and central part of the lease hold area. Runoff water near the dump area will be channelized by garland drain so that solid waste and the force of run-off which will be restricted by a loose boulder structure and settling tank.

### b) The drainage pattern of overburden dump

The runoff water will flow through the dump surface along the bund which will be developed as the edge of the dump. The dump surface needs to be terraced so that runoff can flow smoothly to meet the garland drain at the end for proper flow of water. Similarly, runoff from different terrace will be channelized from both sides into the proposed catch drains so that from each terrace of the dump the runoff will flow through the dump surface following the contour and will be deposited in the proposed catch drain shown in enclosed plan. Finally, the water will flow from the catch drain to the settling pit which has been proposed at the foot of the catch drain. After settling down, over flow water will go through weep holes of retaining wall & finally join the garland drain. Loose boulder structures have been proposed in the garland drain of Dumps which will help to arrest the solid waste intermittently. Ultimately, part of runoff water of ore stack yard that will be released, will also be channelized up to the garland drain. The rain water from proposed storing yard and dumps will drain down to the garland drain of proposed dumps which will help to arrest the solid waste by means of boulder structures across the garland drain as well as settling pits. The channelized proposed garland drain, and runoff water will accumulate in the proposed settling tank. The loose boulder structures have been proposed in the garland drain of proposed settling- pit which will help to arrest the solid waste.



c) Slope of the Proposed Dump

Proposal had been given for waste generation from the proposed quarry and subsequent dumping on Dump site during the plan period as per approved scheme of mining as mentioned below. 1<sup>st</sup> year will be started from date of execution of lease deed.

Year	Volume of Waste Generation (m <sup>3</sup> ) from quarry
	Total (m <sup>3</sup> )
1 <sup>st</sup> Year	26207
2 <sup>nd</sup> Year	16792
3 <sup>rd</sup> Year	39844
4 <sup>th</sup> Year	189005
5 <sup>th</sup> Year	191726

The proposed generation of waste will be dumped on dump till the end of 5<sup>th</sup> year. Further Dumping of waste material will be done as per approved Mining plan. In the conceptual period the area of the over burden dump will be 7.403 Ha. The slope of the conceptual dump will be maintained at an angle of 28°. The height of terraces of dump will be 10-12 m.

d) Management

Re-treating fashion will be adopted to dump the total waste material generated during planned period.

Each terrace will have inward slope with catch drain at inward side of the terrace. The catch drain of the individual terrace will be connected to the garland drain outside the periphery of the dump. These catch drain will preferably have half concrete open pipe followed by settling tank to avoid wash offs. Each terrace will have a provision of berms at the outer end to reduce gully formation due to rain water wash offs.

To control erosion in the proposed waste dumps, regular compaction, development of terraces and vegetation are proposed to be done. Also, the retaining wall and garland drain for the proposed waste dump will be constructed to arrest wash-offs from the dump. It is proposed to construct both the retaining wall and garland drain at the end of 5<sup>th</sup> year plan period. No proposal has been given for the rehabilitation of the dump during planned period of five (5) years.

8. MEASURES ALREADY ADOPTED

There is no Biological and Structural measures exist. It is a fresh mining lease and no mining activities have been taken place so far.

## 9. MEASURES PROPOSED TO BE ADOPTED

### a. Structural Measures

Vegetative means of erosion control are the most feasible and economic measures. However, as the pressure on land is increasing, it is necessary to bring even highly eroded land underutilization. In these lands, vegetative measures are not adequate to keep down the erosion. Some structural measures are required to be taken before vegetative measures are adopted. Structural measures, therefore, serve as supplementary to vegetative measures. The objective behind building mechanical structures is to reduce the degree and length of the slope, reducing run-off and consequently, reducing soil erosion.

#### i) Plan for Construction of Loose Boulder Structure

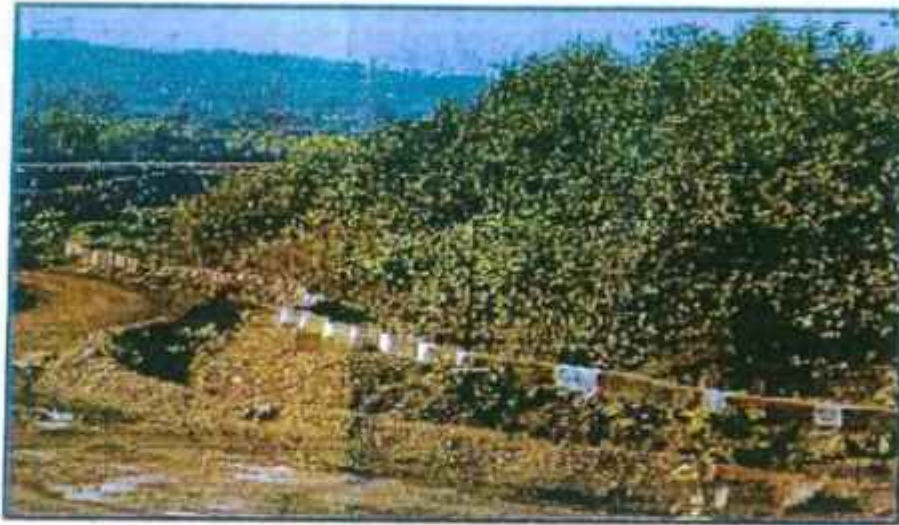
The User Agency has proposed to construct 1 no. of loose boulder structure of 4m span across the existing & proposed garland drain along the dumps & in phase-2, settling pit will help in stabilization of silt & sediment as well as prevention of soil erosion & enrichment of vegetation & greenery development.



*Loose Boulder Structures*

#### ii) Plan for Construction of Garland drain

A shallow trench (1.0 m wide x 1.5 m deep) will be dug for storage of runoff accumulated for draining surface water before it is released to the agriculture land or natural water course. Details of proposed Garland drain 1243 mt. shall be constructed during the ensuing seven years period with location is shown in the map.



*Garland Drain around Waste Dump*

### **iii) Construction of Retaining wall**

A retaining wall is a structure designed and constructed to resist the lateral pressure of soil when there is a change in ground elevation that exceeds the angle of repose of the soil. The Retaining walls are proposed for construction over 1524 mt. Also, there is a provision for maintenance of the retaining wall for the next 4 years,



*Details of Retaining walls*

### **iv) Terracing of OB Dump Slope**

It is proposed to construct berm & terraces over a length of 260 mt. on the proposed dumps considering the volume of OB materials & the area earmarked for dumping. The slope of individual terrace should be within the permissible range considering the angle of repose of the soil and space available, thereby maintaining the angle of repose at less than  $28^\circ$ . The terracing will be done through the internal resources by deploying the operating mining equipment. All these operations will be carried out after sufficient deposition of OB. When OB dump will partially mature, the work will be executed.





*Terracing of OB Dumps*

**v) Plan for Construction of Check Dams**

After studying the drainage pattern it has been found total number of check dam required is and accordingly, **2 no.** of Check Dam will be constructed near the rain water harvesting pit. During monsoon there is heavy on-rush of water as a runoff arising from up slope/higher elevation to lower elevation. Hence, attention is to be paid to reduce the flow velocity of runoff & settle the silts/sediments flow from overburden dumps, haul roads inside the mine and areas cleared of vegetation. The check dam will be constructed near proposed dump area. Details of proposed Check Dams are furnished below and location of the said coordinates is shown in the map.



*Check Dam to restrict Soil erosion & silt flow*

**vi) Plan for Construction of Settling Tanks**

It is a process that involves separation of solid material from slurry. Sometimes, this process is called sedimentation. When waste water is treated, a large quantum of materials is filtered out of the liquid by physical barriers. Even then, the water will contain some solids which need to be removed. It has been proposed to construct **2 nos.** of settling tanks. Details of proposed 2 nos. of settling Tanks are shown in the map.

vii) **Plan for Construction of catch drain**

A pyramid structure catch drain has been proposed to stream-line the flow of surface runoff from the dump to the foot of the dump, and stair of the catch drain will be placed inward to restrict flow of water. Catch drain is preferably made up of half concrete with number of stairs to reduce gully formation due to rain water wash off, so that runoff water will flow through each terrace of the dump & connect to the catch drain, the water of which goes through catch drain via settling pit to the garland drain. The catch drain will be constructed after the proposed dump height exceeds 26 m. 2 nos of catch drain have been proposed.



*Catch Drains*

a) **Desiltation**

The de-silting works of the settling tank will be taken up both manually & mechanically at regular intervals to prevent choking of streams. This de-silting of settling tank will provide space and base to hold the sediment laden runoff thereby allowing settling and clear water to flow down. This de-silting work will be undertaken once in a year before & after monsoon. The implementation of the plans will be site specific in nature depending upon the severity of the sedimentation and choking of stream.

#### **10. INSPECTION, MONITORING AND EVALUATION**

For successful implementation of the above Mitigative measures, intensive inspection and technical guidance from concerned technical wing is required. Sufficient fuel/ conveyance charges for technical experts shall be provided by the user agency for proper execution of these programmes. Budgetary provision of 15% of the total project cost has been earmarked.

#### **11. MOTIVATION OF PEOPLE:**

As per Govt. resolution of 2011, the villagers of the adjoining village, i.e. Baldhi and Sanua of Bonai Division are to be involved in protection and management of plantation. Before execution of the work, a meeting will be conducted in the above villages and resolution regarding support to plantation activities will be made. To motivate the people in this direction, they will be provided with incentives in shape of different community articles, buildings, and different community amenities of fixed and movable type through entry point activities (EPA). Health camps shall also be organized in the villages. Thus, 15% of the plantation cost has been earmarked for expenditure on this score.

#### **12. EXECUTING AGENCY**

The works in the present Scheme shall be executed by the User Agency having specialized departments headed by qualified persons with outsourced man and machinery. To facilitate this, the user agency shall establish its own executing and supervision cells along with required infrastructural facilities. In order to maintain the quality of work, in-house supervision through competent personnel shall be provided. The entire work shall be carried out in co-ordination with the Forest Department.

##### **SPECIALISED CELL**

<b>Sl. No.</b>	<b>Name</b>	<b>Educational Qualification</b>	<b>Designation</b>	<b>Expertise</b>
1	Shri Nihar Satpathy	AMIE – Mining	GM (Mining)	32 Years experience

#### **13. REQUIREMENT OF FUNDS:**

The financial forecast for construction of Check Dams, Retention/ Toe Walls to arrest sliding down of the excavated material along the contour by Construction of Check Dam, Retaining wall, Catch Drain, Settling Tank and Loose Boulder Structure of 4m span has already been provided in the Scheme for **Mitigative measures to minimize soil erosion and choking of streams** as per Condition No.14 (a) of Stage-I approval granted by MoEF in their letter Dt.21.12.2023. The financial forecast of the project has been furnished in the table below:



# **FINANCIAL FORECAST OF THE PROJECT (74.37 HA.)**

Wage Rate Rs.352.00

Sl. No.	Description of the Work	Fund Required (in Rs.)
1.	<b>Biological Measures</b>	The financial forecast has already been provided in the earlier scheme prepared in compliance with Condition No.14 (a).  <b>So, no budgetary provision has been suggested</b>
A.	Block Plantation (1600 no./ha.) on the dumps and pit to be reclaimed in future over 7.000 ha. @ Rs.3,41,903/- per ha.	
B.	Agave Plantation at the toe of dump over a length of 1115 m. @ Rs.6,38,625/- for 1000 RMT	
	<b>Total</b>	
2.	<b>Structural Measures</b>	
A.	1 no. of Loose Boulder Structure of 4mt span @ Rs.44,461/- per each	
B.	Construction of Garland drain over a length of 1243 m @ Rs.498/- per RMT	
C.	Construction of retaining wall over 1524 m @ Rs.1948.54 per RMT	
D.	Terracing of OB dump over a length of 260 m. @ Rs.833/- per RMT	
E.	Construction of 2 no. of check dam @ Rs.3,85,954.00/- per each	
F.	Construction of 2 no. of settling tank @ Rs.14,908.00/- per each	
G.	Construction of 2 nos. of catch drain (26 m. at dump slope) @ Rs.3,01,137.00/- per each	
	<b>Total</b>	
3.	De-siltation / cleaning work for Garland drain, stabilizing retaining walls, settling pond etc. and check dam twice in a year on LS	
4.	Maintenance of retaining walls	
	<b>Sub Total</b>	
5.	15% of the total cost for motivation of VSS / People involved	
	<b>Total</b>	
	<b>Price escalation @ 20%</b>	
	<b>GRAND TOTAL</b>	

*M/s Raga Tradecon Pvt Ltd. do hereby undertake to execute the item of works mentioned in this scheme in a phased manner at the project cost.*

M/s Raga Tradecon Pvt. Ltd.

Raga Tradecon Private Limited

*[Signature]*  
Authorised Signatory

**COUNTERSIGNED**

*[Signature]*  
Divisional Forest Officer,  
Divisional Forest Officer  
Bonal Division

**Technically Approved**

*[Signature]*  
Regional Chief Conservator of Forests  
Rourkela Circle



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN-51420MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1ZW

ANNEXURE-19B

CONDITION NO.: 14C

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do here by undertake to execute the item of works mentioned in the scheme for Construction of check dams, retention / toe walls to arrest sliding down of the excavated material along the contour in a phased manner at the Project cost.

For M/s Raga Tradecon Private Ltd

Raga Tradecon Pvt. Ltd.

(Sangram Keshari Ray)

Authorized signatory

*Scheme  
For*

STABILIZE THE OVERBURDENDUMPS BY  
APPROPRIATE GRADING/BENCHING SO AS  
TO ENSURE THAT THAT ANGLES OF REPOSE  
AT ANY GIVEN PLACE IS LESS THAN  $28^{\circ}$

in compliance

with

Condition No.14 (d) of

Stage-I approval granted vide

Letter No.8-14/2023-FC dt.21.12.2023 of

Government of India, Ministry of Environment,

Forest& Climage Change

for

Diversion of 66.242 Hects of Forest Land

for U/s-2 (ii) of F.C. Act'1980

within 74.37 Ha.Netrabandha Pahar West Iron Ore Block

of

**M/sRaga TradeconPvt. Ltd.**

**in village Baldihi and Sanua in Koira Tahsil, Bonai Forest Division**

**Dist.Sundargarh Odisha.**



**SCHEME FOR STABILIZE THE OVERBURDEN DUMPS BY APPROPRIATE  
GRADING/BENCHING SO AS TO ENSURE THAT THE ANGLES OF REPOSE AT  
ANY GIVEN PLACE IS LESS THAN 28°**

**1. INTRODUCTION**

M/s Raga Tradecon Private Limited has been incorporated under Company Act 1956 vide Certificate of Incorporation No. 21- 73114 on 24.07.1995. The corporate identity Number of the company is U51420MH1995PTC162317. The registered office is situated at State of Maharashtra (Mumbai) having regd. office at G-165 Express Zone Mall B Wing, Mallad (E), North Side of Ranisati W E Highway, Mumbai, Mumbai City Maharashtra 400097 India, to carry on all or any of the business as manufacturers, buyers, sellers, suppliers, traders, exporters, minerals, metals etc. The company does not have any other mines in the State of Odisha or any other part of India.

The Govt of Odisha issued the notice inviting tender dated 07.07.2021 for commencement of the auction process to grant the mining Lease for Netrabandha Pahar (West) Iron Ore Block located in Koida Tahasil of Sundargarh district of Odisha along with the Mines and Minerals (Development and Regulation) ACT,1957 and The Mineral (Auction) Rules, 2015. The e-auction process was conducted in accordance with the tender document and the mineral auction rule, 2015 for said mineral block and M/s Raga Tradecon Pvt.Ltd. was declared as the preferred Bidder under Rule 9(9) (iii) or Rule 10(A) of Auction Rules having quoted a final price offer of 139.50%.

The Government of Odisha has issued letter of Intent (LoI) vide letter No.8722/IV(B)SM-53/2021/SM, Bhubaneswar, dated 28.10.2021 under Rule 10(2) of Mineral Auction Rules 2015 in favour of M/s Raga Tradecon Pvt. Ltd. for grant of Mining Lease for Nethrabandha Pahar (West) Iron Ore Block over an area of 74.370 near Baladia village, Koira Tahasil of Sundargarh district of Odisha for a period of 50 years.

Accordingly, M/s Raga Tradecon Pvt. Ltd. has submitted the proposal to obtain diversion of 66.242 ha. of forest land including safety zone area of 2.09 ha. for iron ore mining under Section 2(ii) of the Forest (Conservation) Act 1980 for entire forest land 66.242 ha including safety zone area of 2.090 ha. in their favour within their allotted Netrabandh Pahar (West) Iron Ore Block of 74.370 ha. located in village Baldihi & Sarua in Koira Tehsil and Koira Range under Bonai Forest Division of Sundargarh District, Odisha.

Further, Stage-I approval over 66.242 ha. of Forest Land for U/s-2 (ii) of F.C. Act 1980 has been granted by MoEF&CC, Govt. of India vide their Letter No.8-14/2023-FC dt.21.12.2023, wherein it has been stipulated as per **Condition No.14 (d)** for preparation and implementation of a plan for stabilize the overburden dumps by appropriate grading/benching so as to ensure that the angles of repose at any given place is less than 28°.

## 2. LOCATION

Netrabandha Pahar (West) Iron ore Block of M/s Raga Tradecon Pvt. Ltd. is located in Sundargarh District of Odisha and can be approached throughout the year by road. It falls within the survey of India Topo sheet No.F45N5 (73 G/5). The total mining lease hold area is 74,370.

## 3. TOPOGRAPHY

The area is represented by sloppy area with gentle undulation, resembling a relict type of topography. The highest contour is 748 meters and the lowest one is of 622 meters. Part of the proposed site comes within the Khajurdihi PRF of Bonai Forest Division.

## 4. SOIL TYPE

Soil type in the study area varies widely from hard rock to lateritic soil. Areas at higher elevations are usually hard rock consisting of laterite. The top soil is scanty in the area. Whatever top soil is available is thinly spread over all Soil profile in nature. The pH of the soil is slightly acidic in nature.

## 5. CLIMATE

The study area is characterized by an oppressively hot summer with high humidity. Summer generally commences in the month of March. Temperature beings to rise rapidly attaining a maximum in the month of May. During the summer maximum temperature can go up to 47.7°C. The weather becomes pleasant with onset on monsoon in June and remains as such upto end of October. The temperature in the month of December is lowest, i.e., 7°C. The average annual rainfall as recorded at IMD observatory is 1325.16 mm. Predominant wind direction is South-West. Area remains calm for nearly 50% of the year.

## 6. DRAINAGE

There are few ephemeral first order nalas originate at mid contours of the main hill in the intervening valleys that follows the natural gradient feeding to the regional Suna Nadi with its numerous ephemeral to perennial nala draining the area. The Sunanadi with its numerous ephemeral to perennial tributaries controls the drainage system in the area. Teherei Nala a tributary of Sunanadi flowing to the North of block and Khajurdihi Nala flowing in the south-eastern part of the area controls the drainage.

## 7. EXISTING VEGETATION

The vegetation of the applied area is composed of Sal (*Shorea robusta*), Sidha (*Lagerstroemia parviflora*), Saguan (*Tectona grandis*), Shisu (*Dalbergia latifolia*), Amla (Kusum (*Schleicheraoleosa*), Bara (*Ficus bengalensis*), Harida (*Terminaliachebula*), Bahada (*Terminalia belerica*), Char (*Buchananialanjan*), Jamu (*Syzygiumcumini*), Asan (*Terminalia tomentosa*), Kendu (*Diospyros melanoxylon*), Mahul (*Madhuca indica*), Kumbhi(*Careya arborea*), Mango (*Mangifera indica*) etc. are major species among flora available in the applied area. **Sal (*Shorearobusta*)** is the pre-dominant species.

#### 8. PHASE WISE MINING ACTIVITY AND MANAGEMENT OF OVERBURDEN DUMP

As per the Geological report provided by the Directorate of Mines, Steel & Mines Department, Government of Odisha, the net in situ iron ore resources of Netrabandha Pahar West Iron Ore Block is 172,74,072 tons out of which 14563716 tons in Forest land and 2710356 tons in non-forest land. This ore body needs to be judiciously exploited in view of systematic mining with optimum exploitation of ore to meet the growing demand of raw materials for indigenous steel plant, sponge iron plant, pellet plants etc. for ultimate production of Steel and also for export to earn foreign exchange for development of our country.

#### 9. Waste Generation

Proposal had been given for waste generation from the proposed quarry and subsequent dumping on Dump site during the plan period as per approved scheme of mining as mentioned below. 1<sup>st</sup> year will be started from date of execution of lease deed.

Year	Volume of Waste Generation (m <sup>3</sup> ) from quarry	
	Total (m <sup>3</sup> )	
1 <sup>st</sup> Year	26207	
2 <sup>nd</sup> Year	16792	
3 <sup>rd</sup> Year	39844	
4 <sup>th</sup> Year	189005	
5 <sup>th</sup> Year	191726	

The proposed generation of waste will be dumped on dump till the end of 5<sup>th</sup> year. Further Dumping of waste material will be done as per approved Mining plan. In the conceptual period the area of the over burden dump will be 7.403 Ha. The slope of the conceptual dump will be maintained at an angle of 28°. The height of terraces of dump will be 10-12 m.

#### The salient features of OB/waste dump management practices

1. The total waste generation will be will be stacked on the proposed dump in dry state.
2. Retaining wall and garland drain will be provided around the proposed dumps. Precautionary measures to be adopted during waste disposal are as follows: -
  - i) The ultimate dump slope to be maintained around 28°.
  - ii) Terrace should have inward slope with a provision of catch drain.
  - iii) The dump edge will be covered with bund. A garland drain will be constructed adjacent to proposed dump, following the contour & different terrace will be connected to the catch drain. The drainage pattern should be such that the runoff will be channelized to the catch drain before releasing to the garland drain outside the periphery of dump. Catch drain will be made up of concrete with number of cemented stairs to check the heavy flow of water as well as to reduce gully formation due to constant run off.



#### 10. THE OBJECTIVES OF THE PROPOSED PLAN

The objectives of the proposed plan are as follows:

1. To fulfill the stipulation i.e., Condition No. 14 (d) imposed in the Stage-I approval granted vide Letter No.8-14/2023-FC dated 21.12.2023 to prepare plan for **Stabilization of Over burden dump by appropriate grading/benching** so as to ensure that angle of repose at any given place is less than 28°.
2. To adopt proper Management and scheduling of overburden materials so as to minimize external dumping.
3. To provide methodologies and implement the proposed works in time bound manner to prevent slope failures there by providing stable OB dump slopes.
4. To stabilize the over burden dumps by plantation.
5. To prevent overflow of eroded soils from the fines, OB dump areas leading to siltation in the streams natural streams.

In order to stabilize over burden dump, the user agency will implement some mitigative measures which are given as below:

#### 11. MEASURES ALREADY ADOPTED

There is no Biological and Structural measures exist. It is a fresh mining lease and no mining activities have been taken place so far.

#### 12. PROPOSED METHODOLOGY

Due to the geological feature of the mining lease area, the dumps would be higher than the adjoining ground level. Top soils from the slopes of the dump are likely to flow during heavy rains and disturb the topography of its adjoining land, till the dump surface is completely stabilized by biological means. In order to curb this situation, retaining walls of minimum one & half meter height have been planned all along the peripheral contour of the dumps to arrest the possibility material running down on the slopes. Waste dumping has been planned in such a manner that backfilling can be done with a view to reclaim the degraded land.

The methods to be adopted for stabilization of OB dumps are as follows:

##### a. **Vegetative methods (Biological Measures)**

- Plantation would be done on the OB dump surface, along with sowing of seeds of *Stylohamata* etc.(broadcast)

##### b. **Bio-engineering Measures**

- Plantation of *Agave sisilana* or terraces as a soil conservation measure.

**c. Structural measures**

- Terracing of slopes, plugging of gullies by construction of catch drain
- Construction of Garland drains, Check dam, Settling tank, loose boulder structure etc. sub-grade dump meant for dumping sub-grade ore.

To give an ideal shape to the dump, appropriate slope has to be maintained for which terraces to be made in dumps to maintain the slope. The angle of repose of the terrace would be around 28°. Backfilled areas would be biologically reclaimed. Terraces would be developed having maximum height of 10m in dumps keeping in view the gradual progress of dump and area available for minimum utilisation of virgin land. The details of dumps and terraces to be made have been summarized as follows:

**a. Biological Measures**

**i) Plantation on OB dumps**

It is proposed to undertake plantations over the dump. Green coverage of the dump area will be developed by raising plantation at the rate 1600 plants per hectare through block plantation. Taking into consideration the site specific soil condition, indigenous species growing naturally are proposed to be planted. It is also proposed to plant hardy species such as Agave as it can survive in degraded and poor soils along the slope & toe of O.B. dump and prove to be most useful for controlling soil erosion.

Sl.No.	Item	Location	Area
1	Plantation	Dump Slope Plantation	7.00 ha.

The list of species to be adopted for the plantation is as follows:

Sl. No.	Local Name	Scientific Name
1	Amla	<i>Emblica officinalis</i>
2	Karani	<i>Pongamia glabra</i>
3	Asan	<i>Terminalia alata</i>
4	Pahadisissou	<i>Dalbergia latifolia</i>
5	Simaruba	<i>Simarubaglauca</i>
7	Siris	<i>Albizzia lebbek</i>

**Broadcasting of grass Seeds:** It is suggested to broadcast grass seeds on the slope of terrace & at other barren place for preservation of top soil. The grass recommended is as follows:

Name of Species	Usage	Habitat / Soil
<i>Stylohamata</i>	Non- Fodder	Eroded soil

Sl. No.	Item	Area
1.	Sowing of Grass seeds	2.13 ha
2.	Showing of grass seeds in the top soil	2.00 ha.



*Plantation over OB Dumps*

## **ii) Soil Treatment & Planting Activities**

The topsoil which is encountered during mining operation would be preserved for utilization during plantation on OB dump areas. Planting shall be done during onset of monsoon in earlier-dugout pits of size 30cmX30cmX30cm. A basal dose of (N.P.K) fertiliser shall be applied at the time of planting, besides mixing with insecticides to prevent termites & insects. A minimum distance of 2.5 mt X 2.5 mt shall be maintained. Care should be taken to complete the planting during July. The proposed biological measures along with the maintenance works will also be executed with internal resources by the user agency in consultation with local Forest Dept. field executives. Provision of vehicle for technical experts (Internal) for proper supervision of these works by the Executing Agency shall also be made available to them.



*Block Planting Activities*

## **b. Structural Measures**

### **i) Plan for Construction of Loose Boulder Structure**

The User Agency has proposed to construct 1 no. of loose boulder structures of 4 m span across the existing & proposed garland drain along proposed dumps & in phase-2, settling pit would help in stabilization of silt & sediment as well as prevention of soil erosion & enrichment of vegetation & greenery development.

### **ii) Plan for Construction of Garland drain**

A shallow trench (2.0 m wide x 1.0 m deep) will be dug for storage of run off accumulated for draining surface water before it is released to the natural water course. Proposed Garland drain to be constructed near proposed dumps over a length of 1243 m shall be constructed in the ensuing five years period.



**iii) Construction of Retaining wall**

Retaining wall is a structure designed and constructed to resist the lateral pressure of soil when there is a change in ground elevation that exceeds the angle of repose of the soil. The Retaining walls are proposed for construction over **1524 m** around proposed dumps during 1<sup>st</sup> year operation with a provision for maintenance of the retaining wall for the next 4 years.

**iv) Terracing of OB Dump Slope**

It is proposed to construct berm & terraces over a length of **260 m**, on the proposed Dumps considering the volume of OB materials & the area earmarked for dumping. The slope of individual terrace should be within the permissible range considering the angle of repose of the soil and space available, thereby maintaining the angle of repose at less than 28°. The terracing would be done through the internal resources by deploying the operating mining equipment. All these operations would be carried out after sufficient deposition of OB has been made.

**v) Plan for Construction of Check Dams**

After studying the drainage pattern, it has been found total number of check dam required is 2 and accordingly, **02 nos.** of Dams will be constructed near the rain water harvesting pit. During monsoon there is heavy flow of water as a runoff arising from up slope/higher elevation to lower elevation. Hence, attention is to be paid to reduce the flow velocity of runoff & settle the silts/sediments flown from overburden dumps, haul roads inside the mine and areas cleared of vegetation.

**vi) Plan for Construction of Settling Tanks**

It is a process that involves separation of solid materials from slurry. Sometimes, this process is called sedimentation. When waste water is treated, a large quantum of materials is filtered out of the liquid by physical barriers. Even then, the water will contain some solids which need to be removed. A settling tank is proposed to be used to protect the surface water. It has been proposed to construct **2 nos.** of settling tank.

**vii) Plan for Construction of catch drain**

A pyramid structure catch drain has been proposed to stream-line the flow of surface runoff from the dump to the foot of the dump, and stair of the catch drain will be placed inward to restrict flow of water. Catch drain is preferably made up of half concrete with number of stairs to reduce gully formation due to rain water wash off, so that runoff water will flow through each terrace of the dump & connect to the catch drain. The catch drain will be constructed after the proposed dump height exceeds 26 m. **2 nos.** of catch drain have been proposed.

### **13. INSPECTION, MONITORING AND EVALUATION**

For successful implementation of the above works under the present Scheme, intensive inspection and technical guidance from concerned technical wing is required. Sufficient fuel/ conveyance charges for technical experts shall be provided by the user agency for proper execution of these programmes.

### **14. MOTIVATION OF PEOPLE:**

As per Govt. resolution of 2011, the villagers of the adjoining village, i.e. Baldhi and Sanua of Bonai Division to be involved in protection and management of plantation. Before execution of the work, a meeting will be conducted in the above villages and resolution regarding support to plantation activities will be made. To motivate the people in this direction, they will be provided with incentives in shape of different community articles, buildings, and different community amenities of fixed and movable type through entry point activities (EPA). Health camps shall also be organized in the villages. Thus, 15% of the plantation cost has been earmarked for expenditure on this score.

### **15. EXECUTING AGENCY**

The works in the present Scheme shall be executed by the User Agency having specialized departments headed by qualified persons with outsourced man and machinery. To facilitate this, the user agency shall establish its own executing and supervision cells along with required infrastructural facilities. In order to maintain the quality of work, in-house supervision through competent personnel shall be provided. The entire work shall be carried out in co-ordination with the Forest Department.

#### **SPECIALISED CELL**

<b>Sl. No.</b>	<b>Name</b>	<b>Educational Qualification</b>	<b>Designation</b>	<b>Expertise</b>
1	Shri Nihar Satpathy	AMIE – Mining	GM (Mining)	32 Years experience

# 16. REQUIREMENT OF FUNDS

The financial forecast for construction of Stabilization of over burden Dumps, Retention/ Toe Walls to arrest sliding down of the excavated material along the contour by means of, Construction of Check Dam, Retaining wall, Catch Drain, Settling Tank and Loose Boulder Structure of 4m span has already been provided in the Scheme for mitigative measures to minimize soil erosion and choking of streams as per condition No.14 (a) of Stage-I approval granted by MoEF& CC in their letter dt.21.12.2023. So, in order to avoid repetition of financial forecast, no budgetary provision has been furnished here.

## FINANCIAL FORECAST of the project (158.509 ha.)

Wage Rate Rs. 345.00

Sl. No.	Description of the Work	Fund Required (in Rs.)
1.	Biological Measures	The financial forecast has already been provided in the earlier scheme prepared in compliance with Condition No.14 (a). So, no budgetary provision has been suggested
A.	Block Plantation (1600 no./ha.) on the dumps and pit to be reclaimed in future over 7.00 ha. @ Rs.3,41,903/- per ha.	
B.	Agave Plantation at the toe of dump over a length of 1116 m. @ Rs.6,38,625/- for 1000 RMT	
	<b>Total</b>	
2.	Structural Measures	
A.	1 no. of Loose Boulder Structure of 4mt span @ Rs.44,461/- per each	
B.	Construction of Garland drain over a length of 1243 m @ Rs.498/- per RMT	
C.	Construction of retaining wall over 1524 m @ Rs.1948.54 per RMT	
D.	Terracing of OB dump over a length of 260 m. @ Rs.833/- per RMT	
E.	Construction of 02 no. of check dam @ Rs.3,85,954.00/- per each	
F.	Construction of 2 no. of settling tank @ Rs.14,908.00/- per each	
G.	Construction of 2 nos. of catch drain (26 m. at dump slope) @ Rs.3,01,137.00/- per each	
	<b>Total</b>	
3.	De-siltation / cleaning work for Garland drain, stabilizing retaining walls, settling pond etc. and check dam twice in a year on LS	
4.	Maintenance of retaining walls	
	<b>Sub Total</b>	
5.	15% of the total cost for motivation of VSS / People involved	
	<b>Total</b>	
	Price escalation @ 20%	
	<b>GRAND TOTAL</b>	

M/s Raga Tradecon Pvt. Ltd. do hereby undertake to execute the item of works mentioned in this scheme in a phased manner at the project cost.

M/s Raga Tradecon Pvt. Ltd.

Raga Tradecon Private Limited

*[Signature]*  
Authorised Signatory

**Technically Approved**

20/11/24

**Regional Chief Conservator of Forests  
Rourkela Circle**

COUNTERSIGNED  
*[Signature]*  
Divisional Forest Officer  
Borunda Division





# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN: 51420MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1ZW

ANNEXURE-20B

CONDITION NO.: 111

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do here by undertake to execute the item of works mentioned in the scheme for Stabilize the overburden dumps by appropriate grading/benching in a phased manner at the Project cost.

For M/s Raga Tradecon Private Ltd

Raga Tradecon PVT Ltd

*Sangram Keshari Ray*

(Sangram Keshari Ray)

Authorized Signatory

Authorized signatory



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN-51420MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1ZW

### ANNEXURE-21

CONDITION NO.: 15A

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake that the safety zone will be protected with barbed wire fencing so that regeneration will take place. We also here by undertake that plantation activities will be undertaken and adequate numbers of watchers will be deployed at project cost under the supervision of State Forest Department.

For M/s Raga Tradecon Private Ltd

Raga Tradecon Pvt. Ltd.

(Sangram Keshari Ray)

Authorized signatory



**RAGA TRADECON PRIVATE LIMITED**  
**NETRABANDHA (WEST) IRON ORE MINES**

CIN-51420MH1995PTC167317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTN: 21AACCR4429D1ZW

**ANNEXURE-22**

**CONDITION NO.: 15B**

**UNDERTAKING**

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake that the boundary of the safety zone of the mining lease, adjacent to habitation/roads will be fenced properly.

For M/s Raga Tradecon Private Ltd

**Raga Tradecon Pvt. Ltd.**

(Sangram Keshari Ray)

Authorized signatory





# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN:51420MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1ZW

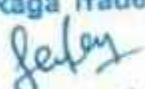
ANNEXURE-23

CONDITION NO.: 15C

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake that safety zone will be maintained as green belt around mining lease and we will ensure dense canopy in the area by regeneration and plantation at project cost under the supervision of the State Forest Department.

For M/s Raga Tradecon Private Ltd

  
Authorized Signatory  
(Sangram Keshari Ray)

Authorized signatory



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN:51A70MH1995PTC162317

VIII, Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048  
E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)  
GSTIN: 21AACUR4429D1ZW

### ANNEXURE-24

CONDITION NO.: 15<sup>D</sup>

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake that the safety zone will be maintained as per the prescribed norms.

For M/s Raga Tradecon Private Ltd

  
Raga Tradecon Pvt. Ltd.

(Sangram Keshari Ray) Authorized Signatory

Authorized signatory



**RAGA TRADECON PRIVATE LIMITED**  
**NETRABANDHA (WEST) IRON ORE MINES**

CIN:5142DMH1995PTC162317

Vill, Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACC84429D1ZW

**ANNEXURE-25**

**CONDITION NO.: 16**

**UNDERTAKING**

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake that no damage shall be caused to the topsoil, and the topsoil management plan will be strictly followed.

For M/s Raga Tradecon Pvt. Ltd.  
Raga Tradecon Private Ltd

  
Authorized Signatory  
(Sangram Keshari Ray)

Authorized signatory



*Scheme  
for*

DE-SILTING OF VILLAGE TANKS AND OTHER WATER  
BODIES LOCATED WITHIN 05 KM FROM THE MINE  
LEASE BOUNDARY SO AS TO MITIGATE THE IMPACT  
OF SILTATION OF SUCH TANKS/ WATER BODIES

in compliance

with

Condition No.17 of

Stage-I approval granted vide

Letter No.8-14/2023-FC dt.21.12.2023 of

Government of India, Ministry of Environment,

Forest & Climate Change

for

Diversion of 66.242 Hects of Forest Land

for U/s-2 (ii) of F.C. Act'1980

within 74.37 Ha. Netrabandha Pahar West Iron Ore Block

of

M/s Raga Tradecon Pvt. Ltd.

in village Baldihi and Sanua in Koira Tahsil, Bonai Forest Division

Dist. Sundargarh Odisha.

**SCHEME FOR DE-SILTING OF VILLAGE TANKS AND OTHER WATER BODIES  
LOCATED WITHIN 05 KM FROM THE MINE LEASE BOUNDARY SO AS TO  
MITIGATE THE IMPACT OF SILTATION OF SUCH TANKS/ WATER BODIES**

**1. INTRODUCTION**

M/s Raga Tradecon Private Limited has been incorporated under Company Act 1956 vide Certificate of Incorporation No. 21- 73114 on 24.07.1995. The corporate identity Number of the company is U51420MH1995PTC162317. The registered office is situated at State of Maharashtra (Mumbai) having regd. office at G-165 Express Zone Mall B Wing, Mallad (E), North Side of Ranisati W E Highway, Mumbai, Mumbai City Maharashtra 400097 India, to carry on all or any of the business as manufacturers, buyers, sellers, suppliers, traders, exporters, minerals, metals etc. The company does not have any other mines in the State of Odisha or any other part of India.

The Govt of Odisha issued the notice inviting tender dated 07.07.2021 for commencement of the auction process to grant the mining Lease for Netrabandha Pahar (West) Iron Ore Block located in Koida Tahasil of Sundargarh district of Odisha along with the Mines and Minerals (Development and Regulation) ACT,1957 and The Mineral (Auction) Rules,2015. The e-auction process was conducted in accordance with the tender document and the mineral auction rule, 2015 for said mineral block and M/s Raga Tradecon Pvt. Ltd. was declared as the preferred Bidder under Rule 9(9) (iii) or Rule10(A) of Auction Rules having quoted a final price offer of 139.50%.

The Government of Odisha has issued letter of Intent (LoI) vide letter No.8722/IV(B)SM-53/2021/SM, Bhubaneswar, dated 28.10.2021 under Rule 10(2) of Mineral Auction Rules 2015 in favour of M/s Raga Tradecon Pvt. Ltd. for grant of Mining Lease for Nethrabandha Pahar (West) Iron Ore Block over an area of 74.370 near Baladia village, Koira Tahasil of Sundargarh district of Odisha for a period of 50 years.

Accordingly, M/s Raga Tradecon Pvt. Ltd. has submitted the proposal to obtain diversion of 66.242 ha. of forest land including safety zone area of 2.09 ha. for iron ore mining under Section 2(ii) of the Forest (Conservation) Act 1980 for entire forest land 66.242 ha including safety zone area of 2.090 ha. in their favour within their allotted Netrabandh Pahar (West) Iron Ore Block of 74.370 ha. located in village Baldihi & Sanua in Koira Tehsil and Koira Range under Bonai Forest Division of Sundargarh District, Odisha.

Further, Stage-I approval over 66.242 ha. of Forest Land for U/s-2 (ii) of F.C. Act'1980 has been granted by MoEF&CC, Govt. of India vide their Letter No.8-14/2023-FC dt.21.12.2023, wherein it has been stipulated as per Condition No.17 to undertake **desilting of village tanks and other water bodies located within 05 km from the mine lease boundary so as to mitigate the impact of siltation of such tanks/water bodies.**

## **2. LOCATION**

Netrabandha Pahar (West) Iron ore Block of M/s Raga Tradecon Pvt. Ltd. is located in Sundargarh District of Odisha and can be approached throughout the year by road. It falls within the survey of India Topo sheet No.F45N5 (73 G/5). The total mining lease hold area is 74.370.

## **3. TOPOGRAPHY**

The area is represented by sloppy area with gentle undulation, resembling a relict type of topography. The highest contour is 748 meters and the lowest one is of 622 meters. Part of the proposed site comes within the Khajurdihi PRF of Bonai Forest Division.

## **4. SOIL TYPE**

Soil type in the study area varies widely from hard rock to lateritic soil. Areas at higher elevations are usually hard rock consisting of laterite. The top soil is scanty in the area. Whatever top soil is available is thinly spread over all Soil profile in nature. The pH of the soil is slightly acidic in nature.

## **5. CLIMATE**

The study area is characterized by an oppressively hot summer with high humidity. Summer generally commences in the month of March. Temperature beings to rise rapidly attaining a maximum in the month of May. During the summer maximum temperature can go up to 47.7°C. The weather becomes pleasant with onset on monsoon in June and remains as such upto end of October. The temperature in the month of December is lowest, i.e., 7° C. The average annual rainfall as recorded at IMD observatory is 1325.16 mm. Predominant wind direction is South-West. Area remains calm for nearly 50% of the year.

## **6. DRAINAGE**

There are few ephemeral first order nalas originate at mid contours of the main hill in the intervening valleys that follows the natural gradient feeding to the regional Suna- Nadi with its numerous ephemeral to perennial nala draining the area. The Suna-nadi with its numerous ephemeral to perennial tributaries controls the drainage system in the area. Teherei Nala a tributary of Suna-nadi flowing to the North of block and Khajurdihi Nala flowing in the south-eastern part of the area controls the drainage.

## **7. RAINFALL**

There is a wide variation of rainfall in the catchment area and around 10 kms radius of buffer zone of this mine. The average annual rainfall of this mine area is affected by steep hills, forest cover etc. The average annual rainfall of last 10 years comes to 1216.405 mm.



**Table 1: Monthly Rainfall Data of Koira Block (in mm)**  
**Average Rainfall = 1216.405 mm**

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
2009	0.00	0.00	0.00	0.00	84.30	75.70	317.20	100.80	103.00	41.30	40.00	0.00	702.30
2010	11.00	3.00	0.00	0.00	14.00	95.00	134.50	159.50	111.50	18.30	0.00	25.50	572.30
2011	47.00	11.00	17.00	113.50	88.00	247.60	146.30	335.00	480.00	57.00	0.00	0.00	1542.40
2012	21.00	9.00	0.00	60.00	0.00	68.00	303.00	397.50	223.00	35.00	14.00	1.00	1131.50
2013	3.00	0.00	5.00	60.50	46.00	192.00	436.10	286.00	212.00	351.00	0.00	0.00	1593.60
2014	0.00	40.00	78.00	0.00	29.00	141.00	484.00	488.00	168.00	62.00	0.00	0.00	1488.00
2015	2.00	0.00	0.00	51.00	5.00	347.00	449.00	154.00	113.00	0.00	0.00	16.00	1137.00
2016	0.00	27.00	4.00	0.00	70.00	76.10	267.70	363.40	267.40	35.40	0.00	0.00	1131.80
2017	0.00	0.00	0.00	0.00	56.00	201.25	546.00	132.00	90.00	107.00	9.00	0.00	1141.25
2018	0.00	0.00	1.00	44.00	152.00	106.40	482.00	379.30	334.00	53.00	0.00	113.0	1694.7
Average	8.4	9	10.5	32.9	54.43	153.005	356.58	281.75	209.99	76	6.3	15.55	1216.405



#### **8.FACTORS RESPONSIBLE FOR SILTATION**

Siltation is an inherent problem with ponds, lakes and almost all types of water reservoirs world over. Siltation occurs due to deposition or settling of soil eroded from the land mass, decaying fallen leaves, grass and other vegetative materials and decomposed organic materials settled on pond bottoms. Soil erosion may be attributed as the primary factor responsible for pond siltation in this area. Higher gradient and excess rainfall are the most common reasons of soil erosion. Erosion of Soil occurs from the waste dumps, excavated areas and naturally denuded ground surface. However, looking into the current problem of siltation of the village ponds, the major factors are the surface runoff containing silt particles entering into the pond. As the age of the ponds increases, new layers of silt accumulate on the older ones and the silt layers become thicker. Finally the depth of the pond decreases and it loses its water storage capacity. At this time it needs to be de-silted to recover. The best practice against siltation is to de-silt the bottom of the pond at regular intervals as well as taking adequate preventive measures.

#### **9.SELECTION OF PONDS**

For the purpose as mentioned in Condition No.14 of the Stage-I approval letter, a survey of ponds within the buffer area of 5 Kms from the lease boundary was made. Topomap showing the location of ponds is enclosed as Plate No-1. *After discussion with the Block Development Officer Koira , total 2 numbers of following government ponds were selection in Bonai Forest Division for de-siltation within 5 km vicinity of the lease area.*

#### **Information about the ponds proposed for desilting**

Sl. No.	Name of village / Forest Division	Name of water bodies	GPS reading	Dimension of the pond
1.	Khajurdihi / Bonai Forest Division	Pond		Length=77.0 Mt Width= 61.0 Mt Siltation depth= 1.00 Mt
2.	Patmunda / Bonai Forest Division	Pond		Length=35.0 Mt Width= 31.0 Mt Siltation depth= 1.00 Mt

Matrix to indicate the benefits to be derived by individual Villagers from Pond renovation.

Name of the village with water bodies	Population benefited	Cattle to benefited	Irrigation to be derived	Pisciculture benefit
Khajurdihi	***	**	*	*
Patmunda	***	**	*	*

\*\*\* = Maximum benefit, \*\*= Average benefit, \*= Low benefit



**PATMUNDA WATER BODY (POND) PROPOSED FOR DE-SILTATION**



**KHAJURDIHI WATER BODY (POND) PROPOSED FOR DE-SILTATION**



a) **1<sup>st</sup> Year Plan & Management:**

The first year work shall also comprise the following preventive measures to minimize siltation,

- Providing embankment to the ponds where ever necessary.
- Strengthening the existing pond embankment to check external flow of surface run-off in to the pond.
- Regular removal of aquatic weeds and polythene bags /bottle thrown by villagers.
- Plantation of trees on the top of the embankment and stone pitching on the slopes to prevent bank erosion.
- Plantation of selected species like Bara, Aswatha, Lemon, Custard Apple, Guava, Papaya, Mango will be taken up.



*Plantation of trees on the top of the embankment*

- b) **Subsequent 2 Years Plan and Management:** In the subsequent 2 years, the rate of siltation shall be negligible, which can be dealt by manual methods using the local labourers. This will also otherwise help in employment generation,



- c) **Preventive Measures & Maintenance:** It is essential to take up preventive measures in order to minimize re-siltation of the ponds. Activities like pond bank strengthening and stabilization by way of earth work with stone patching, grass seeding and plantation of appropriate species shall be taken up in the first year followed by their maintenance in successive four years.
- d) **Dewatering of village pond:** This will be carried out by engaging dewatering pump.
- e) **De-silting:** After pumping out the water from the pond, silts are to be removed either manually by deploying labour or excavator & dumper combination.
- f) **Earthwork Excavation:** Wherever required, soil has to be removed for deepening the pond to increase water holding capacity of the pond.
- g) **Bathing Ghat (separately for men and women):** In the above Ponds, separate arrangement will be made for bathing by male and female of the Villages. Since the villagers are conscious from mythological point of view, a Tulsī (Ocimum sanctum) Chaura (Platform) has also to be provided where the villagers after bath can offer water to Sun God. The Detailed estimate is enclosed as **Annexure-2**.



*Bathing Ghats*

- h) **Sitting Platform on the embankment of the Pond(s)** – In each Pond, a masonry platform will be provided where the villagers (age old persons and youth) can sit during summer evening. This platform will also serve the purpose of puja / karma.
- i) **Planting all along the embankment of the Pond** – According to availability of land all along the pond (s), plantation of Bela, Pipal, Champa, Baula etc. will be made to form a Green belt. This Green belt will also give an aesthetic view to the area and villagers can collect leaf, fruit, flower etc. for spiritual purposes. The detailed estimate of plantation programme is enclosed in **Annexure- 3**.



*Plantation along the Ponds*

#### **12.INSPECTION AND MONITORING**

For successful implementation of the above Mitigative measures, intensive inspection and technical guidance from concerned technical wing is required. Sufficient fuel/ conveyance charges for technical experts shall be provided by the user agency for proper execution of these programmes.

#### **13.MOTIVATION OF PEOPLE:-**

As per Govt. resolution of 2011, the villagers of the adjoining village, i.e. Baldihi and Sanua of Bonai Division are to be involved in protection and management of plantation. Before execution of the work, a meeting will be conducted in the above villages and resolution regarding support to plantation activities will be made. To motivate the people in this direction, they will be provided with incentives in shape of different community articles, buildings, and different community amenities of fixed and movable type through entry point activities (EPA). Health camps shall also be organized in the villages. Thus, 15% of the plantation cost has been earmarked for expenditure on this score.

#### **14.EXECUTING AGENCY**

The works in the present Scheme shall be executed by the User Agency having specialized departments headed by qualified persons with outsourced man and machinery. To facilitate this, the user agency shall establish its own executing and supervision cells along with required infrastructural facilities. In order to maintain the quality of work, in-house supervision through competent personnel shall be provided. The entire work shall be carried out in co-ordination with the Forest Department.

#### **SPECIALISED CELL**

Sl. No.	Name	Educational Qualification	Designation	Expertise
1	Shri Nihar Satpathy	AMIE -- Mining	GM (Mining)	32 Years experience

# 15. REQUIREMENT OF FUNDS

The total cost of this Scheme for de-silting and improvement of the selected pond in Patmunda and Khajurdihi villages is Rs.1,08,06,400.00 (Rupees One Crore Eight Lakh Six Thousand Four hundred) only.

TOTAL COST OF THE PROJECT Wage Rate Rs.352.00				
Sl. No	Description of Job	Estimate for Pond of village Patmunda	Estimate for Pond of village Khajurdihi	Total fund required (Rs.)
1	Excavation, loading, unloading & carriage by mechanical means of all kinds of soil including stoney earth, gravel & mormetic inter spread with boulders upto 1/2 cum size with all lifts & delfts including trimming of slopes & bed to design section & depositing the excavated materials away from work site as per the specification & directed by EIC with an initial lead of 1.00 KM from the place of excavation complete. Providing rough stone (15cm-30cm) dry pecking in apron & all top four sides berm with our local boulder (boulder supplied by management). Construction of bathing ghat with local boulder Room near bathing ghat for change of clothes by women. Construction of Bench on the embankment for sitting			54,53,000.00
2	Tulsi Chaura			
3	Preparation of ramp on one side of the pond with slope for the village cattle to go near the water body on L.S. @ ₹ 50,000/- per pond	23630.00	23630.00	47,260.00
4	Provision for plantation on all three sides to control Soil erosion (plant will be supplied by management) and resting place of villagers coming for bathing	50,000.00	50,000.00	1,00,000.00
5	Provision for annual maintenance of pond for cleaning aquatic weeds from pond & cutting of bushes from apron & berms on L.S.	200 Plant 10,35,198.00	200 Plant 10,35,198.00	20,70,396.00
		80,000.00	80,000.00	1,60,000.00
6	15% of the total cost for motivation of VSS / People involved	Total		78,30,656.00
		Total		11,74,598.00
		Escalation 20%		90,05,254.00
		Grand Total		18,01,051.00
				1,08,06,305.00
				Or, 1,08,06,400.00

(Rupees One Crore Eight Lakh Six Thousand Four hundred) only

M/s Raga Tradecon Pvt. Ltd. do hereby undertake to execute the item of works mentioned in this scheme in a phased manner at the project cost.

M/s Raga Tradecon Pvt. Ltd.

Raga Tradecon Private Limited

Authorised Signatory

Technically Approved

20/04/2024

Jurnal Chief Conservator of Forests  
Rourkela Circle

COUNTERSIGNED

Divisional Forest Officer  
Bimal Division



## Annexure-1

De-silting the Pond, Construction of Bathing Ghat & bench at Patmunda and Khajurdihi  
Pond by M/s Raga Tradecon Pvt. Ltd. @ Rs.352.00 per MD.

Sl. No.	Items	Location	No	L	B	H	Qty	unit	Rate	Amount
1	Pumping of water by diesel pump incl. spilling diesel & lubricant						15	hours	586.77	8801.68
2	Desilting the pond	Khajurdihi	1	77.0	61.0	1.0	4697.0	cum		
		Patmunda	1	35.0	31.0	1.0	1085.0	cum		
							5782.0	cum	704.0	4070528.0
3	Removing weeds & bush from the bund of the pond	Khajurdihi, Patmunda	2	40.00	4.00		320.00	sqm	13.006	4161.92
4	Removing amary from the pond	Khajurdihi, Patmunda	2	30.00	7.00		420	sqm	36.244	15222.48
5	Rough stone masonry for bathing ghat	Khajurdihi	4	10.00	0.60	0.45	10.80			
			2	10.00	2.50	0.45	22.50			
		Patmunda	4	10.00	0.60	0.45	10.80			
			2	10.00	2.50	0.45	22.50			
							66.6	cum	5163.78	343907.74
6	20mm c p 1:4	Khajurdihi	1	10.00	3.20		32.00			
		Patmunda	1	10.00	3.20		32.00			
		step face	80	2.50	0.20		40.00			
		change room floor	4	5.00	2.00		40.00			
							144.00	sqm	235.83	33959.52
7	Neat cement punning	Khajurdihi	1	10.00	3.20		32.00			
		Patmunda	1	10.00	3.20		32.00			
		step face	80	2.50	0.20		40.00			
		change room floor	4	5.00	2.00		40.00			
							144.00	sqm	29.562	4256.92
8	Earth work in excavation	Change room								
		Khajurdihi	1	3.00	0.40	0.40	0.48			
			2	1.25	0.40	0.40	0.40			
			1	2.00	0.40	0.40	0.32			
			1	6.00	0.40	0.40	0.96			
		Patmunda	1	3.00	0.40	0.40	0.48			
			2	1.25	0.40	0.40	0.40			
			1	2.00	0.40	0.40	0.32			
			1	6.00	0.40	0.40	0.96			
		Bench	12	2.50	0.40	0.40	4.80			
							9.12	cum	352.00	3210.24
9	C C 1:3:6	Change room								
		Khajurdihi	1	3.00	0.40	0.10	0.12			
			2	1.25	0.40	0.10	0.10			
			1	2.00	0.40	0.10	0.08			

			1	6.00	0.40	0.10	0.24			
		Patmunda	1	3.00	0.40	0.10	0.12			
			2	1.25	0.40	0.10	0.10			
			1	2.00	0.40	0.10	0.08			
			1	6.00	0.40	0.10	0.24			
		Bench	12	0.50	0.40	0.10	0.24			
		Flooring	2	5.00	2.00	0.10	2.00			
							3.32	cum	7748.89	25726.31
10	C C 1:2:4	Bathing ghat	2	10.00	2.50	0.05	2.50	cum	7509.94	18774.85
11	B W 1:6	Change room								
		Khajurdihi	1	3.00	0.24	3.20	2.30			
			2	1.25	0.24	3.20	1.92			
			1	2.00	0.24	3.20	1.54			
			1	6.00	0.24	3.20	4.61			
		Patmunda	1	3.00	0.24	3.20	2.30			
			2	1.25	0.24	3.20	1.92			
			1	2.00	0.24	3.20	1.54			
			1	6.00	0.24	3.20	4.61			
		Bench	12	0.50	0.24	0.80	1.15			
							21.89	cum	9856.0	215747.84
12	12mm c p 1:6	Change room								
		Khajurdihi	1	3.00		3.00	9.00			
			2	1.25		3.00	7.50			
			1	2.00		3.00	6.00			
			1	6.00		3.00	18.00			
		Patmunda	1	3.00		3.00	9.00			
			2	1.25		3.00	7.50			
			1	2.00		3.00	6.00			
			1	6.00		3.00	18.00			
		Bench	12	0.50		0.10	0.60			
							81.6	sqm	199.57	16284.912
13	20mm c p 1:6	Change room								
		Khajurdihi	1	3.00		3.00	9.00			
			2	1.25		3.00	7.50			
			1	2.00		3.00	6.00			
			1	6.00		3.00	18.00			
		Patmunda	1	3.00		3.00	9.00			
			2	1.25		3.00	7.50			
			1	2.00		3.00	6.00			
			1	6.00		3.00	18.00			
		Bench	12	0.50		0.10	0.60			
							81.6	sqm	211.2	17233.92
14	Lift charge for B W 1:6	Change room								
		Khajurdihi	1	3.00	0.24	2.40	1.73			
			2	1.25	0.24	2.40	1.44			
			1	2.00	0.24	2.40	1.15			
			1	6.00	0.24	2.40	3.46			
		Patmunda	1	3.00	0.24	2.40	1.73			
			2	1.25	0.24	2.40	1.44			
			1	2.00	0.24	2.40	1.15			
			1	6.00	0.24	2.40	3.46			
							15.56	cum	235.83	3689.51

15	Lift charge for C.p	Change room								
		Khajurdihi	2	3.00		2.40	14.40			
			4	1.25		2.40	12.00			
			2	2.00		2.40	9.60			
			2	6.00		2.40	28.80			
		Patmunda	2	3.00		2.40	14.40			
			4	1.25		2.40	12.00			
			2	2.00		2.40	9.60			
			2	6.00		2.40	28.80			
							129.6	sqm	13.006	1685.57
16	Roofing with GCI sheet		2	5.00	3.00		30.00	sqm	235.83	7074.90
17	Carrying cutting to site & erecting stl steel		2	3.00	5.00	4.50	135.00	kg		
							0.135	MT	7040.0	950.4
18	White wash 3 coats on new surface	Change room								
		Khajurdihi	2	3.00		2.40	14.40			
			4	1.25		2.40	12.00			
			2	2.00		2.40	9.60			
			2	6.00		2.40	28.80			
		Patmunda	2	3.00		2.40	14.40			
			4	1.25		2.40	12.00			
			2	2.00		2.40	9.60			
			2	6.00		2.40	28.80			
							129.6	sqm	28.158	3649.27
									<b>Sub Total</b>	<b>4794845.98</b>
19	Cement						11	MT	13610.07	149710.77
20	Angle						0.135	MT	93864.30	12671.68
									<b>Total</b>	<b>4957228.43</b>
									Contingency @ 10%	495723.00
									<b>Grand Total</b>	<b>5452951.43</b>
									<b>Or,</b>	<b>5453000.00</b>

Raga Tradecon Private Limited

  
Authorised Signatory



**CONSTRUCTION OF TULSICHAURA ON THE BATHING GHAT @ Rs.352.00**

Sl. No.	Description of Items	Unit	Nos	L	B	H	Quantity	Rate	Amount
1	Earthwork in excavation	M3	1	6	0.4	0.3	0.63	249.55	157.216
2	Plain cement concrete 1:3:6	M3	1	6	0.35	0.1	0.21		
							0.21	8090.00	1698.90
3	Brick Work ( 1:6 ) ( AboveG.LIn Super Structure)	M3	1	6	0.25	1.5	2.25	7893.58	17760.55
4	12 mm thick plaster	M2	1	6		1.5	9		
							9	183.72	1653.48
5	Applying Lime Wash	M2		Same qty as item no 4			9	23.56	212.04
Sub total									21482.18
Contingency 10 %									2148.21
Total Amount (Rs.)									23630.39 Or, 23630.00

(Rupees Twenty Three Thousand Six hundred Thirty) only.

Raga Tradecon Private Limited

  
 Authorised Signatory

**COST NORM FOR PLANTATION OF FRUIT BEARING SPECIES ALONG THE  
POND EMBANKMENT @ Rs.352.00 per MD  
400 Plants per Km. in 2 rows**

Sl No.	Item of work	Mandays	Labour rate @ 352.00	Material cost in Rs.	Total (Rs.)
<b>0 th year advance work/pre-planting/ 1st Yr. plant.</b>					
1	Site preparation & alignment	2	704.00		704.00
2	Pitting 45 cm cube	25	8800.00		8800.00
3	Cost of 400 nos. of 1 yr. old seedling @ Rs.141/- per seedling	0	0	56400	56400
4	Carriage of plants & planting	6	2112.00	0	2112.00
5	1st weeding & manuring	2	704.00		704.00
6	Casualty replacement	2	704.00		704.00
7	Soil working, application of insecticides	2	704.00		704.00
8	Cost of FYM& fertilizer including transportation		0	4480	4480.00
9	Cost of Iron gabion 400 Nos. @ 1869/- per gabion on LS		0	747600	747600.00
10	Misc expenditure		0	3734	3734
11	Cost of engaging one watcher for year (9 month)	234	82368.00		82368.00
12	Watering at least 5 days in a month for 4 months (8 person X 6 times in a month X 4 month)	192	67584.00		67584.00
13	Const. of 2 nos. Sign-board on LS. @ Rs 1500/- per signboard		0	3745	3745.00
	<b>Total :-</b>	<b>465</b>	<b>163680.00</b>	<b>815959</b>	<b>979639.00</b>
<b>2nd Year Operation</b>					
14	Weeding, soil working, manuring (twice)	4	1408.00		1408.00
15	Casualty replacement 15% including cost of seedling including cost of seedlings (60 Nos. @ 112/-)	2	704.00	8400	9104.00
16	Cost of fertilizer & pesticides		0	2240	2240.00
17	Gabion maintenance including painting	20	6040.00	37333	44372.00
18	Misc expenditure		0	1872	1872.00
19	Watering at least 6 days in a month for 8 months (April to July & November to March) (8 person X 5 times in a month X 8 month)	320	112640.00		112640.00
20	Cost of engaging one watcher for year (12 month)	312	109824.00		109824.00
	<b>Total :-</b>	<b>658</b>	<b>231616.00</b>	<b>49845</b>	<b>281461.00</b>

SI No.	Item of work	Mandays	Labour rate @ 352.00	Material cost in Rs.	Total
<b>3rd Year Operation</b>					
25	Weeding, soil working	3	1056.00		1056.00
26	Gabion maintenance	20	7040.00	37333	44373.00
27	Cost of engaging one watcher for year (12 month)	312	109824.00		109824.00
28	Unforeseen		0	1872	1872
29	Watering at least 6 days in a month for 8 months (April to July & November to March) (8 person X 5 times in a month X 8 month)	320	112640.00		112640.00
	<b>Total :-</b>	<b>655</b>	<b>230560.00</b>	<b>39205</b>	<b>269765.00</b>
<b>4th Year Operation</b>					
25	Weeding and pruning	3	1056.00		1056.00
26	Gabion maintenance	20	7040.00	37333	44373.00
27	Cost of engaging one watcher for year (12 month)	312	109824.00		109824.00
28	Unforeseen		0	1872	1872
29	Watering at least 6 days in a month for 8 months (April to July & November to March) (8 person X 5 times in a month X 8 month)	320	112640.00		112640.00
	<b>Total :-</b>	<b>655</b>	<b>230560.00</b>	<b>39205</b>	<b>269765.00</b>
<b>5th Year Operation</b>					
30	Weeding and pruning	3	1056.00		1056.00
31	Gabion maintenance	20	7040.00	37333	44373.00
32	Cost of engaging one watcher for year (12 month)	312	109824.00		109824.00
33	Unforeseen		0	1872	1872
34	Watering at least 6 days in a month for 8 months (April to July & November to March) (8 person X 5 times in a month X 8 month)	320	112640.00		112640.00
	<b>Total :-</b>	<b>655</b>	<b>230560.00</b>	<b>39205</b>	<b>269765.00</b>
	<b>Grand Total :-</b>	<b>3088.00</b>	<b>1086976.00</b>	<b>983419.00</b>	<b>2070395.00</b>

**ABSTRACT**

SI No.	Year	Amount (inRs.)
1	1st year	979639.00
2	2nd year	281461.00
3	3rd year	269765.00
4	4th year	269765.00
5	5th year	269765.00
	<b>Total :-</b>	<b>2070395.00</b>

Total Expenditure for 400 plants = Rs.20,70,395.00  
Expenditure for 200plant = Rs.10,35,197.5 (Or, 10,35,198.00)

Raga Tradecon Private Limited

  
Authorised Signatory





# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN:51420MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1ZW

ANNEXURE-26B

CONDITION NO.: 17

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake to execute the item of works mentioned in the scheme of de-silting of village tanks and other water bodies within 05 km from the mine lease boundary so as to mitigate the impact of siltation of such tanks/waterbodies in a phased manner at the Project cost.

For M/s Raga Tradecon Private Ltd

*Sangram Keshari Ray*  
Raga Tradecon Private Ltd  
Authorized Signatory

(Sangram Keshari Ray)

Authorized signatory



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN-51420MH1995PTC182317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1ZW

ANNEXURE-27

CONDITION NO.: 18

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake that the cost of felling of trees will be deposited with the State Forest Department as per the demand order of the DFO Bonai.

For M/s Raga Tradecon Private Ltd

**Raga Tradecon Pvt. Ltd.**

(Sangram Keshari Ray)

**Authorized Signatory**

Authorized signatory



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN:51420MH1995FTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1ZW

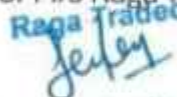
ANNEXURE-28

CONDITION NO.: 19

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake that trees would be felled in phased manner as per the requirement in the approved Mining Plan with prior permission of DFO Bonai.

For M/s Raga Tradecon Private Ltd

  
(Sangram Keshari Ray)  
Authorized Signatory

Authorized signatory





# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN:51420MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1ZW

ANNEXURE-29

CONDITION NO.: 20

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake that the afforestation of non-mineralized virgin forest land within the mining area shall be carried out at the project's cost.

For M/s Raga Tradecon Private Ltd

Raga Tradecon Pvt. Ltd.  
*[Signature]*

(Sangram Keshari Ray)  
Authorized Signatory

Authorized signatory



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CH-51420MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundergarh, Odisha, 770048

E-Mail: [raga@tradeconminerals@gmail.com](mailto:raga@tradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1ZW

ANNEXURE-30

CONDITION NO.: 21

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake that we will explore the possibility of translocation of maximum number of trees identified to be felled under guidance of DFO, Bonai and we shall ensure that any tree felling shall be done only when it is unavoidable and that too under strict supervision of the State Forest Department.

For M/s Raga Tradecon Private Ltd

Raga Tradecon Pvt. Ltd.

(Sangram Keshari Ray)

Authorized signatory

**SITE SPECIFIC  
WILDLIFE CONSERVATION / MANAGEMENT PLAN  
FOR  
Netrabandha Pahar (West) Iron Ore Block**



**M/s Raga Tradecon Pvt. Ltd.  
Over 66.242 Ha Forest Area near Baladihi & Sanua Village  
Koirā Tahasil, Sundergarh District  
Odisha**



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## **Acknowledgement**

M/s. Raga Tradecon Pvt. Ltd. in the district of Sundargarh spreads over an area of 74.370 ha out of which 66.242 ha is under forest kisam land and the balance 8.128 ha is non forest land. The approved mining plan of NetrabandhaPahar (west) Iron Ore Block along with Progressive Mine Closure Plan, over an area of 74.370 ha in Sundargarh district of Odisha was approved and communicated by the Regional Controller of Mines (IBM), Bhubaneswar vide their Letter No. MP/A/24-ORI/BHU/2021-22 /1474 dated execution of mining lease 07.02.2022 for production of I MTPA of Iron Ore. This approval under rule 10 of MCDR, 1988 is valid 50 years from date of execution.

The entire lease area is under the control of Revenue Department. There are 71 villages situated within the core zone of influence with population of 46104 persons. Due to diversion of this area for non forestry activities there will be additional pressure on the adjoining forest. The mining activities in the area will be additional pressure on the adjoining forest. The Mining activities in the area will affect the Wild-Life of the lease hold area as well as the adjoining forest areas and will pose various threats to the wild animals. As various mines are in operation adjoining the lease area the problem can be properly addressed only if a comprehensive wild-life management plan is prepared for the entire belt which will help in protecting the wild-life as well as their habitat. In this plan therefore it is left to the discretion of DFO/ Forest Department to after the proposal depending on the field demand and necessity.

This plan aims at minimizing the threats posed by mining activities and to improve the wildlife habitat in the adjoining forest area as the zone of influence and beyond.

Proper implementation of the plan will definitely improve the wildlife habitat in the area and will reduce man-animal conflict.

---



## EXECUTIVE SUMMARY

Netrabandha Pahar (West) Iron Ore Mine of M/s. Raga Tradecon Pvt. Ltd., in the district of Sundargarh spreads over an area of 74.370 Ha out of which 66.242 ha comes under forest Kissam land and the rest 8.128 Ha is non-forest category. The e-auction process was conducted in accordance with the tender document and the mineral auction rule, 2015 for said mineral block and M/s. Raga Tradecon Pvt. Ltd. was declared as the preferred Bidder vide letter of Intent was issued for grant of Mining Lease for a period of 50 years vide letter no 8722/IV(B)SM-53/2021 dt 28.10.2021 subject to abiding of all rules and regulations.

The project area can be located on Topo-Sheet Nos. F45N5 and location coordinates having Latitude: 21° 52' 20.13" N' to 21° 53' 01.24" N and Longitude: 85°16' 46.84" E" to 85° 17' 15.90" E. The 10 km Radius covers both Bonai & Keonjhar Forest Division.

The ML area occurs part of Netrabandha Hill and is situated in slope of hill. The trend of the hill is NE-SW sloping down towards east and south east. The maximum elevation of the area is 748m AMSL at NW part of the area whereas the lowest elevation is 622m AMSL at eastern part.

The climate is tropical with a very hot summer and moderate to cool winter, the temperature rising up to 45°C. The area is characterized with well-defined rainy season. The minimum temperature during winter goes to 7C.

All the drainage of the area joins Brahmani River which forms the sole drainage line of the area. Brahmani River originates from the confluence of Sank and Koel River in the southern part of Bihar State and ultimately falls into Bay of Bengal.

The lease area does not form a part of any National Park or Wild life Sanctuary or Critical Wild Life habitat. No protected area is situated in the lease area or within the Zone of Influence.

The lease area is being surrounded by existing mines and no important wild animals are noticed in the project area.

The process of mining will be Opencast Fully Mechanized method with drilling and blasting. The Mega wild animals like elephants have been found to be moving in Mendhamurhani PRF, Sidhamath RF, Karampada RF and Karo RF areas.

The threats perceived due to the project operation are;

- Reduction of wildlife habitat
  - Soil erosion
  - Water pollution & water scarcity
  - Dust hazards
-

Site Specific Wildlife Conservation plan of M/s. Raga Tradecon Pvt. Ltd., Netrabandha Pahar (West) Iron Ore Mines involving 66.242 Ha forest land, Tehsil- Koira, Dist- Sundergarh

- Noise disturbance
- Garbage problems
- Physical threats such as fall of animals in the pits, poaching etc.
- Forest fire
- The present management plan is prepared to minimize the above threats.

#### **Mitigation Measures proposed to be taken in the ML Area**

1. Water pollution will be checked by diverting the water to pass through garland drains and settling tanks and treating the water generated in the mine.
2. Dust hazards will be controlled by regular sprinkling of water on haul roads and the mine product at the time of loading and transportation. Dry fog system in the Crushing & screening unit will also be adopted to reduce spreading of dust.
3. Garbage will be disposed of through efficient garbage management methods.
4. Solar Electric fencing will be done around the mine pit to prevent animals from falling in to the mine pit.
5. Creation of Awareness in the villages around the mine area will be taken up by the project proponent.

#### **Financial Implication for Impact Area**

Financial implication for Site Specific Wildlife Conservation plan for **Bonai division** is ₹ 318.96 Lakhs and for Keonjhar Division is Rs 84.10 Lakhs.

## CHAPTER I

### Introduction

#### 1.0 Description of the Project

Netrabandha Pahar (West) Iron Ore Mine of M/s. Raga Tradecon Pvt. Ltd., in the District of Sundargarh spreads over an area of 74.370 Ha out of which 66.242 ha comes under forest Kissam land and the rest 8.128 Ha is non-forest category. The entire lease area is under revenue department there are 71 villages situated within the Zone of influence with population of 46104. Due to the diversion there has been some additional pressure to the neighboring forest. As various mines are operating.

The e-auction process was conducted in accordance with the tender document and the mineral auction rule, 2015 for said mineral block and M/s. Raga Tradecon Pvt. Ltd. was declared as the preferred Bidder vide letter of Intent was issued to M/s. Raga Tradecon Pvt. Ltd. for grant of Mining Lease for a period of 50 years vide letter no 8722/IV(B)SM-53/2021 dt 28.10.2021 subject to abiding of all rules and regulations.

Government of Odisha has issued letter of Intent to M/s. Raga Tradecon Pvt. Ltd. for grant of Mining Lease for Netrabandha Pahar (West) Block for iron ore over an area of 74.370 Ha near Baliadihi & Sanua village, Koira Tahasil of Sundargarh district of Odisha for a period of 50 years.

#### 1.1 Cost of the Project

The estimated project cost is project is Rs 60 cr.

Particulars of project cost	Project cost (Rs. In Crores)
Plant & Machinery	40.0
Post Operative	20.0
<b>Total Project Cost</b>	<b>60.00</b>

A sum of Rs.2.62 Cr will be spent for capital cost & Rs.0.599 Cr recurring cost towards recurring cost Environmental Management and Rs.0.712 Cr towards SSWCP.

#### 1.2 Location

Netrabandha Pahar (West) Ore block, a virgin block is located over an area of 74.370 ha located Baldihi & Sanua Village under Koira tehsil in Sundargarh district of Odisha bounded by

Latitude: 21° 52' 20.13" N' to 21° 53' 01.24" N

Long: 85°16' 46.84" E" to 85° 17' 15.90" E.

#### GPS Co-ordinates of the project area

The project area can be located on Topo-Sheet Nos. F45N5



Site Specific Wildlife Conservation plan of M/s. Raga Tradecon Pvt. Ltd., Netrabandha Pahar (West) Iron Ore Mines involving 66.242 Ha forest land, Tehsil- Kolra, Dist- Sundergarh

**Pillar Coordinates of the ML area**

Sl.No.	Latitude	Longitude
1	21° 52'58.66927" N	85° 16'46.84900" E
2	21° 52'44.60249" N	85° 16'49.22482" E
3	21° 52'44.97118" N	85° 16'52.67427" E
4	21° 52'20.13448" N	85° 16'56.99025" E
5	21° 52'21.842" N	85° 17'16.168" E
6	21° 52'52.774" N	85° 17'10.449" E
7	21° 52'53.367" N	85° 17'15.901" E
8	21° 53'01.24710" N	85° 17'14.57591" E

- o State: Odisha
- o District: Sundargarh
- o Sub Division: Bonai
- o Tehsil: Bonai
- o Village: Baldihi & Sanua
- o Total lease area: 74.370 Ha
- o DLC - Forest land is 66.242 Ha
- o Non forest area is 8.128 Ha

**Forest block, Beat, Forest Range etc.**

**Impact Area:** The project area is located at Sundargarh districts.

**Forest Blocks:** Parts of the following forest blocks fall within the impact area of 10 km radius:

Sl.No.	Name	Forest Category	Distance from ML in KM	Direction from ML
1	Sarkanda	R.F	2.5	SOUTH
2	Tohra	R.F	3.3	SOUTH
3	Tohra	R.F	5.9	NORTH
4	Karo	R.F	9.5	NORTH-EAST
5	Kathmal	R.F	8.2	EAST
6	Mendhamururuni	R.F	4.04	NORTH WEST
7	Bhawani Pahar	RF	2.24	WEST
8	Khajurdihi	RF	2.89	SOUTH
9	Siddhamath	RF	9.85	NORTH EAST

Site Specific Wildlife Conservation plan of M/s. Raga Tradecon Pvt. Ltd., Netrabandha Pahar (West) Iron Ore Mines involving 66.242 Ha forest land, Tehsil- Koira, Dist- Sundergarh

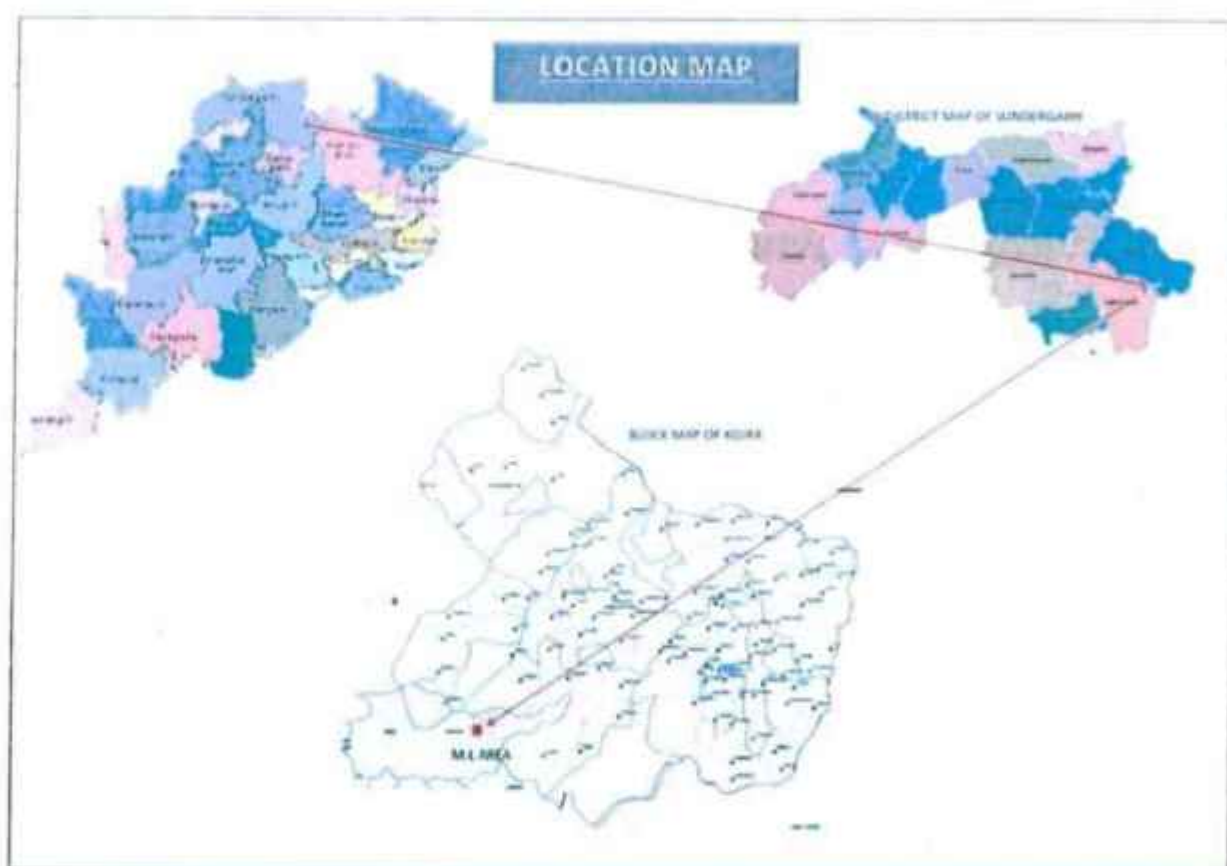
**Forest Beats**

1. Teherai
2. Ranisal
3. Koira
4. Mendhamaruni
5. Khajurdihi

**Forest Range:** Koira

**Forest Division:** Bonai

The lessee has obtained statutory clearance like Mining Plan approval from IBM.



**Location map of the Lease area**

**Land details:**

Area (hectares)	:	74.370 Ha
Details of forest land	:	66.242 Ha area is under forest as per the DLC record. 8.128 Ha is non-forest.
Ownership occupancy	:	Govt. of Odisha. Mining Lessee – M/s Raga Tradecon Pvt. Ltd.

**Conditions imposed in Stage-I**

Stage I not accorded, proposal no. **FP/OR/MIN/153549/2022,**

State Serial No. **OR-027/2022**

Site Specific Wildlife Conservation plan of M/s. Raga Tradecon Pvt. Ltd., Netrabandha Pahar (West) Iron Ore Mines involving 66.242 Ha forest land, Tehsil- Koira, Dist- Sundergarh

**ToR Conditions by SEIAA for EC**

EC Not Accorded

ToR for Impact assessment assigned Vide letter No. 4917/SEIAA File No. SIA/OR/MIN/74953/2022.

**ToR Points for SSWLCP**

**Specific ToR h)** Biodiversity Study with audit mechanism Manav Rachna International Institute Of Research And Studies.

A detail biodiversity study has been carried out by accredited expert from

**Specific ToR I):** Copy of site specific Wildlife Management Plan to be submitted.

**Specific ToR XLVIII):** Site specific Wild Life Management Plan including protection and conservation of Endangered, Threatened and Near Threatened living species along with their categories be identified and submitted.

Site specific Wild Life Management Plan is prepared considering the conservation of likely endangered, Threatened and Near Threatened living species along with their categories.

**Specific ToR 11)** Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.

ToR condition has been complied considering all the delineating all the factors ecological factors and land use pattern with forest area involved.

**Standard ToR 11)** Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.

The said map has been authenticated from PCCF Wild life Odisha

**Standard ToR 12)** A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.

The detail study has been carried and authenticated from the Divisional Forest Officer Bonai.



Site Specific Wildlife Conservation plan of M/s. Raga Tradecon Pvt. Ltd., Netrabandha Pahar (West) Iron Ore Mines involving 66.242 Ha forest land, Tehsil- Koira, Dist- Sundergarh

**Standard ToR 17:** A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and detailed furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.

A detail study has been carried by the respective domain expert from Manav Rachna International Institute Of Research And Studies.

**NEERI Condition Ecology/Biodiversity (Flora-Fauna) Related:**

- (i) As per the Red List of IUCN (International Union for Conservation of Nature), six floral species and 21 faunal species have been reported to be under threatened, vulnerable & endangered category. Protection of these floral and faunal species should be taken by the State Forest & Wildlife Department on priority, particularly in the mining zones, if any,
- (ii) The mines falling within 5-10 km of the Karo- Karampada Elephant corridor buffer need to take precautionary measures during mining activities. The forest and existing elephant corridor routes are to be protected and conserved. Improvement of habitat by providing food, water and space for the elephants is required to be ensured to avoid Man- Elephant conflicts. Though as per the records of State Forest Department, movement of elephants in the Karo-Karampada elephant corridor within 10 km distance from the mines in Joda and Koira is not observed. the Forest Department shall further record and ensure that elephant's movement is not affected due to mining activities,
- (iii) All precautionary measures should be taken during mining operation for conservation and protection of endangered fauna namely elephant, sloth bear etc. spotted in the study area. Action plan for conservation of flora and fauna should be prepared and implemented in consultation with the State Forest and Wildlife Department within the mine lease area, whereas outside the mine lease area, the same should be maintained by State Forest Department,
- (iv) Afforestation is to be done by using local and mixed species saplings within and outside the mining lease area. The reclamation and afforestation is to be done in such a manner like exploring the growth of fruit bearing trees which will attract the fauna and thus maintaining the biodiversity of the area. As afforestation done so far is very less, forest department needs to identify adequate land and do afforestation by involving local people in a time bound manner,
- (v) Green belt development carried out by mines should be monitored regularly in every season and parameters like area under vegetation/plantation, type of plantation, type of tree species /grass species/scrubs etc., distance between the plants and survival rate should be recorded,
- (vi) Green belt is an important sink of air pollutants including noise. Development of green cover in mining area will not only help reducing air and noise pollution but also will improve the ecological conditions and prevent soil erosion to a greater extent. Further, selection of tree species for green belt should constitute dust removal/dust capturing plants since plants can act as efficient biological filters removing significant amounts of particulate pollution. Thus, the identified native trees in the mine area may be encouraged for plantation. Tree species having small leaf area, dense hair on leaf surface (rough surface), deep channels on leaves should be included for plantation,
- (vii) Vetiver plantation on inactive dumps may be encouraged as the grass species has high strength of anchoring besides medicinal value,
- (viii) Details of compensatory afforestation done should be recorded and documented by

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respective forest divisions, and State Forest Department should present mine-wise annual status, along with expenditure details,

- (ix) Similarly, Wildlife Department is also required to record and document annual status of wildlife in the region and should identify the need for wildlife management an regional level,
- (x) Maintenance of the ecology of the region is prime responsibility of the State Forest and Wildlife Department. They need to periodically review the status and identify the need for further improvement in the region. The required expenditure may be met from the funds already collected in the form of compensatory afforestation and wildlife management. Further, additional fund, if required can be sought from DMF. Responsibility: Individual Mine Lease Holders and State Forest & Wildlife Department.

the Red List of IUCN (International Union for Conservation of Nature), under threatened, vulnerable & endangered category. Protection of these floral and faunal species will be taken by the State Forest & Wildlife Department in the mining zones.

The mine is not falling within 5-10 km of the Karo- Karampada Elephant corridor. Precautionary measures during mining activities will be taken for Improvement of habitat by providing food, water and space for the elephants will be ensured to avoid Man- Elephant conflicts.

All precautionary measures will be taken during mining operation for conservation and protection of endangered fauna namely elephant, sloth bear etc. spotted in the study area. Action plan for conservation of flora and fauna is prepared for implementation in consultation with the State Forest and Wildlife Department within the mine lease area.

Afforestation will be done by using local and mixed species of fruit bearing trees within and outside the mining lease area.

Green belt will be development Ensuring 90% survival.

Vetiver will be planted in the reclamation phase of the mine

**Compensatory Afforestation:** CA land has been identified of equal to the forest area of 64.50 ha in village Mahupada under Banki Range has been identified. Memo No.1133 dated.01.11.2022



**Land schedule of the Project area**

LAND SCHEDULE OF THE PROPOSED ML AREA DECIDED FOR AUCTION FOR NETRABANDHA PAHAR (WEST) IRON ORE MINES OVER 183.772 ACRES PER 74.370 HECTS. UNDER KOIRA TEHSIL OF SUNDARGARH DISTRICT										
Sl no.	VILLAGE	PLOT No.	KHATA NO.	NAME OF THE TENANTS	KISSAM	FULL AREA AS PER ROR IN ACRES	AREA INCLUDED IN BLOCK AS PER ROR IN ACRES	AREA INCLUDED AS PER DGPS SURVEY IN ACRES	AREA AS PER DGPS SURVEY IN HECTS.	REMARKS
1	Baldihi	102/P	65	Rakhit	Jungle	50.00	35.371	35.371	14.314	PRF
2	Baldihi	19/557/P	64/36	Golu Munda	Goda-ii	0.53	0.363	0.363	0.147	ST
3	Baldihi	16/P	68	Abadh Ajogya Anabadi	Pahada	26.22	21.743	21.743	8.799	DLC
4	Baldihi	103/P	65	Rakhit	Jungle	40.00	35.863	35.862	14.513	PRF
5	Baldihi	106/P	68	Abadh Ajogya Anabadi	Pahada	50.00	4.741	4.741	1.919	PRF
6	Baldihi	544/P	68	Abadh Ajogya Anabadi	Pahada	37.50	11.068	11.068	4.479	PRF
7	Baldihi	15/P	65	Rakhit	Jungle	10.58	9.013	9.013	3.647	REV. FOREST
8	Baldihi	15/577/P	65	Rakhit	Sarba Sadharana Jogya	8.17	0.556	0.556	0.225	GOVT. LAND
9	Baldihi	15/578/P	67	Abadh Ajogya Anabadi	Patra jungle	11.60	10.836	10.836	4.385	REV. FOREST
10	Baldihi	13/546/P	68	Abadh Ajogya Anabadi	Pahada	46.98	35.052	35.052	14.186	PRF
11	Baldihi	16/556/P	64/37	Upendra Pradhan	Patita	0.70	0.604	0.604	0.244	ST



12	Baldihi	18/P	64/31	Upendra Pradhan	Gharabari	3.12	0.272	0.272	0.11	ST
13	Baldihi	20/P	64/36	Golu Munda	Goda-II	3.54	0.72	0.72	0.291	ST
14	Baldihi	19/P	64/33	Golu Munda	Goda-II	1.47	0.062	0.062	0.025	ST
15	Baldihi	19/P	64/33	Golu Munda	Goda-II	1.47	0.142	0.142	0.058	ST
16	Sanua	61/P	40	Rakhit	Gochar	21.65	13.478	13.478	5.454	GOVT. LAND
17	Sanua	41/696	39/69	Herman Gudia	Goda-II	0.14				
		41/699	39/70	Peeter Gudia	Goda-II	0.13	0.004	0.004	0.002	ST
		41	39/71	Marsal Gudia	Goda-II	0.13				
18	Sanua	40/P	37	Sana Seriel Munda	Goda-I	0.47	0.063	0.063	0.026	ST
19	Sanua	39/P	42	Abadh Anabadi	Goda-II	0.60	0.161	0.161	0.065	GOVT.LAND
20	Sanua	38/P	39/70	Peeter Gudia	Goda-II	0.70	0.229	0.229	0.093	ST
21	Sanua	37/P	42	Abadh Anabadi	Goda-II	0.66	0.215	0.215	0.087	GOVT.LAND
22	Sanua	36/P	37	Sana Seriel Munda	Goda-I	0.69	0.172	0.172	0.070	ST
23	Sanua	34/P	39/71	Marsal Gudia	Goda-II	0.53	0.019	0.019	0.008	ST
24	Sanua	35/P	42	Abadh Anabadi	Goda-II	0.72	0.12	0.120	0.048	GOVT.LAND
25	Sanua	44/P	42	Abadh Anabadi	Goda-I	0.64	0.128	0.128	0.052	GOVT.LAND
26	Sanua	57/P	42	Abadh Anabadi	Goda-II	0.81	0.213	0.213	0.086	GOVT.LAND
27	Sanua	60	42	Abadh Anabadi	Goda i	0.15	0.15	0.176	0.071	GOVT.LAND
28	Sanua	59	39/69	Herman Gudia	Goda-II	0.21	0.21	0.201	0.081	ST
29	Sanua	55	37	Sana Seriel Munda	Goda i	0.23	0.23	0.231	0.093	ST

30	Sanua	46	39/71	Marsal Gudia	Goda-ii	0.13	0.26	0.270	0.109	ST
	Sanua	46/700	39/70	Peeter Gudia	Goda-ii	0.13				ST
31	Sanua	47	42	Abadh Anabadi	Jogya Goda-i	0.21	0.21	0.200	0.081	GOVT.LAND
32	Sanua	56	42	Abadh Anabadi	Jogya Goda-i	0.21	0.21	0.219	0.089	GOVT.LAND
33	Sanua	58/P	42	Abadh Anabadi	Jogya Goda-i	1.15	0.191	0.191	0.077	GOVT. LAND
34	Sanua	54/P	42	Abadh Anabadi	Jogya Goda-i	0.82	0.355	0.355	0.144	GOVT.LAND
35	Sanua	48	42	Abadh Anabadi	Jogya Goda-i	0.11	0.11	0.096	0.039	GOVT.LAND
36	Sanua	49	39/70	Peeter Gudia	Goda-ii	0.06	0.06	0.056	0.022	ST
	Sanua	50/P	39/71	Marsal Gudia	Goda-ii	0.39				ST
37		50/697	39/69	Harman Gudia	Goda-ii	0.39	0.296	0.296	0.120	ST
		50/701	39/70	Peeter Gudia	Goda-ii	0.34				ST
38	Sanua	51/P	39/69	Herman Gudia	Goda-ii	0.80	0.228	0.228	0.092	ST
39	Sanua	45/P	42	Abadh Anabadi	Jogya Goda-i	0.25	0.046	0.046	0.019	GOVT.LAND
				<b>TOTAL AREA</b>			183.764	183.772	74.370	

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#### Nature & Extent of land Required

Sl. No.	Particulars	Start of Plan Period In Ha	Plan Period In Ha	Conceptual Stage In Ha
1	Mining including mines road and Mobile mineral processing unit	0	8.303	43.820
2	Waste dump with safeguard measures like retaining wall, garland drain and settling pond, check dam etc.	0	3.208	7.403
3	Mineral stacking yard / Mineral Storage	0	7.087	10.889
4	Road	0	4.339	3.243
5	Infrastructure (Office, Magazine, work shop, fuel station, parking plaza etc.)	0	5.739	1.652
7	Green Belt / Grass Turfing	0	0	3.458
8	Undisturbed Land	74.370	45.694	0.903
9	Entry and exit within safety zone area	0	0	0.010
	<b>Sub Total</b>	<b>74.370</b>	<b>74.370</b>	<b>71.378</b>
10	Safety zone around ML boundary	0	0	2.992
	<b>Grand Total</b>	<b>74.370</b>	<b>74.370</b>	<b>74.370</b>

### 1.3 Statutory clearances

#### 1.3.1 Forest clearance:

Forest Clearance has been applied vide Proposal No. **FP/OR/MIN/153549/2022** State Serial no. 27 OR-027/2022 dt 07.04.2022 over total area of 66.242Ha.

#### 1.3.2 Environmental clearance:

Proposal no. SIA/OR/MIN/74953/2022, dt 27.04.2022. Draft EIA/EMP report submitted for Public Hearing.



## CHAPTER- II

### Project and Impact Area

#### 2.1 Project Area

##### 2.1.1 Description of Project Area

The project area is Netrabandha Pahar (West) Iron Ore block covering 74.370 hectare located at Baldihi & Sanua in Koira Tehsil of Sundargarh district. The ML area falls within the toposheet no F45N5 and bounded by the latitude and longitude as furnished below:

Latitude -21° 52' 20.13" N' to 21° 53' 01.24" N

Longitude - 85° 16' 46.84" E" to 85° 17' 15.90" E.

##### Land use of Project area

Particulars	Total area (Ha) in conceptual stage
Mining including mines road and Mobile mineral processing unit	43.820
Waste dump with safeguard measures	7.403
Mineral stacking yard / Mineral Storage	10.889
Road	3.243
Infrastructure (Office, Magazine, work shop, fuel station, parking plaza etc.)	1.652
Green Belt / Grass Turfing	3.458
Undisturbed Land	0.903
Entry and exit within safety zone area	0.010
Sub Total	71.378
Safety zone around ML boundary	2.992
Grand Total	74.370

The project partly involves Baldihi & Sanua village there will be no displacement of any people.

##### 2.1.2 Description of the project Impact area

###### ❖ Topography:

The project area is with highly rugged terrain, and elongated hills trending ENE-WSW direction, low mounds and narrow valleys. The highest elevation of ridges in the area is 701.9 m. The low-lying valleys occur at an elevation of around 638m. Lateritic soil recorded in the ridges and valleys are mainly covered by alluvial soil. The drainage of the project area takes place through Suna Nadi in NW, which is interconnected with numerous streams.

###### ❖ Drainage pattern:

The drainage pattern is dendritic generally but since the region is fracture controlled, trellis pattern is also observed. The drainage density is moderately high indicating more run-off than infiltration. The drainage system is predominately controlled by Suna Nadi flowing at a distance of 7 km in North eastern side and Kurahi Nadi, flowing due North West in the western part of the lease area at a distance of 8km. Similarly, Sarkunda Nala

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flowing at a distance of 4.20 km in the southern side joins Kuradi Nadi at a distance of 5.0 km in the southwestern direction.

All the drainage of the area joins Brahmani River which forms the sole drainage line of the area. Brahmani River originates from the confluence of Sank and Koel River in the southern part of Bihar State and ultimately falls into Bay of Bengal.

The natural drainage system is distinct due to hilly topography in most part of the study circle. Suna Nadi flowing at a distance of about 200m in the NW side of the lease area is the major drainage system of the area. Neumerous nalas and sub nalas like Khajurdihi Nala, Archanda Nala, Kundra Nala joins Teherai Nala in the SW side and finally discharge into Suna Nadi A few seasonal streams flow through the lease. High flood level of Baitarani River and Suna nadi is much below the mining lease.

Natural drainage system existing within the radius of 10 kms of the project area are as follows:

<b>Streams &amp; Rivers</b>	<b>Direction</b>	<b>Distance in Km</b>
Teheri Nala	NW	2
Khajurdihi Nala	S	0.9
Khuntachira Nala	S	1.8
Boream Nala	S	2.148
Archanda Nala	E	4
Suna Nadi Nala	NE	7.89
Khajurdihi Nala	S	3.9
Jurul Nala	S	5.79
Bakalpani Falls	SE	5.3
Mithinda Nala	SE	5.3
Suna Nala	S	7.27
Gajantoli Falls	S	9
Champainar Nala	S	4.2
Khajurdihi Nala	S	3.61
Jakonala	S	4.18
Jaruli Nala	S	5.12
Lekhrapani Nala	SW	3
Raura Nala	SW	3.36
Jokar Nala	SW	2.6
Boraem Nala	SW	1.94
Khuntachira Nala	NW	9.1
Khakharpani Nala	S	9
Badamgarh Nala	NW	2

All the drainage of the area join Brahmani River which forms the sole drainage line of the area. Brahmani River originates from the confluence of Sank and Koel River in the southern part of Bihar State and ultimately falls into Bay of Bengal.

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## 2.2 Impact Area & Its Covering Location

A 10km buffer has been taken as impact area area which involves two districts, namely **Sundargarh & Keonjhar**. The major impact area coming under **Bonai Forest Division of Sundargarh District** and a part of the impact area is coming under Keonjhar Forest division of Keonjhar district. The details of impact area under two forest division is as below:

Name of the Forst Division	Area in Ha	Name of the District
Bonai Forest Division	26822	Sundargarh
Keonjhar Forest Division	8446.87	Keonjhar
<b>Total Area</b>	<b>35268.87</b>	

### ❖ List of village in the Impact Area of Bonai

#### Forest Division

Sl. No.	Range	Villages
1	Barsuan	Jaldihi
2	Barsuan	Tinto
3	Barsuan	Kalmanga
4	Barsuan	Anandapur
5	Barsuan	Tentulidihi
6	Barsuan	Dengula
7	Barsuan	Raikela
8	Barsuan	Bandal
9	Barsuan	Kula
10	Barsuan	Rengma
11	Koira	Kadodihi
12	Koira	Bolajuri
13	Koira	Nuagaon
14	Koira	Orahuri
15	Koira	Koira
16	Koira	Harishchandrapur
17	Koira	Bhanjapali
18	Koira	Kasira
19	Koira	Roladihi
20	Koira	Kusumdihi
21	Koira	Rengalbeda
22	Koira	Nadikasira
23	Koira	Segasahi
24	Koira	Sagadbhanga
25	Koira	Kantharkala
26	Koira	Teherai



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27	Koira	Badindpur
28	Koira	Sanindpur
29	Koira	Pureibahal
30	Koira	Jadipada
31	Koira	Gopisahi
32	Koira	Adaghat
33	Koira	Kalmanga
34	Koira	Malda
35	Koira	Kakarpani
36	Koira	Patabeda
37	Koira	Kenaveta
38	Koira	Sunaposi
39	Koira	Deogarh
40	Koira	Gonua
41	Koira	Mandajoda
42	Koira	Dalita
43	Koira	Kadalia
44	Koira	Panposi
45	Koira	Betajhar
46	Koira	Gambharnali
47	Koira	Bakalapani
48	Koira	Amlia
49	Koira	Patmunda
50	Koira	Biradihi
51	Koira	Baldihi
52	Koira	Ranisal
53	Koira	Sargighar
54	Koira	Khajurdihi
55	Koira	Podadihi
56	Koira	Chandiposh

**Division wise Forest Blocks in the Impact Area**  
**Bonai Forest Division**

Sl.No.	Name	Forest Category	Distance from ML in KM	Direction from ML
1	Sarkunda	R.F	2.5	SOUTH
2	Tohra	R.F	3.3	SOUTH
3	Tohra	R.F	5.9	NORTH
4	Karo	R.F	9.5	NORTH-EAST
5	Kathmal	R.F	8.2	EAST
6	Mendhamururuni	R.F	4.04	NORTH WEST
7	Bhawanipahar	RF	2.24	WEST
8	Khajurdihi	RF	2.89	SOUTH
9	Siddhamath	RF	9.85	NORTH EAST

**Keonjhar Forest Division: Siddhamath RF coming under impact Area**

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### 2.3 Land use of Impact Area

The ML area occurs part of Netrabandha Hill and is situated in slope of hill. The trend of the hill is NE-SW sloping down towards east and south east. The maximum elevation of the area is 748m AMSL at NW part of the area whereas the lowest elevation is 622m AMSL at eastern part.

#### Existing Land Use Pattern

The proposed ML area over 74.370 ha 66.242Ha is forest land, Netrabandha Pahar (West) Iron Ore Block is a virgin mine and has been granted through auction process. None of the area has been degraded by mining and allied activities.

#### Categorically Breakup of buffer zone as per their importance &

Table: land use pattern in the Impact Area

Sl.No	LULC Type	Area in km	Area in Ha	% of Total Area
1	Agricultural land	101.11	10110.67	28.66
2	Dense Forest	170.19	17019.00	48.24
3	Land with Scrub	28.13	2813.00	7.97
4	Land without Scrub	20.61	2061.20	3.53
5	Mining / Industries	19.14	1913.70	18.44
6	Open Forest	3.21	321.00	109.91
7	Plantation	0.12	11.90	2964.71
8	River/Stream	1.35	134.50	262.30
9	Settlement	9.01	901.00	39.16
	<b>Total</b>	<b>352.80</b>	<b>35285.97</b>	<b>100.00</b>

#### i. Agricultural Land

Agricultural land covers 10110.67.058 ha. Cultivation is seasonal, Kharif crops, are grown along with maize, pulses like ragi, mungo, biri are grown to substantiate the household requirements and provide some form of earning to the local people. Owing to mountainous terrain, cultivation practice is limited and restricted to a few pockets in the study area.

#### ii. Forest land

Forest is the major land cover in the study area and most of the area is covered with forest of varying density covered with deciduous trees, shrubs and scrubs with trees such as Sal, Sidha, Mahula, Kendu Champa. Based on the image elements such as color, tone and textural variations, forest is delineated qualitatively as "dense forest", "open forest" and "scrub forest" cover. Cumulatively, LULC of forest category covers an area of 20153 ha of the study area

#### iii. Wasteland

Wasteland is another important LULC where land lies unproductive in terms of agricultural activity. The total area of wasteland is 2061.20 Ha

#### iv. Waterbodies

Water bodies include features such as tanks, ponds, streams and rivers. The water bodies cover 134.5 Ha.



### **Cropping Pattern**

#### **Agriculture:**

The percentage of Agricultural Land within the project impact zone is only 28.66 % of the total land area. Therefore only few people depend on Agriculture alone. Crops like Paddy, maize, millets such as bajara, jawar, cowpea, barsim etc. are raised for their own domestic consumption. At places where there is water availability the people also grow vegetables. The agricultural products are mostly used by people for their own bona-fide consumption.

#### **No of families depending upon the NTFP collection:**

As per the Census data, a total of 46104 nos. of persons exist within the study area (Core & Buffer) out of which approximately 18% of total population is depending upon the NTFP collection for their livelihood. About 28 families are depending upon NTFP collections within the core zone 1659 families are depending within project impact zone.

#### **The method of NTFP collection and its impact on the wild life of the area:**

Various types of NTFP viz. Kendu leaf, Mahua flower & seeds, Siali leaves, fruits, flowers, roots, bark, gums, fiber etc. of various species used to be freely collected from the forest area in past. Except Kendu leaf, which was collected by the department, locals collected all Other NTFP in an unorganized way as they had rights to collect the produce from the protected forests.

Collection of NTFP from the forest area definitely has a negative impact as it leads to habitat degradation and disturbance, which results in shortage of food and cover of wild animals. There have been many incidences in past wherein the collection of Mahua flower and seed has led to outbreak of forest fires. Even for the collection of Kendu leaf, fire is lit in order to encourage new flush of leaves, which is not in the interest of conservation.

#### **v. Cattle Population and its dependency on forest**

Total cattle population surrounding the project area is more than 15719. The livestock populations include cows, buffaloes, goats and oxen in the impact Region. These cattle mostly depend on the forest area for grazing. Normally stall feeding is not practiced in this area. It was observed that the grazing of livestock was practiced as a group activity and all cows gather at a common place and then led to the nearby forest area for grazing. Entry of large number of cattle in to the forest damages the forest and also responsible for transmission of diseases to the wild.

Total ML area covers 74.37Ha., forest land under DLC category is 66.242Ha and 8.128 ha is non-forest land.

#### **vi. Biotic pressure:**

The forests in the impact area are under heavy biotic pressure. The local people depend on these forests for fuel wood, small timber, construction timbers and several NTFP items. Similarly the cattle population of the area depends solely on grazing. Stall feeding is not practiced in the area. Besides these pressures, Forest fire occurs repeatedly every year which destroys the humus content of the soil and also damages the regeneration.

#### **vii. Impact on Wildlife:**

Due to the heavy biotic pressure as narrated above as well as the ongoing mining activities, the wild animals are gradually getting rarer. The only visible wild animal is Elephant which is mostly seasonal. But due to degradation of Forest and wildlife habitat,



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elephant depredation as well as elephant deaths are increasing.

The numbers of household in the village depending solely on agriculture for their livelihood are few in numbers and are categorized as construction worker and mining worker. Mining activities contributes maximum days to the workers than the daily construction wage salary job and private work. The cultivators mostly depend on manual methods and use the traditional plough and bullock for tilling their land and other related operations. The major types of crops are Khariff (Paddy, Maize & Ragi) & Rabi (Mung, Mustard, Black gram, Ground nut etc.). Some people also raise vegetables such as Beans, Cauliflower, Cabbage, Brinjal, Chillies etc. on small scale. During Khariff season from July to October (July-October). Agricultural activities take place both in rain-fed areas and irrigated areas and during Rabi season vegetables crops are grown using stream & dug well water.

#### **viii. Proposed Land use in core area:**

This being a virgin mine all the infrastructural facilities required like approach road, office, stores, etc will be developed.

Parking Plaza -0.877 ha

Office and workshop – 0.317 ha

Fuel Station – 0.178 ha

Weigh bridge- 0.28 ha

In the present study, land use and land cover within 10Km buffer area covering 347.16 sq.km using historical remote sensing satellite data and LULC.

Settlements Since, the buffer area is mostly a rugged mountainous terrain, habitation settlements – villages - are numerous, small in size and scattered in nature. There are some mining related industrial activities in the buffer area apart from some infrastructure buildings such as temporary shelters.

#### **ix. Linear Infrastructures in the project area and project impact area:**

**Roads:** The area can be approached from Barbil or Koira through NH-215. The National Highway No.520 connecting Panikoli on National Highway No.16 is located at a distance of 3.88 km. NW.

**Railway Line/Siding:** The nearest railway station Barsuan which is located at a distance of 22 km from the lease area in West direction. This Railway line has been in existence for quite some time and no new impact could be perceived for this. Moreover, no new railway line is proposed to be laid in the area. However, expansion of single line in to double line of railway is under process.

**Dam:** There is no water reservoir within the impact area

**Canal:** There is no canal or developmental structure in the project area.

**Airport:** The nearest Airport Jharsuguda is approximately 170 kms.

#### **x. Details of water reservoirs, vertical mining pits and unguarded dug well in the project area & project impact area**

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- **Details of Water Reservoir:** There is no water reservoir and canal in the PA & PIA.
- **Vertical Mining Pits:** There are 35 numbers of mining lease area existing within 10 km radius of the project area. Most the mining pits are nearly vertical. The average bench slope is 45° while individual bench is having 60° slope.
- **Water Way:** The only major water way in this area is Suna Nadi which are 4.0 Km As it is a natural perennial water source.
- **Mine Pits:** As there are number of mines in these areas, there are number of working & non-working pits. There is likelihood of the animals falling in to it. But the present user proposes to surround its own mine pit with Solar Electric fencing along chain mesh provision to prevent entry of all types of wild animals.
- **Unguarded dug Wells:** There are no such un-guarded dug wells in the study area. So there is no chance of fall of animals inside the well.

## 2.4 Human Habitation

### 2.4.1 Socio-Economic details:

The impact area comprises of 71 villages out of which 7 villages are in Keonjhar District.

Sl. No.	Name	No of Households	TOTAL POPULATION		
			Total	Male	Female
Sundargarh District					
1	Patamunda	88	358	194	164
2	Beldihi	417	1849	941	908
3	Chandiposh	41	162	77	85
4	Sanjoda	0	0	0	0
5	Kadopani	194	967	464	503
6	Ruguda	123	592	276	316
7	Topadihi	185	836	432	404
8	Adaghat	125	462	235	227
9	Badindipur	123	548	284	264
10	Badpatuli	108	456	217	239
11	Bandal	92	468	219	249
12	Baldihi	80	327	170	157
13	Basada	36	153	73	80
14	Bhanjapali	211	803	374	429
15	Chhachhelia	0	0	0	0
16	Dalita	18	69	33	36
17	Dengula	173	936	438	498
18	Deoghar	51	223	119	104



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19	Ganua	376	1617	820	797
20	Ghodabudani	33	167	82	85
21	Gidei	45	226	108	118
22	Harischandrapur	222	944	481	463
23	Kadalia	84	437	208	229
24	Kadamdihi	105	514	249	265
25	Kadodiha	312	1323	666	657
26	Kalmanga	25	111	57	54
27	Kalmanga	323	1290	634	656
28	Kamanda	233	1081	557	524
29	Kasira	270	1280	581	699
30	Kenaveta	30	124	70	54
31	Kiriakudar	81	354	186	168
32	Khajuridihi	85	365	179	186
33	Kula	149	753	379	374
34	Kusumdihi	220	858	419	439
35	Malda	147	564	297	267
36	Mandajoda	44	191	89	102
37	Mithirda	46	221	107	114
38	Nadikasira	160	541	290	251
39	Nuagaon	90	440	223	217
40	Patbeda	34	145	79	66
41	Podadihi	88	327	152	175
42	Raikela	302	1342	645	697
43	Ranisal	74	287	151	136
44	Rengalbeda	162	628	334	294
45	Rengua	54	317	150	167
46	Rusiberna	0	0	0	0
47	Sanindipur	204	786	414	372
48	Sanputuli	207	894	449	445
49	Sanua	87	338	165	173
50	Sargigarh	176	738	355	383
51	Segasahi	55	271	123	148
52	Sidimba	35	180	98	82
53	Taldihi	75	321	158	163
54	Tantigram	43	212	100	112
55	Teherei	174	754	339	415
56	Tentulidihi	83	353	174	179
57	Koida (CT) WARD NO.-0001	1796	6763	3720	3043
58	Baldihi	62	232	109	123
59	Baldihi	102	356	177	179
60	Bhaliadihi	78	292	144	148



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61	Bhaliadihi	72	416	214	202
62	Jaldihi	76	292	142	150
63	Kododihi	67	216	102	114
64	San-bhaliadihi	17	93	48	45
<b>Keonjhar District</b>					
65	HandiBhanga	87	408	210	198
66	Sreejoda	507	1862	977	885
67	Barhaposi	137	594	299	295
68	Kiriburu	438	1769	910	859
69	Luhakala	194	1133	569	564
70	Barpada	148	651	328	323
71	Katesahi	128	524	261	263
	<b>TOTAL</b>	<b>10907</b>	<b>46104</b>	<b>23324</b>	<b>22780</b>

#### Social, Economic and Demographic Profile of the Study Area

Sl. No.	Particulars	Attributes	Number	Percentage
1	Total No of Villages	Rural Area (Villages)	70	
		Urban Area	1	
		<b>Total</b>	<b>71</b>	
2	Population	Male	23324	50.59% from Total Population
		Female	22780	49.41% from Total Population
		<b>Total Population</b>	<b>46104</b>	100%
3	Caste wise Population	ST	29653	64.32% from Total Population
		SC	3988	8.65% from Total Population
		UR	12463	27.03% from Total Population
		<b>Total Population</b>	<b>46104</b>	100%
4	Literacy	Male Literacy	12736	61.70 % from Total Literates
		Female literacy	7905	38.30 % from Total Literates
		<b>Total Literates</b>	<b>20641</b>	44.77 % from Total Population
		Male Illiteracy	10588	
		Female Illiteracy	14875	
		<b>Total Illiterates</b>	<b>25463</b>	55.23 % from Total Population
		<b>Total Population</b>	<b>46104</b>	100%
5	Economical Structure	Working Population	17434	37.81% from Total Population
		Non-Workers	28670	62.19 % from Total Population
		<b>Total Population</b>	<b>46104</b>	100%

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6	Occupational Structure	Main Workers	13081	75.03% from total working population
		Main Cultivators	1554	11.88 % from Total Main workers
		Main Agriculture Labors	256	1.96% from Total Main workers
		Main Household Workers	185	1.41 % from Total Main workers
		Main other Workers	11086	84.75% from Total Main workers
		Marginl Workers	4353	24.97% from total working population
		<b>Total Working Population</b>	<b>17434</b>	<b>100%</b>

Total population is 46104 males 23324 & female 22780 Most of the people in the study area are non-workers. Workers comprise of only 62% non-working persons consists. The economic condition of the area is very poor.

## 2.5 FLORA & FAUNA

### LIST OF FLORA IN THE CORE ZONE

TREES			
Sl.No.	Local Name	Scientific Name	Family
1	Amba	<i>Mangifera indica</i>	Anacardiaceae
2	Amla	<i>Phyllanthus emblica</i>	Euphorbiaceae
3	Asan	<i>Terminalia tomentosa</i>	Combretaceae
4	Arjuna	<i>Terminalia arjuna</i>	Combretaceae
5	Bahada	<i>Terminalia bellirica</i>	Combretaceae
6	Bara	<i>Ficus benghalensis</i>	Moraceae
7	Bel	<i>Aegle marmelos</i>	Rutaceae
8	Bhalia	<i>Semecarpus anacardium</i>	Anacardiaceae
9	Char	<i>Buchanania lanzan</i>	Anacardiaceae
10	Dhaura	<i>Anogeissus latifolia</i>	Combretaceae
11	Dimiri	<i>Ficus hispida</i>	Moraceae
12	Gambhari	<i>Gmelina arborea</i>	Verbenaceae
13	Gurudu	<i>Gardenia gummifera</i>	Rubiaceae
14	Harida	<i>Terminalia chebula</i>	Combretaceae
15	Hinjal	<i>Barringtonia acutangula</i>	Lecythidaceae
16	Jamun	<i>Syzygium cumini</i>	Mytaceae
17	Jari	<i>Ficus religiosa</i>	Moraceae
18	Kadamba	<i>Neolamarckiacadamba</i>	Rubiaceae
19	Khakada	<i>Casearia elliptica</i>	Flacourtiaceae
20	Karada	<i>Cleistanthus collinus</i>	Euphorbiaceae
21	Kasi	<i>Bridelia retusa</i>	Euphorbiaceae
22	Kendu	<i>Diospyros melanoxylon</i>	Ebenaceae
23	Kumbhi	<i>Careya arborea</i>	Barringtoniaceae
24	Kurei	<i>Holarrhena antidysenterica</i>	Apocynaceae
25	Kurum	<i>Adina cordifolia</i>	Rubiaceae
26	Kusum	<i>Schleichera oleosa</i>	Sapindaceae
27	Mankad kendu	<i>Diospyros montana</i>	Ebenaceae
28	Mahul	<i>Madhuca indica</i>	Sapotaceae
29	Neem	<i>Azadirachta indica</i>	Meliaceae
30	Palas	<i>Butea monosperma</i>	Fabaceae



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31	Panasa	<i>Artocarpus heterophyllus</i>	Moraceae
32	Patuli	<i>Lagerstroemia speciosa</i>	Lythraceae
33	Patuli	<i>Sterospermum chelonoides</i>	Bignoniaceae
34	Pojjamu	<i>Syzygium operculatum</i>	Myrtaceae
35	Rai	<i>Dillenia pentagyna</i>	Dilleniaceae
36	Rohini	<i>Soymida febrifuga</i>	Meliaceae
37	Sal	<i>Shorea robusta</i>	Dipterocarpaceae
38	Salapa	<i>Caryota urens</i>	Palmaceae
39	Sidha	<i>Lagerstroemia parviflora</i>	Lythraceae
40	Semul	<i>Bombax ceiba</i>	Bombacaceae
41	Siris	<i>Albizzia lebbek</i>	Mimosaceae
42	Sisso	<i>Dalbergia sisso</i>	Fabaceae
42	Sunari	<i>Cassia fistula</i>	Fabaceae
44	Tentuli	<i>Tamarindus indica</i>	Fabaceae

#### SHRUBS

Sl.No.	Local Name	Scientific Name	Family
1.	Arakha	<i>Calotropis procera</i>	Asclepiadaceae
2.	Amari	<i>Ipomea fistulosa</i>	Convolvulaceae
3.	Basanga	<i>Adhatoda vasica</i>	Acanthaceae
4.	Gila	<i>Caesalpinia decapetala</i>	Caesalpiniaceae
5.	Girili	<i>Indigofera pulchella</i>	Fabaceae
6.	Karabira	<i>Nerium indicum</i>	Apocynaceae
7.	Kanteikoli	<i>Ziziphus oenopia</i>	Rhamnaceae
8.	Ranidantakathi	<i>Flemingia chappar</i>	Facaceae
9.	Siju	<i>Euphorbia nivulia</i>	Euphorbiaceae

#### CLIMBERS

Sl.No.	Local Name	Scientific Name	Family
1.	Atundi	<i>Combretum decandrum</i>	Combretaceae
2.	Asadhua	<i>Capparis zeylanica</i>	Caparidaceae
3.	Anantamuli	<i>Hemidesmus indicus</i>	Asclepiadaceae
4.	Arsi/Gila	<i>Entada scandens</i>	Mimosaceae
5.	Dantari	<i>Acacia pennata</i>	Mimosaceae
6.	Desi alu	<i>Dioscorea alata</i>	Dioscoreaceae
7.	Gudmari	<i>Gymnema sylvestre</i>	Asclepiadaceae
8.	Kaincha	<i>Abrus precatorius</i>	Fabaceae
9.	Kankada	<i>Momordica dioica</i>	Cucurbitaceae
10.	Muturi	<i>Smilax macrophylla</i>	Liliaceae
11.	Satabari	<i>Asparagus racemosus</i>	Liliaceae
12.	Siali	<i>Bauhinia vahlii</i>	Caesalpiniaceae

#### GRASSES & HERBS

Sl.No.	Local Name	Scientific Name	Family
1.	Bena	<i>Vitiveria zizanioides</i>	Gramineae
2.	Broom	<i>Thysalolaena maxima</i>	Gramineae
3.	Duba	<i>Cynodon dactylon</i>	Gramineae
4.	Sabai	<i>Pollinidium angustifolium</i>	Gramineae
5.	Sinkula	<i>Hetropogon contortus</i>	Gramineae
6.	Anantamula	<i>Hemidesmus indicus</i>	Asclepidaceae
7.	Ada (Ambakasi)	<i>Curcuma amada</i>	Zingiberaceae
8.	Apamaranga	<i>Achyranthes aspera</i>	Amarantaceae
9.	Bhuinimba	<i>Andrographis paniculata</i>	Acanthaceae
10.	Bhurngaraj	<i>Wedelia calendulacea</i>	Campositae
11.	Ghikuari	<i>Aloe vera</i>	Liliaceae
12.	Patalgaruda	<i>Rauwolfia serpentina</i>	Apocynaceae
13.	Palua	<i>Curcuma aromatica</i>	Zingiberaceae



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14. Saptapheni

*Opuntia dillenii*

Cactaceae

# LIST OF FAUNA WITHIN CORE ZONE:

Sl.No.	English Name	Scientific Name	Amended as on 20.12.2022
<b>MAMMALS</b>			
1.	Elephant	<i>Elephas maximus</i>	I
2.	Pangolin	<i>Manis crassicaudata</i>	I
3.	Wild cat	<i>Felis chaus affinis</i>	I
4.	Wild boar	<i>Sus crefa cristatus</i>	II
5.	Jackal	<i>Canis latrans</i>	I
6.	Sloth bear	<i>Melursus ursinus</i>	I
7.	Squirrel	<i>Funambulus penanti</i>	II
8.	Porcupine	<i>Hystrix leucura</i>	I
9.	Fox	<i>Vulpes bengalensis</i>	I
10.	Barking deer	<i>Cervulus muntjac</i>	II
11.	Civet	<i>Viverricula indica</i>	I
12.	Hare	<i>Lepus ruficaudatus</i>	II
13.	Black faced monkey	<i>Semnopithecus entellus</i>	(IV) II
<b>REPTILES (LIZARD / SNAKES)</b>			
Sl.No.	English Name	Scientific Name	Amended as on 20.12.2022
1.	Indian Python	<i>Python molurus</i>	I
2.	Monocellate Cobra	<i>Naja naja</i>	I
3.	Monitor lizard	<i>Varanus bengalensis</i>	I
4.	Banded krait	<i>Bungarus fasciatus</i>	IV
5.	Common krait	<i>Bungarus caeruleus</i>	IV
6.	House gecko	<i>Hemidactylus flaviviridis</i>	I
7.	Garden lizard	<i>Calotes versicolor</i>	II
8.	Indian Chameleon	<i>Chamaeleo zeylanicus</i>	I
9.	Painted Krait	<i>Bungarus caeruleus</i>	IV
<b>AMPHIBIANS</b>			
Sl.No.	English Name	Scientific Name	Amended as on 20.12.2022
1.	Paddy field frog	<i>Rana limnocharis</i>	II
2.	Indian bull frog	<i>Rana tigrina</i>	II
3.	Tree frog	<i>Rhacophorus leucomystax</i>	II
<b>BIRDS</b>			
Sl.No.	English Name	Scientific Name	Amended as on 20.12.2022
1.	Common Myna	<i>Acridotheres tristis</i>	II
2.	Weaver Bird	<i>Ploceus philippinus</i>	II
3.	Jungle Fowl	<i>Gallus gallus</i>	(I) II
4.	Blue jay bird	<i>Coracias bengalensis</i>	II
5.	Swift	<i>Micropus affinis</i>	II
6.	House Sparrow	<i>Passer domesticus</i>	II
7.	Cuckoo	<i>Cuculus caronus</i>	II
8.	King crow	<i>Dicrurus maococerus</i>	II
9.	Kingfisher	<i>Ceryle rudis</i>	II
10.	Owl	<i>Athena brama</i>	II
11.	Pigeon	<i>Columba livia</i>	II
12.	Dove	<i>Streptopelia chinensis</i>	II
13.	Cattle egret	<i>Bubulcus ibis coromandus</i>	II

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14.	Little egret	<i>Egretta garzetta</i>	II
15.	Rose ringed Parakeet	<i>Psittaculakrameri</i>	II
16.	Red vented Bulbul	<i>Pycnonotus cafer</i>	II
17.	Tailor bird	<i>Orthotomus sutorious</i>	II
18.	Magpie robin	<i>Copsychus saularis</i>	II
19.	Jungle bush Quail	<i>Perdica asiatica</i>	II

## LIST OF FLORA IN BUFFER ZONE

### LIST OF FLORA IN THE ZoI

TREES			
Sl.No.	Local Name	Scientific Name	Family
1.	Amba	<i>Mangifera indica</i>	Anacardiaceae
2.	Ambada	<i>Spondias binnata</i>	Anacardiaceae
3.	Amla	<i>Phyllanthus emblica</i>	Euphorbiaceae
4.	Asan	<i>Terminalia tomentosa</i>	Combretaceae
5.	Arjuna	<i>Terminalia arjuna</i>	Combretaceae
6.	Achu	<i>Morinda finctoria</i>	Rubiaceae
7.	Asoka	<i>Saraca indica</i>	Fabaceae
8.	Aswasth	<i>Ficus religiosa</i>	Moraceae
9.	Babul	<i>Acacia nilotica</i>	Fabaceae
10.	Bada hatikana	<i>Litsea nitida</i>	Lauraceae
11.	Baghamari	<i>Bauhinia retusa</i>	Fabaceae
12.	Bahada	<i>Terminalia bellirica</i>	Combretaceae
13.	Bandhan	<i>Oozenia oozeinensis</i>	Fabaceae
14.	Barbakulia / Dhoben	<i>Dalbergia paniculata</i>	Fabaceae
15.	Bara	<i>Ficus benghalensis</i>	Moraceae
16.	Barkoli	<i>Ziziphus mauritiana</i>	Rhamnaceae
17.	Baruna	<i>Crateva religiosa</i>	Capparaceae
18.	Bel	<i>Aegle marmelos</i>	Rutaceae
19.	Bhalia	<i>Semecarpus anacardium</i>	Anacardiaceae
20.	Bheru	<i>Chloroxylon swietiana</i>	Meliaceae
21.	Bija / Piasal	<i>Pterocarpus marsupium</i>	Fabaceae
22.	Champa	<i>Michelia champaka</i>	Magnoliaceae
23.	Char	<i>Buchanania lanzan</i>	Anacardiaceae
24.	Chauli	<i>Elaeodendron glaucum</i>	Celastraceae
25.	Chhatian	<i>Alstonia scholaris</i>	Apocynaceae
26.	Chhuipatali	<i>Streospermum angustifolium</i>	Bignoniaceae
27.	Charaiguri	<i>Vitex leucoxydon</i>	Verbenaceae
28.	Damkurdu	<i>Gardenia latifolia</i>	Rubiaceae
29.	Dhauranjo	<i>Holoptelia integrifolia</i>	Ulmaceae
30.	Dhaman	<i>Grewia tillaefolia</i>	Tiliaceae
31.	Dhaura	<i>Anogeissus latifolia</i>	Combretaceae
32.	Dimiri	<i>Ficus hispida</i>	Moraceae
33.	Gambhari	<i>Gmelina arborea</i>	Verbenaceae
34.	Ghantal	<i>Ziziphus glaberrima</i>	Rhamnaceae
35.	Ghoralanjia	<i>Albizia chinensis</i>	Fabaceae
36.	Girdhini	<i>Sterculia urens</i>	Sterculiaceae
37.	Gurudu	<i>Gardenia gummiifera</i>	Rubiaceae
38.	Harida	<i>Terminalia chebula</i>	Combretaceae
39.	Jamun	<i>Syzygium cumini</i>	Myrtaceae
40.	Jari	<i>Ficus retusa</i>	Moraceae
41.	Kadamba	<i>Neolamarckia cadamba</i>	Rubiaceae
42.	Kaitho	<i>Limonia acidissima</i>	Rutaceae



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43.	Kangada	<i>Xylia xylocarpa</i>	Fabaceae
44.	Khakada	<i>Casearia elliptica</i>	Flacourtiaceae
45.	Karada	<i>Cleistanthus collinus</i>	Euphorbiaceae
46.	Karanja	<i>Pongamia pinnata</i>	Fabaceae
47.	Kasi	<i>Bridelia retusa</i>	Euphorbiaceae
48.	Kendu	<i>Diospyros melanoxylon</i>	Ebenaceae
49.	Kodala	<i>Sterculia vilosa</i>	Sterculiaceae
50.	Kochila	<i>Strychnos nux-vomica</i>	Loganiaceae
51.	Kumbhi	<i>Careya arborea</i>	Barringtoniaceae
52.	Kurei	<i>Holarrhena antidysenterica</i>	Apocynaceae
53.	Kurum	<i>Adina cordifolia</i>	Rubiaceae
54.	Kusum	<i>Schleichera oleosa</i>	Sapindaceae
55.	Limbur Moi	<i>Bursera serrata</i>	Burseraceae
56.	Lodha	<i>Symplocus racemosa</i>	Symplocaceae
57.	Manda	<i>Macaranga peltata</i>	Euphorbiaceae
58.	Moi	<i>Lannea coromandelica</i>	Anacardiaceae
59.	Mahalimba	<i>Ailanthus excelsa</i>	Simarubaceae
60.	Mankarkendu	<i>Diospyros embryopteris</i>	Ebenaceae
61.	Maranga	<i>Albizia procera</i>	Mimosaceae
62.	Mahul	<i>Madhuca indica</i>	Sapotaceae
63.	Mundi	<i>Mitragyna parvifolia</i>	Rubiaceae
64.	Muchukunda	<i>Pterospermum acerifolium</i>	Sterculiaceae
65.	Neem	<i>Azadirachta indica</i>	Meliaceae
66.	Palas	<i>Butea monosperma</i>	Fabaceae
67.	Paldhua	<i>Erythrina indica</i>	Fabaceae
68.	Panas	<i>Artocarpus integrifolia</i>	Moraceae
69.	Panipatuli	<i>Lagerstroemia speciosa</i>	Lythraceae
70.	Patuli	<i>Sterospermum chelonoides</i>	Bignoniaceae
71.	Rai	<i>Dillenia pentagyna</i>	Dilleniaceae
72.	Ritha	<i>Sapindus emarginatus</i>	Sapindaceae
73.	Rohini	<i>Soymida febrifuga</i>	Meliaceae
74.	Sahada	<i>Streblus asper</i>	Moraceae
75.	Sal	<i>Shorea robusta</i>	Dipterocarpaceae
76.	Salai	<i>Boswellia serrata</i>	Burseraceae
77.	Salapa	<i>Caryota urens</i>	Palmaceae
78.	Sidha	<i>Lagerstroemia parviflora</i>	Lythraceae
79.	Silver Oak	<i>Grevillea robusta</i>	Proteaceae
80.	Semul	<i>Bombax ceiba</i>	Bombacaceae
81.	Siris	<i>Albizia lebbek</i>	Mimosaceae
82.	Sisso (pahadi)	<i>Dalbergia latifolia</i>	Fabaceae
83.	Sisso	<i>Dalbergia sisso</i>	Fabaceae
84.	Sunari	<i>Cassia fistula</i>	Fabaceae
85.	Tal	<i>Borassus flabellifer</i>	Palmaceae
86.	Tentuli	<i>Tamarindus indica</i>	Fabaceae
87.	Tilai	<i>Wendlandia tinctoria</i>	Rubiaceae

#### SHRUBS

Sl.No.	Local Name	Scientific Name	Family
1.	Agnijhal	<i>Vernonia aspera</i>	Asteraceae
2.	Ankhukoli	<i>Carissa spinarum</i>	Apocynaceae
3.	Arakha	<i>Calotropis procera</i>	Asclepiadaceae
4.	Arguna	<i>Cycas circinalis</i>	Cycadaceae
5.	Ata	<i>Anona squamosa</i>	Annonaceae
6.	Bankulthia	<i>Atylosiascarabaeoides</i>	Fabaceae
7.	Badichang	<i>Symphoremapholyandrum</i>	Verbenaceae
8.	Bankhajuri	<i>Phoenix acaulis</i>	Arecaceae
9.	Basanga	<i>Adhatoda zeylanica</i>	Acanthaceae



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10.	Dhatki	<i>Woodfordia fruticosa</i>	Lythraceae
11.	Girelphool	<i>Indigofera cassioides</i>	Fabaceae
12.	Gurudu	<i>Gardenia gummifera</i>	Rubiaceae
13.	Kurei	<i>Holarrhenapubescens</i>	Apocynaceae
14.	Nirgundi	<i>Vitex negundo</i>	Verbenaceae
15.	Ranikathi	<i>Flemingiachappar</i>	Fabaceae
16.	Sigini	<i>Euphorbia royleana</i>	Euphorbiaceae
17.	Muturi	<i>Smilax macrophylla</i>	Smilacaceae
18.	Satabari	<i>Asparagus racemosus</i>	Liliaceae
19.	Siali	<i>Bauhinia vahlii</i>	Caesalpiniaceae

#### SHRUBS

Sl.No.	Local Name	Scientific Name	Family
1.	Arakha	<i>Calotropis procera</i>	Asclepiadaceae
2.	Amari	<i>Ipomea fistulosa</i>	Convolvulaceae
3.	Basanga	<i>Adhatoda vasica</i>	Acanthaceae
4.	Gila	<i>Caesalpinia decapetala</i>	Caesalpiniaceae
5.	Girili	<i>Indigofera pulchella</i>	Fabaceae
6.	Karabira	<i>Nerium indicum</i>	Apocynaceae
7.	Kanteikoli	<i>Ziziphus oenopia</i>	Rhamnaceae
8.	Ranidantakathi	<i>Flemingia chappar</i>	Facaceae
9.	Siju	<i>Euphorbia nivulia</i>	Euphorbiaceae

#### CLIMBERS

Sl.No.	Local Name	Scientific Name	Family
1.	Atundi	<i>Combretum decandrum</i>	Combretaceae
2.	Asadhua	<i>Capparis zeylanica</i>	Caparidaceae
3.	Anantamuli	<i>Hemidesmus indicus</i>	Asclepiadaceae
4.	Arsi/Gila	<i>Entada scandens</i>	Mimosaceae
5.	Dantari	<i>Acacia pennata</i>	Mimosaceae
6.	Desi alu	<i>Dioscorea alata</i>	Dioscoreaceae
7.	Gudmari	<i>Gymnema sylvestre</i>	Asclepiadaceae
8.	Kaincha	<i>Abrus precatorius</i>	Fabaceae
9.	Kankada	<i>Momordica dioica</i>	Cucurbitaceae
10.	Muturi	<i>Smilax macrophylla</i>	Liliaceae
11.	Satabari	<i>Asparagus racemosus</i>	Liliaceae
12.	Siali	<i>Bauhinia vahlii</i>	Caesalpiniaceae

#### GRASSES & HERBS

Sl.No.	Local Name	Scientific Name	Family
1.	Bena	<i>Vitiveria zizanoides</i>	Gramineae
2.	Broom	<i>Thysalolaena maxima</i>	Gramineae
3.	Duba	<i>Cynodon dactylon</i>	Gramineae
4.	Sabai	<i>Pollinidium angustifolium</i>	Gramineae
5.	Sinkula	<i>Hetropogon contortus</i>	Gramineae
6.	Anantamula	<i>Hemidesmus indicus</i>	Asclepidaceae
7.	Ada (Ambakasi)	<i>Curcuma amada</i>	Zingiberaceae
8.	Apamaranga	<i>Achyranthes aspera</i>	Amarantaceae
9.	Bhuinimba	<i>Andrographis paniculata</i>	Acanthaceae
10.	Bhumgaraj	<i>Wedelia calendulacea</i>	Campositae
11.	Ghikuari	<i>Aloe vera</i>	Liliaceae
12.	Patalgaruda	<i>Rauwolfia serpentina</i>	Apocynaceae
13.	Palua	<i>Curcuma aromatica</i>	Zingiberaceae
14.	Saptapheni	<i>Opuntia dillenii</i>	Cactaceae

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**LIST OF FAUNA WITHIN BUFFER ZONE:**

Sl.No.	English Name	Scientific Name	Amended as on 20.12.2022
<b>MAMMALS</b>			
1.	Elephant	<i>Elephas maximus</i>	I
2.	Pangolin	<i>Manis crassicaudata</i>	I
3.	Wild cat	<i>Felis chaus affinis</i>	I
4.	Wild Pig	<i>Sus crefa cristatus</i>	II
5.	Jackal	<i>Canis latrans</i>	I
6.	Sloth bear	<i>Selenarctos tibetana</i>	I
7.	Squirrel	<i>Funambulus penanti</i>	II
8.	Porcupine	<i>Hystrix leucura</i>	I
9.	Fox	<i>Vulpes bengalensis</i>	I
10.	Barking deer	<i>Cervulus muntjac</i>	II
11.	Civet	<i>Viverricula indica</i>	I
12.	Hare	<i>Lepus ruficaudatus</i>	II
13.	Black faced monkey	<i>Semnopithecus entellus</i>	IV
<b>REPTILES (LIZARD / SNAKES)</b>			
Sl.No.	English Name	Scientific Name	Amended as on 20.12.2022
1.	Indian Python	<i>Python molurus</i>	I
2.	Monocellate Cobra	<i>Naja naja</i>	I
3.	Monitor lizard	<i>Varanus bengalensis</i>	I
4.	Banded krait	<i>Bungarus fasciatus</i>	IV
5.	Common krait	<i>Bungarus caeruleus</i>	IV
6.	House gecko	<i>Hemidactylus flaviviridis</i>	I
7.	Garden lizard	<i>Calotes versicolor</i>	II
8.	Indian Chameleon	<i>Chamaeleo zeylanicus</i>	I
9.	Painted Krait	<i>Bungarus caeruleus</i>	IV
<b>AMPHIBIANS</b>			
Sl.No.	English Name	Scientific Name	Amended as on 20.12.2022
1.	Paddy field frog	<i>Rana limnocharis</i>	II
2.	Indian bull frog	<i>Rana tigrina</i>	II
3.	Tree frog	<i>Rhacophorus leucomystax</i>	II
<b>BIRDS</b>			
Sl.No.	English Name	Scientific Name	Amended as on 20.12.2022
1.	Common Myna	<i>Acridotheres tristis</i>	II
2.	Weaver Bird	<i>Ploceus philipinus</i>	II
3.	Jungle Fowl	<i>Gallus gallus</i>	I
4.	Blue jay bird	<i>Coracias bengalensis</i>	II
5.	Swift	<i>Micropus affinis</i>	II
6.	House Sparrow	<i>Passer domesticus</i>	II
7.	Cuckoo	<i>Cuculus caronus</i>	II
8.	King crow	<i>Dicrurus maococerus</i>	II
9.	Kingfisher	<i>Ceryle rudis</i>	II
10.	Owl	<i>Athena brama</i>	II
11.	Pigeon	<i>Columba livia</i>	II
12.	Dove	<i>Streptopelia chinensis</i>	II
13.	Cattle egret	<i>Bubulcus ibis coromandus</i>	II
14.	Little egret	<i>Egretta garzetta</i>	II
15.	Rose ringed Parakeet	<i>Psittacula krameri</i>	II
16.	Red vented Bulbul	<i>Pycnonotus cafer</i>	II
17.	Tailor bird	<i>Orthotomus sutorius</i>	II
18.	Magpie robin	<i>Copsychus saularis</i>	II
19.	Jungle bush Quail	<i>Perdica asiatica</i>	II



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There are 8 Schedule I species found in the core area and 13 Schedule I species in the buffer area as per amended WL(P) Act 2022.

## 2.6 MOVEMENT PATTERN OF MEGA FAUNA

Elephants are known to move between Karampada forests of Jharkhand State to Odisha via Kiriburu – Uliburu RF, Sidhamath RF and to Karo RF. This group alternates between Jharkhand-Odisha forests. Stray movement occurs in villages causing house & crop damages of Paddy, banana, jackfruit, mangoes. Human death also occurs due to accidental encounter. Malda, Deojhar, Alaghat, Sargigarh, Gonua on Bonai side are affected by crop depredation. Elephant movement occurs in Teherai and Kundra Nala nearby villages and other plain lands where paddy is adequately available. Eelephant movement is also found occasionally in Mendhamaruni PRF.

### ➤ Elephant Corridor Nearest to ML Area

Name of the Corridor	Karo Karampada Elephant Corridor	Extends over District	Name of the Division	Length of the Corridor in Km	Width of the Corridor in Km	Total area in Sq Km
Karo(Keonjhar)-Karampada (Saranda, Jharkhand) Interstate	14.55 Km	Keonjhar (Jharkhand)	Keonjhar	15	0.3-2.3	17.3



## 2.7 Wild Life Corridors

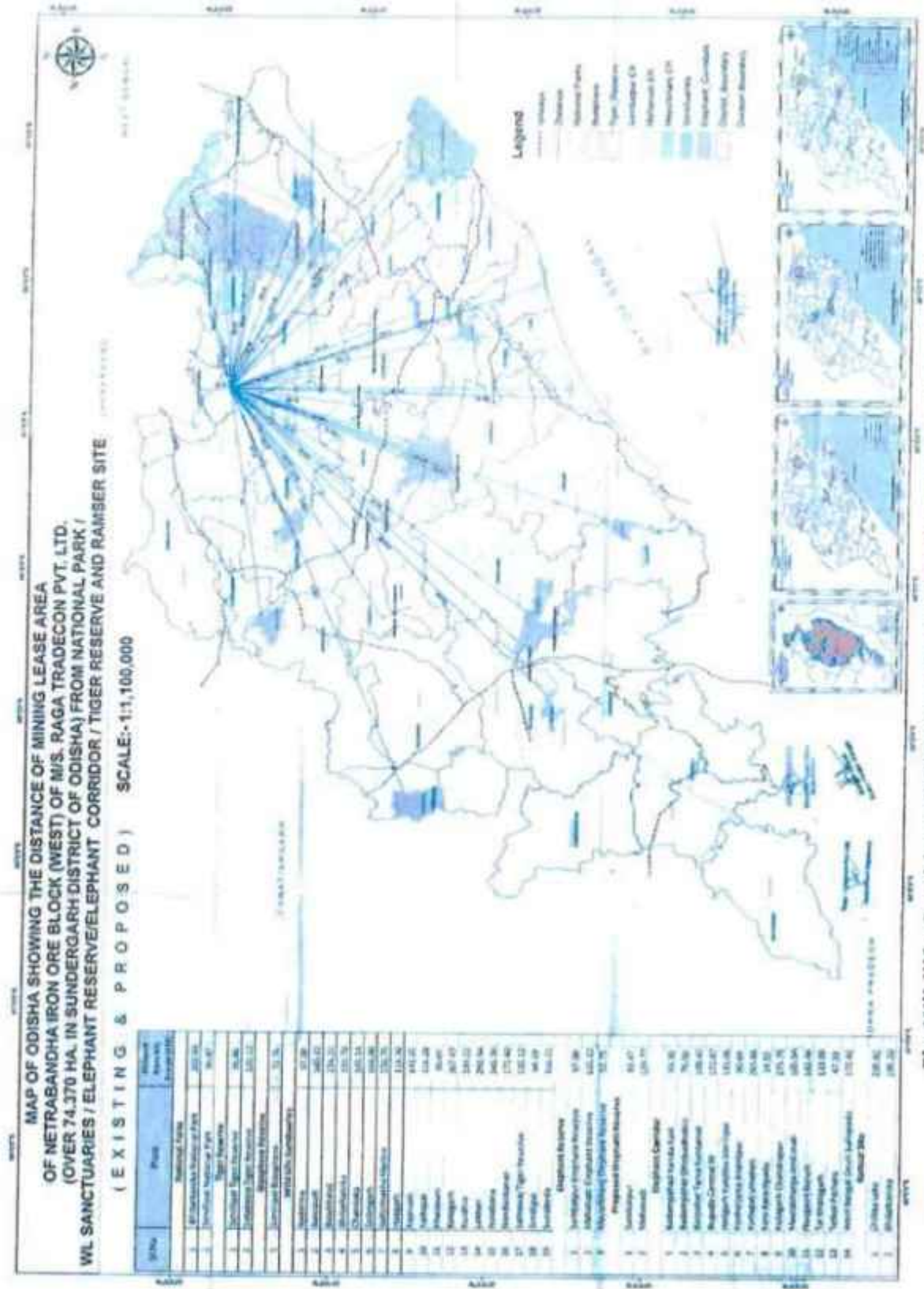


Fig. Wildlife Corridor wildlife Sanctuary & National Park Map of Odisha

Site Specific Wildlife Conservation plan of M/s. Raga Tradecon Pvt. Ltd., Netrabandha Pahar (West) Iron Ore Mines involving 66.242 Ha Forest land, Tehsil- Koira, Dist- Sundergarh

The project area does not fall within any Wild life sanctuary or National Park however Karo-Karampada Elephant corridor is 16.5 km away from the project boundary.

## 2.8 MAC

### Man- animal conflict Data: (Details collected from DFO's office Bonai and Keonjhar)

Human – Elephant Conflict is on rise in the state and has become one of the major issues in the fight to save Asia's endangered elephants. It is one of main cause of elephant death. Due to loss and fragmentation of elephant habitat/forest, lack of fodder, water and shelter, the elephants are rather turning to crop raiding for sustenance. At times the human habitations are destroyed in the conflict, besides loss of human life. The elephant population in the district of Sundargarh is rather fluctuating, since elephant movement takes place between Jharkhand and Odisha.

#### MAN-ANIMAL CONFLICT INFORMATION:

##### 1. BONAI FOREST DIVISION (SUNDARGARH DISTRICT)

Details of Animal Depredation paid during the year 2018-19 to 2022-23 in Koira Range of Bonai Forest Division.

Crop Damage							
Sl. No.	Year	Name of the Division	Name of the Range	No. of Cases	Area Damage in Ac.	Amount sanction	Amount Paid
1	2	3	4	5	6	7	8
1	2018-19	Bonai	Koira	59	22.88	228800	228800
2	2019-20			177	65.51	657300	657300
3	2020-21			-	-	-	-
4	2021-22			243	109.09	1090900	1090900
5	2022-23			134	53.121	531210	531210

#### House Damage

Sl. No.	Year	Name of the Division	Name of the Range	No. of Cases	Partly	Fully	Amount sanction	Amount Paid
1	2018-19	Bonai	Koira	11	5	6	70000	70000
2	2019-20			75	42	33	414000	414000
3	2020-21			50	32	18	244000	244000
4	2021-22			85	34	51	578000	578000
5	2022-23			69	36	33	402000	402000

#### Human Kill

Sl. No.	Year	Name of the Division	Name of the Range	No. of Cases	Amount sanction	Amount Paid
1	2018-19	Bonai	Koira	1	400000	400000



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2	2019-20			1	400000	400000
3	2020-21			1	400000	400000
4	2021-22			4	1600000	1600000
5	2022-23			2	800000	800000

#### Cattle Kill

- Nil -

#### Human Injury

- Nil -

**Details of Animal Depredation paid during the year 2018-19 to 2022-23 in Barusan Range of Bonai Forest Division.**

Crop Damage							
Sl. No.	Year	Name of the Division	Name of the Range	No. of Cases	Area Damage in Ac.	Amount sanction	Amount Paid
1	2	3	4	5	6	7	8
1	2018-19	Bonai	Barsuan	39	11.98	119800	119800
2	2019-20			73	27.93	280700	280700
3	2020-21			10	3.60	36000	36000
4	2021-22			96	43.321	398000	398000
5	2022-23			139	51.094	555192	555192

#### House Damage

Sl. No.	Year	Name of the Division	Name of the Range	No. of Cases	Partly	Fully	Amount sanction	Amount Paid
1	2018-19	Bonai	Barsuan	-	-	-	-	-
2	2019-20			7	3	4	46000	46000
3	2020-21			7	2	5	54000	54000
4	2021-22			21	13	8	106000	106000
5	2022-23			33	13	20	226000	226000

#### Human Kill

Sl. No.	Year	Name of the Division	Name of the Range	No. of Cases	Amount sanction	Amount Paid
1	2018-19	Bonai	Barsuan	-	-	-
2	2019-20			-	-	-
3	2020-21			-	-	-
4	2021-22			3	1200000	1200000



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5	2022-23		3	1200000	1200000
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#### Cattle Kill

- Nil -

#### Human Injury

- Nil -

#### KEONJHAR FOREST DIVISION Information of Death of Elephants

Elephant	Range	Location	Cause of Death	
<b>2016-17</b>				
<b>NIL</b>				
<b>2017-18</b>				
Female-	Telkoi	Udayagiri (Munda Sahi)	Due to Septicaemia	N- 21-18-47
40years				E-85-22-27.44
Female- 7years	Keonjhar	Near Village Dumuria Rashi field		N-21-27-27.4 E-85-34-09.0
<b>2018-19</b>				
Male-12 to 14 Years	Champua	Chamakpur KF. 150 meters away from river Baitarani	Shock due to arising from septicaemia	N-21-59-45.93 E- 85-28-21.93
Female-30 Years	Keonjhar	Basantpur & Naranpur between Railway Station	Due to Train accident	N- 21-34-39.9 E- 85-38-49.6
Male Calf- 1 Month old	Champua	Mahaprabat DPF, Near village Hatimara Chhak	In-fighting among male & Female elephants	N-21-51-14.6 E-85-25-16.6
<b>2019-20</b>				
Female- 15 to 20 years	Ghatagaon	Near Gayalmunda Village	Inside Barabanka RF	N- 21-27-43.7 E- 85-46-15.1
2 Female & 1 Calf	Ghatagaon	Atei RF	Truck & Bus Accident on 21.08.2019	

Site Specific Wildlife Conservation plan of M/s. Raga Tradecon Pvt. Ltd., Netrabandha Pahar (West) Iron Ore Mines involving 66.242 Ha Forest land, Tehsil- Koira, Dist- Sundergarh

#### Death of Wild animals

Year	Name of the animal	No. of Deaths
2019-20	Elephants	6
	Sloth Bear	3
	Wild Boar	5
	Spotted Deer	6
	Barking Deer	2
	<b>Total</b>	<b>22</b>
2020-21 (up to Oct. 20)	Elephants	7
	Sloth Bear	7
	Spotted Deer	4
	Barking Deer	3
	Python	1
	Fox	1
	<b>Total</b>	<b>23</b>

#### Human Death due to Wild Animal Attack

Name of the Range	No. of cases	Compassionate Amount
2015-16 (Human death by Elephants)		
Champua	3 nos	900000
Patna	1 no	300000
Telkoi	1 no	300000
Keonjhar	3 nos	900000
BJP	2 nos	600000
<b>Total</b>	<b>10 nos</b>	<b>3000000</b>
2016-17 (Human death by Elephants)		
Barbil	1 no	300000
BJP	1 no	300000
Ghatagaon	1 no	300000
Keonjhar	1 no	300000
Champua	3 nos	900000
<b>Total</b>	<b>7 nos</b>	<b>2100000</b>
2016-17 (Human death by Wild Bear)		
Patna	1 no	300000

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Telkoi	1 no	300000
<b>Total</b>	<b>2 nos</b>	<b>600000</b>
<b>2017-18 (Human death by Elephants)</b>		
Champua	3 nos	900000
BJP	1 no	300000
Ghatagaon	2 nos	NIL
Telkoi	1 no	300000
Keonjhar	1 no	300000
	<b>8 nos</b>	<b>1800000</b>
<b>2017-18 (Human death by Wild Bear)</b>		
BJP	2 nos	600000
<b>2018-19 (Human death by Elephants)</b>		
BJP	1 no	NIL
Champua	3 nos	NIL
Keonjhar	3 nos	400000
Barbil	1 no	400000
	<b>8 nos</b>	<b>800000</b>
<b>2018-19 (Human death by Wild Bear)</b>		
Keonjhar	5nos	1600000
Ghatagaon	1 no	NIL
<b>Total</b>	<b>6 nos</b>	<b>1600000</b>

**Human Deaths due to wild animal attack**

Year	Elephant	Sloth Bear	Wild Boar	Total
2019-20	8	0	1	9
2020-21 (up to Oct.)	1	1	1	3

**Human Injury Due to Wild Animal Attack**

Year	Elephant	Sloth Bear	Wild Boar	Total
2019-20	4	22	0	26
2020-21 (up to Oct.)	4	26	2	32

**House Damage by Elephants**

Range	No. of cases damaged			Amount Sanctioned
	Partly	Fully	Total	
2016-17				
Champua	55	6	61	170000
Barbil	9	0	9	18000
Patna	2	0	2	4000
BJP	15	6	21	90000
Ghatgaon	1	5	6	52000



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Keonjhar	3	0	3	6000
<b>Total</b>	<b>85</b>	<b>17</b>	<b>102</b>	<b>340000</b>
<b>2017-18</b>				
Barbil	40	2	42	100000
Champua	87	30	117	474000
Patna	27	11	38	164000
BJP	13	2	15	46000
<b>Total</b>	<b>170</b>	<b>46</b>	<b>216</b>	<b>800000</b>
<b>2018-19</b>				
Champua	41	45	86	532000
Keonjhar	10	1	11	30000
Patna	1	0	1	2000
Telkoi	6	0	6	12000
<b>Total</b>	<b>58</b>	<b>46</b>	<b>104</b>	<b>576000</b>

<u>House Damage</u>			
Year	Number of Houses damaged		
	Partly	Fully	Total No. of cases
2019-20	163	179	342
2020-21 (up to Oct.)	54	24	78

<u>Crop Damage by Elephants</u>								
Range	No. of Villages	Type of Crop						Amount Rupees
		Paddy & cereals		Cash crop		Total		
		No. of cases	Area (Ac.)	No. of cases	Area (Ac.)	No. of cases	Area (Ac.)	
2016-17								
Keonjhar	10	82	27.38			82	27.38	273800
Patna	21	63	28.57	6	1.14	69	29.71	299380
Barbil	8	74	26.57	18	6.10	92	32.67	338900
Barbil	5	68	27.17	11	2.09	79	29.26	296780
Barbil	6	68	24.33			68	24.33	243300
Champua	17	103	40.16			103	40.16	401600
Champua	27	90	35.03			90	35.03	350300
Keonjhar	8	20	5.27	5	1.22	25	6.49	67340
Telkoi	11	27	8.34			27	8.34	83400
Patna	5	27	4.11			27	4.11	41100
Patna	12	78	25.80	3	0.46	81	26.26	263520
Ghatgaon	5	21	5.64	5	1.48	26	7.12	74160

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BJP	9	51	9.12			51	9.12	91200
Champua	9	73	14.01			73	14.01	140100
Champua	15	92	20.72			92	20.72	207200
Telkoi	18	53	13.91	5	4.32	58	13.91	147740
Keonjhar	8	86	20.91			86	20.91	209100
Champua	13	75	30.67			75	30.67	306700
Telkoi	18	96	16.58			96	16.58	165800
Champua	2	90	15.43			90	15.43	154300
Champua	2	86	13.05			86	13.05	130500
Champua	1	78	15.59			78	15.59	155900
Keonjhar	8	85	23.15			85	23.15	231500
Keonjhar	15	93	20.59			93	20.59	205900
Telkoi	22	74	14.47			74	14.47	144700
BJP	15	62	13.69			62	13.69	136900
Ghatgaon	17	85	18.73			85	18.73	187300
Telkoi	32	95	16.49			95	16.49	164900
Telkoi	11	84	9.56			84	9.56	95600
Ghatgaon	17	79	17.55			79	17.55	175500
Patna	1	6	1.24			6	1.24	12400
Keonjhar	14	81	18.24			81	18.24	182400
Telkoi	14	62	9.50			62	9.50	95000
Keonjhar	16	82	18.11			82	18.11	181100
Champua	17	104	24.43			104	24.43	244300
Champua	4	105	24.15			105	24.15	241500
Keonjhar	19	96	22.32			96	22.32	223200
Ghatgaon	8	70	13.8			70	13.8	138000
Keonjhar	8	92	27.15			92	27.15	271500
Keonjhar	22	75	18.09	7	1.36	82	19.44	197160
Ghatgaon	22	81	15.81			81	15.81	158100
Keonjhar	11	61	13.51	3	1.35	64	14.86	137800
Champua	18	79	12.22			79	12.22	122200
Ghatgaon	11	53	10.79			53	10.79	107900
Champua	15	74	26.15			74	26.15	261500
Keonjhar	6	32	11.09	11	2.17	43	13.26	115240
Telkoi	14	49	10.10			49	10.10	101000
BJP		101	29.48			101	29.48	294800
Champua		91	22.76			91	22.76	227600
Champua		50	14.80			50	14.80	148000
Champua		86	28.01			86	28.01	280100
	<b>587</b>	<b>3688</b>	<b>934.34</b>	<b>74</b>	<b>21.69</b>	<b>3762</b>	<b>951.7</b>	<b>9525220</b>
2017-18								
Telkoi	11	55	10.43			55	10.43	104300



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Patna	6	55	14.23			55	14.23	142300
Patna	4	49	17.26			49	17.26	172600
Patna	10	60	10.28	2	1.52	62	11.80	121040
Barbil	12	33	19.25	10	2.40	43	21.65	221300
Barbil	15	62	32.22	8	3.77	70	35.99	367440
Champua	15	73	18.42			73	18.42	184200
Champua	2	16	3.47			16	3.47	34700
Telkoi	15	26	3.95	10	3.54	36	7.49	81980
Telkoi	22	63	11.85			63	11.85	118500
Telkoi	13	34	4.47	16	5.61	50	10.35	114720
Telkoi	9	37	7.13			37	7.13	71300
Patna	5	40	10.57			40	10.57	105700
Keonjhar	15	49	12.20	1	0.24	50	12.44	124880
Ghatgaon	11	36	11.56	1	0.12	37	11.68	117040
Patna	3	49	9.29			49	9.29	92900
Telkoi	25	68	13.52			68	13.52	135200
Telkoi	28	73	15.03			73	15.03	150300
Champua	6	33	8.80			33	8.80	88000
Champua	9	68	15.94	1	0.20	69	16.14	161800
Champua	9	45	14.49			45	14.49	144900
Champua	12	59	16.60			59	16.60	166000
patna	9	65	20.56	10	2.60	75	23.16	236800
keonjhar	11	40	5.56			40	5.56	56500
keonjhar	4	50	13.72			50	13.72	137200
BJP	14	55	13.03	5	1.10	60	14.13	143500
Champua	10	39	13.50			39	13.50	135000
keonjhar	18	58	8.52	2	0.50	60	9.02	91200
BJP	27	66	14.08			66	14.08	149600
BJP	15	60	12.35			60	12.35	123500
Champua	8	15	1.96			15	1.96	19600
Champua	8	33	10.47			33	10.47	104700
Champua	12	62	9.63			62	9.63	96300
Champua	4	57	8.52			57	8.52	85200
Champua	10	54	7.58			54	7.58	75800
Champua	3	35	4.96			35	4.96	49600
Champua	2	3	0.43			3	0.43	4300
Champua	11	100	14.98			100	14.98	149800
Ghatgaon	21	112	35.20	3	1.01	115	36.21	364120
Ghatgaon	38	145	43.55			145	43.55	435500
Champua	12	50	16.00			50	16.00	160000
Champua	17	79	18.79			79	18.79	187900
Champua	24	191	57.58			191	57.58	575800
Telkoi	22	71	13.62			71	13.62	136200
Keonjhar	22	95	31.21	5	0.95	100	32.16	323500
K/P/B/G						129	37.21	375480
Champua						4	0.74	8880



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Keonjhar						10	2.61	31100
Keonjhar						29	7.65	76860
Keonjhar						158	52.82	539600
Keonjhar						165	34.09	342700
	<b>579</b>	<b>2618</b>	<b>656.76</b>	<b>74</b>	<b>23.56</b>	<b>3187</b>	<b>815.71</b>	<b>8237340</b>
<b>2018-19</b>								
Telkoi	11	15	3.70	6	1.68	21	5.38	57160.00
Telkoi	6	2	0.32	1 0	1.83	12	2.15	24800.00
Champua	5	5	0.93	2 0	4.87	25	5.80	67740.00
Telkoi	2	6	1.57			6	1.57	18600.00
Keonjhar	2	1	0.07	2	0.21	3	0.28	3220.00
Telkoi	4			12	2.02	12	2.02	24240.00
Telkoi	3	1	0.15	7	1.17	8	1.32	15540.00
Ghatgaon	8	3	0.82	11	3.42	14	4.24	49240.00
Patna	2	25	3.95			25	3.95	39500.00
Telkoi	11	26	2.79	20	3.33	46	6.12	67660.00
Keonjhar	20	31	3.84	13	2.16	44	6.00	64320.00
Telkoi	9	21	3.52	1	0.18	22	3.70	37300.00
Patna	3	13	2.11			13	2.11	21100.00
Keonjhar	19	29	6.28	4	1.18	33	7.46	76960.00
Keonjhar	8	38	5.58			38	5.58	55800.00
Keonjhar	4	27	4.65			27	4.65	46500.00
Telkoi	2	11	1.82			11	1.82	18200.00
Champua	8	29	9.40	1	0.60	30	10.00	100000.00
Champua		35	4.80			35	4.80	48000.00
Telkoi	1	8	1.05			8	1.05	10500.00
Ghatgaon	6	30	9.63			30	9.63	96300.00
Keonjhar	16	44	9.93			44	9.93	99300.00
Keonjhar	22	56	14.32	1	0.19	57	14.51	145480.00
Keonjhar	12	41	7.18			41	7.18	71800.00
Telkoi	12	28	5.52			28	5.52	55200.00
Patna	8	28	7.75	8	0.98	36	8.73	89260.00
Keonjhar	20	64	15.64			64	15.64	156400.00
Champua	1	27	5.23			27	5.23	52300.00
Telkoi	7	16	4.7			16	4.70	47000.00
Champua	4	37	8.69			37	8.69	86900.00
Keonjhar	17	23	6.02			23	6.02	60200.00
Telkoi	6	23	5.83			23	5.83	58300.00
Champua	8	65	15.52			65	15.52	155200.00
Keonjhar	16	31	9.58			31	9.58	95800.00
Champua	12	48	10.13	3	0.76	51	10.89	108900.00

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Keonjhar	14	31	12.16			31	12.16	121600.00
keonjhar	15	56	18.00			56	18	180000.00
keonjhar	20	49	15.04	4	0.4	53	15.44	155200.00
Patna	4	6	0.70			6	0.70	7000.00
Ghatagaon	3	18	4.9			18	4.90	49000.00
Ghatagaon	11	45	13.39			45	13.39	133900.00
keonjhar	18	40	14.38			40	14.38	143800.00
Telkoi	18	42	9.98			42	9.98	99800.00
Telkoi	11	31	5.72			31	5.72	57200.00
Champua	4	59	13.74			59	13.74	137400.00
Telkoi	20	104	26.83			104	26.83	268300.00
Telkoi	15	39	7.96			39	7.96	79600.00
Champua	7					55	13.26	135700.00
Champua	17	85	18.75			85	18.75	187500.00
Telkoi	11	31	5.94			31	5.94	59400.00
Telkoi	22	48	8.82	1	0.16	49	8.98	90100.00
keonjhar	28	43	15.79	2	0.59	45	13.38	164900.00
patna	7	22	4.80			22	4.80	48000.00
patna	7	70	21.43			70	21.43	214300.00
Champua	9	28	6.66			28	6.66	66600.00
Telkoi	24	43	9.30	1	0.57	44	9.87	99840.00
Champua	4	57	13.79			57	13.79	137900.00
Champua	14	45	10.64			45	10.64	106400.00
Ghatagaon	6	11	2.95			11	2.95	29500.00
Champua	2	27	6.28			27	6.28	62800.00
Champua	14	67	14.03			67	14.03	140300.00
Champua	2	31	6.83			31	6.83	68300.00
Champua	9	63	13.43			63	13.43	134300.00
Champua	34	78	19.21			78	19.21	192100.00
BJP	19	95	27.52			95	27.52	279640.00
Telkoi	16	39	6.93	2	0.06	41	6.99	70100.00
Champua	14	73	16.11			73	16.11	161100.00
Champua	14	49	11.14			49	11.14	111400.00
patna	6	14	1.43			14	1.43	14340.00
BJP	21	95	26.13			95	26.13	261300.00
BJP	30	94	22.418			94	22.418	225444.00
Keonjhar	22	37	10.98	6	1.4	43	12.38	126600.00
Keonjhar	9	9				47	13.05	135160.00
Ghatagaon	16	98	27.00			98	27.00	270000.00
Ghatagaon	11	32	9.64			32	9.64	96400.00
BJP	19	77	22.542	8	1.38	85	23.926	241978.00
BJP	15	36	9.970	1	0.30	37	10.270	103300.00



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BJP	6	35	8.802			35	8.802	88020.00
BJP	24	77	19.71			88	22.67	236220.00
Keonjhar	38	83				83	26.9	289740.00
B.J.P	24	64				64	16.96	170200.00
Telkoi	5	8				8	2.33	27500.00
B.J.P	1	44				44	11.78	117800.00
Telkoi	3	3	0.74	2	0.42	5	1.16	12400.00
Champua	8	27	2.8	7	1.24	34	4.04	42880.00
Patna	2			6	1.34	6	1.34	16060.00
Telkoi	4			6	1.24	6	1.24	14880.00
	<b>992</b>	<b>3245</b>	<b>738.33</b>	<b>165</b>	<b>33.68</b>	<b>3514</b>	<b>856.26</b>	<b>8707922</b>
<b>2019-20</b>								
Telkoi	4			33	4.60	33	4.60	53900
Telkoi	3			4	1.20	4	1.20	14300
Champua	2	1	0.12	2	0.26	3	0.38	4300
Champua	2			3	0.58	3	0.58	6960
Telkoi	5			8	1.90	8	1.90	22500

**1920-1921 up to Oct**

1920-1921 up to Oct								
Range	No. of Villages	Type of Crop						Amount Rupees
		Paddy & cereals		Cash crop		Total		
		No. of cases	Area (Ac.)	No. of cases	Area (Ac.)	No. of cases	Area (Ac.)	
Barbil	2	2	0.60			2	0.60	6000
Patna	1	2	0.19			2	0.19	1900
	19	5	0.91	50	8.54	55	9.45	109860

**Crop Damage**

Year	No. of victims	Area damaged (Ac.)
2019-20	3540	890.40
2020-21 (up to Oct.)	742	159.49



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## 2.9 Other Projects and their impact Area

There is a number of mining lease area within the buffer zone of M/s. Raga Tradecon Pvt. Ltd. of Netrabandha Pahar(W) Iron Ore Mines, among them some are in production stage and some are yet to be excavated.

**List of ML area is given below:**

1. AMTC -Mahusukha	13. S.N Mohanty, Jaldihi
2. AXL Bhutuda	14. Tarini Minerals (Non-Operational)
3. SAIL 162	15. OMM Orahun Minerals (Non-Operational)
4. SAIL 130	16. S.D Sharma (Non-Operational)
5. Chandi Prasad Sharma (Non-Operational)	17. Essel Mining, Koida (Non-Operational)
6. Penguin Trading Agency	18. J.N Patnaik, Bhanjapali
7. National Enterprises	19. U.C Mishra
8. Korp Tantra Iron	20. AMTC Narayanaposi
9. S N Mohanty, Raikela	21. Kusumdihi Minerals
10. JSPL TRB	22. Rungta, Kusumdihi
11. Rungta Bonai Industrial. Co	23. Kavita Agarwal, TBM Tantra
12. Kankadhara Mining & Minerals	24. OMM Kusumdihi (Non-Operational)

Topo map of all the mines with overlapping composite buffer has been annexed.

## **Chapter III**

### **Probable Impact of the project on Flora & Fauna**

#### **3.0 Introduction**

Due to diversion of forest area to the extent of 74.370 ha, the biotic pressure which will be exerted on this area further divert to the impact zone causing degradation of the forest cover within the impact zone. Reduction in wildlife habitat is anticipated due to habitat loss, loss of corridor, fragmentation of habitat and interference of human being. Since this new mining lease area is surrounded by working mines, the wildlife habitat of the area has already been disturbed and that it can be presumed that, the wild animals of the area have migrated to the nearby forest areas which are not disturbed by mining. Though elephants have been seen occasionally visiting existing forest areas in and around the proposed lease area. Generation of noise, movement of vehicles and light from different sources substantial quantity of dust may create unhealthy condition for animals. Change of land use pattern within the mining area may permanently make the area unsuitable for animal habitat unless properly reclaimed.

#### **3.1 Nature of Threats to Flora & Fauna**

##### **3.1.1 Fall of animals in the Mine Pits:**

The mine pits shall be dug with very steep slopes with 10 metres bench height with vertical slope (the overall slope being 45°. Usually no physical barrier is provided around the mine pits. Any accidental fall of the animals in those pits may be fatal for the animals.

##### **3.1.2 Poaching:**

The poachers may also drive the animals and lead them in to the mine pits using the same as animal trap.

##### **3.1.3 Destruction of habitat:**

Due to mining activity over the lease area, the biotic pressure which will exert over the forest area be shifted to the surrounding areas. The collection of fuel wood, small timber and other NTFP by the local people will shift to the surrounding area and further create additional pressure on the surrounding forest area. Grazing pressure of the local cattle will also be shifted to these Forests. Therefore the wildlife habitat in these Forest areas is likely to be disturbed.

##### **3.1.4 Distraction of the normal migratory path of elephants & other mega fauna of the area:**

As a result of the bright light & the noise generated within the mine area, this will possibly impede the normal perambulation of the animals along their traditional routes which will likely to increase the human animal contact, there by posing the threats to either party.

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### 3.2 Transportation and Its Impact

The targeted production is 1 MTPA of Iron ore. The iron ore produced from the leasehold area shall be evacuated by road transport for dispatches through railway wagons from Barsuan railway siding. The quantity of iron ore envisaged is 3333 TPD of iron ore will be transported by Tipper/dumpers to the siding. The Barsuan Tensa road will be utilized for transportation of ore up to the siding.

It has been proposed that, the following machineries will be deployed for the mining operation.

Sl.No.	Type	Capacity	No. of Equipments
1	Excavator	2.0	2+1
		2.5	3+2
2	Excavator for plant feeding	0.9	4+1
3	Drill machine	150mm dia	2+1
5	loader	3.0	2
		2.5	2
		4.5	1+1
5	DTH	110mm Dia	2+1
6	Dumper	25MT	8+3
7	Water tanker	20000Litre	2
8	Mobile Crushing unit	250 TPH 150TPH	1 1 (Stand by)
	Fix Crushing unit	350TPH	1
9	Mobile Screen plant	250TPH	1
		200TPH	1
		150TPH	1
10	Dozer	264 HP	2
11	Grader	260 HP	1
12	Rock Breaker	25Mt	1
13	Ambulance	---	1
14	Staff bus	---	1
15	Camper	---	2
16	Bolero	---	4
17	Compressor	450cfm	3
18	Highmast light		3
19	Street light		55

Movement of large number of vehicles at night with their lights on in and around the lease area will disturb the Wild animals.

- Vehicles may hit the nocturnal animals
- Noise/Sound created by the vehicles & rail engine will create stress amongst the wild fauna.

**Water pollution:** Besides disturbing the aquatic ecosystem, pollution will make the water unfit for animal consumption leading to various health problems.



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**Air Pollution:** Air pollution may take place due to emission of dust, NO<sub>x</sub>, CO in air, carbon monoxide & PM generation due to the movement of large number of vehicles and operation of heavy machineries. Deposition of dust on the leaves will decrease the efficiency of photosynthesis. Deposit of large quantity of dust on the leaves will make the fodder unfit for consumption and lead to scarcity of food.

**Under ground Pollution:** There may be some underground pollution due seepage of oil and emulsion released from the machineries.

### **Study Techniques**

The study techniques adopted for collection of data/information has been described in the foregoing chapter.

Mining activities cause a range of environmental consequences that can be severe and irreversible. Mining operations and the process of constructing new mining infrastructure often results in large-scale alteration of the environment at landscape and ecosystem levels. The clearing of vegetation is one of the most significant impacts of mining on biodiversity.

### **3.3 Probable Impacts on Flora & Fauna**

#### **3.3.1 Loss of vegetation cover:**

There will be loss of vegetation due to:

- Dumping of overburden,
- Deposition of tailings,
- Development of infrastructure for transport and service corridors (railway lines, roads, pipelines, conveyers) and surface facilities (offices, workshops, vehicle parks, storage depots and warehouses).
- The excavation of the substrate materials and creation of the mine voids also alter the soil profile, hydrology, topography, and nutrient status of the substrate.
- These secondary factors have the potential to result in deleterious effects on the local biodiversity.
- At the landscape level,
- Environmental impacts occur generally in the form of alteration of land form features
- Fragmentation of biological habitats that may cause isolation of populations of floral and faunal species.
- Fragmentation of habitat into patches of insufficient size quality may not be able to meet a species' requirements may and also cause loss of connectivity due to reduction in species mobility between supportive habitats.
- Altered patterns of stream flows and drainage pattern are also landscape level impacts resulting from mining activities.

### **3.3.2 Impacts on wilderness area values are aggravated:**

- **Noise** and visual intrusion arising from both mining and secondary activities, including transportation.
- **Human immigration** in response to real or perceived livelihood opportunities that are created by mining activities often result in increased pressure on the natural resources of the area, disturbance to wildlife species,
- **Dust generation** and subsequent increase in Suspended Particulate Matter (SPM) in the environment particularly in case of opencast mining.
- **Displacement of human populations** due to diversion of land for mining can also trigger unsustainable resource-use pressures in other areas allotted for human rehabilitation, air pollution
- **Illegal hunting**
- **Habitat fragmentation**
- **Spread of alien invasive species.**
- Serious implications for the aquatic environment as the clearing of vegetation, removal of soil, extraction of large quantities of water,
- **Disposal of waste** through water systems often lead to soil erosion,
- Increased sedimentation load and alteration of watercourses.
- **Acid drainage** from mines is known to cause severe damage to the habitats of aquatic species and/or may bring about changes in the spawning grounds of fishes and habitats of aquatic species.

### **3.3.3 The Extent of Biotic Pressure on impact area with interference to forest growth:**

More over mines are located in the remote area of the forest where local denizens dominated with tribal communities are poor, not enough literate are dependent on several forest base resources. Marginal agriculture with poor availability of water resources are backbone to their subsistence. Mining though bring little benefits to the local communities in terms of employment and access to the road yet as a whole do not address the entire socio-economic issues in the surrounding area. The mining intensification further accelerates the loss of forest on which people are dependent for their energy, grazing and NTFP needs. Increasing pollutants into the terrestrial and aquatic system impacts environment and reduces the productivity of their arable lands and also deplete ground and surface water resources. Migration of people from other region to the mining site also increases pressure on the land and aggravate the situation for competition and conflict with local people. The forest fragmentation and degradation also enhances wildlife conflict in the region due to influenced and land use change driven movements of large animal especially elephants and the interaction with people.

The different biotic pressures are;

- i. Collection of firewood
- ii. Cattle grazing
- iii. Forest fire



- iv. Collection of small timbers for use in household
- v. Collection of NTFP

A large chunk of the rural population use firewood for cooking, besides almost all the population uses timber for construction purpose. Demand of the increasing population results in depletion of forests. Families settled near the forest are directly depending on fuel requirement from forest.

#### **3.3.4 Population Dependent upon NTFP collection and its impact on wildlife:**

The dependence of the local population in and around the project area on NTFP collection is minimal. Roughly around 22% of household collect NTFP, such as Sal leaves, Sal seeds, Kendu leaves, Mahua flowers & seeds, Tamarind Siali leaves. Mohua flower, collection is done by cleaning the ground around the mohua trees by burning and the fire at times spreads to the nearby forest areas causing damage to various flora and fauna.

#### **3.4 Movement of Mega Fauna**

Small groups of elephants are known to move between Karampada forests of Jharkhand State to Odisha via Kiriburu – Uliburu RF, Sidhamath RF and to Karo RF. This group alternates between Jharkhand-Odisha forests. Stray movement occurs in villages causing house & crop damages of Paddy, banana, jackfruit, mangoes. Human death also occurs due to accidental encounter.

The movement of elephant in the intensive study area during winter, summer and monsoon are plotted in the Figure 7.9. It can be seen from the Figure 7.9 that during winter and summer period elephant movements and occupancies were mostly along the Sona River where shady forest and water are available through out. Elephants move to the more western side during rainy season when crops and water are available for their need. The movement of elephant to the intensive study area takes places broadly by two possible corridors located on the northern side via Sidhamatha RF linking with Lakkharaghat RF, Karo RF and Karampada RF of West Singhbhum district, Jharkhand and on the south western side through Mehdhamaruni RF, Karo RF and Toda RF of Sundargarh district, Odisha.

During winter and summer period elephant movements and occupancies were mostly along the Sona River where shady forest and water are available through out. Elephants move to the more western side during rainy season when crops and water are available for their need. The movement of elephant to the intensive study area takes places broadly by two possible corridors located on the northern side via Sidhamatha RF linking with Lakkharaghat RF, Karo RF and Karampada RF of West Singhbhum district, Jharkhand and on the south western side through Mehdhamaruni RF, Karo RF and Toda RF of Sundargarh district, Odisha.



## **CHAPTER-IV**

### **OBJECTIVE OF MANAGEMENT AND MITIGATION STRATEGIES**

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#### **A. OBJECTIVE OF MANAGEMENT:**

The main objective of this plan is to reduce various stresses occurring due to implementation of this project in this particular locality having wildlife importance. The site-specific Wildlife Conservation Plan will suggest measures to mitigate such stress and if possible, how to avoid certain activities which could reduce the negative influence. Wildlife management consists of promoting welfare factors, arresting or reducing the impacts of decimating factors and neutralizing harmful effects of limiting factors that keep the animal population lower than the carrying capacity of the area. It also aims at management of human dimensions relating to regulation of habitat use, sufferance from animal damages, livelihood issues and taking people as partners in conservation management. Such concerns are reflected in the prescriptions. The management of the project's core area will aim for maintenance of habitat for smaller animals that used to live and share habitat with Project area. The management of ZoI will target optimization and maintenance of wildlife habitat and biodiversity, involving local people as far as practicable and aim to avoid / minimize or mitigate the adverse impacts of the project activity. Small animals & larger ones like deer and elephants make use of the area regularly, as the area is undisturbed. Large animals will be disturbed from the area once the Plant commences with full expansion. The displaced animals should not be left as refugee. Their rehabilitation would be the major objective of the plan. To fulfill all these requirements, the plan focused on improving forage and browse volume by increasing food plant diversity with vertical and horizontal cover. These will arrest habitat destruction and fragmentations and also prevent soil erosion and loss of biodiversity. Keeping natural water resource free from negative impact of the project activity will also be targeted.

*Objective of management to mitigate the threats to the wildlife is covering the following aspects:*

1. Conservation, Protection and Improvement of the flora and fauna in and around the Project area in a sustainable basis despite production of Steel and other ancillary activities. To conserve a viable population of Wildlife in general and the Pachyderm in particular in their natural habitat.
  2. To conserve the natural biodiversity, aesthetic and geo-morphological value of the area through appropriate management of site, habitat and landscape.
  3. To reduce the dependency of local people on the forest resources of the ZoI through culturally, socially, economically acceptable and ecologically sustainable and viable alternatives by undertaking eco-development programmes.
  4. To reduce man-animal conflict by ensuring contiguity of habitat in the buffer zone by improving forest cover in long term basis.
-

## **B. STRATEGIES TO MITIGATE AND MINIMIZE ADVERSE IMPACTS:**

### **I) Strategies for Core Zone:**

#### **I.1) Anti-depredation/ Protection Squad along with provision of vehicle for monitoring and protection activities:**

They will be engaged throughout the year to minimize depredation activities from wild animals especially from elephants. The trackers will be selected from local villages throughout the area well conversant with animal behaviours, particularly, elephants. The job of the trackers will be primarily to gather data on number of elephants, their location, their line of movement and the quantum and nature of depredation being done. Such data can be collected by pursuing elephants in morning hours along their spoor, when animals are on retreat to secluded spots (deep valleys, close to water or dense woods). Information obtained can be soon relayed to the Range officer, area Forester and concerned villagers. Regular tracking will help to map movement routes, identify intensity of depredation from which the nature of movement, whether benign or deliberate can be inferred. If the depredation is repetitive, a drive will be organized. This squad may also be engaged in the protection activities in order to assist the ground staffs. The overall aspect of protection from poaching, illegal conversion of woods, encroachments, wildlife trafficking etc. could be monitored on a regular basis. The safety of people and animals are prime concern of this squad. They will be provided with hired vehicle, fuel, mobile recharge facilities, medical expenses, uniform etc.

#### **I.2) Provision for Eco-friendly bird nests on trees within the project area and fringe villages:**

A bird nest is the spot in which a bird lays and incubates its eggs and raises its young. Although the term popularly refers to a specific structure made by the bird itself—such as the grassy cup nest or the elaborately woven hanging nest. For some species, a nest is simply a shallow depression made in sand; for others, it is the knot-hole left by a broken branch, a burrow dug into the ground, a chamber drilled into a tree, an enormous rotting pile of vegetation and earth, a shelf made of dried saliva or a mud dome with an entrance tunnel. Grass, moss, feathers, flowers, mud, dung etc may be used to construct these eco friendly bird nests within the project area and adjoining fringe villages. Few examples could be taken for consideration such as:

- a) A cup / Saucer shaped nest: This type of nest will be prepared from twigs and small climbers or of bamboo splits by local artisans. If necessary some adhesives can be used to keep the twigs together in that case some free twigs will be spread inside the nest to keep the birds free from contamination if any. The nests will be 6" to 12" diameter will be ideal. These nests will be placed on tree branches, house parapets. It may be replaced mostly annually
- b) Nest on three holes: Half opened box shaped prepared from the Bamboo strips covered with Palm leaves and Earthen pots with opening can also be prepared and fixed on tree



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trunk/ branches with or without camouflage may help in improving habitation of birds. The models are given below. The local Bamboo artisans/ earthen pot makers can prepare the materials after short demonstration.

### **1.3) Installation of Solar Street lamp/light with early warning system in elephant affected villages and its maintenance:**

From the study, it was evident that in the Zone of Influence (ZoI), the main problem is man-animal conflict, particularly with the mega herbivore i.e., elephant. Elephants make their frequent depredation to the nearby villages located in the ZOI of the project area, especially from dusk to dawn. One of the causes of conflict occur in the wee hours when the whole area become darker, due to absence of a regular stretch of lighted areas around the villages, because of lack of electric supply. It results in direct confrontation between the people and the elephant, which usually hide itself in dark and bushy areas. Hence, taking into account the whole scenario of conflict, there is a provision to install Solar Street lamp/light with early warning system, most preferably at strategic locations around the elephant affected village areas in Bonai Forest Division. As these lights can work even without electricity, it will help the villagers to get rid of elephant attack. The solar lights will be provided at the required strategic locations in the ZoI of the project area considering the elephant movement

### **1.4) Provision of distribution of high-powered torches at surrounding conflict villages in order to mitigate human-elephant conflicts**

In the wee hours the elephants mostly come out of the habitat and depredate the paddy area as well as storage place in villages. To trace out their presence in each village, it is proposed have sufficient number of high-powered torches, so that it will be delivered to the villagers as well as forest staffs in order to get proper coordination amongst themselves during tracing the elephant movement.

### **1.5) Infrastructural and capacity building support to habitants of surrounding elephant prone villages:**

It is proposed to provide Infrastructural facilities (watch tower, community go downs, storing facilities for food, repairing of houses due to depredation activities etc.) along with capacity building support to the local habitants of surrounding elephant prone villages in order to mitigate affects of human elephant conflict issues. This will provide a better stage of opportunity to have a proper rapport as well as coordination amongst local communities and forest department towards mitigation of HEC issues.

### **1.6) Equipment to monitor elephant movement and to be used in anti-depredation activities etc.:**

The equipment including drones, post mortem kits, dual testing voltage tester, non-contact high voltage detector; camera traps, mobile and tracking devices, smart stick, metal detector, snare cutting callipers etc. are the most necessary attributes which are proposed to be used in providing better monitoring to elephant movement/passage and to be used in



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anti-depredation activities in Bonai Forest Division.

#### **I.7) Infrastructure support in control room of Division Office, Bonai Forest Division**

The User Agency will procure one computer with Printer (All in one) and other necessary infrastructure support to control room of Division office, Bonai Forest Division for official use and subsequent monitoring of database regarding wildlife monitoring/conflict issues/depredation issues.

#### **I.8) Jana Surakhya Gaja Rakhya:**

In order to mitigate Human Elephant Conflict in surrounding villages of the project area such as Kulla, Kamanda, Bhutuda, Kemsila, Tensa, Dengula, Jaldihi, Segsahi, Teherai, Badindupur, Gonua, Nadidhi, Kalta, Kadalia, Rengalbeda, Malda Basti, Sargigarh, Topadihi, Jhirpani, Patmunda, Panposia, Kadodihi, Kantarkolda, San Indupuretc., it is proposed to implement Solar Fencing as a barrier through Jana Surakhya Gaja Rakhya scheme by community/vss/private persons through PPP mode (100% cost to be borne by user agency including beneficiaries contribution). As these fringe villages are situated in a contiguous manner to forest areas such as Toda RF, Karo RF, Kathmal RF, Mendhamaruni RF, Bhabanipahar RF, Khajurdihi RF, Sarkunda RF, Sarkunda PRF, Khajurdihi PRF, Bhabniphahar PRF, Kathmal PRF, Mendhamaruni PRF, Gonua PRF, Toda DPF, Ranisal DPFetc. there is always a high chance of regular elephant movement to above said fringe villages which ultimately leads to Human Elephant Conflict. In this context, it has been proposed to implement Solar Fencing in the above proposed fringe villages However the exact location of construction should be decided at the suitable site condition as concerned with local staffs and villagers with their need of the hour.

#### **I.9) Infrastructure support for office of the RCCF, Rourkela Circle:**

It is proposed to provide infrastructural support for office of the RCCF, Rourkela Circle towards conference hall, GIS cell etc. in order to monitor, maintain and development of database elephant movement.

### **II) Strategies to mitigate and minimize the adverse impact so observed in the Zone of Influence (ZoI):**

#### **FOR BONAI DIVISION**

#### **Protection & Enforcement Activities**

##### **II.1) Establishment of Anti-Poaching Barrack to support protection activities and elephant monitoring activities (including water supply, solar light system, boundary facility etc.):**

In suitable location at border area of Karo RF and Toda RF in a parallel way to Rourkela Division, one anti poaching barrack need to be constructed, which will be a 2 storied structure. In the ground storey vehicle of the squad can be stationed but the staffs will remain in the 2nd storey to locate the movement of elephants and fire hazard during fire

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season. Also, this unit will provide accommodation to the anti-depredation squad or fire squad in need of the hour. This will also help in monitoring the protection activities by proper coordination amongst staffs of Koira Range of Bonai Forest Division at the sensitive areas which will be also useful during inter divisional coordination with Rourkela Division.

### **Wildlife Habitat Management**

#### **II.2) Habitat enrichment with plantation of Bamboo (preferably through bamboo seed balls):**

Most of the forest patches are now devoid of continuous bamboo patches, for which preferred food species by Elephants is in a scarce condition inside the forest areas. Similarly due to absence of sufficient food sources, movement of elephant is diverted towards fringe village areas which in turns lead to Human-Elephant Conflicts. Therefore it is proposed to improve their natural habitats by providing sufficient Bamboo Patches/Fruit Bearing Species/Fodder Plantation and subsequently improving the palatability of other wildlife also. Initiative should be taken through thronging of Seed balls of bamboo and other fodder species inside the forest areas. Area near to habitation is required to be avoided. The seeds are to be collected and broadcasted in appropriate ratio. Palatability of species by animals especially liked by elephant is to be given due importance. Most importantly priority should be given towards recent trend of movement in Toda RF, Karo RF, Kathmal RF, Mendhamaruni RF, Bhabanipahar RF, Khajurdihi RF, Sarkunda RF, Sarkunda PRF, Khajurdihi PRF, Bhabniphahar PRF, Kathmal PRF, Mendhamaruni PRF, Gonua PRF, Toda DPF, Ranisal DPF etc. areas.

#### **II.3) Improvement of existing Salt licks:**

Many animals especially Elephants regularly visit salt licks (mineral licks) to consume clay, supplementing their diet with nutrients and minerals. Some animals require the minerals at these sites not for nutrition, but to ward off the effects of secondary compounds that are included in the arsenal of plant defences against herbivory. The minerals of these sites usually contain calcium, magnesium, sulfur, phosphorus, potassium, and sodium. Salt lick sites play a critical role in the ecology and diversity of organisms that visit these sites. Therefore it is proposed to improve the condition of existing salt lakes in order to provide better space to the wildlife inside Forest. In this proposal, areas of Karo RF, Mendhamaruni RF, Mendhamaruni PRF, Kathmal RF, Kathmal PRF, Gonua PRF, Khajurdihi RF, Khaurdihi PRF, Bhbanipahar RF, Bhabanipahar PRF etc. could be included.

#### **II.4) Construction of Check dam along the nallah:**

In order to mitigate water crisis for the wild animals particularly in summer season of Koira/Barsuan Range areas, there is provision for construction of 1 no. of RCC check dam in Koira/Barsuan Range as it is coming in the buffer zone area of the project. It is useful to check the runoff water at this location for improvement of flora and fauna of the forest area.

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Several wildlife movements have been noticed in the above proposed check dam areas which will be helpful to cater to the improvement of flora and fauna in those areas. The final location of the construction site will be decided at the suitable location of the entire nallah considering flow of water at a particular feasible time.

### **Wildlife Monitoring**

#### **II.5) Procurement and instalment of early warning system (Aniders etc.) along with its maintenance in the sensitive locations to monitor and aware about the exact movement of elephants:**

It is proposed to have 10 nos. of early warning system (Aniders etc.) for monitoring as well as avoiding the probable negative impact of human-wildlife conflict situation in sensitive fringe villages. It will be also helpful in providing early warning towards early alert for the fringe villagers to avoid the probable damage at their end. It is also provided that if any new technology will develop, that will be implemented at the need of the hour as per specification of DFO, Bonai Forest Division.

#### **II.6) Procurement of Anti depredation cum Monitoring Kits**

These monitoring kits including Binoculars, Compass, Range Finders, cameras, tents, sleeping bags, water bottles, all terrain shoes, carry bag, torches etc. will improve the quality of a ground level staff towards identification of wildlife species and their regular monitoring in the entire landscape. They could gather better faunal and floral diversity of their respective jurisdictional areas. The knowledge of indigenous species will be beneficial towards conservation of the particular species in future. It is also provided that if any new better facility/implements will develop, that will be implemented at the need of the hour as per specification of DFO, Bonai Forest Division.

### **Human Elephant Conflict Mitigation**

#### **II.7) Deployment of Gaja Saathi- A participatory approach:**

Bonai Forest Division is very much important in respect of Human- Elephant conflict due to frequent movement of elephant. It is proposed to deploy Gajasathi in 10 units (One VSS unit or village unit consisting of 05 members) @ Rs. 80000/unit/year to keep a watch on elephant movement and take appropriate steps to resolve Human- Wildlife Conflict

#### **II.8) Trench Fencing:**

In order to mitigate Human Elephant Conflict in surrounding villages of the project area such as Kulla, Kamanda, Bhutuda, Kemsila, Tensa, Dengula, Jaldihi, Segsahi, Teherai, Badindupur, Gonua, Nadidhi, Kalta, Kadalía, Rengalbeda, Malda Basti, Sargigarh, Topadihi, Jhirpani, Patmunda, Panposia, Kadodihi, Kantarkoida, San indupur etc., it is proposed to excavate Elephant Proof Trench as a barrier. As these fringe villages are situated in a contiguous manner to forest areas such as Toda RF, Karo RF, Kathmal RF, Mendhamaruni RF,

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Site Specific Wildlife Conservation plan of M/s. Raga Tradecon Pvt. Ltd., Netrabandha Pahar (West) Iron Ore Mines involving 66.242 Ha Forest land, Tehsil- Koira, Dist- Sundergarh

Bhabanipahar RF, Khajurdihi RF, Sarkunda RF, Sarkunda PRF, Khajurdihi PRF, Bhabniphahar PRF, Kathmal PRF, Mendhamaruni PRF, Gonua PRF, Toda DPF, Ranisal DPF etc. there is always a high chance of regular elephant movement to above said fringe villages which ultimately leads to Human Elephant Conflict. In this context, it has been proposed to excavate elephant proof trench over 05 RKM of size 3m top, 1m bottom and 2.5m depth and heap the dug-up earth at the fringe areas. A mixture of grass seeds, leguminous species should be sown over the dug-up earth. However the exact location of construction should be decided at the suitable site condition as concerned with local staffs and villagers with their need of the hour.

#### **II.9) Capacity Building training for Field Staff on Human Elephant Conflict management at Division Office:**

The field staffs are the real grass root level workers who are always facing the challenges and different level of circumstances during Human Elephant Conflict. They are always in a touch with the local affected villagers and simultaneously leading the team towards solving the issues. In order to provide a high level of motivation and confidence, it is proposed to provide sufficient amount of capacity building training to the suitable candidates from the conflict areas. Sharing the experiences along with different level of discussions will also provide a better solution towards mitigating these issues and subsequently these staffs will also be motivated towards delivering their duty.

#### **II.10) Provision of Tranquilizing Kit (Dart Gun & Medicines with other accessories):**

In case of elephants particularly in case of tusker, when it comes in musth conditions, they become very violent and aggressive in nature. This indication will come by oozing out of white latex type of thing in volatile state. Such secretion comes through an apical opening located on his forehead. At that time, the tusker becomes violent and need the accomplishment of female elephant. Several times it is difficult to control the human-elephant conflict situations at this time of aggressiveness. Also there are several circumstances where elephants are in unhealthy condition due to various reasons. In this context they need severe medication with a proper watch by a medical team. To overcome these situations tranquilization is required by experts to take control over the elephant. This phenomenon is also required when any carnivore trespasses to human habitation. In such cases to capture the carnivore tranquilization is essential. In such cases tranquilization is essential but at the same time revival of the tranquilized wildlife plays an important role to save them from casualty. Therefore, tranquilizing kit (Dart Gun & Medicines with other accessories) are provided and should be in ready condition where ever required in immediate basis by the experts.

#### **II.11) Signage on both side of track/road:**

To promote coexistence with wildlife and to aware people, good quality sign boards with

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display of wildlife features should be placed along the Project premises, road etc. Fluorescent Sign Boards with good write ups about movement of wild animals will be provided on in order to make aware the passers-by about occurrence of accident if they confront with wildlife.



#### **Public Awareness and Livelihood Generation Activity through community mobilization**

##### **II.12) Training and awareness to EDC/VFMC, in Schools, Village level Volunteers for Wild Life Conservation & Protection**

There is a urgent need to select village level volunteers through EDC/VFMC towards providing grass root level support in the field of wildlife conservation and protection. There should be efforts to find out the local indigenous people who will be the true solution finder during managing conflict situations with wildlife and other protection activities inside forest. They should be provided with proper training and motivation for which a massive awareness could be distributed towards wildlife conservation and protection. In this initiative schools/colleges should be taken as a base unit to provide all kind of training activities so that we could reach each individual very easily and subsequently a better understanding could be generated between the village level people and other field staffs.

## **Chapter IV A**

### **Animal Passage Plan**

As this is a non linear project this chapter is not applicable.

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## CHAPTER-V

### FINANCIAL IMPLICATIONS AND MONITORING

- A. Total financial implication of Management Intervention and cash flow statement for 5 years (year wise) is given here. Also monitoring, evaluation and interim review provision shall be mentioned.

**Table 5.1: Financial provision of works borne by Use Agency/Project Proponent**

**Bonai Forest Division**  
To be borne by User Agency

Sl. No.	Management Interventions	Area in ha./Unit in no./RKM	Total Amount (Rs. in Lac.)
1	10 nos. of fire watcher will be engaged for a period of 06 months (January to June) for 05 years.	10 nos.	To be Borne by User Agency
2	Provision of fire blowers and fire fighting monitoring kit to fire fighting squad @10 nos. / year with maintenance upto 5 years	50 Nos.	
3	Awareness promoting regarding wildlife protection, wildlife conservation, forest protection & forest conservation	60 Nos.	
4	Provision of installation and maintenance of solar street light with early warning system at various location of elephant movement area.ved	25 nos.	
5	Provision of distribution of small paddy reaper machine to the household of surrounding villages of project area for early and easy harvesting of paddy from the field for storage of food materials in order to mitigate the Human-Elephant Conflict	50 Nos.	
6	Provision of distribution of grain bins to the house hold of surrounding villages of project area for storage of food materials in order to mitigate the Human-Elephant Conflict.	500 Nos.	
7	Infrastructural capacity building (Watch Tower) support at village Ranisal, G.P-Patmunda for mitigate Human-Elephant Conflict and Monitoring of Elephant movement (LS)	1 No.	
8	Jana Surakhya Gaja Rakhya in five villages = 10 km (2 km) in each either through VSS / community / private person and its maintenance (90% cost to be born by the User Agency including beneficiaries contribution)	10 KM	
9	Provision of Rescue Vehicle / RRT vehicle (inbuilt with GPS tracker) for implementation in protection / monitoring activities through ground staff in Bonai Division along with anti-depredation equipment and (i) Remuneration of driver (as per govt. approved high skilled labour rate for concerned financial year) and provision of POL, maintenance etc. (ii) Provision of 10 nos. of highly skilled squad personnel. (iii) provision of contingency like, uniform, monitoring kits, life / health insurance to the squad personnel etc. (iv) purchase of equipment to support HEC mitigation	01 no.	

*Approved*

*[Signature]*

*[Signature]*

Divisional Forest Officer  
Bonai Division

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**Table 5.2: Financial provision of works in Zone of Influence  
Implemented by Bonai Forest Division**

Sl. No.	Management Interventions	Area in ha./Unit in no./RKM	Unit cost (RS. in Lac.)	Total Amount (Rs. in Lac.)
<b>1</b>	<b>Protection &amp; Enforcement Activities</b>			
	(a) Establishment of Anti-Poaching Barrack to support protection activities and elephant monitoring activities (including water supply, tube well, solar light system, boundary facility etc.)	1 No.	40.00	40.00
<b>2</b>	<b>Wildlife Habitat Management</b>			
	(a) Habitat enrichment with plantation of Bamboo(preferably through bamboo seed balls)	20 ha.	0.44	8.80
	(b) Improvement of existing Salt licks	10 Nos.	0.30	3.00
	(c) Construction of Check dam along the nallah	01 Nos.	15.00	15.00
<b>3</b>	<b>Wildlife Monitoring</b>			
	(a) Procurement and installment of early warning system (Aniders etc.) along with its maintenance in the sensitive locations to monitor and aware about the exact movement of elephants or any other technology available at that time	10 Nos.	1.00	10.00
	(b) Procurement of Anti depredation cum wildlife monitoring Kits (including Binoculars, Compass, Range Finders, Tents, sleeping bag, water bottle, all terrain shoes, carry bag, torch etc.) or any other improved technology available at that time	20 Nos.	0.60	12.00
<b>4</b>	<b>Human Elephant Conflict Mitigation</b>			
	(a) Deployment of Gaja Saathi on year basis- A participatory approach (10 units of 05 members each@Rs.80000/unit/year)	10 Nos.	8.00	40.00
	(b) Provision of Elephant Proof Trench	10 RKM	7.00	70.00
	(c) Capacity Building training for Field Staff on Elephant Human Conflict management at Division Office	10 Nos.	2.00	20.00
	(d) Provision of Tranquilizing Kit (Dart Gun & Medicines with other accessories)	01 No.	10.00	10.00
	(e) Signage on both side of track/road			
	(e)(1) Signage with speed limit	20 Nos.	0.30	6.00
	(e)(2) Signage with awareness and precautionary measures to be taken for wildlife	20 Nos.	0.30	6.00
<b>5</b>	<b>Public Awareness and Livelihood Generation Activity through community mobilization</b>			
	(a) Training and awareness to EDC/VFMC, in Schools, Village level Volunteers for Wild Life Conservation & Protection	LS	25.00	25.00
	<b>Total</b>			<b>265.80</b>
	<b>20% Escalation</b>			<b>53.16</b>
	<b>Grand Total</b>			<b>318.96</b>



**Annual Work Programme:**

**Details of the flow of funds for different years of the plan for ZoI are given below (Rs. In Lac)**

Sl. No.	Management Interventions	Area in ha./Unit in no./RKM	Total Amount (Rs. in Lac.)	Year wise Financial Target (Rs. In Lac.)				
				1st year	2nd year	3rd year	4th year	5th year
1	<b>Protection &amp; Enforcement Activities</b> (a) Establishment of Anti-Poaching Barrack to support protection activities and elephant monitoring activities (including water supply, tube well, solar light system, boundary facility etc.)	1 No.	40.00	40.00	-	-	-	-
2	<b>Wildlife Habitat Management</b> (a) Habitat enrichment with plantation of Bamboo(preferably through bamboo seed balls) (b) Improvement of existing Salt licks (c) Construction of Check dam along the nallah	20 ha. 10 Nos. 01 Nos.	8.80 3.00 15.00	8.80 1.50 15.00	- 1.50 -	- - -	- - -	- - -
3	<b>Wildlife Monitoring</b> (a) Procurement and installment of early warning system (Aniders etc.) along with its maintenance in the sensitive locations to monitor and aware about the exact movement of elephants or any other technology available at that time (b) Procurement of Anti depredation cum wildlife monitoring Kits (including Binoculars, Compass, Range Finders, Tents, sleeping bag, water bottle, all terrain shoes, carry bag, torch etc.) or any other improved technology available at that time	10 Nos. 20 Nos.	10.00 12.00	5.00 6.00	5.00 6.00	- -	- -	- -
4	<b>Human Elephant Conflict Mitigation</b>							



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	(a) Deployment of Gaja Saathi on year basis- A participatory approach (10 units of 05 members each@Rs.80000/unit/year)	10 Nos.	40.00	8.00	8.00	8.00	8.00	8.00	8.00
	(b) Provision of Elephant Proof Trench	10 RKM	70.00	35.00	21.00	14.00	-	-	-
	(c) Capacity Building training for Field Staff on Elephant Human Conflict management at Division Office	10 Nos.	20.00	4.00	4.00	4.00	4.00	4.00	4.00
	(d) Provision of Tranquilizing Kit (Dart Gun & Medicines with other accessories)	01 No.	10.00	10.00	-	-	-	-	-
	(e) Signage on both side of track/road								
	(e)(1) Signage with speed limit	20 Nos.	6.00	3.00	3.00	-	-	-	-
	(e)(2) Signage with awareness and precautionary measures to be taken for wildlife	20 Nos.	6.00	3.00	3.00	-	-	-	-
<b>5</b>	<b>Public Awareness and Livelihood Generation Activity through community mobilization</b>								
	(a) Training and awareness to EDC/VFMC, in Schools, Village level Volunteers for Wild Life Conservation & Protection	LS	25.00	10.00	10.00	5.00	-	-	-
	<b>Total</b>		<b>265.80</b>	<b>149.30</b>	<b>61.50</b>	<b>31.00</b>	<b>12.00</b>	<b>12.00</b>	<b>12.00</b>
	<b>20% Escalation</b>		<b>53.16</b>	<b>29.86</b>	<b>12.30</b>	<b>6.20</b>	<b>2.40</b>	<b>2.40</b>	<b>2.40</b>
	<b>Grand Total</b>		<b>318.96</b>	<b>179.16</b>	<b>73.80</b>	<b>37.20</b>	<b>14.40</b>	<b>14.40</b>	<b>14.40</b>

Divisional Forest Officer,  
Bomra Division

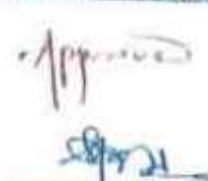
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## KEONJHAR DIVISION

### 5.1.1 Financial provision of works borne by user agency/ Project Proponent

#### 5.2.4 Details of the flow of funds for Five years

KEONJHAR FOREST DIVISION To be borne by User Agency		
Sl No	Management Interventions	Amount
1.	Digging of Elephant proof trench (EPT) over 2.00 KM in Keonjhar Division in consultation with the DFO, Keonjhar Division	To be borne the User Agency
2.	Provision for providing Grain bins of 300 nos.	
3.	Jana Suraksha Gaja Raksha in two villages= 4 Km (2Km in each), VSS/Community/Private Person. 100% cost to be borne by User Agency including beneficiaries contribution.	
4.	Support to GIS cell of the office of Divisional Forest Officer, Keonjhar Forest Division (Procurement of thermal drone with other accessories, engagement of drone operator for five years).	

  
Principal Chief Conservator Forests (WL)  
& Chief Wildlife Warden, Odisha, BBSP

  
20/06/23  
Divisional Forest Officer,  
Keonjhar Division.

Site Specific Wildlife Conservation plan of M/s. Raga Tradecon Pvt. Ltd., Netrabandha Pahar (West) Iron Ore Mines involving 66.242 Ha Forest land, Tehsil- Koira, Dist- Sundergarh

### 5.1.2 Financial Forecast for Keonjhar Forest Division

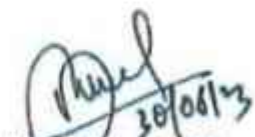
#### KEONJHAR DIVISION

#### 5.2.2 Financial Forecast for Keonjhar Forest Division

Sl. No.	Management Interventions	Amount in lakh
1	Wildlife Habitat Improvement	
a	Provision to create one water body of size 40m x 30m x 3m.	9.5
2	Protection & Surveillance	
a	Two Elephant Trakers	16.80
b	Instalation of Solar Steet Light (25 nos @ Rs. 25000 of each )	6.25
c	Deployment of Gaja Saathi - A participatory approach (2 units of 05 members for 5 years each @Rs.75,250/unit/throughout the years = 12 months) (75,250 X 2 X 5)=7,52,500.00 or 7,53,000.00	7.53
3	EPA	
a	Livelihood Training, vermicompost, Sewing, NTFP	15.00
b	Activation /mobilisation of 5 inactive VSS through P-NGO PRAKALPA for 5 years	15.00
Total		70.08
20% Escalation		14.016
G.Total		84.096 or 84.10

Total interventions proposed for Keonjhar Division is Rs **84.10 Lakhs**.

  
Principal Chief Conservator Forests (WL)  
& Chief Wildlife Warden, Odisha, BBSR

  
Divisional Forest Officer,  
Keonjhar Division.



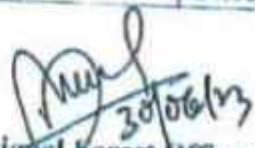
Site Specific Wildlife Conservation plan of M/s. Raga Tradecon Pvt. Ltd., Netrabandha Pahar (West) Iron Ore Mines involving 66.242 Ha Forest land, Tehsil- Koira, Dist- Sundergarh

**Annual Work Programme:**

**Details of the flow of funds for different years of the plan for ZoI are given below (Rs. In Lac)**

**5.3.2.2 KEONJHAR DIVISION**

Sl. No.	Management Interventions	1st Yr	2nd Yr	3rd Yr	4th Yr	5th Yr	Total
1	<b>Wildlife Habitat Improvement</b>						
a	Provision to create one water body of size 40m x 30m x 3m.	9.5	0.00	0.00	0.00	0.00	9.5
2	<b>Protection &amp; Surveillance</b>						
a	Two Elephant Trakers	3.36	3.36	3.36	3.36	3.36	16.80
b	Installation of Solar Street Light (25 nos @ Rs. 25000 of each)	6.25	0	0	0	0	6.25
c	Deployment of Gaja Saathi - A participatory approach (2 units of 05 members for 5 years each @Rs. 75,250/unit/throughout the years = 12 months) (75,250 X 2 X 5)=7,52,500.00 or 7,53,000.00	1.506	1.506	1.506	1.506	1.506	7.53
3	<b>EPA</b>						
a	Livelihood Training, vermicompost, Sewing, NTFP	3.0	3.0	3.0	3.0	3.0	15.0
b	Activation /mobilisation of 5 inactive VSS through P-NGO PRAXALPA for 5 years	3.0	3.0	3.0	3.0	3.0	15.0
	<b>Total</b>	<b>26.62</b>	<b>10.87</b>	<b>10.87</b>	<b>10.87</b>	<b>10.87</b>	<b>70.08</b>
	<b>20% Escalation</b>						<b>14.016</b>
	<b>G. Total</b>						<b>84.096 or 84.10</b>

  
30/06/23  
Divisional Forest Officer,  
Keonjhar Division.

Site Specific Wildlife Conservation plan of M/s. Raga Tradecon Pvt. Ltd., Netrabandha Pahar (West) Iron Ore Mines involving 66.242 Ha Forest land, Tehsil- Koira, Dist- Sundergarh

## 5.2 Location of the proposed interventions

Location of the above-mentioned interventions has been decided by DFO, Bonai Division according to availability of space and requirement.

### 5.2.1 Monitoring Committee

There shall be a monitoring committee for proper implementation, planning, site selection providing guidance and review of the activities/interventions. The committee will be headed by the DFO Bonai Forest Division and DFO Keonjhar Forest Division with representative of the Project proponent, Range officers, foresters as members, ACF (HQ) will be the member Secretary of the committee.

### Plan period

The plan is for a period of 5 years.

## Cumulative total of Interventions for both Project Area and Impact Zone

### 5.3 Abstract of Financial Implication for both the divisions

Division	Core	Buffer	Total Amount (in lakhs)
Bonai	-	318.96	318.96
Keonjhar	-	84.10	84.10
Total Amount (in lakhs)	-	403.06	403.06

The total cost of the conservation plan will be Rs.403.06 Lakhs (Four Crore Three Lakh six thousand only). ₹ 318.96 Lakhs in Bonai Forest Division and 84.10 Lakhs in Keonjhar Forest Division including cost escalation @ 20%. The entire amount will be deposited by the User Agency in CAMPA.

Countersigned  
24/11/2023  
Regional Chief Conservator of Forests  
Rourkela Circle, Rourkela

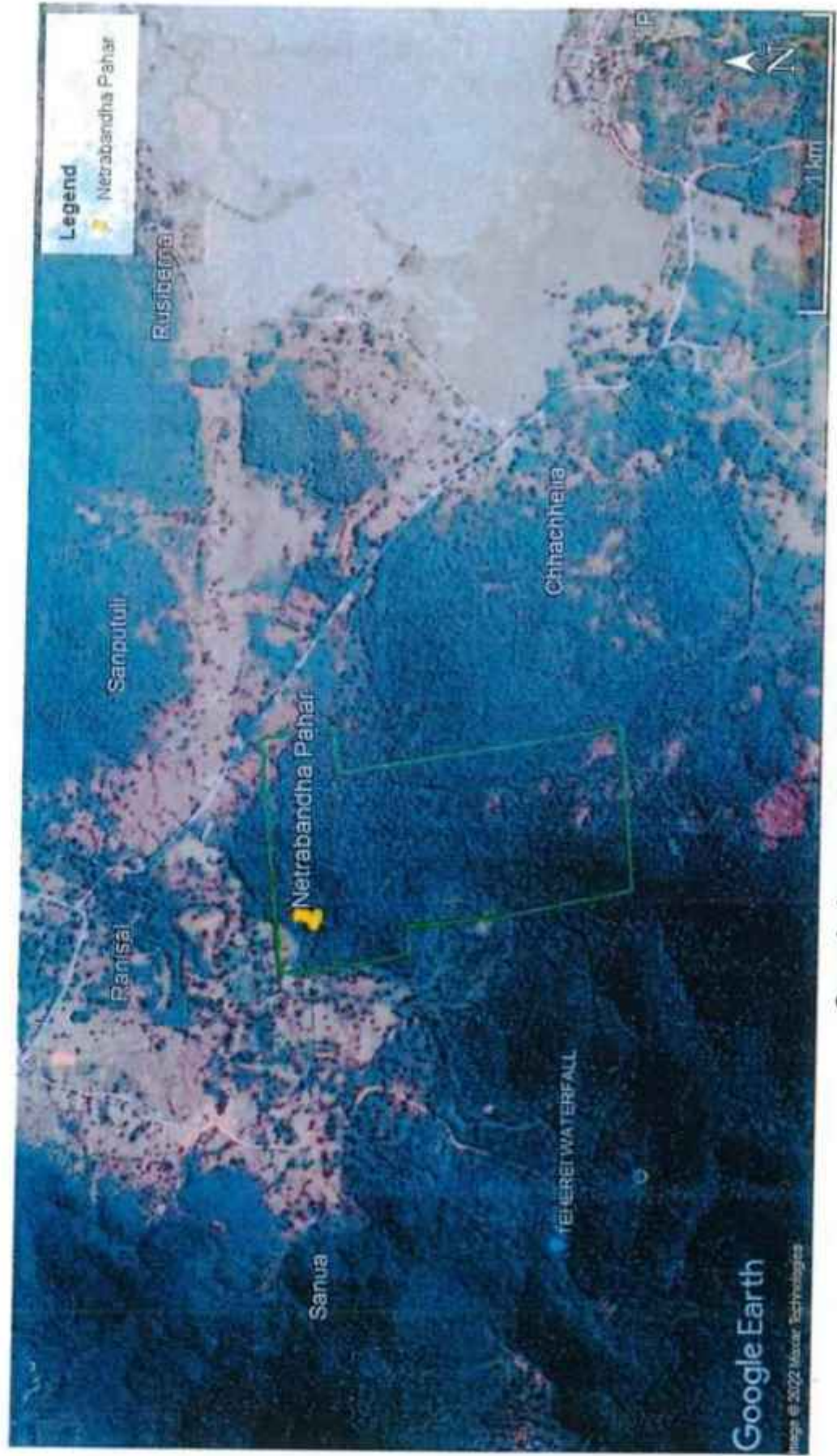
Divisional Forest Officer  
Bonai Division

Principal Chief Conservator Forests (WL)  
& Chief Wildlife Warden, Odisha, BBSR



## CHAPTER VI

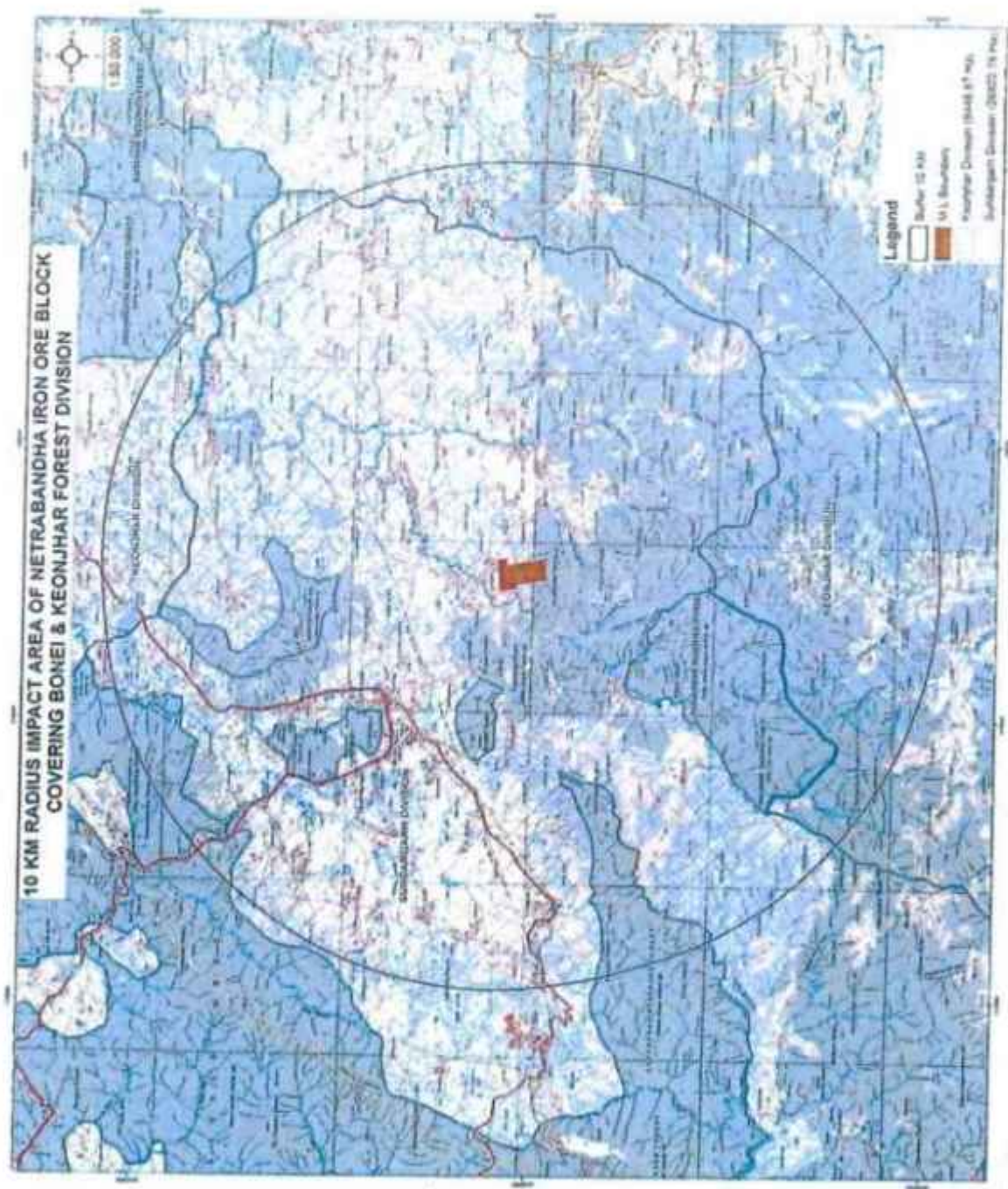
### Maps & Annexures



Google Image of the Mining Lease Area

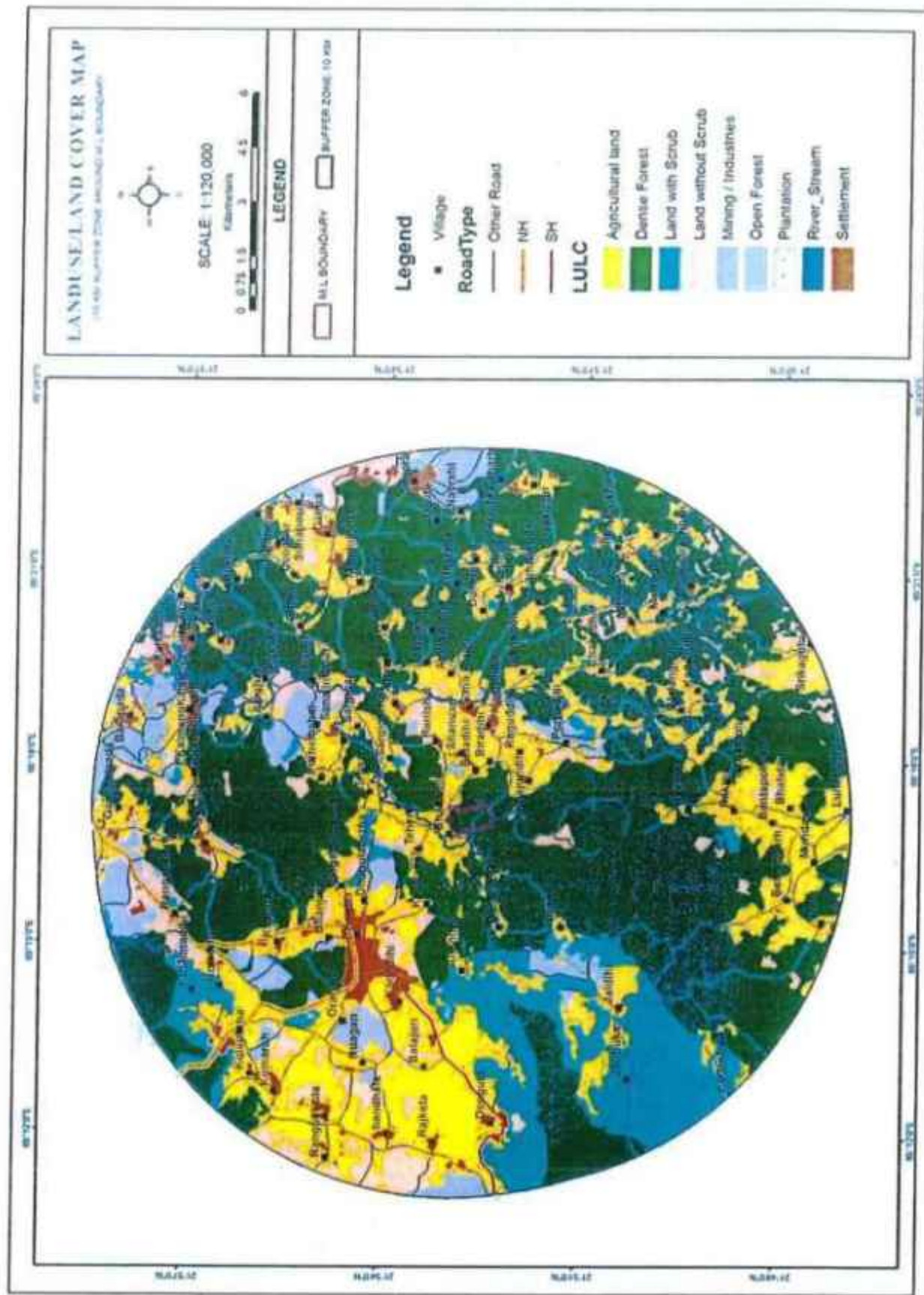


Site Specific Wildlife Conservation plan of M/s. Raga Tradecon Pvt. Ltd., Netrabandha Pahar (West) Iron Ore Mines involving 65,242 Ha Forest land, Tehsil- Kolra, Dist- Sundergarh



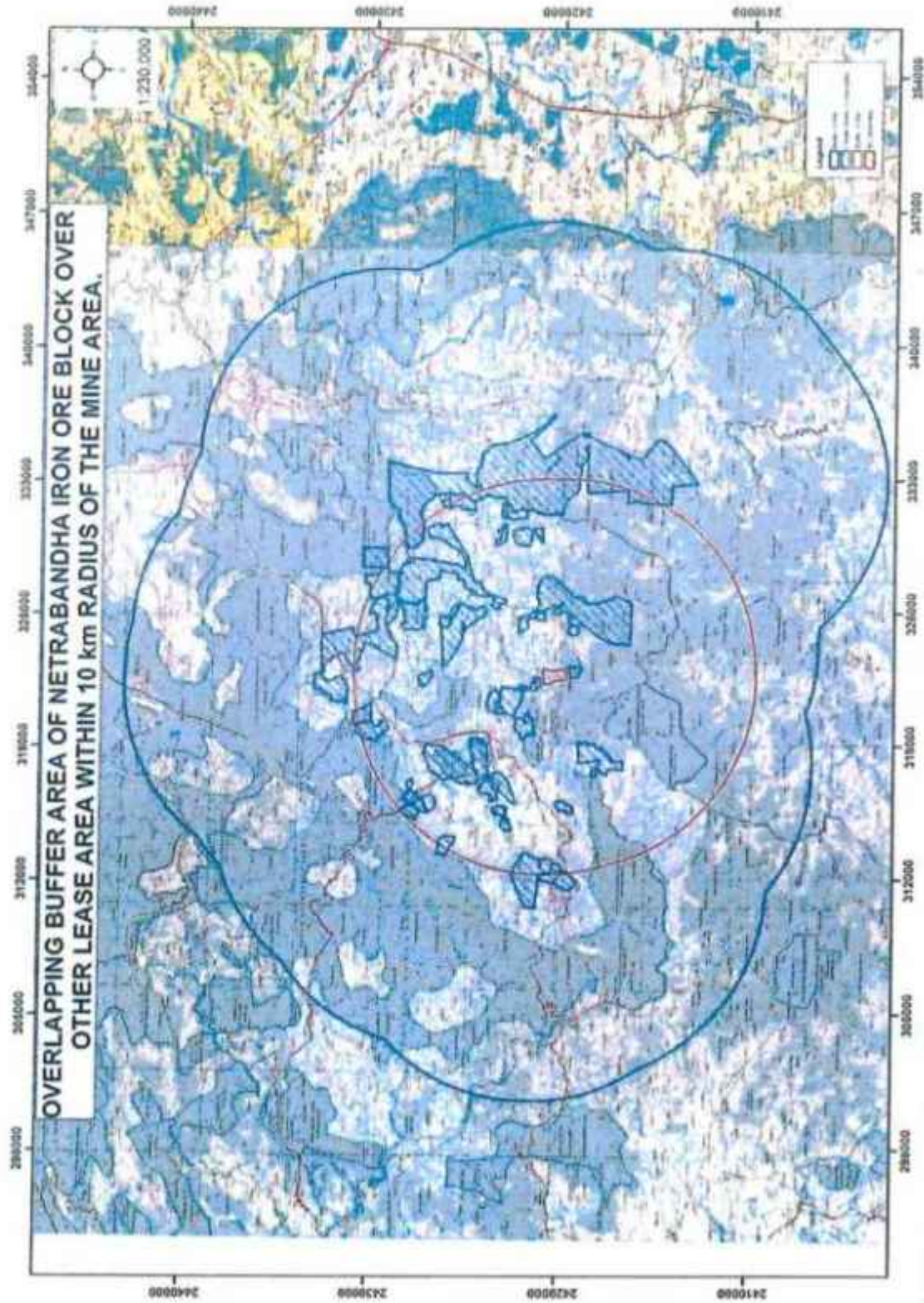
Topo map depicting the Core area and 10km radius impact area of M/s. Raga Tradecon Netrabandha Pahar (West) Iron Ore Mines, there is no wildlife sanctuary national park, ecosensitive zone or rare endangered flora & wild life corridor not found.







**Land use & Land Cover map of the 10 km Radius Impact area**



From the derived GIS map consisting of impact zones of 12 other mines has overlapping buffer area,





**OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS (WILDLIFE)  
& CHIEF WILDLIFE WARDEN, ODISHA**

**Government of Odisha, Forest, Environment & Climate Change Department**

PRAKRUTI BHAWAN, PLOT NO.1459, SAHEED NAGAR, BHUBANESWAR- 751007

Phone: 0674-2602250, Website: www.wildlife.odisha.gov.in, Email: odishawildlife@gmail.com

No. 13789 / CWLW-FDWC-FD-0013-2023

Dated, Bhubaneswar the 22, December, 2023

To

M/s Raga Tradecon Pvt. Ltd.  
1<sup>st</sup> Floor, Shyam Residency, Flat No.101  
Near Jharpada Jail, Bhubaneswar-751006

Sub: Site Specific Wildlife Conservation Plan in respect of Netrabandha Pahar (West) Iron Ore Block of M/s Raga Tradecon Pvt. Ltd. under Bonai Division in Sundargarh District, Odisha - Approval thereof

Sir,

I am directed to convey the approval of PCCF (WL) & CWLW, Odisha for the Site Specific Wildlife Conservation Plan at financial outlay of ₹403.06 lakh (Rupees four crore three lakh six hundred) only as per the details of activities mentioned in Chapter-IV & V of the Plan in compliance to ToR No.19 prescribed by SEIAA, Odisha stipulated in Letter No.4917/SEIAA dt 19.07.2022 in File No.SIA/OR/MIN/74953/2022.

(i)	In project impact area in Bonai Division:	₹318.96 lakh
(ii)	In project impact area in Keonjhar Division:	₹84.10 lakh
<b>Total:</b>		<b>₹403.06 lakh</b>

A sum of ₹403.06 lakh (Rupees four crore three lakh six hundred) only may be deposited in State CAMPA fund through e-portal (<https://parivesh.nic.in>) for the purpose of implementation of various activities within the project impact area in Bonai/ Keonjhar Division.

2. Activities in the project area as per Chapter-IV of the Plan will be executed by the project proponent under the guidance of DFO, Bonai/ Keonjhar Forest Division, as the case may be.

3. The Plan period is for five years and will be revisited by concerned DFOs at least one year before expiry of its implementation. The User Agency will bear the cost of such Plan on its approval. Further, the User Agency will bear additional cost, if any, towards enhancement of wage rate and escalation of price of materials at the time of implementation of this Plan. In case of any deviation, it will be dealt as per law for violations of Forest (Conservation) Act



## RAGA TRADECON PRIVATE LIMITED

Regd. Office: G-165 EXPRESS ZONE MALL B WING MALAD (E) NORTH SIDE OF RANI SATI  
W E HIGHWAY MUMBAI - 400097 (MH)

CIN: U51420MH1995PTC162317

DATE: - 19.02.2025

To,  
The Branch Manager,  
YES BANK  
RDC Rajnagar  
Ghaziabad-201001

Sub-REQUEST FOR RTGS/NEFT TRANSACTION CONFIRMATION FROM AC-003863300004523

Sir/Madam,

We are requesting you to kindly give the confirmation for the following payment details mentioned below from our account of RAGA TRADECON PVT LTD A/C- 003863300004523

Beneficiary Name	RTGS AMOUNT	DATE & TIME	IFSC CODE	ACCOUNT NO	UTR NO.
ORISSA CAMPA	10,26,52,000/-	19.02.2025 16:14:55	UBIN0996335	1508258153549644	YESBR52025021954700682

Kindly do the needful.

For RAGA TRADECON PRIVATE LIMITED

For RAGA TRADECON PRIVATE LIMITED

Director/Auth. Signatory Director



*Handwritten signature*  
634104

ANNEXURE

## Form-II

(for projects other than linear projects and Plantations)

[Rule 6 (3) (e) of Forest (Conservation) Rules 2003 as amended up to date]

Government of Odisha

OFFICE OF THE DISTRICT COLLECTOR, SUNDARGARH

No. 3799 / ITDA(FRA) Dated: 22/11/2022

TO WHOM SOEVER IT MAY CONCERN

In compliance of the Rule 6 (3) (e) of Forest (Conservation) Rules 2003 [as amended vide the Forest (Conservation) second Amendment Rules 2014; Forest (Conservation) second Amendment Rules 2014; and Forest (Conservation) Amendment Rules 2016] it is certified that 66.242 hectares of forest land proposed to be diverted in favour of M/s Raga Tradecon Private Limited for Mining purpose in the district falls within the jurisdiction of Baldihi village of Patamunda GP under Koira Tahasil. It is further certified that

- (a) the complete process of recognition and vesting of forest rights under the FRA, 2006 has been carried out for the entire 66.242 Hectares of Baldihi village of Patamunda GP under Koira Tahasil of forest land proposed for diversion. A copy of records of all consultations and meetings of the Forest Rights Committee (s), Gram Sabha (s), Sub-Division Level Committee (s) and the District Level Committee are enclosed as attachment Annexure-I to Annexure-III.
- (b) the proposal for such diversion (with full details of the project and its implications, vernacular/ local language) have been placed before each concerned Gram Sabha or forest-dwellers, who are eligible under the FRA, 2006.
- (c) each of the concerned Gram Sabha (s), has certified that all formalities/ process under the FRA have been carried out and that they have given their consent to the proposed diversion and the compensation and ameliorative measures, if any, having understood the purpose and details of proposed diversion. Copies of certificate issued by the Gram Sabha Resolution of Baldihi village is enclosed as Annexure-I.
- (d) the discussion and decisions on such proposals had taken place only when there was a quorum of minimum 50% of the members of Gram Sabhas present;
- (e) the diversion of forest land for facilities managed by the Government as required under Section 3 (2) of the FRA have been completed and the Gram Sabhas have given their consent to it;
- (f) the rights of Primitive Tribal Groups and Pre-Agricultural Communities, where applicable have been specifically safeguarded as per Section 3 (1) of the FRA, 2006.

Encl: As above

Raga Tradecon Pvt. Ltd.

Authorised Signatory

(Dr. Gavali Parag Harshad, IAS)  
COLLECTOR,  
SUNDARGARH



## Scheme

For

CREATION AND MAINTENANCE OF ALTERNATE HABITAT/ HOME  
FOR THE AVIFAUNA WHOSE NESTING TREES ARE TO BE  
CLEARED IN THIS PROJECT AS PER THE PLAN DULY APPROVED  
BY THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS  
(WILDLIFE) AND THE CHIEF WILDLIFE WARDEN ODISHA.

In compliance

with

Condition No.24 of

Stage-I approval granted vide

Letter No.8-14/2023-FC, Dated.21.12.2023

of Govt. of India, Ministry of Environment, Forests

& Climate Change,

New Delhi,

for

Diversion of 66.242 Hects of Forest Land

for U/s-2 (ii) of F.C. Act'1980

within 74.37 Ha.Netrabandha Pahar West Iron Ore Block

of

M/s Raga Tradecon Private Ltd.

In village Baldihi and Sanua in Koira Tahsil, Bonai Forest Division

Dist.Sundargarh Odisha.

**SCHEME FOR CREATION AND MAINTENANCE OF ALTERNATE HABITAT/  
HOME FOR THE AVIFAUNA, WHOSE NESTING TREES ARE TO BE CLEARED IN  
THIS PROJECT**

**1. INTRODUCTION**

M/s Raga Tradecon Private Limited has been incorporated under Company Act 1956 vide Certificate of Incorporation No. 21- 73114 on 24.07.1995. The corporate identity Number of the company is U51420MH1995PTC162317. The registered office is situated at State of Maharashtra (Mumbai) having regd. office at G-165 Express Zone Mall B Wing, Mallad (E), North Side of Ranisati W E Highway, Mumbai, Mumbai City Maharashtra 400097 India, to carry on all or any of the business as manufacturers, buyers, sellers, suppliers, traders, exporters, minerals, metals etc. The company does not have any other mines in the State of Odisha or any other part of India.

The Govt of Odisha issued the notice inviting tender dated 07.07.2021 for commencement of the auction process to grant the mining Lease for Netrabandha Pahar (West) Iron Ore Block located in Koida Tahasil of Sundargarh district of Odisha along with the Mines and Minerals (Development and Regulation) ACT,1957 and The Mineral (Auction) Rules,2015. The e-auction process was conducted in accordance with the tender document and the mineral auction rule, 2015 for said mineral block and M/s Raga Tradecon Pvt.Ltd. was declared as the preferred Bidder under Rule 9(9) (iii) or Rule10(A) of Auction Rules having quoted a final price offer of 139.50%.

The Government of Odisha has issued letter of Intent (LoI) vide letter No.8722/IV(B)SM-53/2021/SM, Bhubaneswar, dated 28.10.2021 under Rule 10(2) of Mineral Auction Rules 2015 in favour of M/s Raga Tradecon Pvt. Ltd. for grant of Mining Lease for Netrabandha Pahar (West) Iron Ore Block over an area of 74.370 near Baladia village, Koida Tahasil of Sundargarh district of Odisha for a period of 50 years.

Accordingly, M/s Raga Tradecon Pvt. Ltd. has submitted the proposal to obtain diversion of 66.242 ha. of forest land including safety zone area of 2.09 ha. for iron ore mining under Section 2(ii) of the Forest (Conservation) Act 1980 for entire forest land 66.242 ha including safety zone area of 2.090 ha. in their favour within their allotted Netrabandh Pahar (West) Iron Ore Block of 74.370 ha. located in village Baldihi & Sanua in Koida Tehsil and Koida Range under Bonai Forest Division of Sundargarh District, Odisha.

Further, Stage-I approval over 66.242 ha. of Forest Land for U/s-2 (ii) of F.C. Act 1980 has been granted by MoEF & CC, Govt. of India vide their Letter No.8-14/2023-FC dt.21.12.2023, wherein it has been stipulated as per **Condition No.24 for creation and maintenance of alternate habitat/ home for the avifauna, whose nesting trees are to be cleared in this project as per the plan duly approved by the Principal Chief Conservator of Forests (Wildlife) and the Chief Wildlife Warden, Odisha.**

## **2. LOCATION**

Netrabandha Pahar (West) Iron ore Block of M/s Raga Tradecon Pvt. Ltd. is located in Sundargarh District of Odisha and can be approached throughout the year by road. It falls within the survey of India Topo sheet No.F45N5 (73 G/5). The total mining lease hold area is 74.370.

## **3. TOPOGRAPHY**

The area is represented by sloppy area with gentle undulation, resembling a relict type of topography. The highest contour is 748 meters and the lowest one is of 622 meters. Part of the proposed site comes within the Khajurdihi PRF of Bonai Forest Division.

## **4. SOIL TYPE**

Soil type in the study area varies widely from hard rock to lateritic soil. Areas at higher elevations are usually hard rock consisting of laterite. The top soil is scanty in the area. Whatever top soil is available is thinly spread over all Soil profile in nature. The pH of the soil is slightly acidic in nature.

## **5. CLIMATE**

The study area is characterized by an oppressively hot summer with high humidity. Summer generally commences in the month of March. Temperature beings to rise rapidly attainting a maximum in the month of May. During the summer maximum temperature can go up to 47.7°C. The weather becomes pleasant with onset on monsoon in June and remains as such upto end of October. The temperature in the month of December is lowest, i.e., 7°C. The average annual rainfall as recorded at IMD observatory is 1325.16 mm. Predominant wind direction is South-West. Area remains calm for nearly 50% of the year.



## 6. LAND USE PATTERN

During the life of the mine, about 74.37 hectares will be utilized for mining, Minerals processing, Road, Infrastructure, Mineral stock yard, and green belt plantation in Safety Zone area etc. The details of land use pattern will be as follows:

Sl. No.	Particulars	PRF (Ha)	REVNUF FOREST (Ha)	DLC LAND (Ha)	Total Forest Land (Ha)	Non-forest (Ha)	Grand Total area (Ha)
1.	Mining including mines road and Mobile mineral processing unit	32.716	0.537	8.424	41.677	2.143	43.820
2.	Waste dump with safeguard measures like retaining wall, garland drain and settling pond, check dam etc.	7.403	-	-	7.403	-	7.403
3.	Mineral stacking yard / Mineral Storage	4.935	5.826	-	10.761	0.128	10.889
4.	Top Soil	0.272	-	-	0.272	-	0.272
5.	Road	2.519	0.205	-	2.724	0.247	2.971
6.	Infrastructure (Office, Magazine, work shop, fuel station, parking plaza & Temp. Top Soil yard etc.)	-	-	-	-	1.652	1.652
7.	Green Belt / Grass Turfing	-	1.315	-	1.315	2.143	3.458
8.	Undisturbed Land	-	-	-	-	0.903	0.903
9.	Entry and exit within safety zone area	-	-	-	-	0.010	0.010
<b>Sub Total</b>		<b>47.845</b>	<b>7.883</b>	<b>8.424</b>	<b>64.152</b>	<b>7.226</b>	<b>71.378</b>
10.	Safety zone around ML boundary	1.566	0.149	0.375	2.090	0.902	2.992
<b>Grand Total</b>		<b>49.411</b>	<b>8.032</b>	<b>8.799</b>	<b>66.242</b>	<b>8.128</b>	<b>74.370</b>

## 7. EXISTING VEGETATION

The vegetation of the applied area is composed of Sal (*Shorea robusta*), Sidha (*Lagerstroemia parviflora*), Saguan (*Tectona grandis*), Srisu (*Dalbergia latifolia*), Amla (Kusum (*Schleichera oleosa*), Bara (*Ficus bengalensis*), Harida (*Terminalia chebula*), Bahada (*Terminalia belerica*), Char (*Buchanania lanjan*), Jamu (*Syzygium cumini*), Asan (*Terminalia tomentosa*), Kendu (*Diospyros melanoxylon*), Mahul (*Madhuca indica*), Kumbhi (*Careya arborea*), Mango (*Mangifera indica*) etc. are major species among flora available in the applied area. **Sal (*Shorea robusta*)** is the pre-dominant species.

## **8. OBJECTIVE OF THE SCHEME**

The main objective of the present scheme is to fulfill the Condition No.24 of the Stage-I approval granted vide Letter No.8-14/2023-FC, Dated 21.12.2023 of MoEF& CC to undertake "for creation and maintenance of alternate habitat/ home for the avifauna, whose nesting trees are to be cleared in this project as per the plan duly approved by the Principal Chief Conservator of Forests (Wildlife) and Chief Wildlife Warden, Odisha". Loss of habitats in forest land results with respect to environmental loss, existing bird nests, fragmentation of habitat etc. commonly seen birds are Kajalapati, Koel, Katha hana, Baja chadhei, Ghara chatia, Pecha, Kapota, Crow, Owl, Dove, Sparrow etc.

Accordingly alternative bird nests made out of eco-friendly materials as alternative habitat is proposed for shelter, food, water etc. for the birds which will be migrating to the adjoining forest area of the M.L area. Out of 22671 nos. of trees enumerated (Sample tree enumeration) about 21956 nos. of trees required to be felled and 715 nos. of trees maintained as such in Safety Zone area.

The steps to be followed are as under:

- a) To reequip habitat loss for birds living in the project area due to fragmentation due to felling of trees in M.L area.
- b) Alternate habitats i.e. nests out of eco-friendly material to be provided in places in safety zone area in this area 200 nos. of eco-friendly bird nest to be fixed similarly 400 nos. of sparrow bird nest to be provided in habitation area including awareness programme of the habitants for protection and conservation of sparrows.
- c) To maintain the alternate habitat/ home (Bird nests) for their shelter, water facilities (bird birth ditches).

## **7. METHODOLOGY**

- a) Birds like; Kajalapati, koel, katha hana, baja chadhei, ghara chatia, pecha, kapota, crow, owl, dove, sparrow etc.
- b) Selection of locations of trees in safety zone area to be identified for fixing 200 nos. of bird nests similar efforts to be taken for identification of houses in habitation area where 400 nos. of nests for sparrow to be distributed among adjoining villagers.



- c) Selection of host trees in the above mentioned areas with due importance to mainly fruit bearing trees like; Kendu, Kusuma, Mango, Jamun etc. having girth preferably above 120 cm [approximately] trees in cluster manner have been selected within safety zone area. Design of bird nests having prepare and have been shown to forest authority concern.
- d) As per design agreed to by forest official as prepared to extent of 200 nos.
- e) It will be more ideal to keep a provision to demonstrate the interventions after done with the villagers concern, near by school students, villagers and local dignities of panchayat and subdivisonal level in presence of head of the forest division to encourage the local people by briefing the purpose of the nest and their helping hands for protection of birds in said locations in other areas. In awareness programme for the purpose.
- f) Bird birth ditches are to be constructed in appropriate locations in the safety zone area of about 3m x 2m x 0.5m with provision of supply of water by tanker which is to be ensure by the user agency. Further, in respect of distribution of 400 nos. of nest for sparrows, water facility ensure by user agency after discussion with villagers where such nest will be distributed.
- g) The said bird birth ditches are to be periodically cleaned and disinfected by Polassium permanganate (KMnO<sub>4</sub>).

		
Earthen pot Nest	Nest Box	Nest Box

## **8.EXECUTION**

The scheme will be executed by the Divisional Forest Officer, Bonai Division as per approved by the Principal Chief Conservator of Forest (Wild life) and Chief Wildlife Warden, Odisha.



### 9. Funding Agencies

The user agency will provide funds for the scheme as approved by the Principal Chief Conservator of Forest (Wild life) and Chief Wildlife Warden, Odisha.

### 10. MONITORING AND EVALUTION.

The implementation of the scheme will be monitor and evaluate the interventions sited above for the scheme are appropriate maintenance measures to be taken by user agency in consultation with forest staff. Observations made during evaluations and monitoring to be recorded separately for other actions as required.

### 11. REQUIREMENT OF FUNDS

Sl. No.	Items of work	Approximate rate per nests (unit cost) (in ₹)	Unit	Total cost (in ₹)	Remark
1.	Cost of 200 no. of bird nests	800	200	1,60,000	
2.	Cost of 400 sparrow bird nest	300	400	1,20,000	
3.	Transportation including loading and unloading upto suitable location			1,00,000	
4.	Fixing of bird nests (200 no.)	500 per MD for 5 persons per day for 10 days	40 x 5 x 500	1,00,000	
5.	Cost of 10 nos. of bird birth ditches with provision of HDPE	20000	10	2,00,000	Size of each bird birth ditch 15 feet x 10 feet x3 feet with gentle slope
6.	Supervision & monitoring			50000 (appx)	By User Agency
<b>Total</b>				<b>7,30,000</b>	
Add 20% escalation				1,46,000	
<b>G. Total</b>				<b>8,76,000</b>	

Approved

(Rupees Eight Lakh Seventy Six Thousand only).

Principal Chief Conservator of Forests  
(Wildlife) & Chief Wildlife Warden  
Odisha, Bhubaneswar

For Kaga Tradegon Private Limited

COUNTERSIGNED

DIVISIONAL FOREST OFFICER  
BONAI DIVISION

Authorized Signatory



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN:51470MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1ZW

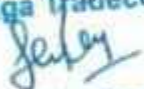
### ANNEXURE-34

CONDITION NO.: 25

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake that we will carry out construction and cleaning of garland drains, stabilize retaining walls, ensure proper terracing of OB dumps, and implement measures to prevent gully formation and soil erosion.

For M/s Raga Tradecon Private Ltd

  
Authorized Signatory  
(Sangram Keshari Ray)

Authorized signatory

**Scheme**

**For**

**TOP SOIL MANAGEMENT**

**in compliance**

**with**

**Condition No.16 of**

**Stage-I approval granted vide**

**Letter No.8-14/2023-FC dt.21.12.2023 of**

**Government of India, Ministry of Environment,**

**Forest & Climate Change**

**for**

**Diversion of 66.242 Hects of Forest Land**

**for U/s-2 (ii) of F.C. Act'1980**

**within 74.37 Ha. Netrabandha Pahar West Iron Ore Block**

**of**

**M/s Raga Tradecon Pvt. Ltd.**

**in village Baldihi and Sanua in Koira Tahsil, Bonai Forest Division**

**Dist. Sundargarh Odisha.**



## SCHEME FOR TOP SOIL MANAGEMENT

### 1. INTRODUCTION

M/s Raga Tradecon Private Limited has been incorporated under Company Act 1956 vide Certificate of Incorporation No. 21- 73114 on 24.07.1995. The corporate identity Number of the company is U51420MH1995PTC162317. The registered office is situated at State of Maharashtra (Mumbai) having regd. office at G-165 Express Zone Mall B Wing, Mallad (E), North Side of Ranisati W E Highway, Mumbai, Mumbai City Maharastra 400097 India, to carry on all or any of the business as manufacturers, buyers, sellers, suppliers, traders, exporters, minerals, metals etc. The company does not have any other mines in the State of Odisha or any other part of India.

The Govt of Odisha issued the notice inviting tender dated 07.07.2021 for commencement of the auction process to grant the mining Lease for Netrabandha Pahar (West) Iron Ore Block located in Koida Tahasil of Sundargarh district of Odisha along with the Mines and Minerals (Development and Regulation) ACT,1957 and the Mineral (Auction) Rules,2015. The e-auction process was conducted in accordance with the tender document and the mineral auction rule, 2015 for said mineral block and M/s Raga Tradecon Pvt. Ltd. was declared as the preferred Bidder under Rule 9(9) (iii) or Rule 10(A) of Auction Rules having quoted a final price offer of 139.50%.

The Government of Odisha has issued letter of Intent (LoI) vide letter No.8722/IV(B)SM-53/2021/SM,Bhubaneswar, dated 28.10.2021 under Rule 10(2) of Mineral Auction Rules 2015 in favour of M/s Raga Tradecon Pvt. Ltd. for grant of Mining Lease for Nethrabandha Pahar (West) Iron Ore Block over an area of 74.370 near Baladia village, Koira Tahasil of Sundargarh district of Odisha for a period of 50 years.

Accordingly, M/s Raga Tradecon Pvt. Ltd. has submitted the proposal to obtain diversion of 66.242 ha. of forest land including safety zone area of 2.09 ha. for iron ore mining under Section 2(ii) of the Forest (Conservation) Act 1980 for entire forest land 66.242 ha including safety zone area of 2.090 ha. in their favour within their allotted Netrabandh Pahar (West) Iron Ore Block of 74.370 ha. located in village Baldihi & Sanua in Koira Tehsil and Koira Range under Bonai Forest Division of Sundargarh District, Odisha.

Further, Stage-I approval over 66.242 ha. of Forest Land for U/s-2 (ii) of F.C. Act'1980 has been granted by MoEF&CC, Govt. of India vide their Letter No.8-14/2023-FC dt.21.12.2023, wherein it has been stipulated as per **Condition No.16 for preparation and implementation of a plan containing for Top Soil Management.**

## **2. LOCATION**

Netrabandha Pahar (West) Iron ore Block of M/s Raga Tradecon Pvt. Ltd. is located in Sundargarh District of Odisha and can be approached throughout the year by road. It falls within the survey of India Topo sheet No.F45N5 (73 G/5). The total mining lease hold area is 74.370.

## **3. TOPOGRAPHY**

The area is represented by sloppy area with gentle undulation, resembling a relict type of topography. The highest contour is 748 meters and the lowest one is of 622 meters. Part of the proposed site comes within the Khajurdihi PRF of Bonai Forest Division.

## **4. SOIL TYPE**

Soil type in the study area varies widely from hard rock to lateritic soil. Areas at higher elevations are usually hard rock consisting of laterite. The top soil is scanty in the area. Whatever top soil is available is thinly spread over all Soil profile in nature. The pH of the soil is slightly acidic in nature.

## **5. CLIMATE**

The study area is characterized by an oppressively hot summer with high humidity. Summer generally commences in the month of March. Temperature beings to rise rapidly attaining a maximum in the month of May. During the summer maximum temperature can go up to 47.7°C. The weather becomes pleasant with onset on monsoon in June and remains as such upto end of October. The temperature in the month of December is lowest, i.e., 7°C. The average annual rainfall as recorded at IMD observatory is 1325.16 mm. Predominant wind direction is South-West. Area remains calm for nearly 50% of the year.

## **6. DRAINAGE**

There are few ephemeral first order nalas originate at mid contours of the main hill in the intervening valleys that follows the natural gradient feeding to the regional Suna Nadi with its numerous ephemeral to perennial nala draining the area. The Sunanadi with its numerous ephemeral to perennial tributaries controls the drainage system in the area. Teherei Nala a tributary of Sunanadi flowing to the North of block and Khajurdihi Nala flowing in the south-eastern part of the area controls the drainage.

## **7. PLAN FOR TOP SOIL MANAGEMENT**

This Topsoil Management Plan provides description of the soil stripping and stockpiling procedures to minimize top soil degradation and maximum availability of suitable soil for future rehabilitation within the 74.37 hectares mining lease of Netrabandha Pahar (West) Iron Ore block in Sundargarh District of Odisha by M/s Raga Tradecon Pvt. Ltd. Topsoil is to be stripped in areas proposed to be disturbed, i.e., 7.222 Hect. of virgin forest land Non forest land for mining operation. A comprehensive top soil management plan has been prepared keeping in view of the conservation, regeneration and afforestation in and around the site where top soil will be stored.

In non-mineralized area also, there is existence of very thin layers of top soil say 5 to 10 cm varying from site to site, which is very difficult to slice down and is stored separately for use during future reclamation. However, grass seed will be broadcasted over this area to prevent erosion of the top soil.

## **8. OBJECTIVES**

The objectives of Top soil management to be executed are as follows:

- To fulfil the stipulation (Condition No.16 i.e strict adherence to the top soil management imposed by the Ministry of Environment & Forests, GOI vide their letter No.8-14/2023-FC dated 21.12.2023 during approval of Stage-I forest clearance.
- To identify top soil resources, and to follow stripping guidelines for optimum recovery.
- To identify stockpile locations and dimensions.
- To identify surface areas suitable for stripping (to minimize over clearing).
- To manage and conserve the top soil reserves.
- To provide sufficient stable topsoil material for rehabilitation work of dumps, back filled areas and degraded lands.

## **9. PLAN FOR MANAGEMENT OF TOP SOIL TO BE GENERATED FROM MINING**

The top soil inside 74.37 hectares of ML area is scanty and present in extremely thin layer. Whatever top soil is available will be excavated during the development of unbroken patch within the mining lease. Precautionary measures will be taken so that this valuable resource is not wasted. This excavated top-soil will be utilized for concurrent plantation works in the mine as per this plan. Some of the top soil will be stored temporarily until it can be used for plantation works / dump reclamation. The details of collection of Top soil are given below.



Name of the proposed quarry	Total surface Area(Sq.m)	Average thickness(m)	Volume of top Soil(Cu.m.)
	72220	0.3	21666

This Topsoil Management Plan has provision for soil stripping and stockpiling procedures to minimize top soil degradation and maximize availability of suitable soil for future rehabilitation.

#### **10. FUTURE TOP SOIL GENERATION FROM MINING ACTIVITIES**

Soil studies have shown that the average thickness of topsoil in the unbroken areas will be around 5 cm - 10 cm. The quantity of topsoil to be stripped in a phased manner from the site will be used during first 5 years to rehabilitate the existing OB dumps, areas.

Prior to stripping, the area will be cleared by removing the unwanted growth. The proposed procedure for soil handling is given below which includes soil handling measures in order to optimize retention of soil characteristics (in terms of nutrients and micro-organisms) conducive to growth of plant.

#### **11. METHODOLOGY**

In accordance with the above objective of providing sufficient stable soil material for rehabilitation and to optimize soil recovery, the following strategies have to be followed:

- Topsoil stockpiles are to be identified outside quarry area.
- Stripping off the topsoil by dozers rather than scrapers to minimize structural degradation;
- Construction of stockpiles with a "rough" surface condition to reduce erosion hazard.
- Improvement of drainage and promotion of revegetation.
- Revegetation of stockpiles with appropriate fertilizer etc, to maintain soil organic matter levels, soil structure and microbial activity and maximize the vegetative cover of the stockpile, and
- To utilize stripped top soil as soon as possible for rehabilitation in a phased manner in accordance with the rehabilitation plan as prescribed in Mining Plan.

## **12. PLAN FOR MANAGEMENT OF EXCAVATED TOPSOIL**

To minimize the detrimental effects of long-term storage of topsoil in stockpiles, the following procedures will be ensured prior to stripping activities.

Appropriate delineation of areas for storage of top soil: A small area has been planned & accordingly the area is demarcated for storage of top soil within Netrabandha Pahar (West) Iron ore Block of M/s Raga Tradecon Pvt. Ltd. **(Copy of the Plan enclosed)**. Though in the land use pattern, no area has been earmarked for storage of top soil, as per the stipulation of the Stage-I approval order the storage area has been earmarked within the lease area.

- Dry stone wall to a length of 150mt. will be constructed around the stockpile followed by grass seeding on the inner side. The cost norm of Toe wall construction has been provided in **Annexure-2**.
- The topsoil stripping will be completed using bulldozers and tippers of smaller capacity in case of good quantum. In areas where the topsoil is relatively thin, the topsoil will be removed in such a way to prevent mixing of topsoil and sub soils.
- Stockpiles will have erosion control measures by constructing loose boulder wall with cement sand patching.
- Permanent measures include establishment of vegetation (bushes & shrubs) and broadcasting of seeds of local shrubs / grasses will mitigate soil erosion and dust emissions. The total area for sowing of grass seeds comes to 2.00 ha. The cost norm of Grass seedling has been provided in **Annexure-1**.
- Prior to use of the topsoil for reclamation, sample of the topsoil will be collected and chemical analysis including nitrogen, organic content and pH value will be done.
- Re-spreading of topsoil will be undertaken in the areas requiring reclamation, so as to approximate pre-plantation thickness of 2 -3 cm by manual means.

## **13. PLAN FOR CONSERVATION OF TOP SOIL IN BARREN LANDS**

The forest land of the region is prone to soil erosion as the entire landscape is affected due to mining activity in the vicinity. Soil erosion problem varies from area to area within the lease, depending on the topography, soil types, vegetation, and management interactions of the catchment. Hence, it is very important to control erosion of top soil from the area, which will result in enhancement of in-situ moisture conservation by enrichment of water table profile for more availability of water so that the top soil is conserved for supporting the growth of trees.



#### 14. TOP SOIL CONSERVATION PLAN

The Top soil will be collected and stored preferably at one place and the top surface will be broadcasted with grass seeds so that a mat of grass turf is made over the surface of the top soil and this will prevent erosion of the top soil by rain water and/or weathering conditions like blow of wind.

##### TOP SOIL CONSERVATION PLAN

Area from which top soil will be collected	Topsoil Spreading on Green Belt/Grass Turfing / Safety Zone around ML boundary	Top soil spreading on OB Dump
7.22 Ha.	6.450 Ha. (3.458 ha. + 2.992 ha.)	-



CONSERVATION OF TOP SOIL THROUGH SOWING OF GRASS SEEDS.

#### 15. INSPECTION, MONITORING AND EVALUATION

For successful implementation of the above mitigative measures, intensive inspection and technical guidance from concerned technical wing is required. Sufficient fuel/conveyance charges for technical experts shall be provided by the user agency for proper execution of these programmes.

#### 16. MOTIVATION OF PEOPLE:

As per Govt. resolution of 2011, the villagers of the adjoining village, i.e. Baldihi and Sanua of Bonai Division are to be involved in protection and management of plantation. Before execution of the work, a meeting will be conducted in the above villages and resolution regarding support to plantation activities will be made. To motivate the people in this direction, they will be provided with incentives in shape of different community articles, buildings, and different community amenities of fixed and movable type through entry point activities (EPA). Health camps shall also be organized in the villages. Thus, 15% of the plantation cost has been earmarked for expenditure on this score.



#### 17. EXECUTING AGENCY

The works in the present Scheme shall be executed by the User Agency having specialized departments headed by qualified persons with outsourced man and machinery. To facilitate this, the user agency shall establish its own executing and supervision cells along with required infrastructural facilities. In order to maintain the quality of work, in-house supervision through competent personnel shall be provided. The entire work shall be carried out in co-ordination with the Forest Department.

#### SPECIALISED CELL

Sl. No.	Name	Educational Qualification	Designation	Expertise
1	Shri Nihar Satpathy	AMIE – Mining	GM (Mining)	32 Years experience

# 18. REQUIREMENT OF FUNDS

The total cost of implementation of measures for Top Soil Management will be Rs.34,35,200/- (Rupees Thirty Four Lakh Thirty Five Thousand Two Hundred) only. This budget will be subject to increase in amount considering the increase in material cost and labour charges.

## TOTAL COST OF TOP SOIL MANAGEMENT

Sl. No.	Description of the work	Funds Required (in ₹)
1.	Unbroken / Virgin area from where top soil can be collected = 7.222 Ha. A. Stripping cost:-0.5ha./hr. @ ₹ 4154.00 Therefore -7.222 Ha. Cost =15hrs. + 1 hrs. marching =16 hrs x Rs.4154.00= ₹ 66,464.00 B. Loading & Transportation cost from site to top soil stockpile comes to be=21666m <sup>3</sup> (tonnage factor 1.6)=34666mt. @ ₹ 47.52/Mt.=Rs.16,47,328.00. C. Cost of leveling with 1050 manpower @ ₹ 352.00 i.e. ₹ 3,69,600.00 Hence total cost A+B+C = Rs.20,83,392.00	20,83,392.00
2.	Cost for sowing of grassseeds over 2.00 ha @ ₹ 56769.00/ha.	1,13,538.00
3.	Cost for erection of 150 m dry toe wall around top soil stock pile @ ₹ 1948.54 RML	2,92,281.00
	<b>TOTAL :-</b>	<b>24,89,211.00</b>
4.	Inspection, Monitoring & Evaluation 15% of the total project cost.	3,73,382.00
	<b>TOTAL</b>	<b>28,62,593.00</b>
	Price escalation @ 20%	5,72,519.00
	<b>Grand Total</b>	<b>34,35,111.00</b> <b>Or,</b> <b>34,35,200.00</b>

(Rupees Thirty Four Lakh Thirty Five Thousand Two Hundred) only

M/s Raga Tradecon Pvt. Ltd. do hereby undertake to execute the item of works mentioned in this scheme in a phased manner at the project cost.

M/s Raga Tradecon Pvt. Ltd.

Raga Tradecon Private Limited

*[Signature]*  
Authorised Signatory

**Technically Approved**

**Regional Chief Conservator of Forests**

**Countersigned**  
**COUNTERSIGNED**

*[Signature]*  
Divisional Forest Officer

*[Signature]*  
Divisional Forest Officer,  
Bonal Division.

COST OF GRASS SEED SOWING

Wage Rate Rs.352.00

Sl No	Purpose	No of Labour / Quantity of materials	Rate (Rs.)	Amount (Rs.)
1	Spreading of good top soil	03 Nos	352 / labour	1056.00
2	Adding FYM and good earth	2 TL FYM	1173.20 /TL FYM	4692.80
		2TL good earth	1173.20 /TL Good earth	
3	Cost of grass seed 500Kg/ per ha.		95/kg	47,500.00
4	Broadcasting	10 nos.	352.00/ labour	3,520.00
Total				56,768.80
				Or, 56,769.00

Raga Tradecon Private Limited

  
 Authorised Signatory



## Annexure-2

Wage Rate- Rs.352.00

Detail Estimate of Retaining wall of loose local Boulder with cement-Sand Patching over the surface of Boulder wall.

Sl. No.	Description of Items	No	Length	Width	Height	Qty	Unit	Rate	Amount
1	2	3	4	5	6	7	8	9	10
For one K.M.Length									
1	Rough Stone Dry Packing with local boulder only labour charges (Local boulder will be Supplied by our Company)	1	1000.00	(1.00+1.50)/2	1.20	1500.00	Cum		
		1	1000.00	1.50	0.30	450.00	Cum		
						1950.00	Cum	692.382	1350144.9
2	Irregular cement sand patches on the both side of the wall with 2" thick cement sand mortar(1:6) on top	1	1000.00	1.00		1000.00	Sqm		
		2	1000.00	1.20		2400.00	Sqm		
						3400.00	Sqm	176.0	598400.00
		Rate per one K.M. Length				Total			1948544.90 Or 1948545.00

Cost for Running Meter length

1948.54

Raga Tradecon Private Limited

  
 Authorised Signatory



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN:51420MH1995PTC162317

Vill, Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AAACR4429D1ZW


### ANNEXURE-35

CONDITION NO.: 26

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake to prioritize plants with the lowest translocation factor for afforestation on OB dumps and avoid planting fruit trees during the biological stabilization of OB dumps.

For M/s Raga Tradecon Private Ltd

  
(Sangram Keshari Ray)  
Authorized Signatory

Authorized signatory



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

ON-51420MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [raga-tradeconminerals@gmail.com](mailto:raga-tradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1ZW

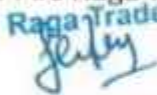
ANNEXURE-36

CONDITION NO.: 27

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake to prevent the fall of wild animals into the mining pit by ensuring proper fencing around the open pit area.

For M/s Raga Tradecon Private Ltd

  
Raga Tradecon Pvt. Ltd

(Sangram Keshari Ray)  
Authorized Signatory

Authorized signatory



**Scheme  
For**

STABILIZE THE OVERBURDENDUMPS BY  
APPROPRIATE GRADING/BENCHING SO AS  
TO ENSURE THAT THAT ANGLES OF REPOSE  
AT ANY GIVEN PLACE IS LESS THAN  $28^{\circ}$

in compliance  
with  
Condition No.14 (d) of  
Stage-I approval granted vide  
Letter No.8-14/2023-FC dt.21.12.2023 of  
Government of India, Ministry of Environment,  
Forest& Climage Change  
for  
Diversion of 66.242 Hects of Forest Land  
for U/s-2 (ii) of F.C. Act'1980  
within 74.37 Ha.Netrabandha Pahar West Iron Ore Block  
of

**M/sRaga TradeconPvt. Ltd.**  
in village Baldihi and Sanua in Koira Tahsil, Bonai Forest Division  
Dist.Sundargarh Odisha.

**SCHEME FOR STABILIZE THE OVERBURDEN DUMPS BY APPROPRIATE  
GRADING/BENCHING SO AS TO ENSURE THAT THE ANGLES OF REPOSE AT  
ANY GIVEN PLACE IS LESS THAN 28°**

**1. INTRODUCTION**

M/s Raga Tradecon Private Limited has been incorporated under Company Act 1956 vide Certificate of Incorporation No. 21- 73114 on 24.07.1995. The corporate identity Number of the company is U51420MH1995PTC162317. The registered office is situated at State of Maharashtra (Mumbai) having regd. office at G-165 Express Zone Mall B Wing, Mallad (E), North Side of Ranisati W E Highway, Mumbai, Mumbai City Maharashtra-400097 India, to carry on all or any of the business as manufacturers, buyers, sellers, suppliers, traders, exporters, minerals, metals etc. The company does not have any other mines in the State of Odisha or any other part of India.

The Govt of Odisha issued the notice inviting tender dated 07.07.2021 for commencement of the auction process to grant the mining Lease for Netrabandha Pahar (West) Iron Ore Block located in Koida Tahasil of Sundargarh district of Odisha along with the Mines and Minerals (Development and Regulation) ACT,1957 and The Mineral (Auction) Rules, 2015. The e-auction process was conducted in accordance with the tender document and the mineral auction rule, 2015 for said mineral block and M/s Raga Tradecon Pvt.Ltd. was declared as the preferred Bidder under Rule 9(9) (iii) or Rule 10(A) of Auction Rules having quoted a final price offer of 139.50%.

The Government of Odisha has issued letter of Intent (LoI) vide letter No.8722/IV(B)SM-53/2021/SM, Bhubaneswar, dated 28.10.2021 under Rule 10(2) of Mineral Auction Rules 2015 in favour of M/s Raga Tradecon Pvt. Ltd. for grant of Mining Lease for Nethrabandha Pahar (West) Iron Ore Block over an area of 74.370 near Baladia village, Koira Tahasil of Sundargarh district of Odisha for a period of 50 years.

Accordingly, M/s Raga Tradecon Pvt. Ltd. has submitted the proposal to obtain diversion of 66.242 ha. of forest land including safety zone area of 2.09 ha. for iron ore mining under Section 2(ii) of the Forest (Conservation) Act 1980 for entire forest land 66.242 ha including safety zone area of 2.090 ha. in their favour within their allotted Netrabandh Pahar (West) Iron Ore Block of 74.370 ha. located in village Baldihi & Sanua in Koira Tehsil and Koira Range under Bonai Forest Division of Sundargarh District, Odisha.

Further, Stage-I approval over 66.242 ha. of Forest Land for U/s-2 (ii) of F.C. Act'1980 has been granted by MoEF&CC, Govt. of India vide their Letter No.8-14/2023-FC dt.21.12.2023, wherein it has been stipulated as per **Condition No.14 (d)** for preparation and implementation of a plan for stabilize the overburden dumps by appropriate grading/benching so as to ensure that the angles of repose at any given place is less than 28°.

## 2. LOCATION

Netrabandha Pahar (West) Iron ore Block of M/s Raga Tradecon Pvt. Ltd. is located in Sundargarh District of Odisha and can be approached throughout the year by road. It falls within the survey of India Topo sheet No.F45N5 (73 G/5). The total mining lease hold area is 74.370.

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The area is represented by sloppy area with gentle undulation, resembling a relict type of topography. The highest contour is 748 meters and the lowest one is of 622 meters. Part of the proposed site comes within the Khajurdihi PRF of Bonai Forest Division.

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Soil type in the study area varies widely from hard rock to lateritic soil. Areas at higher elevations are usually hard rock consisting of laterite. The top soil is scanty in the area. Whatever top soil is available is thinly spread over all Soil profile in nature. The pH of the soil is slightly acidic in nature.

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The study area is characterized by an oppressively hot summer with high humidity. Summer generally commences in the month of March. Temperature beings to rise rapidly attaining a maximum in the month of May. During the summer maximum temperature can go up to 47.7°C. The weather becomes pleasant with onset on monsoon in June and remains as such upto end of October. The temperature in the month of December is lowest, i.e., 7° C. The average annual rainfall as recorded at IMD observatory is 1325.16 mm. Predominant wind direction is South-West. Area remains calm for nearly 50% of the year.

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## 7. EXISTING VEGETATION

The vegetation of the applied area is composed of Sal (*Shorea robusta*), Sidha (*Lagerstroemia parviflora*), Saguan (*Tectona grandis*), Shisu (*Dalbergia latifolia*), Amla (Kusum (*Schleicheraoleosa*), Bara (*Ficus bengalensis*), Harida (*Terminaliachebula*), Bahada (*Terminalia belerica*), Char (*Buchananiaalanjan*), Jamu (*Syzygiumcumini*), Asan (*Terminalia tomentosa*), Kendu (*Diospyros melanoxylon*), Mahul (*Madhuca indica*), Kumbhi(*Careya arborea*), Mango (*Mangifera indica*) etc. are major species among flora available in the applied area. **Sal (*Shorearobusta*)** is the pre-dominant species.



8. **PHASE WISE MINING ACTIVITY AND MANAGEMENT OF OVERBURDEN DUMP**

As per the Geological report provided by the Directorate of Mines, Steel & Mines Department, Government of Odisha, the net in situ iron ore resources of Netrabandha Pahar West Iron Ore Block is 172,74,072 tons out of which 14563716 tons in Forest land and 2710356 tons in non-forest land. This ore body needs to be judiciously exploited in view of systematic mining with optimum exploitation of ore to meet the growing demand of raw materials for indigenous steel plant, sponge iron plant, pellet plants etc. for ultimate production of Steel and also for export to earn foreign exchange for development of our country.

9. **Waste Generation**

Proposal had been given for waste generation from the proposed quarry and subsequent dumping on Dump site during the plan period as per approved scheme of mining as mentioned below. 1<sup>st</sup> year will be started from date of execution of lease deed.

Year	Volume of Waste Generation (m <sup>3</sup> ) from quarry
	Total (m <sup>3</sup> )
1 <sup>st</sup> Year	26207
2 <sup>nd</sup> Year	16792
3 <sup>rd</sup> Year	39844
4 <sup>th</sup> Year	189005
5 <sup>th</sup> Year	191726

The proposed generation of waste will be dumped on dump till the end of 5<sup>th</sup> year. Further Dumping of waste material will be done as per approved Mining plan. In the conceptual period the area of the over burden dump will be 7.403 Ha. The slope of the conceptual dump will be maintained at an angle of 28°. The height of terraces of dump will be 10-12 m.

**The salient features of OB/waste dump management practices**

1. The total waste generation will be will be stacked on the proposed dump in dry state.
2. Retaining wall and garland drain will be provided around the proposed dumps. Precautionary measures to be adopted during waste disposal are as follows: -
  - i) The ultimate dump slope to be maintained around 28°.
  - ii) Terrace should have inward slope with a provision of catch drain.
  - iii) The dump edge will be covered with bund. A garland drain will be constructed adjacent to proposed dump, following the contour & different terrace will be connected to the catch drain. The drainage pattern should be such that the runoff will be channelized to the catch drain before releasing to the garland drain outside the periphery of dump. Catch drain will be made up of concrete with number of cemented stairs to check the heavy flow of water as well as to reduce gully formation due to constant run off.

#### 10. THE OBJECTIVES OF THE PROPOSED PLAN

The objectives of the proposed plan are as follows:

1. To fulfill the stipulation i.e., Condition No. 14 (d) imposed in the Stage-I approval granted vide Letter No.8-14/2023-FC dated 21.12.2023 to prepare plan for **Stabilization of Over burden dump by appropriate grading/benching so as to ensure that angle of repose at any given place is less than 28°.**
2. To adopt proper Management and scheduling of overburden materials so as to minimize external dumping.
3. To provide methodologies and implement the proposed works in time bound manner to prevent slope failures there by providing stable OB dump slopes.
4. To stabilize the over burden dumps by plantation.
5. To prevent overflow of eroded soils from the fines, OB dump areas leading to siltation in the streams natural streams.

In order to stabilize over burden dump, the user agency will implement some mitigative measures which are given as below:

#### 11. MEASURES ALREADY ADOPTED

There is no Biological and Structural measures exist. It is a fresh mining lease and no mining activities have been taken place so far.

#### 12. PROPOSED METHODOLOGY

Due to the geological feature of the mining lease area, the dumps would be higher than the adjoining ground level. Top soils from the slopes of the dump are likely to flow during heavy rains and disturb the topography of its adjoining land, till the dump surface is completely stabilized by biological means. In order to curb this situation, retaining walls of minimum one & half meter height have been planned all along the peripheral contour of the dumps to arrest the possibility material running down on the slopes. Waste dumping has been planned in such a manner that backfilling can be done with a view to reclaim the degraded land.

The methods to be adopted for stabilization of OB dumps are as follows:

- a. **Vegetative methods (Biological Measures)**
  - Plantation would be done on the OB dump surface, along with sowing of seeds of *Stylohamata* etc.(broadcast)
- b. **Bio-engineering Measures**
  - Plantation of *Agave sisilana* or terraces as a soil conservation measure.

c. **Structural measures**

- Terracing of slopes, plugging of gullies by construction of catch drain
- Construction of Garland drains, Check dam, Settling tank, loose boulder structure etc. sub-grade dump meant for dumping sub-grade ore.

To give an ideal shape to the dump, appropriate slope has to be maintained for which terraces to be made in dumps to maintain the slope. The angle of repose of the terrace would be around 28°. Backfilled areas would be biologically reclaimed. Terraces would be developed having maximum height of 10m in dumps keeping in view the gradual progress of dump and area available for minimum utilisation of virgin land. The details of dumps and terraces to be made have been summarized as follows:

a. **Biological Measures**

i) **Plantation on OB dumps**

It is proposed to undertake plantations over the dump. Green coverage of the dump area will be developed by raising plantation at the rate 1600 plants per hectare through block plantation. Taking into consideration the site specific soil condition, indigenous species growing naturally are proposed to be planted. It is also proposed to plant hardy species such as Agave as it can survive in degraded and poor soils along the slope & toe of O.B. dump and prove to be most useful for controlling soil erosion.

Sl.No.	Item	Location	Area
1	Plantation	Dump Slope Plantation	7.00 ha.

The list of species to be adopted for the plantation is as follows:

Sl. No.	Local Name	Scientific Name
1	Amla	<i>Emblica officinalis</i>
2	Karanj	<i>Pongamia glabra</i>
3	Asan	<i>Terminalia alata</i>
4	Pahadisissou	<i>Dalbergia latifolia</i>
5	Simaruba	<i>Simarubaglauca</i>
7	Siris	<i>Albizia lebbek</i>

**Broadcasting of grass Seeds:** It is suggested to broadcast grass seeds on the slope of terrace & at other barren place for preservation of top soil. The grass recommended is as follows:

Name of Species	Usage	Habitat / Soil
<i>Stylohamata</i>	Non- Fodder	Eroded soil

Sl. No.	Item	Area
1.	Sowing of Grass seeds	2.13 ha
2.	Showing of grass seeds in the top soil	2.00 ha.





*Plantation over OB Dumps*

ii) **Soil Treatment & Planting Activities**

The topsoil which is encountered during mining operation would be preserved for utilization during plantation on OB dump areas. Planting shall be done during onset of monsoon in earlier-dugout pits of size 30cmX30cmX30cm. A basal dose of (N.P.K) fertiliser shall be applied at the time of planting, besides mixing with insecticides to prevent termites & insects. A minimum distance of 2.5 mt X 2.5 mt shall be maintained. Care should be taken to complete the planting during July. The proposed biological measures along with the maintenance works will also be executed with internal resources by the user agency in consultation with local Forest Dept. field executives. Provision of vehicle for technical experts (Internat) for proper supervision of these works by the Executing Agency shall also be made available to them.



*Block Planting Activities*

b. **Structural Measures**

i) **Plan for Construction of Loose Boulder Structure**

The User Agency has proposed to construct 1 no. of loose boulder structures of 4 m span across the existing & proposed garland drain along proposed dumps & in phase-2, settling pit would help in stabilization of silt & sediment as well as prevention of soil erosion & enrichment of vegetation & greenery development.

ii) **Plan for Construction of Garland drain**

A shallow trench (2.0 m wide x 1.0 m deep) will be dug for storage of run off accumulated for draining surface water before it is released to the natural water course. Proposed Garland drain to be constructed near proposed dumps over a length of 1243 m shall be constructed in the ensuing five years period.

**iii) Construction of Retaining wall**

Retaining wall is a structure designed and constructed to resist the lateral pressure of soil when there is a change in ground elevation that exceeds the angle of repose of the soil. The Retaining walls are proposed for construction over **1524 m** around proposed dumps during 1<sup>st</sup> year operation with a provision for maintenance of the retaining wall for the next 4 years.

**iv) Terracing of OB Dump Slope**

It is proposed to construct berm & terraces over a length of **260 m** on the proposed Dumps considering the volume of OB materials & the area earmarked for dumping. The slope of individual terrace should be within the permissible range considering the angle of repose of the soil and space available, thereby maintaining the angle of repose at less than 28°. The terracing would be done through the internal resources by deploying the operating mining equipment. All these operations would be carried out after sufficient deposition of OB has been made.

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After studying the drainage pattern, it has been found total number of check dam required is 2 and accordingly, **02 nos.** of Dams will be constructed near the rain water harvesting pit. During monsoon there is heavy flow of water as a runoff arising from up slope/higher elevation to lower elevation. Hence, attention is to be paid to reduce the flow velocity of runoff & settle the silts/sediments flown from overburden dumps, haul roads inside the mine and areas cleared of vegetation.

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It is a process that involves separation of solid materials from slurry. Sometimes, this process is called sedimentation. When waste water is treated, a large quantum of materials is filtered out of the liquid by physical barriers. Even then, the water will contain some solids which need to be removed. A settling tank is proposed to be used to protect the surface water. It has been proposed to construct **2 nos.** of settling tank.

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A pyramid structure catch drain has been proposed to stream-line the flow of surface runoff from the dump to the foot of the dump, and stair of the catch drain will be placed inward to restrict flow of water. Catch drain is preferably made up of half concrete with number of stairs to reduce gully formation due to rain water wash off, so that runoff water will flow through each terrace of the dump & connect to the catch drain. The catch drain will be constructed after the proposed dump height exceeds 26 m. **2 nos.** of catch drain have been proposed.

### **13. INSPECTION, MONITORING AND EVALUATION**

For successful implementation of the above works under the present Scheme, intensive inspection and technical guidance from concerned technical wing is required. Sufficient fuel/conveyance charges for technical experts shall be provided by the user agency for proper execution of these programmes.

### **14. MOTIVATION OF PEOPLE:**

As per Govt. resolution of 2011, the villagers of the adjoining village, i.e. Baldihi and Sanua of Bonai Division to be involved in protection and management of plantation. Before execution of the work, a meeting will be conducted in the above villages and resolution regarding support to plantation activities will be made. To motivate the people in this direction, they will be provided with incentives in shape of different community articles, buildings, and different community amenities of fixed and movable type through entry point activities (EPA). Health camps shall also be organized in the villages. Thus, 15% of the plantation cost has been earmarked for expenditure on this score.

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#### **SPECIALISED CELL**

<b>Sl. No.</b>	<b>Name</b>	<b>Educational Qualification</b>	<b>Designation</b>	<b>Expertise</b>
1	Shri Nihar Satpathy	AMIE – Mining	GM (Mining)	32 Years experience



# 16. REQUIREMENT OF FUNDS

The financial forecast for construction of Stabilization of over burden Dumps, Retention/ Toe Walls to arrest sliding down of the excavated material along the contour by means of, Construction of Check Dam, Retaining wall, Catch Drain, Settling Tank and Loose Boulder Structure of 4m span has already been provided in the Scheme for mitigative measures to minimize soil erosion and choking of streams as per condition No.14 (a) of Stage-I approval granted by MoEF& CC in their letter dt.21.12.2023. So, in order to avoid repetition of financial forecast, no budgetary provision has been furnished here.

FINANCIAL FORECAST of the project (158.509 ha.)

Wage Rate Rs. 345.00

Sl. No.	Description of the Work	Fund Required (in Rs.)
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A.	Block Plantation (1600 no./ha.) on the dumps and pit to be reclaimed in future over 7.00 ha. @ Rs.3,41,903/- per ha.	
B.	Agave Plantation at the toe of dump over a length of 1116 m. @ Rs.6,38,625/- for 1000 RMT	
	<b>Total</b>	
2.	Structural Measures	
A.	1 no. of Loose Boulder Structure of 4mt span @ Rs.44,461/- per each	
B.	Construction of Garland drain over a length of 1243 m @ Rs.498/- per RMT	
C.	Construction of retaining wall over 1524 m @ Rs.1948.54 per RMT	
D.	Terracing of OB dump over a length of 260 m. @ Rs.833/- per RMT	
E.	Construction of 02 no. of check dam @ Rs.3,85,954.00/- per each	
F.	Construction of 2 no. of settling tank @ Rs.14,908.00/- per each	
G.	Construction of 2 nos. of catch drain (26 m. at dump slope) @ Rs.3,01,137.00/- per each	
	<b>Total</b>	
3.	De-siltation / cleaning work for Garland drain, stabilizing retaining walls, settling pond etc. and check dam twice in a year on LS	
4.	Maintenance of retaining walls	
	<b>Sub Total</b>	
5.	15% of the total cost for motivation of VSS / People involved	
	<b>Total</b>	
	Price escalation @ 20%	
	<b>GRAND TOTAL</b>	

M/s Raga Tradecon Pvt. Ltd. do hereby undertake to execute the item of works mentioned in this scheme in a phased manner at the project cost.

M/s Raga Tradecon Pvt. Ltd.

Raga Tradecon Private Limited

Authorised Signatory

Technically Approved

Regional Chief Conservator of Forests  
Rourkela Circle

COUNTERSIGNED

Divisional Forest Officer  
Borunda Division



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN: 51420MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1ZW

ANNEXURE-37B

CONDITION NO.: 28

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake that the angle of repose in OB dumps to be maintained to ensure stability and safety.

For M/s Raga Tradecon Private Ltd

Raga Tradecon Pvt. Ltd

(Sangram Keshari Ray)

Authorized signatory

**Scheme  
For**

STABILIZE THE OVERBURDENDUMPS BY  
APPROPRIATE GRADING/BENCHING SO AS  
TO ENSURE THAT THAT ANGLES OF REPOSE  
AT ANY GIVEN PLACE IS LESS THAN 28°

in compliance

with

Condition No.14 (d) of

Stage-I approval granted vide

Letter No.8-14/2023-FC dt.21.12.2023 of

Government of India, Ministry of Environment,

Forest& Climate Change

for

Diversion of 66.242 Hects of Forest Land

for U/s-2 (ii) of F.C. Act'1980

within 74.37 Ha.Netrabandha Pahar West Iron Ore Block

of

**M/sRaga TradeconPvt. Ltd.**

**in village Baldihi and Sanua in Koira Tahsil, Bonai Forest Division**

**Dist.Sundargarh Odisha.**



**SCHEME FOR STABILIZE THE OVERBURDEN DUMPS BY APPROPRIATE  
GRADING/BENCHING SO AS TO ENSURE THAT THE ANGLES OF REPOSE AT  
ANY GIVEN PLACE IS LESS THAN 28°**

**1. INTRODUCTION**

M/s Raga Tradecon Private Limited has been incorporated under Company Act 1956 vide Certificate of Incorporation No. 21- 73114 on 24.07.1995. The corporate identity Number of the company is U51420MH1995PTC162317. The registered office is situated at State of Maharashtra (Mumbai) having regd. office at G-165 Express Zone Mall B Wing, Mallad (E), North Side of Ranisati W E Highway, Mumbai, Mumbai City Maharastra 400097 India, to carry on all or any of the business as manufacturers, buyers, sellers, suppliers, traders, exporters, minerals, metals etc. The company does not have any other mines in the State of Odisha or any other part of India.

The Govt of Odisha issued the notice inviting tender dated 07.07.2021 for commencement of the auction process to grant the mining Lease for Netrabandha Pahar (West) Iron Ore Block located in Koida Tahasil of Sundargarh district of Odisha along with the Mines and Minerals (Development and Regulation) ACT,1957 and The Mineral (Auction) Rules, 2015. The e-auction process was conducted in accordance with the tender document and the mineral auction rule, 2015 for said mineral block and M/s Raga Tradecon Pvt.Ltd. was declared as the preferred Bidder under Rule 9(9) (iii) or Rule 10(A) of Auction Rules having quoted a final price offer of 139.50%.

The Government of Odisha has issued letter of Intent (LoI) vide letter No.8722/IV(B)SM-53/2021/SM, Bhubaneswar, dated 28.10.2021 under Rule 10(2) of Mineral Auction Rules 2015 in favour of M/s Raga Tradecon Pvt. Ltd. for grant of Mining Lease for Nethrabandha Pahar (West) Iron Ore Block over an area of 74.370 near Baladia village, Koira Tahasil of Sundargarh district of Odisha for a period of 50 years.

Accordingly, M/s Raga Tradecon Pvt. Ltd. has submitted the proposal to obtain diversion of 66.242 ha. of forest land including safety zone area of 2.09 ha. for iron ore mining under Section 2(ii) of the Forest (Conservation) Act 1980 for entire forest land 66.242 ha including safety zone area of 2.090 ha. in their favour within their allotted Netrabandh Pahar (West) Iron Ore Block of 74.370 ha. located in village Baldihi & Sanua in Koira Tehsil and Koira Range under Bonai Forest Division of Sundargarh District, Odisha.

Further, Stage-I approval over 66.242 ha. of Forest Land for U/s-2 (ii) of F.C. Act 1980 has been granted by MoEF&CC, Govt. of India vide their Letter No.8-14/2023-FC dt.21.12.2023, wherein it has been stipulated as per **Condition No.14 (d)** for preparation and implementation of a plan for stabilize the overburden dumps by appropriate grading/benching so as to ensure that the angles of repose at any given place is less than 28°.

## 2. LOCATION

Netrabandha Pahar (West) Iron ore Block of M/s Raga Tradecon Pvt. Ltd. is located in Sundargarh District of Odisha and can be approached throughout the year by road. It falls within the survey of India Topo sheet No.F45N5 (73 G/5). The total mining lease hold area is 74.370.

## 3. TOPOGRAPHY

The area is represented by sloppy area with gentle undulation, resembling a relict type of topography. The highest contour is 748 meters and the lowest one is of 622 meters. Part of the proposed site comes within the Khajurdihi PRF of Bonai Forest Division.

## 4. SOIL TYPE

Soil type in the study area varies widely from hard rock to lateritic soil. Areas at higher elevations are usually hard rock consisting of laterite. The top soil is scanty in the area. Whatever top soil is available is thinly spread over all Soil profile in nature. The pH of the soil is slightly acidic in nature.

## 5. CLIMATE

The study area is characterized by an oppressively hot summer with high humidity. Summer generally commences in the month of March. Temperature beings to rise rapidly attaining a maximum in the month of May. During the summer maximum temperature can go up to 47.7°C. The weather becomes pleasant with onset on monsoon in June and remains as such upto end of October. The temperature in the month of December is lowest, i.e., 7° C. The average annual rainfall as recorded at IMD observatory is 1325.16 mm. Predominant wind direction is South-West. Area remains calm for nearly 50% of the year.

## 6. DRAINAGE

There are few ephemeral first order nalas originate at mid contours of the main hill in the intervening valleys that follows the natural gradient feeding to the regional Suna Nadi with its numerous ephemeral to perennial nala draining the area. The Sunanadi with its numerous ephemeral to perennial tributaries controls the drainage system in the area. Teherei Nala a tributary of Sunanadi flowing to the North of block and Khajurdihi Nala flowing in the south-eastern part of the area controls the drainage.

## 7. EXISTING VEGETATION

The vegetation of the applied area is composed of Sal (*Shorea robusta*), Sidha (*Lagerstroemia parviflora*), Saguana (*Tectona grandis*), Shisu (*Dalbergia latifolia*), Amla (*Kusum*) (*Schleichera oleosa*), Bara (*Ficus bengalensis*), Harida (*Terminalia chebula*), Bahada (*Terminalia bellerica*), Char (*Buchanania lanzan*), Jamu (*Syzygium cumini*), Asan (*Terminalia tomentosa*), Kendu (*Diospyros melanoxylon*), Mahul (*Madhuca indica*), Kumbhi (*Careya arborea*), Mango (*Mangifera indica*) etc. are major species among flora available in the applied area. **Sal (*Shorea robusta*)** is the pre-dominant species.

#### 8. PHASE WISE MINING ACTIVITY AND MANAGEMENT OF OVERBURDEN DUMP

As per the Geological report provided by the Directorate of Mines, Steel & Mines Department, Government of Odisha, the net in situ iron ore resources of Netrabandha Pahar West Iron Ore Block is 172,74,072 tons out of which 14563716 tons in Forest land and 2710356 tons in non-forest land. This ore body needs to be judiciously exploited in view of systematic mining with optimum exploitation of ore to meet the growing demand of raw materials for indigenous steel plant, sponge iron plant, pellet plants etc. for ultimate production of Steel and also for export to earn foreign exchange for development of our country.

#### 9. Waste Generation

Proposal had been given for waste generation from the proposed quarry and subsequent dumping on Dump site during the plan period as per approved scheme of mining as mentioned below. 1<sup>st</sup> year will be started from date of execution of lease deed.

Year	Volume of Waste Generation (m <sup>3</sup> ) from quarry	
	Total (m <sup>3</sup> )	
1 <sup>st</sup> Year	26207	
2 <sup>nd</sup> Year	16792	
3 <sup>rd</sup> Year	39844	
4 <sup>th</sup> Year	189005	
5 <sup>th</sup> Year	191726	

The proposed generation of waste will be dumped on dump till the end of 5<sup>th</sup> year. Further Dumping of waste material will be done as per approved Mining plan. In the conceptual period the area of the over burden dump will be 7.403 Ha. The slope of the conceptual dump will be maintained at an angle of 28°. The height of terraces of dump will be 10-12 m.

#### The salient features of OB/waste dump management practices

1. The total waste generation will be will be stacked on the proposed dump in dry state.
2. Retaining wall and garland drain will be provided around the proposed dumps.  
Precautionary measures to be adopted during waste disposal are as follows: -
  - i) The ultimate dump slope to be maintained around 28°.
  - ii) Terrace should have inward slope with a provision of catch drain.
  - iii) The dump edge will be covered with bund. A garland drain will be constructed adjacent to proposed dump, following the contour & different terrace will be connected to the catch drain. The drainage pattern should be such that the runoff will be channelized to the catch drain before releasing to the garland drain outside the periphery of dump. Catch drain will be made up of concrete with number of cemented stairs to check the heavy flow of water as well as to reduce gully formation due to constant run off.



#### 10. THE OBJECTIVES OF THE PROPOSED PLAN

The objectives of the proposed plan are as follows:

1. To fulfill the stipulation i.e., Condition No. 14 (d) imposed in the Stage-I approval granted vide Letter No.8-14/2023-FC dated 21.12.2023 to prepare plan for **Stabilization of Over burden dump by appropriate grading/benching so as to ensure that angle of repose at any given place is less than 28°.**
2. To adopt proper Management and scheduling of overburden materials so as to minimize external dumping.
3. To provide methodologies and implement the proposed works in time bound manner to prevent slope failures there by providing stable OB dump slopes.
4. To stabilize the over burden dumps by plantation.
5. To prevent overflow of eroded soils from the fines, OB dump areas leading to siltation in the streams natural streams.

In order to stabilize over burden dump, the user agency will implement some mitigative measures which are given as below:

#### 11. MEASURES ALREADY ADOPTED

There is no Biological and Structural measures exist. It is a fresh mining lease and no mining activities have been taken place so far.

#### 12. PROPOSED METHODOLOGY

Due to the geological feature of the mining lease area, the dumps would be higher than the adjoining ground level. Top soils from the slopes of the dump are likely to flow during heavy rains and disturb the topography of its adjoining land, till the dump surface is completely stabilized by biological means. In order to curb this situation, retaining walls of minimum one & half meter height have been planned all along the peripheral contour of the dumps to arrest the possibility material running down on the slopes. Waste dumping has been planned in such a manner that backfilling can be done with a view to reclaim the degraded land.

The methods to be adopted for stabilization of OB dumps are as follows:

##### a. **Vegetative methods (Biological Measures)**

- Plantation would be done on the OB dump surface, along with sowing of seeds of *Stylohamata* etc.(broadcast)

##### b. **Bio-engineering Measures**

- Plantation of *Agave sisilana* or terraces as a soil conservation measure.

c. **Structural measures**

- Terracing of slopes, plugging of gullies by construction of catch drain
- Construction of Garland drains, Check dam, Settling tank, loose boulder structure etc. sub-grade dump meant for dumping sub-grade ore.

To give an ideal shape to the dump, appropriate slope has to be maintained for which terraces to be made in dumps to maintain the slope. The angle of repose of the terrace would be around 28°. Backfilled areas would be biologically reclaimed. Terraces would be developed having maximum height of 10m in dumps keeping in view the gradual progress of dump and area available for minimum utilisation of virgin land. The details of dumps and terraces to be made have been summarized as follows:

a. **Biological Measures**

i) **Plantation on OB dumps**

It is proposed to undertake plantations over the dump. Green coverage of the dump area will be developed by raising plantation at the rate 1600 plants per hectare through block plantation. Taking into consideration the site specific soil condition, indigenous species growing naturally are proposed to be planted. It is also proposed to plant hardy species such as Agave as it can survive in degraded and poor soils along the slope & toe of O.B. dump and prove to be most useful for controlling soil erosion.

Sl.No.	Item	Location	Area
1	Plantation	Dump Slope Plantation	7.00 ha.

The list of species to be adopted for the plantation is as follows:

Sl. No.	Local Name	Scientific Name
1	Amla	<i>Emblica officinalis</i>
2	Karanj	<i>Pongamia glabra</i>
3	Asan	<i>Terminalia alata</i>
4	Pahadisissou	<i>Dalbergia latifolia</i>
5	Simaruba	<i>Simaruba glauca</i>
7	Siris	<i>Albizia lebbek</i>

**Broadcasting of grass Seeds:** It is suggested to broadcast grass seeds on the slope of terrace & at other barren place for preservation of top soil. The grass recommended is as follows:

Name of Species	Usage	Habitat / Soil
<i>Stylohamata</i>	Non- Fodder	Eroded soil

Sl. No.	Item	Area
1.	Sowing of Grass seeds	2.13 ha
2.	Showing of grass seeds in the top soil	2.00 ha.



*Plantation over OB Dumps*

## **ii) Soil Treatment & Planting Activities**

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*Block Planting Activities*

## **b. Structural Measures**

### **i) Plan for Construction of Loose Boulder Structure**

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#### **SPECIALISED CELL**

<b>Sl. No.</b>	<b>Name</b>	<b>Educational Qualification</b>	<b>Designation</b>	<b>Expertise</b>
1	Shri Nihar Satpathy	AMIE – Mining	GM (Mining)	32 Years experience

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The financial forecast for construction of Stabilization of over burden Dumps, Retention/ Toe Walls to arrest sliding down of the excavated material along the contour by means of, Construction of Check Dam, Retaining wall, Catch Drain, Settling Tank and Loose Boulder Structure of 4m span has already been provided in the Scheme for mitigative measures to minimize soil erosion and choking of streams as per condition No.14 (a) of Stage-I approval granted by MoEF& CC in their letter dt.21.12.2023. So, in order to avoid repetition of financial forecast, no budgetary provision has been furnished here.

FINANCIAL FORECAST of the project (158.509 ha.)

Wage Rate Rs. 345.00

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B.	Agave Plantation at the toe of dump over a length of 1116 m. @ Rs.6,38,625/- for 1000 RMT	
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2.	Structural Measures	
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D.	Terracing of OB dump over a length of 260 m. @ Rs.833/- per RMT	
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G.	Construction of 2 nos. of catch drain (26 m. at dump slope) @ Rs.3,01,137.00/- per each	
	<b>Total</b>	
3.	De-siltation / cleaning work for Garland drain, stabilizing retaining walls, settling pond etc. and check dam twice in a year on LS	
4.	Maintenance of retaining walls	
	<b>Sub Total</b>	
5.	15% of the total cost for motivation of VSS / People involved	
	<b>Total</b>	
	Price escalation @ 20%	
	<b>GRAND TOTAL</b>	

M/s Raga Tradecon Pvt. Ltd. do hereby undertake to execute the item of works mentioned in this scheme in a phased manner at the project cost.

M/s Raga Tradecon Pvt. Ltd.

Raga Tradecon Private Limited

*[Signature]*  
Authorised Signatory

**Technically Approved**

24/11/24

**Regional Chief Conservator of Forests  
Rourkela Circle**

COUNTERSIGNED

*[Signature]*  
Divisional Forest Officer  
B.B. Division





**RAGA TRADECON PRIVATE LIMITED**  
**NETRABANDHA (WEST) IRON ORE MINES**

CIN:51420MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1Z9

**ANNEXURE-38B**

**CONDITION NO.:29**

**UNDERTAKING**

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake to plant vetiver grass at the lower reaches of the dump to bind the soil and prevent soil erosion giving better stability to the dump.

For M/s Raga Tradecon Private Ltd

**Raga Tradecon Pvt. Ltd.**

**Authorised Signatory**

(Sangram Keshari Ray)

Authorized signatory



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN:53420MH1995PTC162917

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048  
E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)  
GSTIN: 21AACCR4429D1ZW

### ANNEXURE-39

CONDITION NO.: 30

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake to carry out mining as per the approved Mining Plan and reclamation will be carried out as per Progressive Mines Closure Plan approved by IBM.

For M/s Raga Tradecon Pvt. Ltd.

*Sangram Keshari Ray*

Authorised Signatory

(Sangram Keshari Ray)

Authorized signatory



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN: 51420MH1995FTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1ZW

ANNEXURE-40

CONDITION NO.: 31

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake to comply with the Hon'ble Supreme Court order on re-grassing by restoring the mining area and all other disturbed areas to a condition suitable for the growth of fodder, flora, and fauna in a timely manner.

For M/s Raga Tradecon Private Ltd

Raga Tradecon Pvt. Ltd.

(Sangram Keshari Ray)

Authorized signatory





# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN-51420MH1995PTC162317

Vill. Baldihi, Ps. Koirā, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AAACR4429D1ZW

ANNEXURE-41

CONDITION NO.: 32

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake that the diversion of the forest land under this approval shall be co-terminus with the duration of the mining lease granted under the Mines and Minerals (Development and Regulation) Act, 1957, as amended, and the applicable rules framed thereunder.

For M/s Raga Tradecon Private Ltd

Raga Tradecon Pvt. Ltd.

Authorized Signatory

(Sangram Keshari Ray)

Authorized signatory



File No.: 462515/07-MIN/02-2024

Government of India

Ministry of Environment, Forest and Climate Change  
(Issued by the State Environment Impact Assessment Authority(SEIAA),  
ODISHA)

\*\*\*



Dated 18/11/2024



To,

Sri. Sangram Keshari Ray, Vice President  
M/s Raga Tradecon Pvt. Ltd.  
503, 5th Floor, Greenland Apts, BLDG No-3, JB Nagar, Andheri East, Mumbai-400059  
ragatradeconminerals@gmail.com

**Subject:** Grant of prior Environmental Clearance (EC) to the proposed Mining Project under the provisions of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application submitted to SEIAA, Odisha vide proposal number SIA/OR/MIN/462515/2024 dated 13/02/2024 for grant of prior Environmental Clearance (EC) to the project under the provision of the EIA Notification 2006-and as amended thereof.

2. The particulars of the proposal are as below :

(i) EC Identification No.	EC24B00000R5521001N
(ii) File No.	462515/07-MIN/02-2024
(iii) Clearance Type	Fresh EC
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a)- Mining of minerals proposed mining of Iron Ore from Netrabandha Pahar (West) Iron Ore Block(ML Area-74.370Ha.) for Production of 1.0 MTPA Iron Ore with 750 TPH Crushing Unit and 600 TPH Screening Unit Located in Village -Baladihi & Sanua, Tahasil - Koira, District-Sundargarh
(vii) Name of Project	Village -Baladihi & Sanua, Tahasil - Koira, District-Sundargarh
(ix) Location of Project (District, State)	SEIAA,Odisha
(x) Issuing Authority	No
(xii) Applicability of General Conditions	

3. In view of the particulars given in the Para 1 above, the project proposal interalia including Form-2(Part A, B and C)/ EIA & EMP Report were submitted to the SEIAA, Odisha for an appraisal by the State Level Expert Appraisal Committee(SEAC) under the provision of EIA notification 2006 and its subsequent amendments thereto.

4. The above-mentioned proposal has been considered for EC by SEAC in its meeting held on 03.07.2024. The minutes of the meeting and all the project documents as submitted by project proponent are available on Parivesh portal which can be accessed from the Parivesh portal by scanning the QR Code above.
5. Details of the project along with the salient features of the project as submitted by the project proponent in Form-2(Part A, B and C)/ EIA & EMP Report and as presented before SEAC are annexed to this EC as Annexure- 2.
6. This proposal conforms to the item no. 1(a)-'Mining of Minerals in the schedule of EIA Notification, 2006 as amended time to time, and the major mineral extraction project falls under Category BI as the mining lease area is  $\leq 250$ Ha.
7. The SEAC, after detailed deliberations made by the Project Proponent and the EIA Consultant, in its meeting held on 03.07.2024 under the provisions of EIA Notification 2006 and its subsequent amendments, recommended the proposal for grant of Environmental Clearance (EC), stipulating various conditions.
8. The matter was again examined in the State Environment Impact Assessment Authority (SEIAA), Odisha in its 177th meeting held on 28.10.2024 & 29.10.2024, recommendation of SEAC and in accordance with the EIA Notification, 2006 and further amendments thereto. After detailed deliberations, the Authority approved the grant of EC as proposed by SEAC with standard and specific conditions as mentioned below in Annexure-1
9. Environmental Clearance (EC) is granted to the project under the provisions of EIA Notification No. S.O. 1533 (E) dated the 14th September, 2006 of the Government of India in the erstwhile Ministry of Environment and Forests, as amended from time to time for proposed mining of Iron Ore from Netrabandha Pahar (West) Iron Ore Block(ML Area- 74.370Ha.) for Production of 1.0 MTPA Iron Ore with 750 TPH Crushing Unit and 600 TPH Screening Unit Located in Village -Baladihi & Samua, Tahasil - Koira, District-Sundargarh by M/s Raga Tradecon Pvt. Ltd." with the following stipulations, environmental conditions and safeguards as given in Annexure- I.
10. The Validity of EC shall be coterminous with lease period as per the lease deed executed with Govt. of Odisha.
10. The SEIAA, Odisha reserves the right to alter /modify the above conditions or stipulate any further condition in the interest of environment protection.
11. The Environmental Clearance to the aforementioned project is under provisions of EIA Notification, 2006. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.
12. The PP is under obligation to implement commitments made in the Environment Management Plan, which forms part of this EC.
13. This issue with an approval of the Competent Authority.

#### **Copy To**

1. Joint Secretary (IA Division), Ministry of Environment, Forests and Climate Change Govt. of India, Indira Paryavaran Bhavan, Jor Bagh Road, Aliganj, New Delhi-110003 for information.
2. Additional Chief Secretary, Forests & Environment Dept., Government of Odisha for information.
3. Additional Secretary to Govt, Steel & Mines Department, Government of Odisha for information.
4. Member Secretary, State Pollution Control Board, Odisha, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit-8, Bhubaneswar for information.
5. Additional Principal Conservator of Forests, Regional Office (RO), Ministry of Environment & Forests, A/3, Chandrasekharpur, Bhubaneswar for information.
6. Regional Director, CGWA, South Eastern Region, Bhujal Bhawan, Khandagiri, Bhubaneswar, Pin-751030.
7. The Director of Mines, Odisha, Bhubaneswar/DDM,Koira for information and necessary action.
8. Collector & DM, Sundargarh, District-Sundargarh for Information and necessary action.
9. Guard file for record/Website/Parivesh Portal.

**Annexure I**

#### **Specific EC Conditions for (Mining Of Minerals)**

##### **I. Specific Conditions**



S. No	EC Conditions
1.1	Some portions of the lease area belong to the Scheduled Tribes. No mining activity shall be carried out in the said tribal land as per undertaking submitted. Revised mining plan indicating exclusion of the mining lease area inhabited by the scheduled tribes from all the mining activities inter-alia including routes of mined ore transportation needs to be approved by the competent authority.
1.2	Scientific study for stability of benches and dump slopes; and blast vibration shall be conducted as per the above-mentioned revised approved mining plan which needs to be done by the competent agencies.
1.3	NOC/permission shall be obtained from Department of Water Resources, Odisha for groundwater withdrawal.
1.4	The project proponent shall maintain adequate greenbelt in the lease area.
1.5	OB dump sites shall be managed properly as proposed.
1.6	The fines generated due to mining shall be managed properly.
1.7	Proper Air Pollution Control measures shall be provided to control dust emission and local dust generation.
1.8	Both dust suppression and extraction system shall be provided in the crushing and screening units to control fugitive emission.
1.9	The project proponent shall obtain permission from the concerned authority for usage of ground water.
1.10	Adequate measures shall be adopted for management of noise, vibration and fly rocks as per the DGMS guidelines.
1.11	Bench and dump slopes are to be designed and maintained so that their failure is avoided.
1.12	Permission from Water Resources dept. to be taken for usage of ground water.
1.13	Rainwater harvesting structures as submitted in the proposal shall be constructed and maintained. The surface runoff generated during monsoon shall not be discharged outside.
1.14	The lessee shall take adequate safeguard measures to ensure the free flow of the nallahs.
1.15	The EC is limited to secondary crushing and screening operations (dry process) as per approved mining plan. Under no circumstances, the lessee shall carry out any beneficiation activity (wet process) of low-grade ore.
1.16	The PP shall comply all action plans made for public hearing concerns and make regular maintenance and record the progressive activity outcomes.
1.17	The EMP shall be implemented in a time bound manner with a budget allocation of Rs. 562.00 lakhs as capital cost and Rs. 99.9Lakhs/year as recurring cost. The adoption of mitigation

S. No	EC Conditions
	measures and monitoring of the same as proposed in the EMP shall be done under the supervision of the qualified environmental personnel. The implementation status of the same shall be submitted to the Ministry's Integrated Regional Office as a part of six-monthly compliance report.
1.18	The proponent shall comply all the specific conditions as recommended by CSIR-NEERI on carrying capacity study (as applicable) & other specific conditions in time bound manner as applicable for the project.

**Standard EC Conditions for (Mining of minerals)**

**1. Statutory Compliance**

S. No	EC Conditions
1.1	This Environmental Clearance (EC) is subject to orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
1.2	The Project proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors before commencing the mining operations.
1.3	The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors.
1.4	The Project Proponent shall follow the mitigation measures provided in MoEFCC's Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area".
1.5	A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any, from whom suggestion / representation has been received while processing the proposal.
1.6	State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tehsildar's Office for 30 days.
1.7	The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and web site of the Ministry of Environment, Forest and Climate Change ( <a href="http://www.parivesh.nic.in">www.parivesh.nic.in</a> ). A copy of the advertisement may be forwarded to the concerned Regional Office, MoEFCC for compliance and record.
1.8	The Project Proponent shall inform the MoEF&CC for any change in ownership of the mining



S. No	EC Conditions
	lease. In case there is any change in ownership or mining lease is transferred, PP needs to apply for transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.

## 2. Air Quality Monitoring And Preservation

S. No	EC Conditions
2.1	The Project Proponent shall monitor critical parameters, relevant for mining operations, of air pollution viz. PM <sub>10</sub> , PM <sub>2.5</sub> , NO <sub>2</sub> , CO and SO <sub>2</sub> etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20-90/PCI/I, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main gate of the mine site
2.2	Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM <sub>10</sub> and PM <sub>2.5</sub> are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEFCC/ Central Pollution Control Board.
2.3	Both dust suppression and extraction system shall be provided in the crushing and screening units to control fugitive emission.

## 3. Water Quality Monitoring And Preservation

S. No	EC Conditions
3.1	In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and SEIAA, Odisha is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.
3.2	Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.
3.3	The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease including upstream and downstream. Sufficient number of gullies shall be provided at appropriate places within the lease



S. No	EC Conditions
	for management of water. The parameters to be monitored shall include their water quality vis-à-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/or alteration be made to water bodies during mining operations without justification and prior approval of MoEFCC. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly basis.
3.4	Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off, acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J- 20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.
3.5	Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEFCC annually.
3.6	Industrial waste water (workshop and waste water from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.
3.7	The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF&CC and State Pollution Control Board/Committee.
3.8	De-silting of agricultural lands in buffer zone and beyond including nearby Nalas/rivers perennially periodically and perpetually caused due to wash up of minerals/OB/dumps shall be done as per SOP submitted. Retaining wall shall be constructed to ensure that no silt after wash up is escaped from the core / buffer zone of the mines.

#### 4. Noise And Vibration Monitoring And Prevention

S. No	EC Conditions
4.1	The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.
4.2	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed

S. No	EC Conditions
	limits for day /night hours.
4.3	The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.

#### 5. Mining Plan

S. No	EC Conditions
5.1	The Project Proponent shall adhere to approved mining plan, inter alia, including, total excavation (quantum of mineral, waste, over burden, inter burden and top soil etc.); mining technology; lease area; scope of working ( method of mining, overburden & dump management, O.B& dump mining, mineral transportation mode, ultimate depth of mining, concurrent reclamation and reclamation at mine closure; land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life; etc.).
5.2	The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-à-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEFCC and its concerned Regional Office.
5.3	The Project Proponent shall get the Final Mine Closure Plan along with Financial Assurance approved from Indian Bureau of Mines/Department of Mining & Geology as required under the Provision of the MMDR Act, 1957 and Rules/ Guidelines made there under. A copy of approved final mine closure plan shall be submitted within 2 months of the approval of the same from the competent authority to the concerned Regional Office of the Ministry of Environment, Forest and Climate Change for record and verification.

#### 6. Land Reclamation

S. No	EC Conditions
6.1	The Overburden (O.B.), waste and topsoil generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB / waste dumps / topsoil dump like height, width and angle of slope shall be governed as per the approved Mining Plan and the guidelines/circulars issued by D.G.M.S. The topsoil shall be used for land reclamation and plantation.
6.2	The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/



S. No	EC Conditions
	leveling of dump mass. In critical areas, use of geo textiles/ geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.
6.3	Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallal/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.
6.4	Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.
6.5	The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.

## 7. Transportation

S. No	EC Conditions
7.1	No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a 'bypass' road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers. [If applicable in case of road transport].
7.2	The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.
7.3	Traffic management shall be done as per recommendation of Traffic Management Study Report.



## 8. Green Belt

S. No	EC Conditions
8.1	The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.
8.2	The PP shall plant "Ek Ped Maa Ke Naam" and the plantation shall be carried out in the earmarked greenbelt area as a part of tree plantation campaign and the details of the same shall be uploaded in the MeriLiFE Portal ( <a href="https://merilife.nic.in">https://merilife.nic.in</a> ).
8.3	The Project Proponent shall make the actual count on the saplings planted and its survival rate and in case of failure of achievement of 95% survival rate, action plan for achieving the target survival rate shall be submitted to the Ministry's Regional Office.
8.4	The Project Proponent needs to complete the entire peripheral plantation under green belt, safety barrier plantation and gap plantation within three years from the start of mining operations. The PP should plant quality saplings of appropriate height of native and fruit bearing species. Plantation shall be undertaken in consultation with the State Forest Dept. PP needs to undertake the adequate bench plantation and on the terrace of the waste dumps to prevent the soil erosion.

## 9.

S. No	EC Conditions
9.1	The Project Proponent shall carryout plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of trees.
9.2	The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.
9.3	The Project Proponent shall undertake all precautionary measures for conservation and protection of endangered flora and fauna and Schedule-I species during mining operation. A Wildlife Conservation Plan shall be prepared for the same clearly delineating action to be taken for conservation of flora and fauna. The Plan shall be approved by Chief Wild Life Warden of the State Govt and implemented in consultation with the State Forest and Wildlife Department. A copy of Wildlife Conservation Plan and its implementation status (annual) shall be submitted to the Regional Office of the Ministry.

#### 10. Public Hearing And Human Health Issues

S. No	EC Conditions
10.1	Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.

#### 11. Corporate Environment Responsibility (Cer)

S. No	EC Conditions
11.1	The Project Proponent shall submit the time- bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEF&CC Office Memorandum No.22-65/2017-IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.
11.2	The activities proposed in action plan prepared for addressing the issues raised during the Public Hearing shall be completed as per the budgetary provisions mentioned in the action plan and within the stipulated time frame. The status report on implementation of action plan shall be submitted to the concerned Regional Office of the Ministry along with District Administration.
11.3	Project Proponent shall keep the funds earmarked for environmental protection measures in a separate account and refrain from diverting the same for other purposes. The Year wise expenditure of such funds should be reported to the RO, Bhubaneswar, MoEF&CC, OSPCB & SEIAA, Odisha.

#### 12. Miscellaneous

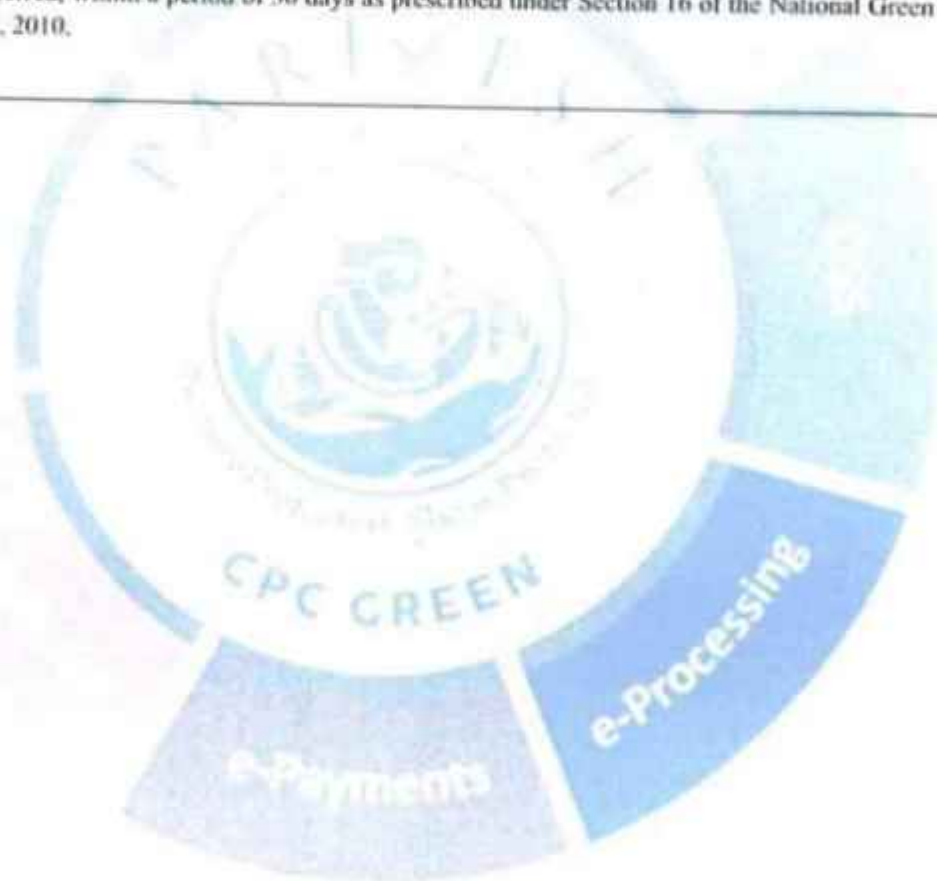
S. No	EC Conditions
12.1	The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF&CC.
12.2	The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
12.3	The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MOEFCC & its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.
12.4	A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the



S. No	EC Conditions
	Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC.
12.5	The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data / information / monitoring reports.
12.6	In pursuant to Ministry's O.M No 22-34/2018-IA.III dated 16.01.2020 to comply with the direction made by Hon'ble Supreme Court on 8.01.2020 in W.P. (Civil) No 114/2014 in the matter Common Cause vs Union of India, the mining lease holder shall after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to other mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
12.7	The project proponent shall augment infrastructure on drinking water, health care and education in nearby villages as per time bound action plan submitted.
12.8	The project proponent shall obtain permission from DGMS under 106(2b) to carry out blasting operation within the lease area.
12.9	It shall be mandatory for the project management to submit six (06) monthly compliance reports on post environmental monitoring in respect of the stipulated terms and conditions in this Environmental Clearance to the State Environment Impact Assessment Authority (SEIAA), Odisha, SPCB & Integrated Regional Office of the Ministry of Environment & Forest, Odisha, the respective Zonal Office of CPCB and the SPCB in soft copies on 1st June and 1st December of each calendar year. No hard copy of six (06) monthly compliance reports shall be accepted by SEIAA. The proponent shall upload the compliance report including results of monitored data, as applicable in the Parivesh website of the Ministry for monitoring of EC Conditions, failing which EC is liable to be revoked.
12.10	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the Odisha 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 EC conditions and shall also be sent to the respective to the concerned Regional Office(RO), Bhubaneswar of MoEF&CC, GoI, Central Pollution Control Board and State Pollution Control Board.
12.11	The proponent shall submit/upload six monthly reports on the status of compliance of the stipulated 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 MoEF&CC, Govt. of India, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM, SO <sub>2</sub> , NO <sub>x</sub> (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.
12.12	The SEIAA, Odisha may revoke or suspend the EC, if implementation of any of the above stipulated conditions is not satisfactory. The SEIAA, Odisha reserves the right to alter /modify the



S. No	EC Conditions
	above conditions or stipulate any further condition in the interest of environment protection.
12.13	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 and any other Court of Law relating to the subject matter.
12.14	This Environmental Clearance (EC) is subject to orders/judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
12.15	Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.



**Proposal in Brief:**

- I. The highlights of the proposal as ascertained from the application and as revealed from proceedings/discussion held during the meeting of SEAC/SEIAA, are given as under:
  - (i) This is a proposal of M/s Raga Tradecon Pvt. Ltd. for Environmental Clearance of proposed mining of Iron Ore from Netrabandha Pahar (West) Iron Ore Block (ML Area-74,370Ha.) for Production of 1.0 MTPA Iron Ore with 750 TPH Crushing Unit and 600 TPH Screening Unit Located in Village -Baladihi & Sanna, Tahasil - Koira, District-Sundergarh filed by Sri. Sangram Keshari Ray, Vice President.
  - (ii) Category: As per the EIA notification 2006, and its subsequent amendments, proposed project falls in category B under schedule of Item 1(a) - Mining of Minerals.
  - (iii) Location and Connectivity – The proposed project is located at Plot No. 41,102/3,19/557/P,16/P,103/P,106/P,544/P,15/P,15/577/P, 15/578/P, 13/546/P, 16/556/P, 18/P, 20/P, 19/P, 19/P, 61/P, 41/696, 41/699, 40/P, 39/P,38/P, 37/P, 36/P, 34/P, 35/P, 44/P, 57/P, 60, 59, 55, 46, 46/700, 47, 56, 58/P, 54/P, 48, 49, 50/P, 50/697, 50/701, 51/P, 45/P in Village – Baladihi & Sanna, Tahasil- Koira, Dist- Sundergarh bounded by Geo-coordinates: Latitude: 21° 52' 20.13448" N to 21° 53' 01.24710" N Longitude: 85° 16' 46.84900" E to 85° 17' 15.901" E bearing Toposheet no:F45N5 and Kisam of land: Non Forest 8.128 Ha., Forest: 66.242Ha. Nearest distance of approach road is Patmunda DMF Road 500 m; SH:SH-10A, 31 km; NH:NH-520, 7 km; Airport : Veer Surendra Sai Airport, Jharsuguda, 127 km; Railway Station: Barsuan Railway Station 30 km. Nearest nalas is Teherei nala with 2 km, nearest River is Karo River 8.2 Km &Suna Nadi is 7.89 Km. Nearest Reserve forest: Khajuridihi RF & Mendhamuruni RF are the nearest RF 2.5km & 2.04 Km respectively; Nearest Habitation.: Beldihi, 0.2 km. Similipal National Park is 82 Km &Hadagarh WLS is 112 Km away from the lease area.
  - (iv) Letter of Intent was issued to M/s Raga Tradecon Pvt Ltd for grant of Mining Lease for a period of 50 years vide letter no 8722/IV(B)SM-53/2021 dt 28.10.2021 subject to abiding of all rules and regulations.
  - (v) TOR details: Terms of Reference was issued by SEIAA vide letter no. - 4917/SEIAA, Dated 19.07.2022.
  - (vi) Details of statutory clearances:
    - Mining Plan: Approved vide No. MCDR-MiFLOFE/42/2023-BBS-IBM\_RO\_BBS Dated 12/06/2023.
    - Forest Clearance: Stage-I Forest Clearance accorded vide File No. 8-14/2023-FC Dated.21.12.2023.
    - Site Specific Wildlife Conservation Plan: Approved vide 13789/CWLW-PDWC-FD-0013-2023 dated 22.12.2023.
    - NOC Ground Water from CGWA: Obtained from CGWA, vide letter no. CGWA/ NOC/ MIN/ ORIG/ 2023/ 18227, dated 17.04.2023 valid till 16.04.2025.
    - Forest land is involved, total forest land is 66.242 Ha. Stage-I Clearance has been obtained over 66.242 ha vide File No. no-8-14/2023- FC dated 21.12.2023.
  - (vii) Public Hearing Details: The Public Hearing advertisement was published on 11.10.2022 and conducted on 10.11.2022 at Khajuridihi Chhak. 141 people were participated in the PH process. Sundergarh ADM presided over the Hearing. Issues raised during public hearing were on Pollution Control, Tree transplantation, avenue plantation, dust pollution, revival of nalas and streams, ground vibration,local employment , manual labour, Scolarship on merriit basis, appointment of teacher, Plantation of Fruit bearing trees, Agricultural development, Drinking Water, Bore well , drinking water , Electricity, Irrigation, Education, Adoption of village, SHG women empowerment, drinking water and telecommunication. The budget incurred for action plan of public hearing is 60 lakhs.

(viii) Summary of products generated by the project-

Units	Products & Biproducts	Existing	Additional	After Expansion
MTPA	Iron Ore	1.0 MTPA	-	-

Year wise Production Details

Sl No	Year	ROM in T	Mineral Rejects	OB/Ore Ratio	Average Grade
1	Year 1	400000	0	0.33	61.09
2	Year 2	450000	0	0.19	61.09
3	Year 3	600000	0	0.22	61.09
4	Year 4	800000	0	0.78	61.09
5	Year 5	1000000	0	0.67	61.09
Total		3250000			

(ix) Method of Mining: Open Cast Mining is proposed for the project with bench height-10 m, width- 15m, slope- 37°. Ground Water Depth is at 540 mRL, Pre-monsoon 3m to 7.5m bgl.

Sl. No.	Type	Make	Capacity	No. of Equipment
1	Excavator	Hitachi	2.0	3+1
		Volvo	2.0	3+1
2	Excavator for plant feeding	Komatsu	0.9	5+1
3	loader	SDLG	3.0	2
		Liugong	2.5	3
		Cat	4.5	2+1
4	DTH	Sandvik (D1550)	110mm Dia	2+1
5	Dumper	Volvo	25MT	18+6
6	Water tanker	Volvo	20000 Litre	2
7	Mobile Crushing unit	SANDVIK/METSO	250 TPH	1
			150TPH	1 (Stand by)
	Fix Crushing unit	SANDVIK /METSO	350TPH	1
8	Mobile Screen plant	SANDVIK/METSO/	250TPH	1
		Horizon	200TPH	1
		SANDVIK/METSO/	150TPH	1
		Horizon		1
9	Dozer	Cat	264 HP	2



10	Grader	Komatsu 705	260 HP	1
11	Rock Breaker	Hitachi	25Mt	1
12	Ambulance	---	---	1
13	Staff bus	Force	---	1
14	Camper	Mahindra	---	2
15	Bolero	Mahindra	---	4

- (x) Details of Drilling & Blasting: DTH drill will be engaged for drilling, the diameter of the hole will be 110mm, drilling depth 10m, wet drilling will be adopted with dust extraction system. Control blasting method will be adopted by using non-electric (NONEL) with delay detonator.
- (xi) Number of Topsoil Dumps: As the litho units are lateritic, BHI & Iron ore as per approved mining plan, no topsoil will be generated, however during mining operation whatever topsoil to be generated will be stacked separately at ear marked site.
- (xii) Waste Generation: During the plan period 463574 cum of waste will be generated, out of which 40 % i.e., 185429.6 cum of waste will be utilized for road maintenance, remaining 60% i.e. 278144.4 cum of waste disposed off at the proposed earmarked site of waste dump. The area of dumping will be 3.22 ha and the average height will be 22 m. During Conceptual period a total 2523905 cum of waste will be generated. Out of which 44310 cum of waste will be dumped over 7.867 Ha with an average height of 30m. Remaining 2479595 cum of back-filled over an area of 24.587 Ha with an average height of 20 m. There will be no mineral rejects during the plan period. The average grade of ROM to be produced during plan period is greater than 55% Fe. The mineral reject (45-55% Fe) to be generated during conceptual period will be blended with high grade iron ore to make it saleable. The material to be generated will be stacked at earmarked site temporarily for a short period and subsequently utilized for blending purposes & sale to beneficiation industries.

Year-wise Waste Generation and Disposal During plan period

Sl. No.	Year	Proposed Area (ha)	Height (m)	Total Dump Quantity (m³)	Utilisation of waste (cum)	
					Road maintenance	Dumping
1	Year1	0.87	3	26207	10482.8	15724.2
2	Year2	0.56	3	16792	6716.8	10075.2
3	Year3	1.33	3	39844	15937.6	23906.4
4	Year4	2.36	8	189005	75602	113403
5	Year5	1.92	10	191726	76690.4	115035.6
				463574	185429.6	278144.4

Conceptual generation of Mineral Reject and its utilization

Volume of waste generation during conceptual period (cum);	Management	Volume of waste (cum)	Area of dumping/Back-filling (m²)	Average Height (m)	Top RL
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2523905	Dumping	443100	44310	10	668m
	Back-filling-1	1003680	116684	20	650m
	Back-filling-2	518400	90920	20	610m
	Back-filling -3	558725	38269	20	650m
Total		2523905	290183		

(xiii) Details of crushers/ screen/beneficiation plant: 750 TPH Crushing & 600 Screening and no beneficiation is proposed.

(xiv) Land use details:

Sl. No.	Head	At present (Ha)	At the end of SOM Period Ha.	At the end of conceptual period (Ha.)
a)	Mining	0	8.3	43.82
b)	Over burden/Dump	0	3.22	
c)	Mineral Storage (Ore stack yard & Mineral Reject Stack	0	7.09	18.56
d)	Infrastructure (Office, Workshop, Weigh Bridge, Parking Plaza, fuel Station, Mobile crusher, Traffic control room etc.)	0	0	0
e)	Road	0	5.49	4.63
f)	Mineral separation plant (crushing unit)	0	4.59	
g)	Green Belt (safety Zone)	0	7.35	7.35
h)	Water Body	0	0	0
i)	Un-disturbed	74.37	38.23	0
j)	Others	0	0.1	0
	Total	74.37	74.37	74.37

(xv) Details of waste generated. 463574 CUM of waste will be generated in the plan period.

(xvi) Mitigation of waste produced: During the plan period 463574 cum of waste will be generated, out of which 40% i.e., 185429.6 cum of waste will be utilized for road maintenance, remaining 60% i.e. 278144.4 cum of waste disposed off at the proposed earmarked site of waste dump. The area of dumping will be 3.22 ha and the average height will be 22 m. During Conceptual period a total 2523905 cum of waste will be generated. Out of which 44310 cum of waste will be dumped over 7.867 Ha with an average height of 30m. Remaining 2479595 cum of backfilled over an area of 24.587 Ha with an average height if 20 m.

(xvii) Other Waste Generation: Hazardous waste, E-Waste, battery waste will be managed as per their handling rules. Domestic solid waste will be utilized as green manure.

(xviii) Baseline details: Baseline study was conducted during the time Period from 1st March 2022 to 31<sup>st</sup> May 2022.

(xix) Total water requirement and wastewater management: Total, 112 KLD of water will be required out of which Fresh Water 62 KLD, RWH 38 KLD. 12 KLD water will be recycled from ETP & STP will be utilized in dust suppression, in process and in green belt.



Components	From Ground Water in KLD	Recycle water Generation from STP & ETP	From RWH in KLD	From STP & ETP in KLD	Total Usage in KLD
Dust Suppression	40	0	30	4.04	74.04
Green Belt	5	0	8	4	17
Industrial	5	5.04	0	4	9
Domestic	12	7	0	0	12
Total	62	12.04	38	12.04	112.04

(xx) Power Requirement and solar power details: 300 KVA from state Grid & 30 KVA of Solar Power to be installed. 300 KVA DG set will be kept as standby during emergency backup.

(xxi) Rainwater Harvesting Details – 38 KLD of water will be consumed from RWH Pond during lean period. There will be 2 RWH Pond with dimension 50m x 45m x 5m capacity=11250 cum and another dimension 40m x 30m x 5m capacity= 6000 cum RWH with total capacity of 17250 cum. Roof Top Harvesting & GW recharge is 1326 cum/annum.

(xxii) Green belt Development: 7.35 Safety Zone with green belt, gap of 2000 saplings, around 700 saplings will be planted in vacant place along approach road, office & screening & crushing plant.

(xxiii) Employment: 188 persons with direct employment and more than 150 persons indirect employment is proposed.

(xxiv) Project cost: Total cost of the project is 6000 Lakhs with EMP capital cost is 562 Lakhs and recurring cost 99.9 lakhs while CSR Cost is 60 Lakhs.

Sl. No.	Particulars	Capital Cost in Lakhs	Recurring Cost In Lakhs/ Annum
1	Air Pollution Control	90	25
a)	Truck mounted water tankers - 2 nos.		
b)	Maintenance of Vehicle Wheel wash system		
c)	Installation of fixed Water Sprinklers at haul roads		
d)	Dry fog system in Crushing & Screen plant		
e)	Mechanized vacuum cleaner	25.0	1.6
f)	Water soluble soil binders		2
g)	Online continuous air monitoring	140	2
2	WATER POLLUTION CONTROL		
a)	Construction of garland drains retaining wall with settling pits	80.0	6
b)	Rain water harvesting Pond/Pits	70.0	3



Sl. No.	Particulars	Capital Cost in Lakhs	Recurring Cost In Lakhs/ Annum
c)	De-silting & regular cleaning of nallas/ streams	10	3
d)	STP	50.0	3
e)	ETP	30.0	2
f)	Wheel wash System	25.0	3.5
3	NOISE POLLUTION CONTROL	5.0	0.8
a)	PPE		
b)	Stack for DG set		
4	ENVIRONMENT MONITORING	-	36
5	GREEN BELT DEVELOPMENT	30.0	6
6	OCCUPATIONAL HEALTH MANAGEMENT	7.0	6
TOTAL		562.0	99.9

(xxv) Environment Consultant: The Environment consultant M/s OCEAO-Enviro Management Solutions (INDIA) PVT. LTD. along with the proponent made a presentation on the proposal before the Committee on 13.03.2024.

(xxvi) The SEAC in its meeting held on dated 13.03.2024 decided to take decision on the proposal after receipt of the following information / documents from the proponent:

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent	Views of SEAC
	Copy of Stage-I Forest Clearance obtained.	Copy of Stage-I Forest Clearance Attached as Annexure I.	In principle under section 2 FC has been obtained.
	Some portions of the lease area belong to the Scheduled tribes. The PP shall submit an undertaking that no mining activity will be carried out in the said tribal land. Further the same shall be demarcated in the Mining plan.	An undertaking has been given in Annexure II.	Undertaking for the given ADS is attached.
	Layout showing Garland drain, checks dams and retaining wall in the lease area to be submitted.	Layout showing Garland drain, checks dams and retaining wall in the lease area is submitted in Annexure III.	Annexure III attached and complied.
	As the lease area is in a terrain, the PP shall submit a plan for slope study for dump management. Further, an undertaking shall be submitted for carrying out blasting and vibration study before commencement of mining activity.	Undertaking given for slope study, for dump management & undertaking for carrying out blasting and vibration study as Annexure IV.	Undertaking submitted by PP that slope study for dump management and blast vibration study will be conducted after initiation of mining operation.

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent	Views of SEAC
	NOC/permission to be obtained from Department of Water Resources, Odisha for groundwater withdrawal.	Undertaking given for obtaining permission from Department of Water Resources, Odisha for ground water withdrawal given as Annexure-V.	The PP has submitted undertaking to comply to the terms of NOC for ground water withdrawal before starting mining operation. However, the NOC/permission from Department of Water Resources, Odisha for groundwater withdrawal is not obtained.
	Detailed note on dust management during crushing and screening process.	A note on dust management is given as Annexure VI.	Annexure VI attached.
	The PP has not finalized the transportation route for minerals as mentioned during presentation. The PP needs to submit the transportation route with supporting documents like MoU/agreement with the private owners/Copy of RoR for the approach/transportation road. If the transportation route falls in the land belonging to Scheduled Tribes, then proper arrangement shall be made as per the norms and an undertaking shall be submitted.	The transportation route for minerals with supporting documents like MoU/agreement with the private owners/Copy of RoR is given as Annexure-VII.	Annexure VII is attached.
	The PP has decided to install 600 TPH screening unit which might be insufficient for the enhanced production capacity.	The configuration of 600 TPH screening is given as Annexure-VIII.	Annexure VIII is attached.
	Compliance to NEERI recommendations.	Compliance to NEERI recommendations is given as Annexure IX.	Annexure IX is attached.

(xxvii) Any deficiencies/omission have been noticed in the above documents- Nil

2. **Whether SEAC recommended the proposal:** – Yes. The proposal was placed in the SEAC meeting held on 03.07.2024 and the Considering the information furnished and the presentation made by the consultant M/s Oceao-Enviro Management Solutions (India) Pvt. Ltd. along with the project proponent, the SEAC recommended for grant of Environmental Clearance with stipulated conditions as per Annexure-C and following specific conditions:

- Some portions of the lease area belong to the Scheduled Tribes. No mining activity shall be carried out in the said tribal land as per undertaking submitted. Revised mining plan indicating exclusion of the mining lease area inhabited by the scheduled tribes from all the mining activities inter alia including routes of mined ore transportation needs to be approved by the competent authority.
- Scientific study for stability of benches and dump slopes; and blast vibration shall be conducted as per the above-mentioned revised approved mining plan which needs to be done by the competent agencies.



- iii) NOC/permission shall be obtained from Department of Water Resources, Odisha for groundwater withdrawal.
  - iv) The project proponent shall maintain adequate greenbelt in the lease area.
  - v) OB dump sites shall be managed properly as proposed.
  - vi) The fines generated due to mining shall be managed properly.
  - vii) Proper Air Pollution Control measures shall be provided to control dust emission and local dust generation.
  - viii) Both dust suppression and extraction system shall be provided in the crushing and screening units to control fugitive emission.
  - ix) The project proponent shall obtain permission from the concerned authority for usage of ground water.
  - x) Adequate measures shall be adopted for management of noise, vibration and fly rocks as per the DGMS guidelines.
  - xi) Bench and dump slopes are to be designed and maintained so that their failure is avoided.
  - xii) Permission from Water Resources dept. to be taken for usage of ground water.
  - xiii) Rainwater harvesting structures as submitted in the proposal shall be constructed and maintained. The surface runoff generated during monsoon shall not be discharged outside.
  - xiv) The lessee shall take adequate safeguard measures to ensure the free flow of the nallahs.
  - xv) The EC is limited to secondary crushing and screening operations (dry process) as per approved mining plan. Under no circumstances, the lessee shall carry out any beneficiation activity (wet process) of low-grade ore.
3. **Decision of Authority:-** The proposal was placed in the 177<sup>th</sup> meeting of SEIAA held on 28.10.2024 & 29.10.2024 for consideration of EC. After detailed deliberations, the Authority approved the grant of EC as proposed by SEAC with standard and specific conditions and additional conditions as follows:
- (i) Some portions of the lease area belong to the Scheduled Tribes. No mining activity shall be carried out in the said tribal land as per undertaking submitted. Revised mining plan indicating exclusion of the mining lease area inhabited by the scheduled tribes from all the mining activities inter alia including routes of mined ore transportation needs to be approved by the competent authority.
  - (ii) Scientific study for stability of benches and dump slopes; and blast vibration shall be conducted as per the above-mentioned revised approved mining plan which needs to be done by the competent agencies.
  - (iii) NOC/permission shall be obtained from Department of Water Resources, Odisha for groundwater withdrawal.
  - (iv) The project proponent shall maintain adequate greenbelt in the lease area.
  - (v) OB dump sites shall be managed properly as proposed.
  - (vi) The fines generated due to mining shall be managed properly.
  - (vii) Proper Air Pollution Control measures shall be provided to control dust emission and local dust generation.
  - (viii) Both dust suppression and extraction system shall be provided in the crushing and screening units to control fugitive emission.
  - (ix) The project proponent shall obtain permission from the concerned authority for usage of ground water.
  - (x) Adequate measures shall be adopted for management of noise, vibration and fly rocks as per the DGMS guidelines.
  - (xi) Bench and dump slopes are to be designed and maintained so that their failure is avoided.
  - (xii) Permission from Water Resources dept. to be taken for usage of ground water.
  - (xiii) Rainwater harvesting structures as submitted in the proposal shall be constructed and maintained. The surface runoff generated during monsoon shall not be discharged outside.
  - (xiv) The lessee shall take adequate safeguard measures to ensure the free flow of the nallahs.
  - (xv) The EC is limited to secondary crushing and screening operations (dry process) as per approved mining plan. Under no circumstances, the lessee shall carry out any beneficiation activity (wet process) of low-grade ore.





# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN: S1420MH1995PTC162317

Vill. Baldihi, Ps. Koirā, Dist. Sundargarh, Odisha, 770048

E-Mail: [raga@tradeconminerals@gmail.com](mailto:raga@tradeconminerals@gmail.com)

GSTIN: 21AAUCR442801Z

ANNEXURE-43

CONDITION NO.: 34

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake that no labour camp shall be established on forest land within the Mining Lease and to provide free electricity with induction heaters to the staff working at the site so as to avoid damage and pressure on the adjacent forest areas.

For M/s Raga Tradecon Private Ltd

Raga Tradecon Pvt. Ltd.

(Sangram Keshari Ray)

Authorized signatory









# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN:51420MH1995PTC182317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [raga@tradeconminerals@gmail.com](mailto:raga@tradeconminerals@gmail.com)

GSTIN: 21AAACR442901Z/W

ANNEXURE-45

CONDITION NO.: 36

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake that the layout plan of the mining plan/ proposal shall not be changed without the prior approval of the Central Government and the forest land shall not be used for any purpose other than that specified in the proposal.

For M/s Raga Tradecon Private Ltd

**Raga Tradecon Pvt. Ltd.**

(Sangram Keshari Ray) **Authorized Signatory**

Authorized signatory



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN:51420MH1995PTC162317

Vill. Baldili, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [raga@tradeconminerals@gmail.com](mailto:raga@tradeconminerals@gmail.com)

GSTIN: 21AAACCR4429017W

ANNEXURE-46

CONDITION NO.: 37

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake that the forest land proposed to be diverted shall under no circumstances be transferred to any other agency, department or person without prior approval of the Central Government.

For M/s Raga Tradecon Private Ltd

Raga Tradecon Pvt. Ltd.

(Sangram Keshari Ray)

Authorized signatory



**RAGA TRADECON PRIVATE LIMITED**  
**NETRABANDHA (WEST) IRON ORE MINES**

CIN:51420MH1985PTC167317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR42901ZW

**ANNEXURE-47**

**CONDITION NO.: 38**

**UNDERTAKING**

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake that no damage to the flora and fauna of the adjoining area shall be caused.

For M/s Raga Tradecon Private Ltd

**Raga Tradecon Pvt. Ltd.**

(Sangram Keshari Ray) **Authorized Signatory**

Authorized signatory





**RAGA TRADECON PRIVATE LIMITED**  
**NETRABANDHA (WEST) IRON ORE MINES**

CIN-53420MH1995PTC102317

VIII, Baldih, Ps. Koira, Dist. Sundargarh, Odisha, 770048  
E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)  
GSTIN: 21AAACR442901ZW

**ANNEXURE-48**

**CONDITION NO.: 39**

**UNDERTAKING**

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake to comply with any additional conditions stipulated by the concerned Regional Office of this Ministry, with the approval of the competent authority, in the interest of the conservation, protection, and development of forests and wildlife.

For M/s Raga Tradecon Private Ltd

**Raga Tradecon Pvt. Ltd.**

(Sangram Keshari Ray)  
**Authorized Signatory**

Authorized signatory



**RAGA TRADECON PRIVATE LIMITED**  
**NETRABANDHA (WEST) IRON ORE MINES**

CRL/51420MH/1995PTC/162317

Vill. Baldih, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GTIN: ZJAACCR442901ZW

**ANNEXURE-49**

**CONDITION NO.: 40**

**UNDERTAKING**

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake that to comply with all applicable provisions of Acts, Rules, Regulations, Guidelines, and Orders of the Hon'ble Courts and the National Green Tribunal (NGT) relevant to this project, as in force.

For M/s ~~Raga Tradecon Pvt. Ltd~~ Raga Tradecon Private Ltd

**Authorised Signatory**  
(Sangram Keshari Ray)

Authorized signatory



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN:51420MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AACCR4429D1ZW

ANNEXURE-50

CONDITION NO.: 41

### UNDERTAKING

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake that any violation of these conditions will constitute a violation of the Forest (Conservation) Act, 1980 and agree to abide by the actions prescribed in para 1.21 of Chapter 1 of the Handbook of Comprehensive Guidelines of the Forest. (Conservation) Act, 1980, as issued by the Ministry's letter No. 5-2/2017-FC dated 28.03.2019.

For M/s Raga Tradecon Pvt. Ltd.  
For M/s Raga Tradecon Private Ltd

  
Authorized Signatory

(Sangram Keshari Ray)

Authorized signatory





**RAGA TRADECON PRIVATE LIMITED**  
**NETRABANDHA (WEST) IRON ORE MINES**

CIN-51420MH1955PTC162317

Vill. Baldih, Ps. Koira, Dist. Sundargarh, Odisha, 770048  
E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)  
GSTIN: 21AAACCR4429D1ZW

**ANNEXURE-51**

**CONDITION NO.: 12**

**UNDERTAKING**

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake to submit the annual self-compliance report in respect of the above stated conditions to the State Government, concerned Regional Office and to this Ministry by the end of March every year regularly.

For M/s Raga Tradecon Private Ltd

**Raga Tradecon PVT. LTD.**

(Sangram Keshari Ray) **Authorized Signatory**

Authorized signatory



**RAGA TRADECON PRIVATE LIMITED**  
**NETRABANDHA (WEST) IRON ORE MINES**

CIN:51420MH1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AAJCR442901ZW

**ANNEXURE-52**

**CONDITION NO.: 43**

**UNDERTAKING**

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Ltd, do hereby undertake to upload the compliance report on e-portal (<https://parivesh.nic.in/>).

For M/s Raga Tradecon Private Ltd

 **Raga Tradecon Pvt. Ltd.**

(Sangram Keshari Ray)

**Authorised Signatory**

Authorized signatory



# RAGA TRADECON PRIVATE LIMITED

## NETRABANDHA (WEST) IRON ORE MINES

CIN 51A20MM1995PTC162317

Vill. Baldihi, Ps. Koira, Dist. Sundargarh, Odisha, 770048

E-Mail: [ragatradeconminerals@gmail.com](mailto:ragatradeconminerals@gmail.com)

GSTIN: 21AAACR4429D1ZW

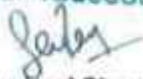
Condition No.22

### UNDERTAKING

Annexure-53

I, Sri Sangram Keshari Ray, Authorized signatory of M/s Raga Tradecon Private Limited, do hereby undertake to implement the interventions as mentioned in the approved Site Specific Wildlife Conservation Plan for the core zone under the guidance of DFO, Bonai Forest Division.

For M/s Raga Tradecon Pvt Ltd

  
Authorized Signatory